

SEEDS OF PERSISTENCE: AGROBIODIVERSITY, CULTURE, AND CONSERVATION
IN THE AMERICAN MOUNTAIN SOUTH

by

JAMES ROBERT VETETO

(Under the Direction of Robert E. Rhoades)

ABSTRACT

Little is known about the persistence or existence of agrobiodiversity in the American Mountain South, despite scientific recognition of the importance of constructing biodiversity inventories in marginal mountainous landscapes worldwide. After decades of research focusing on the utilitarian basis of agrobiodiversity persistence, recent studies in ethnoecology and other closely related disciplines have shifted to the investigation of cultural salience as an important primary causal factor in the agricultural decision making of local farmers to continue to main folk crop varieties. Both evaluation of agrobiodiversity inventories and analysis of farmer decision making are central to the promotion and conservation of *in situ* and *in vivo* seed saving and agrarian lifeways.

This research, through a combination of qualitative and quantitative methods, evaluates agrobiodiversity levels, agricultural decision making in the maintenance of folk crop varieties, and conservation practice and theory in the southern Appalachian and Ozark mountains. In fourteen months of fieldwork, oral history interviews and socioeconomic surveys were conducted with 60 growers and various conservation initiatives were studied and collaborated

with. Particular attention was placed on the role of culture in promoting agrobiodiversity persistence.

The results of this research indicate that the American Mountain South is home to some of the highest agrobiodiversity levels in North America and that Mountain South growers are maintaining diverse folk crop varieties for reasons that can be largely understood as cultural in nature. The importance of agrobiodiversity to distinctive regional foodways, the performance of cultural identity, and everyday occurrences and resistances in the face of modernity provide culturally salient motivations for gardeners and farmers to maintain regional agrobiodiversity. Various conservation initiatives in the Mountain South are, to different degrees, geared toward the promotion of cultural themes to complement genetic conservation. This research suggests that a continued and expanded conservation focus on cultural salience will have the greatest degree of success in supporting local *in vivo* seed saving.

INDEX WORDS: Agricultural Anthropology, Agrobiodiversity, Appalachian Studies, Cherokee Studies, Conservation, Ethnoecology, Farmer Decision Making, Mountain Anthropology, Ozark Studies

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DEDICATION

I would like to make two dedications on the occasion of the completion of this dissertation.

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CHAPTER 1

SITUATING THE SEEDS: THEORETICAL AND METHODOLOGICAL FRAMEWORK

1.1 Introduction

Culture has long been the central idea that American anthropology has formed, theoretically debated within itself, and given to the world as an academic and popular concept. Like many topics of anthropological theory (Nazarea 2006), the culture concept has undergone a process of formation, establishment, crisis, and re-formulation. From Tylor's oft-repeated initial definition in 1871¹ and Kroeber and Cluckhorn's (1952) compilation of over one hundred definitions in circulation circa 1950, to post-modern challenges to the validity of the concept itself in the 1980s and 90s (e.g. Clifford 1988, Abu-Lughod 1991, Friedman 1994, Appadurai 1996) and what today might be conceived of as uneasy truce; questions of culture and its manifestations, transformations, and constructions have continued to drive the discipline.

In ecological and environmental anthropology, the relationship between local agriculturalists and agricultural biodiversity has been a sustained topic of interest (e.g. Conklin 1954, Johnson 1974, Brush 2004). Ethnoecology, cultural ecology, agrarian ecology, and political ecology have been the prominent approaches within ecological/environmental anthropology that have engaged this topic, but have only been marginally examining the

¹ "that complex wholes which includes knowledge, belief, art, morals, custom, and any other capabilities and habits acquired by man as a member of society" (Tyler 1871:1)

complex links between agrobiodiversity² and culture until recently (Nazarea 2006, 2005, 1998; Perales et al. 2005, Brush 2005). More prominent—particularly within ethnoecology—has been the tendency to characterize farmer decision making regarding agrobiodiversity as being primarily guided by economic, agronomic, or ecological considerations. Sociocultural criteria for selecting and maintaining folk crop varieties³ has been seen as marginal and only affecting farmer decision making regarding agrobiodiversity in tangential ways. Recent work by Stephen Brush (2005) and others (e.g. Perales et al. 2005, Gonzales 2000) has suggested that culture is actually more than a mere residual factor in explaining the persistence of crop biodiversity. Yet, the difficulty of connecting culture—which seemingly defies quantification—directly to agrobiodiversity has been a limiting factor for researchers. Food, taste, and culinary traditions have been identified as the most promising salient cross-linkages. This research project attempts to investigate the connection between agrobiodiversity and culture—and specifically cultural salience as a primary causal variable in explaining the persistence⁴ of agrobiodiversity.

In addition to a general lack of consensus or understanding regarding the articulation of culture and agrobiodiversity in local agricultural systems, little is known about the persistence of

² Agrobiodiversity has been defined as, “the genetic variation existing among the species, breeds, cultivars and individuals of animal, plant, and microbial species that have been domesticated, often including their immediate wild relatives” (Heywood 1995:6). For purposes of this research the study of agrobiodiversity is limited to and refers to plant genetic resources for food and agriculture (PGRFA), but the term agrobiodiversity will be used because it has been well established in both academic and popular usage when referring to crop biodiversity (another synonym for PGRFA and used interchangeably with agrobiodiversity in this study).

³ Folk crop variety is a term used to describe cultivars that have developed in traditional agriculture systems for many years—sometimes for centuries or even millennia—by farmer-directed selection that is specifically adapted to local conditions. Folk crop varieties and populations are typically genetically heterogeneous (National Research Council 1991) and are often infused with deep cultural meanings and memories (Nazarea 1998). Terms used synonymously in this dissertation include heirloom variety, traditional variety/cultivar, and landrace. Folk crop varieties in this research are folk taxa (e.g. Berlin 1992), not necessarily limited or equivalent to genetically distinct landraces (though many are).

⁴ Nabhan et al. (2010) have suggested that to talk about the historical persistence of folk crop varieties, you need to have a documented historical benchmark to work from. Persistence in this study is not used in such a specific sense, instead taking multiple meanings: historical persistence (in the oral histories of local people, not from written historical documentation) and the very fact of persistence in the context of agricultural modernization and socio-economic conditions that threaten the continued maintenance of agrobiodiversity.

folk crop varieties in industrialized nations of the Global North. Significant research has demonstrated that agrobiodiversity levels are very high in areas of the Global South such as the Philippines (Nazarea-Sandoval 1995), the Andes (Zimmerer 1996), Mexico (Bellon 1991), Africa (Sperling and Scheidegger 1997), and the Middle East (Brush 2004). Outside of the American Southwest, where Native American communities have been studied extensively by anthropologists (e.g. Nabhan 1989, Soleri and Smith 1999, Soleri and Cleveland 1993), researchers have largely assumed (e.g. Fowler and Mooney 1990) that since modern regions in the US have few full-time farmers that they are not suitable for productive studies on agricultural biodiversity with very few exceptions (e.g. Southern Seed Legacy 2010, Nabhan 2008). It has largely been left up to seed saving enthusiasts and hobby gardeners to seek out, maintain, and occasionally document heirloom varieties in Global North nations (e.g. Whealy 2005, Weaver 1997). Compiling agrobiodiversity inventories has been identified as an urgent task and important research methodology for conservation in world mountain areas (Spehn and Körner 2009, Rhoades 2006), yet has never been attempted for Southern Appalachia or the Ozarks.

In addition to documenting agrobiodiversity levels and examining farmer decision making regarding folk crop varieties, a third concern for environmental anthropologists conducting research on the subject has been long-term conservation for the future benefit of rural communities. *Ex situ* strategies of collecting seeds around the world for storage in centrally located facilities prominent from the 1930s to the 1980s (Hammer 2003, Holden and Williams 1984) has given way since the 1990s to more contemporary *in situ* strategies that focus on supporting conservation programs in the fields of the farmers of the world (Brush 2000) or *in vivo* strategies “beyond design,” recognizing that seedsavers on the margins have been

maintaining agrobiodiversity from time immemorial and deserve our support but perhaps not our traditional scientific interventions in their everyday lives (Nazarea 2005).

This research has three primary objectives. First, it undertakes a comprehensive inventory of folk crop biodiversity in order to understand current levels of proliferation, inform conservation efforts, and place the Mountain South in comparative perspective with other regions. Secondly, it focuses on understanding farmer decision making and how this is related to the persistence of folk crop varieties in local cultural contexts. The final objective is to analyze seed conservation efforts across the Mountain South and apply the results of this research to conservation theory and practice.

1.2 Agrobiodiversity in the Global North

Up to this point, along with many other areas of inquiry within anthropology, agrobiodiversity studies have been largely situated in “developing” countries of the Global South. The assumption of plant genetic resource experts worldwide has been that modern, developed countries in the North have largely replaced traditional folk crop varieties with modern high-yielding varieties characteristic of industrial agriculture. In the United States, for example, Fowler and Mooney (1990) provided evidence based on analysis of commercially available seeds that up to 93% of folk crop varieties in the US have been lost and other experts (McDonald 2001) argue that the rate of disappearance is rapidly increasing. However, since Fowler and Mooney only analyzed commercially available seeds, and most folk crop varieties in the US are not available commercially, more work is needed to understand the disappearance of agrobiodiversity in the US at the margins. Elsewhere, Nabhan (1992) has estimated that at least one to three of the crop species and subspecies grown in North America in pre-Columbian eras have been lost since 1900. Although it is true that with the overall decline in the US farming

population in the past century that much agrobiodiversity has been lost, it has also been observed that “heirloom seeds are especially prevalent in isolated mountain areas, such as the Ozarks, Smokies, and Appalachians, and also among traditional peoples such as the Mennonites, Amish, and Native Americans” (Whealy 1998:7). The prevalence of higher agrobiodiversity levels in marginal areas and groups in the US is consistent with the correlation between marginality and agrobiodiversity found worldwide (Rhoades and Nazarea 1999).

The American Indian groups of the Southwest have received more attention in anthropological studies of US agrobiodiversity than any other region or people. Nabhan (1989, 1985) has shown that southwestern Native Americans maintain a high diversity of folk crop varieties, traditional farming techniques, and associated cultural knowledge. Another study by Soleri and Cleveland (1993) among the Hopi Indians of northeast Arizona showed high levels of agrobiodiversity that had been remarkably resilient over the last fifty years and was being maintained for both biophysical and sociocultural reasons. They point out that diversified crop complexes such as that of the Hopi can be used as references as the development of sustainable agriculture becomes more important in industrialized nations. A more recent study by Nabhan et al. (forthcoming) shows that the amount of heirloom seed diversity loss documented by Soleri and Cleveland is higher than initially reported, but the Hopi remain custodians of a diverse landrace repertoire.

Outside of the southwest and Native America, very little work has been done on US agrobiodiversity. A recent study (Veteto 2008) showed that agrobiodiversity levels in southern Appalachia may be as high as or exceed that of many comparable regions in the Global South (e.g., Skarbø 2006). In four months of fieldwork, I found that southern Appalachian farmers and gardeners were maintaining 134 different folk crop varieties. Among this diversity, beans were

conspicuously dominant, accounting for 83 of the 134 varieties (61.9%). Bill Best's long-term bean collecting at The Sustainable Mountain Agriculture Center Inc. in Appalachian Kentucky has resulted in over 300 distinct folk taxa, not all of them genetically differentiated (Best 2005). The results from Veteto and Best suggest that, when compared with results Sperling and Scheidegger (1997) have obtained in Rwanda; southern Appalachia may be a secondary center of world bean diversity. Other areas of the US South (many of which have been historically marginalized) also provide pockets of individuals, seeds, and memories that are highly diverse. In a decade of research, the Southern Seed Legacy Project (2010) at The University of Georgia has collected over 600 folk crop taxa from Southern US farmers. Much more agrobiodiversity research and conservation could be done in other areas of the Global North. For example, a study by Negri (2003) reports that home gardeners in Italy are maintaining very high levels of agrobiodiversity but are an aging population that is struggling to interest younger generations in continuing their biocultural seed legacy. This study seeks to give a regional perspective on agrobiodiversity levels in the Mountain South and place them in comparative context with other regions of North America and selected world areas.

1.3 Agricultural Decision Making and Agrobiodiversity Persistence

Why do local farmers choose to maintain local folk crop varieties, even when seemingly overwhelming social and economic pressures threaten their persistence? This has been a question that has interested agrobiodiversity researchers for several decades. Netting (1974) identified agricultural decision making as a major research focus for agricultural anthropologists. He largely saw decision making as an individual rational choice according to key socioeconomic/utilitarian variables such as capital, labor, land, environmental appraisal, knowledge of agricultural techniques, and prior experience with crops (Netting 1974). However,

Netting also noted that peasant farmers often continued to produce a minimum of subsistence crops even when they could support themselves by wage labor alone and that this type of production could be attributed to close identification with the land or the desire for the prestige of being a farmer.

Decision making continued as a key research paradigm in agricultural anthropology throughout the 1970s and 80s (e.g. Barlett 1980, 1982). Perspectives from economic anthropology took a leading role in pushing theory forward. Barlett (1982), combining formalist and substantivist economic arguments, found that household agricultural decision making in Paso, Costa Rica was influenced by a variety of factors, including land and labor availability, crop and land-use choice, profits, risk, and yields. Agricultural decision making was also an important topic for anthropologists working at CGIAR (Consultative Group on International Agricultural Research) centers such as The International Potato Center (CIP) in Lima, Peru and in other applied contexts (Rhoades 1984). Researchers attempted to understand what motivated local farmers to select and maintain crop varieties so they could be more successful in introducing high-yielding modern varieties into Global South settings and conserving traditional cultivars through *ex situ* methodologies. Brush et al. (1981), working at CIP, came to the conclusion that Peruvian farmers usually selected folk crop varieties for home consumption based on culinary tastes and preferences and modern varieties for sale at the market. However, seed selection is highly dependent on a multitude of local conditions, and Rhoades (1989) found that other Peruvian growers would use improved varieties for home consumption if they produced better and folk crop varieties for the market if they could earn higher profits.

While utilitarian concerns such as agronomic, economic, and ecological reasons certainly play a major role in influencing farming decision making about crop complexes and other

aspects of agricultural systems, anthropologists have also identified other important frameworks for understanding decision making. Ethnobiologist Roy Ellen (1982:225) has noted that, “...human beings are not simply filters of information about resource conditions.” Instead of conducting their lives in pre-programmed ways that can be understood purely in terms of the categories of scientific researchers, Ellen (1982) identifies human symbolic interpretation and construction as important variables in understanding decision making. Consideration of the symbolic importance of folk crop varieties allows for a more complex understanding of why farmers handle information and choose to save and re-plant traditional cultivars from year to year, as has been shown in the symbolic importance of folk crop varieties as a key marker of Kichwa cultural identity in the Ecuadorian Amazon (Perreault 2005).

Another important framework for understanding agricultural decision making is the agriculture as performance theory put forth by Richards in the 1980s and 90s. Based on fieldwork in West Africa with Mogbuama farmers, Richards’ analysis (1993, 1989) centers on shifting the conceptualization of farmer decision making from a planning to a performance based model. He argues that instead of rational decision making based on an *a priori* set of predictive variables, that farmers can be understood as performers who make their decisions based on improvisational responses in-the-moment according to local conditions such as labor availability, drought conditions, input options, seed stock stores, and how they may further their social projects more generally. Regarding the choice of seeds, resulting cropping patterns are not a predetermined design (as may be the case in more industrialized systems), but rather, “Each mixture is a historical record of what happened to a specific farmer on a specific piece of land in a specific year” (Richards 1993:67). Richards recommends that researchers focus their attention on the sequential adjustment of farmers to local conditions rather than the combinational logic of

decision making regarding intercropping. In doing so, he questions the validity of the overly intellectualized concept of indigenous environmental knowledge (Richards 1993).

Other researchers such as Batterbury (1996), while recognizing the contributions and validity of Richards' performance theory, point out that it is too simplistic to only view agricultural decision making as performance. In the Central Plateau drylands of Burkina Faso, for instance, farmers schedule their agricultural activities and make pre-planned decisions that are thought to enhance both the material and symbolic needs of their farms in addition to improvising on emergent local environmental and economic conditions. Batterbury (1996) concludes that the recognition and validation of (non-static) indigenous knowledge is not a misplaced academic construct by development workers, as Richards claims, but has empirical validity in many circumstances.

This research does not take an economic approach to understanding farmer decision making. Instead, building on Ellen's (1993, 1982) insight that decision making is heavily tempered by cultural contexts and symbolism, in addition to applying Richard's (1993, 1989) performance theory to Mountain South growers (see Chapter Five), a more holistic cultural framework is explored through the application of ethnoecological theory and methods heavily influenced by the work of Nazarea (1999, 1998; see below).

Agrobiodiversity researchers have too often assumed *a priori* that ecological or economic considerations are the primary reasons that farmers maintain traditional folk crop varieties (e.g. Lacy et al. 2006) and that a lack of market penetration and the presence of marginal environmental conditions are what primarily motivate farmers to maintain landrace varieties (Smale et al. 2004). Alternatively, the idea that cultural salience is a primary determining influence on the continued maintenance of folk crop varieties among farmers and gardeners is a

relatively recent addition to the literature regarding the ethnoecology of crop genetic resources (Nazarea 2006, 2005, 1998; Brush 2005, Dove 1999). Cultural salience is a selection criteria that is a possible causal agent in explaining the relatively high frequency and persistence of folk crop varieties in the southern Appalachian and Ozark mountains. Cultural salience may give particular insight into why certain individuals, communities, or regions are more likely to have higher levels of folk crop variety diversity. When combined with utilitarian and individual reasons for persistence, cultural salience can give a more complete understanding of agrobiodiversity selection and maintenance by farmers.

In earlier ethnoecological studies on crop genetic resources, attention was focused on how individuals name, classify, and manage folk varieties and whether or not perceptual or utilitarian salience is the dominant mode of varietal selection and preference (e.g. Clawson 1985). The latter debate was carried over from disagreements in ethnobiology over whether universalist, intellectualist cognitive processes based on perceptual salience guide ethnobotanical classification systems (Berlin 1992, Berlin et al. 1974, Berlin et al. 1966) or alternatively, that utilitarian salience is tempered heavily by social context and cultural influences and is the guiding force underpinning ethnobotanical classification systems (Ellen 1993, Hunn 1982). More recently it has been suggested by Nazarea (1999) that the two sides of this debate have simply been asking different questions about the same phenomena and that both perceptual and utilitarian salience are important to the classification, selection, and preference of folk crop varieties.

Perceptual salience (an unconscious, cognitive recognition of discontinuities in the natural world) has been shown to play a significant role as an initial discriminatory step in the selection and maintenance of folk crop varieties (Boster 1986). However, the main focus of this

research will be on the cultural and utilitarian salience that guides folk crop variety selection and maintenance beyond the initial perceptual step of recognition and classification. Previous studies have shown cultural and utilitarian factors to be important in the selection and utilization of crop genetic resources (Rana et al. 2007, Brush 2005, Negash and Niehof 2004, Bellon 2004, Perales et al. 2005, Brush 2004, Nazarea-Sandoval 1995, Soleri and Cleveland 1993, Brush 1992, Johnson 1974). Utilitarian factors in farmer selection practices such as food security (Perreault 2005), agroecological adaptability (Bellon 1991), and economic importance (Smale et al. 2004) have been frequently explored in agrobiodiversity studies. Several new research trajectories within anthropology and other disciplines promise to expand our understanding of variables that are culturally salient to the individuals and communities that maintain folk crop varieties. Taste and texture variables of culturally-defined ethnogastronomic preferences (Nabhan 2007, Mintz and Dubois 2002, Sutton 2001, Nazarea-Sandoval 1995), ethnolinguistic and cultural identity (Perales et al. 2005, Perreault 2005), and memory and ritual importance (Dove 1999, Nazarea 1998, Bellon 1996, Rappaport 1979) are themes that are gaining increasing importance in folk crop variety conservation studies and are included within the framework of cultural salience used in this research.

Several multivariate decision making models have been proposed to explain farmer crop variety selection and maintenance (see Table 1.1 below). Each of these models has strengths and weaknesses. Several are relatively weak on cultural salience. Bellon (1996, 1991) lumps a few culturally salient factors into his “use” category, and Brush (2004) also includes a few culturally salient selection variables into his “quality” category. Reyes et al. (2006) identify “cultural” as an important dimension of wild species valuation, but limits its definition to include only the function of its potential uses and the number of participants reporting the plant. In their Totonac

Table 1.1 Multivariate Models of Decision Making for Selecting and Maintaining Folk Crop Varieties and other Plant Genetic Resources

	Bellon (1996, 1991)	Brush (2004)	Rana et al. (2007)	Angel-Pérez & Mendoza B. (2004)	Perrault (2005)	Reyes- Garcia et al. (2006)	Nolan (1998)
Agroecological	•						
Technological	•						
Practical/Use	•					•	
Yield		•					
Quality		•					
Perceived Risk		•					
Socioeconomic			•				•
Economic				•		•	
Social				•			
Cultural			•			•	•
Ecological			•	•			•
Food Security					•		
Cultural Identity					•		

- indicates a variable used by the researcher(s) to explain farmer decision making in selecting and maintaining plant genetic resources

home garden study, Angel-Pérez and Mendoza B. (2004) accord a more encompassing definition to their “social” category of home garden function, identifying home gardens as essential to performing various social roles that support beliefs and cultural continuity. Rana et al. (2007), Perreault (2005) and Nolan (1998) come closest to the assumptions of this study. Rana et al. found cultural factors to be one of their three main variables in selection and maintenance (though ultimately less important than socio-economic and environmental variables), Perreault identifies the symbolic importance and maintenance of Kichwa cultural identity as a very important second category behind the more primary function of household food security in maintaining swidden agrobiodiversity, and Nolan finds cultural factors to be of primary

importance and ecological factors to be of secondary importance to medicinal plant knowledge, selection, and use in the Ozark-Quachita Highlands.

The selection criteria that this research employs include two complementary categories: cultural and utilitarian salience (see Chapter Six for detailed discussion). Cultural salience means that crop varieties are selected and maintained because of culturally defined preferences and influences such as ethnic culinary traditions and tastes, memory, sense of place, heritage and ancestry; cultural identity; and beliefs and values that are learned and shared. Since cultural factors involved in folk crop variety selection are relatively underexplored in anthropology and related disciplines (Perales et al. 2005), one aim of this research is to further operationalize and define the term “cultural salience,” largely through exploring motivation for folk crop variety persistence expressed by farmers and gardeners themselves. The selection criteria for agrobiodiversity persistence tested in this study provides a two-variable model that will highlight the relative importance of complementary cultural and utilitarian reasons for farmer decision making and will help correct for the relative lack of agrobiodiversity studies that explore cultural reasons (Perales et al. 2005, Brush 2005) for the maintenance of folk crop varieties.

1.4 Conservation

The modern concern for the conservation of crop genetic resources dates back to the 1920s and 30s (Harlan and Martini 1936) when pioneering scientists such as Nicolai Vavilov began advocating for the scientific study and collection of folk crop varieties and for their long-term storage in centrally located and managed seed banks (Nabhan 2009). The proliferation of these *ex situ* strategies increased greatly with the post-World War II spread of modern, industrial agriculture in the Green Revolution from the 1950s-80s. Scientists feared that the modernization of world agriculture would result in an inevitable replacement of traditional cultivars with

modern, hybrid crop varieties, codifying their fears in an oft-repeated “narrative of genetic erosion” (Brush 2005, Harlan 1975). In 1976, there were only five adequate gene banks in the world, but by 1983 forty-eight gene banks that met international standards for long-term conservation were operational (Holden and Williams 1984).

By the 1990s, researchers recognized that there were multiple limitations to the existing *ex situ* global genebank system. The drawbacks included insufficient regeneration of seeds, poor seed maintenance resulting in genetic drift and contamination, the aging of seed storage facilities, the ‘freezing’ of varieties resulting in a discontinuation of local co-evolutionary processes; and the high levels of financial capital, human labor, and energy that it takes to run seed banks (Virchow 1999). In addition, most genebank accessions lacked cultural memory (Nazarea 1998) and were devoid of culturally-relevant data derived from traditional ecological knowledge (TEK). *Ex situ* genebanks were also much more accessible to university researchers and corporate seed companies than to local farmers (Brush 1995). These shortcomings led to the development of *in situ* strategies to complement ongoing *ex situ* conservation (Brush 2000, Maxted et al. 1997, Altieri and Merrick 1988, Nabhan 1985). *In situ* conservation also developed out of the realization that wholesale displacement of traditional cultivars by modern varieties was not as widespread as was initially predicted in the reductionist narrative of genetic erosion (Brush 2005)—in fact agrobiodiversity often continues to exist in the fields of the farmers and gardeners of the world (Brush 2004), and particularly in pockets of marginalized communities and individuals (Nazarea 2005, Rhoades and Nazarea 1999).

In situ conservation is centered on conserving folk crop varieties within farmer’s fields in the agroecological context that traditional farming systems were developed. Particular attention is given to centers of domestication and diversity for the world’s major crop varieties. *In situ*

strategies allow folk crop varieties to continue to co-evolve genetically with cultural landscapes and wild plants, in addition to allowing greater access to agrobiodiversity for local farmers (Maxted et al. 1997, Brush 1995). Particular *in situ* approaches to agrobiodiversity conservation include community seed banks and biodiversity registers (Nazarea 1998, Smale et al. 2004), the hosting of local seeds swaps and biodiversity fairs (Southern Seed Legacy 2010, Tapia 2000), participatory plant breeding and informal research and development (Smale et al. 2004, Maxted et al. 1997), creating incentives to enhance the marketability of local varieties (Nabhan 2008, Bellon 2001), the removal of governmental policies that adversely affect agrobiodiversity (Maxted et al. 2002), and the repatriation of folk crop varieties from *ex situ* seed banks to the fields of local farmers and gardeners (Nazarea 2006).

Beyond *ex situ* and *in situ* conservation, which are modern concepts developed by scientific researchers, Nazarea (2005) argues for a third “strategy” of conserving agrobiodiversity that has been ongoing since the domestication of the plants. *In vivo* conservation—sometimes subsumed under but distinct from *in situ* strategies—is conservation beyond design and recognizes that local and indigenous people have been preserving folk crop varieties for thousands of years without help from scientists. Nazarea calls for a conservation approach that recognizes the important work of “colporteurs”—seedsavers on the margins of the mainstream who, “...are not organized, most of them are not inclined to participate in ‘programs,’ rarely are they exclusively or even principally motivated by economic considerations, and they are not integrated, linked, or politicized in the obvious sense; in fact, it is likely that they are totally oblivious to their contribution” (2005:157). The colporteurs metaphor is taken from 19th century French itinerant book peddlers who sold fairy tales, adventure books, cookbooks and other writings to the lower classes who had neither access nor

interest in officially sanctioned “mainstream” literature. Seed savers as colporteurs likewise gather discarded or unknown heirloom cultivars on the margins and keep them in circulation. Nazarea (2005) elaborates on seven points that researchers can observe to help recognize and support the contributions and efforts of *in vivo* seed savers and colporteurs (see Chapter 6 for detailed discussion).

Nazarea (2006) also makes the case, drawing on the work of the French historian Pierre Nora (1996), that conservation and memory can be viewed from the vantage points of “milieu” and “sites” of memory. Nora conceptualized milieu of memory as being represented by rural life before the advent of modernity and sites of memory as present day memory, which is an archival and less lived-in form of memory. In this study, *in vivo* seedsavers can be seen as existing more in a milieu of memory and conservation, whereas *in situ* and *ex situ* conservation programs in the Mountain South can be seen as attempting to consecrate sites of archival conservation and memory. Both milieu and sites of memory and conservation interpenetrate and interact with each other throughout the Mountain South. Nazarea’s seven recommendations (see Chapter Six) to researchers and conservationists for supporting *in vivo* seed savers and her application of Nora’s concepts of milieu and sites of memory and conservation will be used in this study as theoretical tools for evaluating various conservation initiatives currently operating in the Mountain South. In addition, insights from the study of agricultural decision making and its relationship to Mountain South agrobiodiversity will be used both to critique and inform conservation assumptions and methodologies.

1.5 Methodologies

This research was conducted with fourteen months of fieldwork from July 2008 to August 2009. I lived for six months in western North Carolina (July-December 2008) and eight

months in the Arkansas Ozarks (January-August 2009). A longer period of time was spent in the Ozarks because I had conducted less research there than in Appalachian previously and because seedsavers were more difficult to locate in the region. A regional approach was undertaken with the goal of understanding the overall structure of the remaining agrobiodiversity across the Mountain South, which would have been impossible to achieve by studying one community. A wide diversity of perspectives from across each region was also sought to more broadly understand farmer decision making in relation to agrobiodiversity. Both regions contain higher levels of agroecological, ethnic, and cultural diversity than has been assumed by earlier generations of researchers (Blevins 2002, Billings et al. 1995) and an attempt was made to be as inclusive as possible.

My previous findings (Veteto 2008, 2005) indicated that in most Appalachian communities only one or two people (if any) were maintaining a significant number of heirloom cultivars, with an occasional cluster of high agrobiodiversity in certain traditionally-oriented communities. During the course of this research my previous findings were confirmed as an accurate assessment, as most seedsavers are spread out across each region with a few communities having larger clusters of seedsavers (e.g. The Eastern Band of Cherokee Indians; Marshall, Arkansas). Within each region, Western North Carolina and the Arkansas Ozarks were chosen because they are the most mountainous and ecologically diverse areas of the Appalachian and Ozark mountains, making them particularly interesting because of the correlation between mountains and biocultural diversity found worldwide (Rhoades 2007, Stepp et al. 2005, Brush 2004, Rhoades and Nazarea 1999).

The multi-scale approach to studying Mountain South agrobiodiversity in this study can be understood as falling under the rubric of multi-sited ethnography as broadly conceived by

Marcus (1995), a popular approach to understanding contemporary anthropological questions (Hannerz 2003, Brosius 1999). Early in the research process it became clear that employing a multi-sited methodology would be the only way to achieve the research objectives of this project. This multi-sited research takes place within the comparative context of two regions, within three states (with a fourth—Missouri—contributing one participant), among two federally recognized American Indian tribes (which were once united), and among both seedsavers on the individual level and organizations within both regions working to gather, document, conserve, and promote heirloom crop varieties. The transportation of seeds and plants by migrants and visitors between the two regions, both historically and contemporaneously, also correlates in some ways with the study of human and material “flows” that Marcus outlined in his multi-sited approach. In addition, results from this study are compared with other work done by the Renewing America’s Food Traditions (RAFT) program on the scale inclusive of most of the United States, Canada, and northern Mexico (see below).

Extensive participant observation was carried out in communities, towns and cities across each region. Drive-by visits to gardeners and farmers out in their fields were conducted as were visits to dozens of roadside stands, farmers markets, and hardware stores to talk to knowledgeable local people. To locate further locate seedsavers in each region a purposive cluster sampling strategy was used. Cluster sampling has been shown to be useful in identifying populations for which no formal lists exist (Bernard 2002) and purposive sampling has been shown to have similar results in confidence levels to random samples in anthropological research (Handwerker and Wozniak 1997). Letters of inquiry were sent out to every county extension agent in each region to recruit participants. Individuals who are maintaining or are most knowledgeable about folk crop vegetable varieties were identified based on the

recommendations of the extension agents. In North Carolina, letters of inquiry were sent out to every senior center in Appalachian counties and visits conducted to several, but since this did not yield any participants, the process was not duplicated in the Ozarks. Using an extensive network of contacts previously developed in each region, a chain-referral method was also used to identify seedsavers.

Through the participant observation methods described above and phone conversations following trails of chain-referral recommendations, approximately 100 knowledgeable local people in each region were consulted, which provided important contextual information for understanding the past and present context of Mountain South agrobiodiversity. Once those seedsavers who were maintaining the highest numbers of folk crop varieties in the widest diversity of locales were identified; in-depth, semi-structured oral history interviews were conducted with thirty seedsavers in western North Carolina and thirty seedsavers in the Ozark Highlands⁵. Each interview participant was asked to free list (Ryan et al. 2000, Martin 1995) what folk crop varieties were still being grown and what varieties have been lost by each individual or family. Open-ended interview questions also elicited information about cultural and agroecological aspects of each variety and detailed information was asked about motivations for saving the seed of folk crop varieties. To get at motivations for seed saving, the informants were simply asked, “What makes this a variety that you choose to grow?” about every variety that they had mentioned in the free list activity and their reasons were recorded without further

⁵ Three participants in this study were also recruited through chain-referral methods from the northern Ouachita mountains just to the south of the Ozarks and one participant was included from the Missouri Ozarks, fifteen miles north of the Arkansas state line. The Ouachita Mountains are located in the central/western and southern part of Arkansas below the Arkansas River Valley and range from 400 to 2800 feet in elevation. They are geologically much younger than the Ozarks, having been formed in the late Paleozoic, and are covered with thin, acidic soils that are generally less fertile than the Ozarks and support fewer types of wild plant species (Nolan 1998). The Ouachita’s are also known for their retention of many of the Mountain South folk traditions that have persisted in the Ozarks (Jordan-Bychkov 2003, Nolan 1998), but have also been more thoroughly affected by the timber industry and the historical plantation culture of the Deep South. In addition, three members of the Cherokee Nation in the northeast Oklahoma Ozarks (again, just over the Arkansas state line) were interviewed (see Chapter Two).

prompting. This slight turn-of-words from the “What is this plant used for?” that is more often employed ethnobotanical studies was used in an attempt to provide for a wider spectrum of farmer motivations for seed saving.

Interview and survey methodologies generally followed those established by Nazarea (1998) for the “memory banking” of farmers cultural and agroecological knowledge about traditional cultivars to complement the more traditional scientific *ex situ* conservation strategy of collecting and storing folk crop varieties in seedbank facilities. Detailed cultivar descriptions, including all the information that was provided by seedsavers in the oral history interviews, have been documented in Appendices A-D. Wherever possible, gardens or farms were surveyed and photographed for structural features and pictures of folk crop varieties were taken for later use in identification and comparison, and seed samples were collected for the same purpose and also for seed banking at The Center for Cherokee Plants and the CAAH! program. Oral history interviews were recorded, transcribed in their entirety, and coded according to key themes and attributes.

The data from the surveys, along with data from the freelist exercises, were organized and entered into Microsoft Excel and SPSS so that data files could be created. Levels of significance for the most relevant socioeconomic variables were establishing by conducting a multiple correlation analysis, using local knowledge with respect to folk crop varieties known, maintained, and lost as the dependent variable in each of three trials. To compare the mean level of agrobiodiversity knowledge between Southern Appalachia and the Ozarks, a series of T-tests were run. Quantitative data that emerged from the survey-based statistical tests was used to triangulate qualitative data from the oral history interviews and give a more complex understanding of the research objectives. Methodological triangulation through the

complementary use of qualitative and quantitative techniques in data collection and analysis has been shown to be an effective tool in social science research in general (Driscoll et al. 2007) and also ethnoecological studies (Nazarea et al. 1998).

Collaborative conservation (Maffi and Woodley 2010, Campbell 2009a) was used as a methodology in working with several local conservation programs in each region. This follows recent ethical trends in conservation work that recognize that local communities—not just academic researchers—should benefit from the research process and that local people should have control over their own biological resources (Hunn 2007). In North Carolina I worked collaboratively with the Center for Cherokee Plants to identify research participants, record and transcribe oral history interviews, collect and bank seeds, and train a Cherokee intern in ethnoecological methods. In Arkansas, I worked collaboratively with Dr. Brian Campbell of The University of Central Arkansas, and contributed recordings and transcriptions of oral history interviews along with heirloom seeds that were collected to the “Conserving Arkansas’ Agricultural Heritage” (CAAH!) project. Thirty seed varieties were also donated to the Ozark Seed Bank in Brixey, Missouri, where I was invited to give a lecture on the preliminary results from the Ozark phase of this research.

An important task of this research was to place Mountain South agrobiodiversity in context with other regions within North America. Supported by a fellowship from The Cedar Tree Foundation and working in collaboration with the Renewing Americas Foods Traditions alliance (Nabhan 2008), an inventory of Mountain South folk crop varieties that are currently known to exist or to have gone extinct was developed (see Appendices C and E). This involved compiling plant lists such as those developed or published by folk crop experts like Dr. Bill Best of The Sustainable Mountain Agriculture Center Inc. in Kentucky (where I also inventoried a

freezer of 400 heirloom varieties that had not been previously documented), the lists of apple hunters Lee Calhoun (1995) and Tom Brown (2009) in North Carolina, and the variety lists of The Southern Seed Legacy Project (2008) of The University of Georgia and the Conserving Arkansas' Agricultural Heritage (2010) project at The University of Central Arkansas in Conway, Arkansas. The resulting inventories were analyzed and compared with similar lists that had been developed by RAFT alliance researchers in other diverse "foodsheds" (ecoregions) of North America (see Chapters Four and Six).

1.6 Structure of the Dissertation

This first chapter has served as an introduction to the theoretical background, research objectives, and methodologies undertaken in this study. Chapter Two provides an introduction to the research areas and Chapter Three contextualizes agrobiodiversity within the agricultural history of the Mountain South, from the initial domestication of plants to the current modern age of industrial agriculture. The historical migration link between the southern Appalachian and Ozark mountains is highlighted. Chapter Four discusses the overall structure of agrobiodiversity in the American Mountain South as revealed through the present study, with sections highlighting inventory and socioeconomic survey results from Appalachian mountaineers, The Eastern Band of Cherokee Indians, Ozarkers, and the Cherokee Nation. To conclude the chapter, agrobiodiversity inventories from the Mountain South are compared with lists from other regions of North America. Chapter Five discusses data related to agricultural decision making and its relationships to agrobiodiversity. Cultural and utilitarian salience are used as complementary categories to understand why Mountain South folk crop varieties persist in the context of modernization. The performance of cultural identity and everyday resistances embedded in Mountain South heirloom gardening practices lend further insight into the cultural dynamics of

agrobiodiversity persistence. In Chapter Six, contemporary agrobiodiversity conservation programs and *in vivo* seed saving traditions in the Mountain South are analyzed, compared, and contrasted; and results from this study are applied to conservation theory and practice. In Chapter Seven, conclusions and limitations that emerged from this study are presented. In addition, future directions for agrobiodiversity research and conservation are identified and discussed.

CHAPTER 2

INTRODUCTION TO THE STUDY REGIONS

It is widely accepted that germplasm diversity is the basis for farmers and gardeners to adapt crops to heterogeneous environments and to provide them with resistance to a variety of diseases and pests (Bellon 1996). Empirical studies have also shown that regions of rich biodiversity often exist in areas of political, geographic, and economic marginality. High levels of agrobiodiversity are typically found in the more remote mountains, islands, rainforests, or desert agroecosystems of the world, which are insulated to a large degree from the dominant forces of the larger global economy (Rhoades and Nazarea 1999). Southern Appalachia (Veteto 2008) and the Ozark Highlands (Nolan 1998, Otto and Burns 1981) are unique among agroecological regions of the American South because of the diverse environmental conditions that are caused by their mountain landscapes, the relative geographic and commercial isolation of the regions, and the degree of cultural autonomy of the people that live there. These three criteria, combined with a rich agrarian history and continuity of the homegardening tradition, make southern Appalachia and the Ozark Highlands areas that potentially contain high agrobiodiversity levels (Veteto 2008, Whealy 1998). Farmers and gardeners in these regions not only maintain the germplasm of local folk crop varieties, but also the cultural knowledge and behavioral practices that have shaped this diversity (Nazarea 2006, Nazarea 1998).

This chapter will provide an overview of the study regions in this study. The Eastern Band of Cherokee Indians (EBCI) and The Cherokee Nation (of Oklahoma) are highlighted as

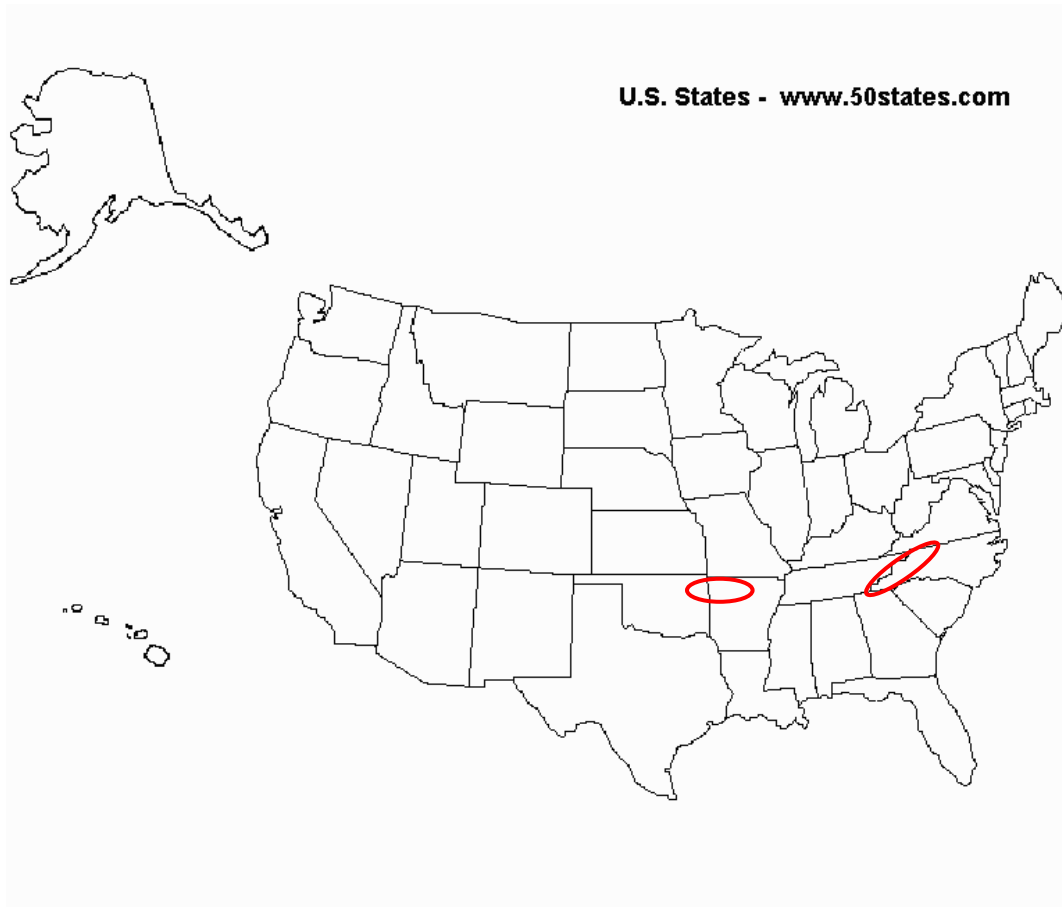


Figure 2.1 Location of the Arkansas-Oklahoma Ozarks (red circle, left) and the Appalachian Mountains of North Carolina (red circle, right) in the United States

the dominant Native American agriculturists and source for much of the agrobiodiversity in each region.

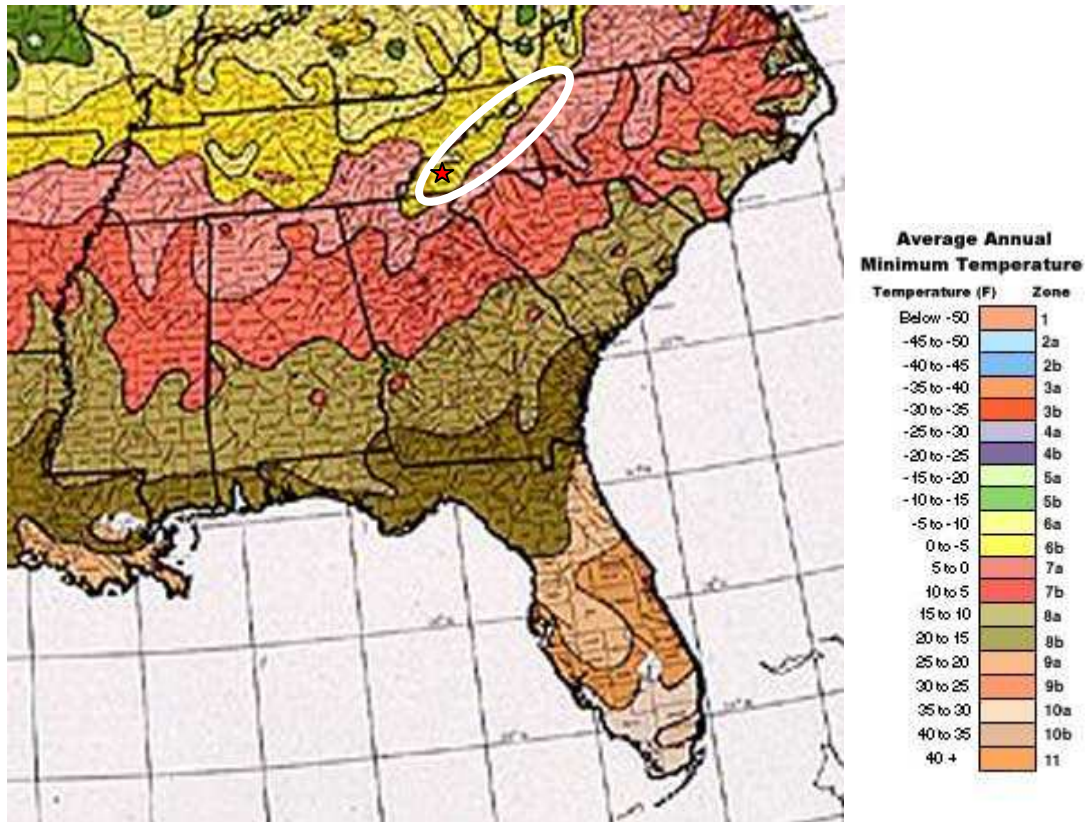
2.1 Research Areas and Cultures

2.1.1 The Southern Appalachian Mountains of Western North Carolina

The western North Carolina mountains are part of the Blue Ridge Mountain Belt that extends from the New River Divide in southern Virginia to the mountains of north Georgia (Gragson and Bolstad 2006). The portion of the Blue Ridge in western North Carolina is the

most rugged in the belt, with an altitude that ranges between two and six thousand feet, culminating in the highest peak in the eastern North America—Mt. Mitchell at around 6,700 feet in Yancey County (Beaver 1984). Present day topography and climate in the southern Appalachian Blue Ridge are thought to be relicts of the Tertiary and Pleistocene. Because of the climate and bedrock, chemical weathering has produced mostly acidic soils on dominantly steep slopes that support acid-loving vegetation. However; pedology, aspect, and erosional and soil-forming processes have created diverse environmental conditions that allow for a high variety of plant types and soil properties (Pittillo et al. 1998). The dominant vegetation type in southern Appalachia are temperate deciduous forests, which are an intermixing of northern and southern forest types, a phenomena that makes the region one of the most biodiverse in North America (Gragson et al. 2008, Braun 2001, Cozzo 2004). Rainfall is variable throughout the region, but is generally abundant, averaging about 1600 mm per year. Average summer temperatures in the higher summer peaks of summer Appalachia are more similar to central New England than they are to the lower Piedmont only 150 km away (Gragson et al. 2008).

Most of western North Carolina is within the USDA plant hardiness zone 6b (low temperatures of 0 to -5 degrees Fahrenheit, but some of the more marginal areas are within zones 6a (low temperature of -5 to -10 degrees Fahrenheit) and 7a (low temperature of 5 to 0 degrees Fahrenheit) (US National Arboretum 2010; see Figure 1.2 below). Frost dates in the North Carolina mountains average about May 1st (last) and October 10th (first), creating a growing season of about 160 days, which varies yearly. Agriculture is generally more productive in the wider river valleys, where sand-silt-loam soil types have been created by flood events throughout time. Native American settlement had higher density levels in the more southern areas of the mountains that are characterized by wider valleys. Cherokee settlements had a tendency to be



★ = approximate location of the Qualla Boundary Reservation of the Eastern Band of Cherokee Indians

Figure 2.2 USDA Plant Hardiness Zone Map of the Southeastern United States (Western North Carolina Circled in White; US National Arboretum 2010)

located along waterways in close proximity to each other (Gragson and Bolstad 2007). Euro-American settlement of the region followed a pattern whereby the earliest settlers claimed the more productive river valley lands, and subsequent generations of settlers were pushed to the less productive soils on the mountainous margins (Crawford 2001). Up until the late modern period after World War II, western North Carolina was characterized by smallholder agriculture that was adapted to the more marginal areas and more large-scale agriculture in the mountain valleys.

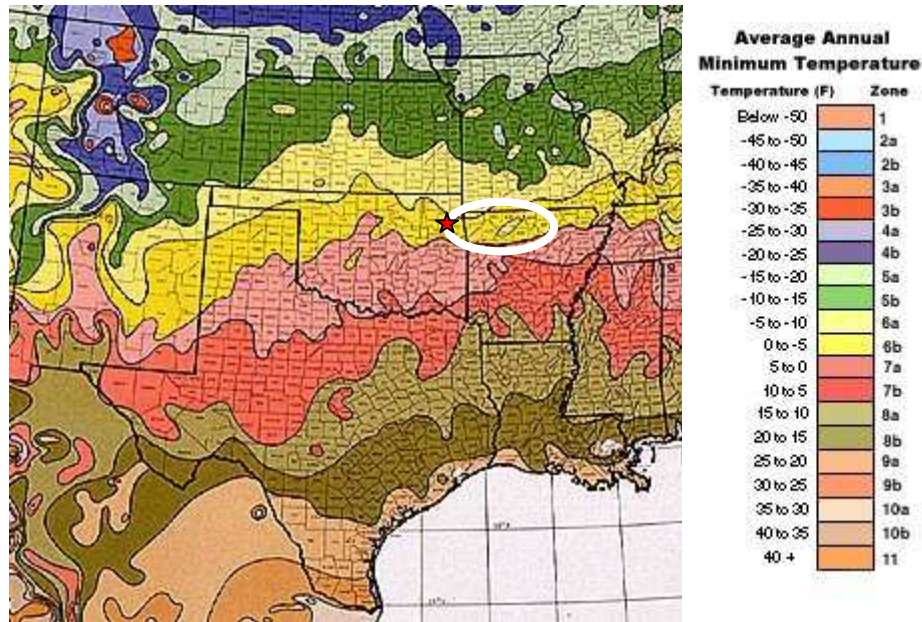
The Cherokee and other Native American mountain dwellers were descended from earlier indigenous inhabitants of the region of the Mississippian and Woodland periods. The Cherokee have a cultural history in the region that may be as much as 4000 years old (Neely 1991), but they most likely emerged as a distinctly organized political tribe after the collapse of the mound building and large-scale corn growing Mississippian culture in the 1500s (Davis 2000). Early historical Cherokee were organized into seven matrilineal clans, lived in sedentary villages, and relied upon a corn-beans-squash agricultural complex supplemented by wild plants and animals (Mooney 1992). Cherokee culture was severely impacted by waves of European migration, diseases, and frontier warfare, and began a process of assimilation into the larger white mountain society. Traditional Cherokee culture was often blended in different degrees with the American ideal of the “Jeffersonian yeoman farmer” (Neely 1991). On the eve of the forced removal of most of the Cherokee Nation on the “Trail of Tears” from southern Appalachia in 1838-9, Cherokee people were materially living to a large extent like their white neighbors, albeit with different cultural traditions and values (Rafferty 2001, Neely 1991).

After European contact in the Pioneer and Antebellum periods, Southern Appalachia was largely peopled by immigrants of Scots-Irish, English, and German origin. Small-scale farmers in the region practiced a highly self-sufficient agriculture, relying on corn as the staple crop along with a large diversity of other food crops, and the free-range herding of cattle and hogs (Davis 2000). However, Southern Appalachia has also been historically characterized by large land holdings by absentee land owners, resulting in high rates of tenancy and an extractive economy based on timber and mineral resources (Dunaway 1996). The mountain people of southern Appalachia have maintained a higher degree of geographical, commercial, and cultural autonomy—relative to most Americans—which has persisted into the present day. Despite this

tendency toward semi-autonomy, throughout the 20th century southern Appalachia has suffered from periods of out-migration to northern and mid-western cities in order to seek jobs due to a history of poverty in the region (Williams 2002). In recent years, in-migration of more affluent lowlanders from cities such as Atlanta, Charleston, and Miami and the second-home development associated with them (Gragson and Bolstad 2006) has increased land prices and taxes and made it very difficult for natives of the region to practice agriculture and other more traditional lifeways.

2.1.2 *The Arkansas Ozark Highlands*

The Ozarks are a region of low “mountains” and hills ranging from 250 to 2400 feet that were formed during the early Paleozoic (Nolan 1998). However, the Ozarks are not true mountains, instead being the result of the continued erosion and dissection of a “highland dome” throughout millions of years (Blevins 2002, Rafferty 2001). In Arkansas, the Ozarks are located in parts of fourteen counties in the northern part of the state above the Arkansas River Valley (Blevins 2002) and are part of the Interior Highlands Province, which includes the tightly folded and faulted Ouachita mountains immediately to the south (Rafferty 2001). The Boston Mountains in Arkansas contain the highest peaks in the Ozarks, including several over 2500 feet in western Newton County. Like in southern Appalachia (although lower in altitude), the various elevations, aspects, soil types, and precipitation types in the Ozarks results in variable environmental conditions. Again, like Appalachia, the dominant vegetation type is temperate deciduous forest, with annual precipitation in some areas reaching as much as 1270 mm (Rafferty 2001), and the region has relatively high levels of biodiversity, although lower than southern Appalachia.



★ = approximate location of the Cherokee Nation of Oklahoma

Figure 2.3 USDA Plant Hardiness Zone Map of the South and the Midwest (Arkansas-Ozarks Circled in White; US National Arboretum 2010)

Most of the Arkansas and Oklahoma Ozarks are within the USDA plant hardiness zone 6b (low temperatures of 0 to -5 degrees Fahrenheit), but small pockets and border areas also exist with zones 6a (low temperatures of -5 to -10 degrees Fahrenheit) and 7a (low temperatures of 5 to 0 degrees Fahrenheit) (US National Arboretum 2010; see Figure 1.3 below). Frost dates in the Ozarks average about April 15th (last) and October 25th (first), creating a growing season of around 220 days, which varies yearly and is significantly longer than in Western North Carolina. Native American farming in the Ozarks was traditionally sporadic, small scale horticulture until the early 19th century when the Cherokee brought more intensive farming to the region (Rafferty 2001; see Chapter Three). Following Euro-American settlement, larger scale agriculture was

practiced in the wider river valleys, along waterways, and on the edges of the mountains where access to markets encouraged market farming. In the more mountainous Ozark interior, smallholder subsistence farming prevailed (Blevins 2002). This pattern continued until rapid modernization made significant inroads into the region following World War II.

The Arkansas Ozark highlands were originally inhabited by several Native American tribes including the Quapaw, Caddo, Osage, and Illinois. Cherokee people also migrated into the region from their ancestral home in southern Appalachia between 1795 and 1828 (Rafferty 2001). After the Treaty of 1828, the Cherokee and other indigenous Arkansans were legally restricted to the Ozarks of what is today northeastern Oklahoma, but small numbers of Cherokee and other native people managed to persist and their descendants still live in the Arkansas Highlands today (Jones 2000, Interview 41).

The cultural landscape of descendants of the original Arkansas Highland Euro-American settlers is largely continuous, consisting of rural ways of life and the retention of some traditional Upper South customs and folkways (Nolan 1998). Most natives of the Ozark highlands self-identify as white Protestants of Scots-Irish, German, English, and Native American descent and have been characterized as having a strong sense of history, place and identity. The Arkansas Ozark highlands were largely peopled by immigrant farmers from southern Appalachia in the 19th century, and therefore share many cultural practices and traditions with their Appalachian forbearers (Campbell 2005). The contemporary residents of the Ozark highlands maintain a degree of economic and cultural isolation from mainstream American influences (Rafferty 2001, Nolan and Robins 1999, Nolan 1998, Otto and Burns 1981), another characteristic they have in common with southern Appalachia. However, due to post-WWII modernization forces and the increasing difficulty of small-scale farming, the Ozarks suffered a massive population out-

migration from 1940-60 that mirrored similar trends in Appalachia. In-migration from retirees and affluent second home owners, again drawing parallels to Appalachia, has seen a considerable increase in the past fifty years (Blevins 2000).

2.1.3 *The Eastern Band of Cherokee Indians and The Cherokee Nation of Oklahoma*

Because the Cherokee Indians are the oldest surviving agriculturists of the southern Appalachian region and played a significant role in the settlement and subsequent history of the Arkansas and Oklahoma Ozarks, this study gave particular attention to their contribution to Mountain South agrobiodiversity, both in historical and contemporary contexts. Though the Ozark portion of this the study is largely centered in Arkansas, significant attempts were made to interview Cherokee Nation seedsavers in northeast Oklahoma in order to compare what they are growing with the folk crop varieties that the Eastern Cherokee in western North Carolina have maintained. For reasons that will be explored in Chapter Four, my results indicate that seedsaving is a tradition that has seen more significant erosion in the Cherokee Nation than among The Eastern Band of Cherokee Indians, and only three individuals who are currently growing traditional folk crop varieties were identified and interviewed in northeast Oklahoma.

The Eastern Band of Cherokee Indians is a federally recognized American Indian tribe that live on approximately 56,000 acres of reservation and private land in the southwestern section of Appalachian North Carolina and have close to 13,000 active members in the tribe as of the year 2000 (Purdue 2005). They represent a remnant band of the larger Cherokee Nation who escaped entrapment and removal by the US Government during 1838-9 on the “Trail of Tears” and who can trace the origins of their formation back to about 1000 conservative traditionalists who broke away from the Cherokee Nation in 1819 in a political disagreement over a treaty for land concessions (Cozzo 2004, Finger 1984).

The Cherokee Nation, based in Tahlequah, Oklahoma is a federally recognized American Indian Tribe with a population of 222,000 as of the year 2000. The Cherokee Nation does not have reservation land as designated by the US congress, but its local members instead live on scattered, privately-owned parcels throughout fourteen counties in the northeast Oklahoma Ozarks, close to the Arkansas border and sharing similar environmental conditions. The Cherokee Nation is also characterized by a high number of absentee members who maintain voting rights in the tribe (Perdue 2005). The Cherokee Nation is composed of members who can trace their ancestry to the Dawes Rolls of Cherokee who survived the Trail of Tears. The Trail of Tears is an infamous and tragic episode whereby the US government removed approximately 18,000 Cherokee from their ancestral homeland in the Appalachian areas of North Carolina, Tennessee, Georgia, Alabama, Kentucky and Virginia to what then was known as “Indian Territory” in the northeast Oklahoma Ozarks. Four-thousand Cherokee men, women, and children died along the way or in the concentration camps they were herded into before departure and upon arrival (Rafferty 2001). The forced removal of The Trail of Tears followed earlier sporadic and US government-supported voluntary migrations of Cherokee to the Arkansas Ozarks and surrounding lands from 1785-1818.

The highest percentage of mixed-heritage descendents of both Euro-American and American Indian ancestry in the US live throughout the American Mountain South (Jordan-Bychkov 2003) and seventeen of the participants in this study reported being of American Indian ancestry, although they self-identify as white and are not members of state or federally recognized tribes.

CHAPTER 3

HISTORICAL OVERVIEW OF AGRICULTURE AND FOLK CROP VARIETIES IN THE AMERICAN MOUNTAIN SOUTH

This chapter will provide an overview of the agro-historical context in which southern Appalachian and Ozark agrobiodiversity has evolved. Appalachian/Ozark migration from east to west is also highlighted, emphasizing the continuity between the cultural and agricultural traditions in each region. Folk crop varieties provide evidence that people and plants migrated together across the Mountain South and that pioneer-era folk crop varieties that were carried from Appalachia to the Ozarks still exist in the gardens and fields of contemporary Mountain South growers. Heirloom cultivars such as the Thousand to One Bean, a pole bean that was brought from Wayne County, Tennessee to Marshall, Arkansas in the 19th century; the Clark and Karr Family White Half-runner Bean that was brought to the Ozarks from Johnson County, Georgia in 1830; and the Sea Island Cane that was carried by settlers from Kentucky into the Missouri and Arkansas Ozarks in the 1870s provide tangible living links between the two regions (see Appendix C).

3.1 Southern Appalachian Agriculture and Agrobiodiversity in Historical Context⁶

According to current archaeological evidence, southern Appalachian plant domestication and cultivation began about 2500 BC with *Cucurbita pepo* seeds in eastern Kentucky at the Cloudsplitter Rockshelter (Kennedy and Watson 1997). These early squash/gourd species were

⁶ Earlier versions of this section appeared in Veteto 2008 and Veteto 2005. It has been substantially updated, expanded and presented here as important background information for readers who are unfamiliar with southern Appalachian agricultural history.

grown in a garden complex by at least 1000 BC (Windingstad et al. 2008) in combination with sunflower (*Helianthus annuus* var. *macrocarpa*), little barley (*Hordeum pusillum*), sumpweed (*Iva annua* var. *macrocarpa*), chenopod (*Chenopodium berlandieri* ssp. *jonesianum*), maygrass (*Phalaris caroliniana*) and erect knotweed (*Polygonum erectum*) that supplemented meat sources from hunting and fishing activities (Gragson et al. 2008, Chapman and Shea 1981). This mirrored the development of the same indigenous crop complex in the Ozarks developed up to 2800 years earlier (Smith and Yarnell 2009, see below). Maize (*Zea mays*) was introduced from the southwest and tobacco (*Nicotiana rustica*) from the West by around 1 AD. Intensive human agriculture in southern Appalachia did not begin until about 900 AD with the introduction of “three sisters” flint corn-common bean-squash agriculture of the Mississippian period Native Americans that was highly dependent on maize production as a staple (Gragson et al. 2008, Fritz 2000). The Mississippians reached their cultural apex in the southern Appalachians by 1300 AD and were largely agricultural, keeping small garden plots outside their homes and larger fields for growing corn and beans (*Phaseolus vulgaris*) outside of the main village area. These fields were as large as several miles in length (covering perhaps up to 2,000 acres per village) and were usually situated along riverbanks. Although the Mississippians also hunted and gathered a wide range of non-agricultural food items, archaeological evidence suggests that as much as 79% of the Mississippians' diet came from corn alone (Davis 2000).

A major influence on Southern Appalachia agricultural history during the beginning of the historical period came with the various Spanish expeditions into the region in the 16th century. The Spanish were responsible for the destruction of what remained of Mississippian culture through a devastating onslaught of introduced cultural patterns, missionary activities, intercultural trade and skirmishes, and above all, disease. The death rate from epidemic diseases

carried into the Appalachians by the Spaniards may have been as high as ninety percent (Hudson and Tesser 1994). The Spanish introduced a diversity of new crops to the region that influenced native agriculture, including sweet potato (*Ipomoea batatas*), peach (*Prunus persica*), cowpea (*Vigna unguiculata*), watermelon (*Citrullus lanatas*), muskmelon (*Cucumis melo*), pear (*Pyrus communis*), wheat (*Triticum aestivum*), barley (*Hordeum vulgare*), and garlic (*Allium sativum*). Spanish livestock introductions were also numerous and included Iberian cattle, hogs, horses, mules, donkeys, sheep, goats, geese, ducks and chickens (Davis 2000).

The Cherokee Indians have been a dominant influence on southern Appalachian agriculture from at least the dawn of the historical period. The genesis of the modern Cherokee is thought to have resulted from the breakdown and decentralization of native Appalachian society associated with the post-Spanish Mississippian collapse (Davis 2000). By all accounts, the Cherokee were the dominant native group in the southern Appalachians by the end of the 17th century, with a population of 12,000 people and land claims in the Appalachian areas of North Carolina, Tennessee, Kentucky, Georgia, South Carolina, Virginia and West Virginia that totaled about 322,600 km² (Gragson et al. 2008). When first encountered by Euro-American settlers in the 18th century, the Cherokee were an agricultural people relying heavily on the “three sisters” plant guild of corn, beans (predominately *P. vulgaris* and later *P. coccineus* and *P. lunatus*) and squash (*Cucurbita* spp.) supplemented by hunting and gathering a wide diversity of wild foods. Corn was the staple crop and at least three varieties were grown (Davis 2000). Beans were grown in the cornfields, native squash and gourds (*Cucurbita* spp.) continued to be cultivated, and by the late 1700s the Cherokee were growing peaches and potatoes (*Solanum tuberosum*) (Mooney 1992). Increased trade with their Euro-American neighbors continually changed the character of Cherokee agriculture and by the end of the 18th century the Cherokee

were also cultivating apples (*Malus X domestica*), onions (*Allium cepa*), turnips (*Brassica rapa*) and cabbages (*Brassica oleracea*) (Swanton 1979). By 1819, the Cherokee were growing cotton (*Gossypium* spp.), tobacco (*Nicotiana* spp.), and wheat as well (Mooney 1992).

Although apples were originally a European crop introduced by British fur traders, they were an important part of Cherokee agriculture after 1750. When apple growing fell out of favor with Euro-American colonists by the 1830s, the Cherokee almost single-handedly kept apple cultivation alive in the mountains. In the 1850s and 1860s, southern horticulturists revived the apple industry in the southern Appalachians largely by grafting old varieties of apples from Cherokee orchards that had been left behind following forced removal of most of the Cherokee from their Appalachian homeland in 1838 to 1839. The contribution of the Cherokee Nation to southern Appalachian apple cultivation is not a widely known part of the region's horticultural history (Calhoun 1995, Davis 2000), despite the popularity of heirloom apples such as the Nickajack which clearly derive from pippins or seedling apples at early historical Eastern Cherokee settlements (Calhoun 1995).

The historical social pattern of Cherokee agriculture was for men to clear the fields and help with the planting and harvesting and for women to oversee the day-to-day management of the fields (Greene and Robinson 1987). The women worked the fields with bone or stone hoes attached to a stick twice yearly as was prescribed by the Selu corn origin story. Most of the work time was spent protecting the crops from animals such as crows, rabbit and deer. This task was generally undertaken by older women who would sit upon high scaffolds overlooking the family gardens to scare wildlife away. Historical Cherokee life was punctuated by an agricultural ceremonial calendar that featured celebrations such as The Green Corn Ceremony, a harvest festival of thanksgiving that featured rituals, feasting and dancing for several days, and the

forgiveness of all crimes committed during the previous year except murder (Greene and Robinson 1987). Cherokee agriculture continued to adapt to and co-evolve with European agriculture during the 18th and 19th centuries, and the eventual adoption of livestock farming marked Cherokee conversion to full-time agriculture and mimicking of the American pattern of the Jeffersonian yeoman farmer (Neely 1991, Gragson et al. 2008).

Southern Appalachian pioneers of northern European descent, in the 18th and early 19th centuries, drew their agricultural knowledge from a wide range of cultural traditions. Frontier agriculture was influenced by Cherokee, Scots-Irish, German, and to a lesser extent English and Scandinavian land use patterns (Davis 2000). The dominant form of frontier southern Appalachian agriculture was forest fallowing, which was used extensively by settlers, particularly those of Scots-Irish heritage (Otto 1987). Forest fallowing was characterized by the practice of clearing of native forest growth for crop fields. Forests would first be "grubbed" by rooting up the forest underbrush with hoes and then piling and burning it. Farmers would then "girdle" the large trees by cutting a ring in the bark with axes in order to "deaden" the forest. Deprived of the rising sap to feed their leaves by girdling, the trees would subsequently drop their leaves and sunlight would penetrate to the forest floor and nourish crops.

After a few years of cultivation, settlers would then remove the stumps and "deadenings" by calling on their neighbors to help in what they called a "log-rolling." The most frequent crop planted in fields cleared in the forest-fallow system was corn; however, wheat, barley, rye, and oats were also sometimes planted. The forest-fallow system in southern Appalachia remained an important agricultural method until the beginning of the 20th century, when a combination of population growth, changing land ownership patterns, and the partible inheritance system made

southern Appalachian average farm sizes too small to sustain it (Otto 1987). It was derived from a complex mix of cultural traditions:

...Appalachian slash-and-burn farming was not simply a holdover from Scottish outfield cultivation, but represented a complex synthesis of Native American and British agricultural techniques. The girdling of trees, the burning of undergrowth, the practice of forest fallowing, and the intercropping of corn, legumes, and cucurbits had Native American antecedents, presumably adopted from the Coastal Algonquians, who inhabited the Eastern Woodlands from Pennsylvania to North Carolina. Where cane covered the creek bottoms, farmers cleared patches for corn and other crops, perhaps adopting this practice from the Appalachian Cherokees and other southeastern Native Americans who preferred to plant their corn in canebreaks along streams. The practice of farming stream bottoms in the hollows, however, may have been drawn from both Native American and Scottish traditions. The Eastern Woodlands Native Americans had gardened along creek and river bottoms, while some farmers in Scotland had tilled the silt-rich bottoms (*haugh land*) along streams which flooded during the winter months. The custom of farming upland slopes—some of which were so steeply-pitched that folktales about farmers falling out of their fields abounded in Appalachia—probably came from Scottish, Irish, and English outfield cultivation, the brief cropping of marginal lands before allowing them to revert to fallow pasture. Finally, the ox-drawn bull-tongue plows, used to cultivate the more level land, may have derived from the iron-shod Irish scratch plow, the *araire*, adopted by the Ulster Scots. (Otto and Burns III 1981:182-3)

Garden plots were usually fenced in to keep livestock out, as free-range cattle and hogs were fattened on forest mast.

The German settlers practiced a different form of agriculture. They clear cut fields instead of creating deadenings, burned all of the trees on-site to create potash, and then removed debris and rock from the fields, creating a parcel of land that was "free and clear" and ready for planting and the raising of fenced livestock. The Germans also brought with them the practice of spreading animal manure over crop fields in order to maintain fertility. The unique German contributions to southern Appalachian frontier agriculture were less widespread than those of the Scots-Irish and English because they constituted a much smaller percentage of the population than those two groups (Davis 2000). Many of the folk crop varieties in southern Appalachia today derive from German settlements and are often denoted by varietal names such as German

Johnson tomato, German Striped tomato, Pink German tomato, and Boyd Smith German Yellow tomato (see Appendix A).

The Antebellum Period saw increasing changes in southern Appalachian agriculture. By 1830, frontier settlement had ceased in much of southern Appalachia and the Antebellum had fully commenced. Most of the original settlers in the region owned farms that were between 100 and 300 acres, forested (up to two thirds of the land cover), and characterized by major crop cultivation of corn, oats, rye, wheat, and to a lesser extent, buckwheat. Farmers grew a diversity of staples crops including sweet and Irish potatoes, cowpeas, beans, flax (*Linum usitatissimum*), tobacco and sorghum (*Sorghum bicolor*) (Davis 2000). Indian corn—primarily flint types—was the principle mountain crop of the era and fed both humans and animals (Stertzer 2001, Williams 2002). In western North Carolina, where crop selection was more diversified than other areas in the region, 3.6 million bushels of corn were grown in 1860. In the southern Appalachian region as a whole, by 1860 corn production took up about one tenth of the average farmer's improved land (Davis 2000). However, many western North Carolina counties saw corn production decrease after the Civil War (Stertzer 2001). Corn was central to southern Appalachian subsistence culture. It was processed and made into hominy, hoecakes, grits, corn pone, mush, and whiskey (Stertzer 2001). The cornhusks and leaves were made into hats, dolls, chair bottoms, and mops. Corncobs were used for bowls, tobacco pipes, fire starters, and toilet paper. Community gatherings known as "cornshuckings" (or frolics) occurred at harvest time (Davis 2000).

Although a subject of much debate (see, for example, Dunaway 1996), it appears that Antebellum southern Appalachia had a higher percentage of subsistence farmers than other regions of the country. Some well situated southern Appalachian farms were predominately

market oriented, but it is likely that most were subsistence oriented during the Antebellum, selling to the market only when home needs had been met (Van Willigen and Van Willigen 2006, Davis 2000). Historian Martin Crawford (2001:24) writes that, "Whatever the character and authority of mountain elites or the extent of mountain farmers' integration with the wider regional and national economy, southern Appalachia remained an overwhelmingly small-farm, subsistence-oriented region whose economic development was inhibited by a variety of geographic and cultural factors..." This perspective is in agreement with Ronald Eller's (1982:16) observation that, "By 1880, Appalachia contained a greater concentration of noncommercial family farms than any other area of the nation."

However, many areas of southern Appalachia were characterized by a small number of absentee landowners with large holdings, a small class of yeomanry, and many landless families. Small and medium-sized Appalachian farms increasingly produced staple items for Lower South markets, particularly through the export of livestock in large interregional livestock drives (Dunaway 1996, Gragson et al. 2008). Slavery also existed in the region, albeit at lower levels than in the Black Belt of the Deep South (Inscoc 1989, Gragson et al. 2008). The farms of Antebellum southern Appalachia were still relatively small and highly diversified. The relative lack of large-scale commercial farming allowed for considerable agricultural experimentation by local growers, resulting in a diversity of crop varieties (Davis 2000:144):

Bean, pea, and corn varieties were hand selected or cross-fertilized in order to produce strains better suited for mountain microclimates. Some particular strains were bred for exceptional flavor, others for a unique color or a particular shape or size. Many antebellum fruits and vegetables would not even be recognizable to modern growers, including Gourdeed corn, a variety whose ears could be easily shelled by flocks of foraging turkeys. Green nutmeg muskmelons known as Rocky Fords were raised in favor of commercial cantaloupe varieties. In eastern Kentucky, a pole bean variety known as Ruth Bible became popular for its resistance to drought, whereas Turkey Crow was grown in northeastern Tennessee, North Carolina, and southwestern Virginia. Of course,

all families saved their own vegetable seed every year, giving rise to a cultural tradition that in some mountain areas continues to this day.

Given the diversity that waves of European settlement added to the folk crop repertoire of the Cherokee and other Appalachian natives, the high density of smallholder farms, and the settlement of previous unpopulated microclimates, the Antebellum likely represents the historical period of highest agrobiodiversity levels in the region. Certain Native American varieties would have been displaced as native groups were removed or perished, but the addition of crop varieties from around the world (apples most prominently) and continued selection by farmers in remote hollers and isolated niches likely produced a net increase in overall diversity, though no records exist that can confirm such a likely hypothesis. Many of the heirloom varieties that exist in Western North Carolina today are likely derived from Antebellum origins (Gray 1999).

Opie (1980) has made the case that the small-scale, subsistence-oriented, family farmer of Antebellum southern Appalachia was the model and ideal by which many Americans identified themselves at that time. Whether or not Opie's observation is accurate or a romanticizing of the region's farmers, after 1850 southern Appalachian Antebellum farmers began to see their fortunes change as a result of the ravages of the Civil War, increasing population pressure, and the continuing depletion of soils in the region (Davis 2000).

The final stage of southern Appalachian farming is the modern era. Starting in the late 19th century, farming in southern Appalachia began a dramatic decline. In 1880, the size of the average southern Appalachian farm was 187 acres, and by 1930 it had decreased to only 76 acres (U.S. Department of Agriculture 1935). Eller (1982) notes a diversity of factors contributing to this decline. These include the increase of land ownership by outside mineral and timber companies that reduced the commons that had been traditionally used for grazing and gathering activities; further reduction in the commons by the establishment of large national forests and

parks in the region; logging activities that increased flooding and decreased soil fertility; increasing population levels and more intensive monocrop farming strategies; and inheritance practices that subdivided family farms among descendants and decreased overall farm size. Despite these changes, Appalachia still had the nation's largest collection of farms that met the government's definition of "self-sufficing" in 1930 (Bureau of Agricultural Economics et al. 1935).

As the 20th century moved forward agriculture in southern Appalachia continued to decline. 1.8 million people left the region between 1940 and 1960, known as *The Great Out Migration*, as farming as a way of life became increasingly unviable (Gragson et al. 2008, Williams 2002). Between 1969 and 1974 over a million acres of farmland went out of agricultural production in Appalachia and 17,000 farmers (26% of the farming population) left farming occupations (Appalachian Land Ownership Task Force 1981). This decline mirrored the decreases in the farming population in America as a whole, as farming became increasingly dominated by large corporate farms that applied green revolution technologies and government aid to increasingly larger farms, employed few people, and drove family farmers out of business (Berry 1977, Fisher and Harnish 1980). Appalachian farmers, on their relatively poor soil and small farms, could not compete with bigger and better situated farms in the Midwest, California, and Florida.

The decrease of the farming population had a dramatic impact on the agricultural practices of Appalachian North Carolina. The incredibly diverse farms of the Antebellum gave way to monoculture-oriented modern farms. The growing of wheat and rye for flour began to decline. Mountain families became increasingly dependent on outside food sources such as white breads, pasteurized milk, and processed sugars (Davis 2000). Corn production

continued—but shifted to using feed corn varieties—and then decreased in importance as the grazing of livestock declined and corn was grown less for supplementary animal feed. Bean markets in northwest North Carolina in the 1940s and 50s encouraged cash crops and the planting of high-yielding varieties in the place of traditional Appalachian cultivars (Fletcher 1963). Tobacco cultivation intensified in the mid-1920s, was standardized across the region with the advent of the federal tobacco program in 1933, and its production as a cash crop steadily replaced diversified subsistence-oriented cropping patterns. Indicative of trends across the region, ninety percent of farms in Madison County, North Carolina grew tobacco by 1978. Wheat, barley, buckwheat, oats and rye had stopped being grown in Madison County prior to 1970 with a few minor exceptions (Algeo 1998). Christmas tree farms and landscape shrubbery are the other two forms of horticultural enterprise that have come to dominate western North Carolina. Christmas tree growing began to be promoted in western North Carolina by extension agents in the 1960s. By 1980, Christmas tree growers in North Carolina harvested 1.5 million trees, which represented 5% of the national supply (Stevens 1987), a trend which has continued to increase into the 21st century.

In the last fifty years southern Appalachia has become a post-agrarian rural society with less than two percent of the population listing agriculture as their primary occupation in 2000 (Gragson et al. 2008). For example, between 1967 and 1977, twenty-five percent of land in Madison County was sold to people from out-of-state, mirroring a pattern across western North Carolina. Retiree and second-home owners have constituted much of the in-migration trend. Agriculture has continued to decrease as land values and taxes have increased, forcing natives to seek public work, jobs near regional cities, or to leave the region altogether (Algeo 1998). Most farmers in the southern Appalachia area of North Carolina today are part-time farmers who grow

Christmas trees, landscape shrubbery, or corn for animal feed (tobacco growing has greatly declined since the tobacco industry buyout in 2005), relying on multiple livelihood strategies to make a living (Halperin 1990). Southern Appalachian farms have become increasingly less diverse in crop species and varieties. This trend may be on the cusp of changing with an increase in diversified, small-scale farms focused on sustainable and organic farming practices over the past twenty years, but it remains to be seen if it is a pattern that will continue to develop.

Eastern Cherokee agriculture has followed the same general pattern as the rest of Western North Carolina in the modern area. However, the limited land base of the Eastern Cherokee has prohibited major expansion of Christmas tree or landscape shrubbery operations, and the Cherokee practiced smallholder, subsistence-oriented agriculture supplemented by multiple livelihood strategies up into the 1970s. Since that time, the Eastern Cherokee have increasingly found work in the reservation tourist and casino industries or in other off-reservation jobs. Agriculture as a way of life has greatly declined and is now mostly carried on in the scattered home gardens of the older generations (see below), which is lamented by many older Cherokee. One 84 year-old elder said:

Well, what's happened is that the farming has stopped. When I was growing up we didn't have any other way to have food like we do now. We've gotten to where we go to the grocery store and buy a can of pinto beans and take them home and you can even buy a can of black eye peas so you don't have to worry about raising them. Today people will say it costs more to raise them it does to go to the store and buy it. That's the reason I think, it's all just this stuff. But I'd like to see that come back and everybody have a garden. Every family that I know of had a milk cow, so they would have milk. Because they didn't have delivery trucks when I was growing up to deliver milk or anything else—as far as that goes—so we had to raise food and a garden and potatoes to live on.

We did everything and we learned a lot just by doing things like that. We knew how to cut wood. I was ten years old I went out and cut wood. Today the kids don't know what wood is and they wouldn't know a grain of corn from a bean today. They haven't been taught. We've cut off gardening and that's the reason. We've cut off gardening and we go to the store and get our food, our milk and eggs. I had a kid come up to the house one time, it's been a while ago now, but a kid came up to the house and we had chickens

around the house. That kid had never seen a chicken out in the yard like that—he was scared to death of those chickens. I mean frightened, really frightened. I’ve known chickens ever since I opened my eyes. I guess that’s just how it is today. [Interview 28]

Through all of the changes that have characterized southern Appalachian agriculture, the home garden is an institution that remains relatively vibrant, yet at a diminished level from previous generations. Each spring, thousands of southern Appalachian gardeners plant vegetable gardens that help them provide for the food needs of their families. The recent economic downturn in the US has led to an additional revitalization of home gardening throughout the region (Interview 16). Home gardens remain the principal place where a wide diversity of traditional southern Appalachian heirloom vegetable varieties can still be found and as such are modern links to the whole agricultural history of the region.

3.2 Mountain South Migration and Agriculture

The migratory history of the Ozarks and its relationship to southern and central Appalachia has been a topic of interest to scholars across several disciplines. Although the details of their explanations differ, there is a general consensus that southern Appalachian migration and folk culture have had a dominating influence on the history of the Ozarks since the initial post-French and Spanish, Euro-American settlement of the region (Campbell 2005, Jordan-Bychkov 2003, Blevins 2002, Rafferty 2001, McNeil 1995, Gerlach 1976). This is not to say, however, that the Ozarks can simply be understood as being “Appalachia West,” a little brother to its Appalachian hearth (Blevins 2002, McNeil 1995). Despite similarities in the settlement patterns and folk culture of both southern Appalachia and the Ozarks, the history of Ozark settlement is complex.

Cultural Geographer Milton Rafferty (2001) has summarized migration into the Ozarks in three main stages. The first stage was the Old Ozarks frontier, which began with settlement by

French Creoles in the 18th century and continued with early Cherokee and Old-Stock Americans who started arriving just before the Louisiana Purchase in 1803 and had spread thinly over the region by 1850. The second settlement phase was the New South post-Civil War (1865-1918) national development. This stage included rapid railroad construction and the spread of modernity in the form of commercial agriculture, corporate mining and timber industries, and moderate urbanization: “The railroads cut swaths of modernity and economic vitality through the hill country. Elsewhere the traditional economy and lifestyle remained only moderately changed” (Rafferty 2001:41). People who were more bourgeois in culture—modernist, liberal, progressive, and educated—led the second settlement phase. In the third settlement stage, increasing “shock waves” (Rafferty 2001:41) of modernity—combined with increasing poverty, underdevelopment, and associated government programs for much of the Ozark population—swept through the Ozarks and much of the US during World War I, World War II, the Korean War, and the Vietnam War. From the 1960s forward the Ozarks have become increasingly cosmopolitan (yet still well behind US national standards), experiencing unprecedented economic and population growth—much of which has migrated into the region. Despite the ongoing predominance of the third phase of Ozark settlement, Rafferty maintains that remnants of all three settlement phases persist and are, “. . . manifested in human attitudes, beliefs, and daily activities. The careful observer of the Ozark landscape may discover them also in relict buildings, abandoned farms, and traditional technologies” (2001:41).

Settlers in the Arkansas Ozarks during Rafferty’s first phase were primarily from states with prominent Appalachian areas. Census records from 1850 for Newton County, Arkansas, the most mountainous of Ozark counties in the state, show that settlers were predominately from Tennessee (126), North Carolina (48), Kentucky (21), South Carolina (13), Alabama (9),

Virginia (9), and Missouri (8) (Rafferty 2001). Settlers in the Missouri Ozark counties also showed a predominately southern and central Appalachian settlement influence, but were also heavily populated by immigrants from the lower Midwest (Gerlach 1976). Though early Ozark settlement did contain a moderate amount of ethnic diversity, it was dominated by Old-Stock American settlers of Scots-Irish ancestry (Jordan-Bychkov 2003, Rafferty 2001). In the second and third phases of Ozark settlement, non Euro-American ethnic diversity in the Ozarks has gradually increased. Jewish, Amish, Mennonite, and more recently Mexican, Vietnamese, and Chinese immigrants have joined the small pockets of African-American and Cherokee populations living in the Arkansas Ozarks today (Rafferty 2001).

Geographer Terry G. Jordan-Bychkov, in his detailed study *The Upland South* (2003), has developed a theory whereby an Upland South culture reached its full development in middle Tennessee around 1810. In his view it was the result of the blending of colonial Pennsylvanian, Virginian, and Carolinian subcultures that had initially developed into four Mountain South “cultural hearths”: the Shenandoah Valley of Virginia, the Piedmont of northern North Carolina, the South Carolina Up Country, and the Watauga country of the North Carolina-Tennessee border mountain area. Though Americans of Scots-Irish ancestry were heavily represented and exerted a strong cultural influence, Jordan-Bychkov (2003:9) asserts that the period of “final fermentation and coalescence of upland southern culture” that occurred in Middle Tennessee was the result of a complex blending of many ethnic European heritages. From Middle Tennessee, the resulting Upland South cultural pattern was then exported in waves of migration to the Arkansas Ozarks and beyond.

Historian John Otto takes a more essentialist view of a Celtic Mountain South culture, but nonetheless has made a thorough study of southern Appalachian agriculture and migration,

tracing its origins back to northern Europe (Otto 1985, Otto 1989, Otto and Anderson 1982). He describes a predominately Celtic "cultural preadaptation" to mountain environments that developed in the uplands of Germany, Wales, Britain, Ireland, and Scotland and was imported first to Pennsylvania and then to the highlands of the American South, mixing with indigenous American Indian agricultural practices as it developed. The main characteristics of this preadaptation are described by Otto (1985:184):

Plain folk typically lived in dispersed rural neighborhoods called settlements, where many of their neighbors were kinsmen and affines. They grew food and cash crops in small, fenced fields cleared from the woods and ranged their livestock in old fields and unfenced woodlands. Their leisure hours were devoted to domestic crafts, hunting, and collecting, and they patronized crosswood stores and mills. They built houses of horizontally joined logs, which some families later sheathed with boards and transformed into frame dwellings. They attended evangelical Protestant churches and revivals. And lastly, their unit of local government was the county.

Otto describes this preadaptation as "the upland south stockman-farmer-hunter complex." (Otto 1985:186).

However, other scholars have pointed out that much of Appalachia's European ancestry originates in the lowland areas of Scotland and Ireland, not in the highlands (Fischer 1989, Cunningham 1987). Even so, it is still the case that some of the Scots-Irish and other regional ethnic groups who migrated to Appalachia were of highland origin. As has been shown of Scandinavian cabin building techniques (Jordan-Bychkov 2003), there was a lot of cultural borrowing that took place during the Pioneer period. It is not hard to conceptualize a knowledge bottleneck at work whereby those settlers who did have experience with skills that were adaptable to highland environments, mixed with techniques learned from the Cherokee and other indigenous Appalachians, spread rapidly to other groups of Appalachian pioneers. This interpretation would put Otto's theory of Mountain South cultural origins more in line with Jordan-Bychkov's.

The upland agrarian complex that Otto (1989) describes was extensive, requiring hundreds of acres of farmland and commons to maintain grazing and shifting cultivation of crops. As population levels increased and more outsiders moved into the Southern uplands, Appalachian farmers found themselves looking westward for new land in which to practice their extensive agricultural livelihoods:

Seeking new lands for extensive agriculture as well as economic opportunity, the backcountrymen, most of whom were of Celtic British descent, led the westward movement across the southern frontier. From the 1770s to the 1830s the backcountrymen and their plain-folk descendants settled much of the lower Old Northwest, the Old Southwest, and began occupying the New Southwest. (Otto 1985:192)

Moving laterally across the Southern frontier, Appalachian settlers sought out familiar mountain environments for the practice of their agricultural techniques (Jordan 1970). This led to a situation where, on the eve of the Civil War, the upland forested areas of the American South were inhabited by a preadapted grazing and farm economy that was characterized largely by a diversified, self-sufficient type of agriculture that relied on family labor, very few slaves, and had moved from Northern Europe to Pennsylvania to Southern Appalachia, combining with Native American practices at each step in its trajectory, from where it was exported in waves of migration westward as far as Texas and Mexico (Otto 1985).

Agricultural anthropologist Brian C. Campbell's (2005) doctoral dissertation contains several chapters that explore the primarily southern Appalachian colonization of the Ozark mountains. Campbell describes the 19th century Ozarks as a "frontier": an unknown, relatively unpopulated expanse of craggy forested hills. The predominant wave of Euro-American Ozark settlers arrived between 1800-1860 and were of "Old Stock American" ancestry. The Old Stock Americans were pioneers from upland Tennessee, Kentucky, Virginia, and North Carolina who were of Irish and Scottish (primarily), and English ancestry and had lived in the Americas for at

least a generation. Confirming Otto's thesis, these Old Stock American southern Appalachian immigrants to the Ozarks settled into their preadapted cultural complex upon arrival:

Traditional Ozark farms adhered to no standard shape or size, but rather varied according to the contours of the land, the labor supply (children and family available to work), and the ambitions of the settlers. Due to the Ozarks dramatic topography and the noted cultural attributes of the Old Stock Americans, specifically their desire for privacy and independence, the original farmsteads usually consisted of a valley and the hills on either side, what locals refer to as a 'holler' (hollow). Ozark farmsteads were mini-watersheds that provided the necessities for self-sufficiency: a water source, hunting grounds, crop land in the valley, and timber for building. Most settlers were already accustomed to self-sufficient living in the Appalachian mountains, which are similar in landscape and biota to the Ozarks. They brought with them domesticated animals, plants, and seeds. Like their ancestors, they utilized everything at their disposal, including wild plants, and animals for sustenance, shelter, medicine, and protection. (Campbell 2005:105)

In addition, these Ozark Old Stock Americans also ran "free range" livestock—Razorback hogs being a prominent landrace breed—in the unfenced woodland commons in the same manner as their Appalachian forbearers until population pressure and enclosures eliminated the practice.

Campbell's study shows that the preadapted Upland South stockman-farmer-hunter complex was the dominant mode of settling the frontier in the Ozark mountains.

The strong historical migration stream from Appalachia to the Ozark Highlands offers an excellent comparative opportunity to study contemporary descendents of original Ozark settlers and their ethnoecological knowledge and plant uses. As noted above by Campbell, Ozarkers brought many of their domesticated plants and animals along with them in their westward migration and were often seeking an ecological landscape similar to the one they had left behind in Appalachia. Many of these Ozark settlers attempted to re-create the human agrarian landscapes that they had known and created in Appalachia, a characteristic that has been prominently present in the study of other immigrant farming and gardening populations (e.g. Nazarea 2005, Vogl et al. 2002).

Historian Brooks Blevins, in a more recent study, provides an illustrative summary of the propensity of eastern settlers from the Appalachians and surrounding hills to seek out similar environmental conditions once they reached the Arkansas Ozarks and beyond:

An in-depth look at the origins of settlers by county reveals that Arkansas Ozark counties drew their settlers from eastern locations sharing common physiographic characteristics. Migrants from Tennessee tended to settle in Ozark areas similar in elevation and terrain to those of their previous homes. Remote and rugged Newton County, the most mountainous of Arkansas' Ozark counties, attracted many immigrants from the higher elevations of the Appalachian region. Of twenty-eight families listed in the 1860 Newton County census who could positively be identified in the 1850 Tennessee census, nineteen originated in the mountain counties of eastern Tennessee. Only three had resided in west Tennessee in 1850. A study of Tennessee migrants to the rolling foothills of Fulton and Izard counties in the decade after 1850 turned up ninety-three families in the 1860 census who could be identified in the 1850 Tennessee census. Of those, only eighteen were living in mountainous eastern Tennessee in 1850. The majority resided in a middle Tennessee corridor stretching from Jackson County southwest to Hardin County. Wayne County alone, just about one hundred miles west of Memphis, was home to eleven of the ninety-three families in 1850. It is likely that many of these middle Tennesseans had been born in Appalachia or at least had roots there. If so, such information underscores the notion that the Ozarks served as a western terminus, temporarily at least, of a great migratory trail. As we shall see, this trail would remain active into the twentieth century, when the Ozarks would become the eastern jumping off point for another westward migration. (2002:20)

This section has provided evidence from several case studies and disciplinary angles that the Appalachian and Ozark mountains have been closely connected through their migration history, environmental perception, and agricultural practices. The next section will provide an in-depth look at the origins and development of indigenous Ozark agriculture and how it has changed through time from European settlement up until the present day.

3.3 Ozark Agriculture and Agrobiodiversity in Historical Context

Plant domestication in the Ozarks is currently understood as beginning with the independent domestication of *Cucurbita pepo* squash at the Phillips Spring site in southwest Missouri around 3034 BC (Smith and Yarnell 2009). Excavations at Marble Bluff Shelter, in the northwest Arkansas Ozarks, revealed a rear-wall storage crevice containing twined-bag of seeds

of domesticated squash, sunflower, chenopod and marshelder dating to approximately 1400 BC (Fritz 1997). Smith and Yarnell (2009) interpret these findings as evidence that the Ozarks were likely part of the geographical distribution of the oldest indigenous crop complex in eastern North America. The Eastern complex has been most thoroughly documented at the Riverton archaeological site in Illinois, showing that bottle gourd, marshelder, sunflower and two cultivated varieties of chenopod (*C. berlandieri*) were grown together as early as 1800 BC. It is also possible, but not fully confirmed, that *C. pepo* squash and little barley were also part of this early garden complex (Smith and Yarnell 2009). Gardens of these plants continued to be grown through at least the late Woodland period (400-900 AD). Native peoples in the Ozarks are thought to have remained relatively unabsorbed by the cultural developments of the Hopewell mound builders during the middle Woodland to the north; or the Mississippians to the north, east and southeast and the Caddoans to the southwest from approximately 900-1600 AD (Rafferty 2001). However, like all of these cultures, it is likely that native people in the Ozarks adopted maize agriculture (on a small scale) during the Mississippian era. By the time Europeans started arriving in the Ozarks in the 18th century, the region was inhabited by various groups including the Osage, Illinois, Caddo, and Quapaw. The most numerous group in the interior and western Ozarks were the Osage who were primarily hunters and annually planted crops of corn, beans and squash that they left untended all summer and then harvested in late August (Rafferty 2001).

The native landscape of the Ozarks was changed drastically when the US government began relocating eastern Indian tribes within its borders during the early 19th century. This followed early migrations into the Ozarks by Cherokee, Shawnee, and Delaware peoples who were being pushed west and southward by white settlement as early as 1775 (Rafferty 2001). By 1817 the United States and the Cherokee Nation has signed a treaty giving the Cherokee a large

land grant in northern Arkansas and it is estimated that between 3500 and 6000 Cherokee migrated to the Arkansas Ozarks from 1817 to 1818. Unlike the Osage and other Ozark indigenous tribes, the Cherokee created permanent landscape changes to the Ozarks that were very similar to those of Euro-American farmers and could be discerned into the 1940s despite the relatively short time of Cherokee occupation (Rafferty 2001). Tensions with white settlers (much as had been occurring in southern Appalachia during the same time period) led to the treaty of 1828 which removed the Arkansas Cherokee to Indian Territory in the Oklahoma portion of the Ozarks (where the Cherokee Nation is still centered). However, small numbers of Cherokee stayed behind in the Arkansas Ozarks, inter-married with white settlers, and still reside in the area today (Rafferty 2001). All of the other Arkansas native tribes were also removed to present-day Oklahoma and today there are no federally recognized currently residing in the Arkansas Ozarks, although several state recognized tribes do exist (Jones 2000).

As has already been noted in the previous section, agriculture in the Ozark Highlands carried over many of the practices that had been developed by Euro-Americans in southern Appalachia. Pioneer reliance on corn as the staple crop, a high level of agricultural biodiversity, and the free-range grazing of livestock until it became unviable are all features of traditional Ozark agriculture that were brought over, to a large extent, from southern Appalachia. In addition, the lower prevalence of large-scale plantation agriculture and slavery and higher percentages of self-sufficient smallholder farms in the Antebellum period relative to the rest of the US South are areas of comparable production patterns the two regions. In recent years, both regions have been showing a marked trend toward an increasing number of small, part-time farms focused on sustainable agricultural methods. However, some important differences between the regions do exist. For example, the wider valleys and large plateaus in the Ozarks

are more amenable to large-scale livestock production. In the modern era this is evidenced by the factory chicken farming industry that has developed in northwest Arkansas and southern Missouri (Blevins 2002, see below), showing a difference from the trend toward large-scale growing of Christmas trees and perennial landscape plants in the more steeply mountainous topography of western North Carolina.

As the first wave of American white settlers began to push the frontier westward into the Arkansas Ozarks in the decades following the War of 1812, a process of uneven modernization began in the region that produced differing results from the coming of the steamboat, the construction of the railroad, the introduction of cash crops, and the cutting down of thousands of acres of forestland for timber production (Blevins 2002). Ozark agriculture responded in localized ways to the 19th century development process:

...the diversity of topographic conditions, soil qualities, and water resources prevented uniformity in the Ozarkers' experience with change and modernization. Whereas the fertile plains of extreme northwestern Arkansas and the rich bottomlands along the White and other Ozark rivers brought prosperity to many agriculturalists, the comparative barrenness of the vast interior of rocky hillsides and rugged mountains left other generations of Ozarkers the unenviable task of providing food and shelter within a harsh and unforgiving country. This intraregional diversity has been a key feature in the history and development of the Arkansas Ozarks. (Blevins 2002:5)

Despite the limited opportunities for well-placed Ozark farms to receive high financial returns, the ruggedness of much of the region insured that it would remain “the domain of the small farmer” (Blevins 2002:4) until several decades after World War II. Most of the earliest American Ozark settlers “...were southerners, mainly of Scotch-Irish descent and of the yeoman farmer type, mainly poor, nonslaveholders” (Rafferty 2001:46). They emigrated primarily from the Appalachian areas of Tennessee, North Carolina, Virginia and Kentucky. More economically privileged southern agriculturists also migrated to the region, but in far fewer

numbers: “A wealthier group, slave owners from the South, occupied the better river bottoms, where slaves cleared timber and planted fields for hemp, tobacco, and corn” (Rafferty 2001:46).

The Scots-Irish settlers brought with them the extensive, slash-and burn, infield-outfield, and free-range livestock agricultural methods that they had practiced in southern Appalachia:

...As early as the 1830s, Appalachian hollows were becoming crowded, and patch farming could not support a growing population...Facing land shortages in their native hollows, many Appalachian families moved west to the trans-Mississippi Highlands—the Ozark plateaus and the Quachita ridges—where they found a familiar rugged, wooded environment...In the mixed hardwood forests of Ozarkia, settlers could reproduce their traditional way of life, including range herding and slash-and-burn farming. (Otto and Burns III 1981:183)

In another parallel development to Appalachian settlement, German pioneers from Europe and Pennsylvania, followed closely on the heels of the Old-Stock Americans (in much smaller numbers), adding their distinctive agricultural patterns to the development of the Ozarks (Gerlach 1976). They chose land to settle primarily based on soil quality, whereas the Scots-Irish tended to choose poorer rocky and wooded lands that allowed them to practice extensive agriculture complemented by hunting and gathering activities. The Germans were more interested in practicing intensive agriculture on larger, more commercially-oriented farms that were characterized by fields that were meticulously “free and clear” of stones and debris and fertilized with animal manure (Gerlach 1976). However, descendents of Germanic heritage found it necessary to adapt their agricultural approach to the topography of the Ozarks and, since they arrived a generation later, to the cultural climate that the Old-Stock American settlers had created (Campbell 2005).

Other early groups of settlers also had some, albeit minor, influence on Ozark agriculture and these included the English, Swedish, Swiss, Italians (though they had a significant influence on viticulture), and Poles (Gerlach 1976). The French and Spanish, the earliest Europeans to

settle in the Ozarks, practiced a less intensive agriculture and relied more on a hunting and trapping lifestyle. They left little noticeable impact on Ozark agriculture and cultural patterns (Rafferty 2001).

The corn-dominated subsistence farming of the pre-Civil War Ozarks was characterized by a diversity of crops grown on a smaller scale that included wheat, tobacco, flax, hemp and cotton (Rafferty 2001). A diversity of home garden vegetable crops were also grown and included cowpeas, beans, squash, pumpkins, cabbage, greens, cucumbers, potatoes, melons, sweet potatoes, and okra. Livestock production was primarily for home use; and oxen, horses and mules for cultivation and other farm tasks that required animal power were also prominent (Campbell 2009). Only those farmers situated in areas with good soil and access to markets participated in large-scale crop production:

Wealthier farmers established hemp and tobacco farms before the Civil War in the Missouri River valley. They brought in many slaves to cultivate these commercial crops. Hill farmers grew small plots of both hemp and tobacco, but mainly for local needs...The crops were well established in Kentucky and Tennessee, and settlers from these states planted large fields of hemp in the Missouri River bottoms near Lexington, Rocheport, and Glasgow. Tobacco could be grown in commercial quantities along the Missouri River, where transportation costs were lower. Tobacco was also grown in the interior Ozark counties, but much of it was used locally. Cotton, the chief commercial crop of the Arkansas River Valley [outside of the Ozarks], was farmed in the lower White River valley [on the border of the southern Ozarks], where there was reliable river transportation. Farmers in the upper White River valley and the larger tributaries also grew cotton, but they had to ship it over rough wagon trails to Springfield, Fayetteville, or to towns in the Arkansas Valley. (Rafferty 2001:154)

Post-Civil War, beginning about 1870, Ozark farming began a general transition from subsistence farming and free-range livestock herding to general farming. Native grasses began to disappear and the practice of burning prairies and woodlands was stopped as the region became more heavily inhabited and fenced (Rafferty 2001). The availability of cheap railroad transportation and the rapid adoption of improved machinery for cultivation of the soil allowed

for commercial production (among a small group of more wealthy and well-situated farmers) of wheat, corn, and other grains in addition to livestock—which had formerly been the only feasible income producing agricultural product to most Ozarkers by nature of animal drives to markets on major rivers. General farming was developed in the more fertile valleys but hill farmers remained wedded to subsistence production (Rafferty 2001). Most Ozark farmers relied on animal power for working their land until the mid-1960s when tractors became more widespread and were used by fifty percent of Ozark farmers: “Despite a threefold increase in tractors on Ozark farms during the war years, in 1945, 95 percent of Ozark farmers continued to rely exclusively on animal power, compared to less than 75 percent nationally” (Blevins 2002:150).

In addition to the trend toward general diversified farming, large-scale cotton growing became more prominent in the post-Civil War Ozarks. By 1880, farmers in the easternmost Ozark counties were increasingly absorbed into the cotton economy of the South, although the smallholder crop diversity and semi-subsistence of Ozark cotton growers distinguished them from large-scale monoculture cotton plantations in eastern and southern Arkansas (Blevins 2002). In the western counties of the Springfield Plain, agricultural practices resembled those of the Mid-West and were characterized by the production of small grain and livestock. The western Ozarks were also one of the leading apple producing areas of the US at the time (see below). Cotton production in eastern Ozark counties continued to increase until it reached its peak in the Ozarks in 1890. After 1890, Ozark cotton (and tobacco) growing saw a precipitous decline as farmers grew wary of its tendency to wear out the already-poor Ozark soils. Many of these Ozark cotton farmers went back to a more subsistence-oriented agriculture as cotton prices declined (Blevins 2002).

As general farming and cotton farming began to wane in the late 19th century, Ozark farmers tended to either pursue subsistence farming or the production of specialized crops. Most Ozark subsistence farmers resided in the rugged Boston mountains where they cultivated a variety of subsistence crops or produced moonshine for an occasional influx of cash:

Representative of the mountain farmer, although not necessarily of the moonshiner, were William Plumlee and Francis Edgmon. Plumlee owned 3 horses, 8 head of cattle, 10 hogs, and a small flock of sheep that produced 38 pounds of wool. The Plumlees churned 225 pounds of butter, gathered 170 dozen eggs, and picked 170 bushels of apples and peaches. Plumlee's crops consisted of 20 acres of corn, 10 of oats, and 3 of wheat. Edgmon's farm production slightly exceeded that of Plumlee. He tilled more than 50 acres to produce 700 bushels of corn, 16 bushels of oats and 55 of wheat, 40 gallons of sorghum molasses, and 12 bushels of potatoes, in addition to the family's garden produce. Edgmon owned 2 horses and 20 hogs, as well as 15 head of cattle that produced 100 pounds of butter. He also had sheep that produced 20 pounds of wool. The family gathered 400 dozen eggs and 70 pounds of wild honey. It is unlikely that any of Edgmon's crops were sold for cash, although surplus corn and eggs may have been bartered for goods. Neither Plumlee nor Edgmon sold cattle, and they probably maintained their hogs primarily for pork. Isolated by the encircling ridges, these mountaineers and their neighbors were indeed subsistence farmers whose lifestyles had yet to be dominated by the market economy. (Blevins 2002:46)

By 1900, such subsistence farmers were the exception instead of the norm, though they still survived in pockets throughout the Ozarks into the 1960s. Increasingly types of specialized farming that included fruit tree orchards, truck farming, viticulture, dairy farming, poultry farming, livestock farming and ranching, and part-time farming came to dominate the region (Rafferty 2001). This move away from general farming and relegation of subsistence farming to the further margins constituted the entry of the Ozarks into the modern industrial agriculture era.

Encouraged by railroad officials in the 1880s and 90s, Ozark farmers planted thousands of acres of fruit trees along the railways in northwest Arkansas and the western part of Missouri. This development continued and built upon a historical trend whereby, "Apples were grown so widely in small household orchards that the Ozarks became known as the Land of the Big Red Apple even before the coming of the railroads and the development of commercial orchards"

(Rafferty 2001:160). Popular apple varieties in early Ozark orchards included Knous, Huntsman's Favorite and Ben Davis. Orchards were particularly numerous in northwest Arkansas around the towns of Springdale, Prairie Grove, Rogers and Farmington. Lincoln, Arkansas had so many orchards that it acquired the nickname of "Apple Town." The most important years of apple production in the Ozarks were between 1910 and 1940, with the peak year occurring in 1919. By 1940 most Ozark orchards had fell into disuse due to increasing industrialization and specialization in the industry that Ozarkers declined to compete with, an increase in diseases and pests (particularly the coddling moth), a large decrease in fruit prices during the great depression, and the post-depression suburbanization of important orchard growing areas (Rafferty 2001). Apple orchards had a modest revival in the 1960s and 70s in northwest Arkansas and southwest Missouri with the introduction of newer apple varieties such as Jonathan, Red Delicious, and Golden Delicious and organic pesticides that could control the coddling moth. Today, apple production in the northwest Arkansas Ozarks only continues with any degree of prominence near towns such as Fayetteville, Rogers, Bentonville, Prairie Grove, and Lincoln that have a long history of orchard production and the food industry infrastructure to process large amounts of apples (Rafferty 2001). Other fruits, such as peaches, were also grown historically in or near Ozark orchards, but to a lesser degree than apples. Early peach varieties were mostly seedling peaches:

Seedling peaches grew in fence rows, in roadside ditches, among apple trees, and around the back doors of farmhouses where farm wives had discarded the pits. Seedling peaches may still be found today around abandoned farmsteads. Though they vary greatly in size and taste, and are almost never cared for, they are sometimes picked and eaten in season. (Rafferty 2001:160)

Many of the peach varieties found in this study (see Appendix Two) are of the seedling variety, showing contemporary continuation of a tradition that stems from at least the late 19th century.

Truck farming of a variety of row crops was another form of specialized farming during turn of the 19th and early 20th century Ozarks; tomatoes (*Lycopersicon esculentum*) and strawberries (*Fragaria* spp.) were the most prominent crops (Rafferty 2001). Small, local tomato canneries were prominent in the Ozarks from about 1885 to 1955. In the early 20th century they were as common as country stores throughout much of the region (Dicke 2005). Local canneries were still commercially viable in 1955 when they had all but vanished from the Ozark countryside:

In the end, tomato canning flourished and floundered for reasons that were more social than economic or environmental. Small-scale canning grew in the Ozarks because it fit easily with local farming practices and national tastes; it faded when both the Ozarks and national culture changed in ways that made the small-scale canner an anachronism, out-of-step with consumer wants and the needs of local farmers. (Dicke 2005:1-2)

The only significant concentration of canneries in the Ozarks by 1960 was in Benton County, centered on the city of Springdale in the far northwest corner of Arkansas, where an infrastructure of more large-scale facilities and business expertise is located. Canning still remains an important industry there today, but is much more tied to national and international economies than the local canneries of the Ozark past (Dicke 2005). Heirloom varieties of tomatoes such as Big Orange and Effie are still maintained in the Ozarks today, but in far fewer numbers than in southern Appalachia (see Chapter Four). Heirlooms varieties such as Old Baltimore that were once used in Ozark canneries have now been replaced by modern hybrid varieties (Interview 50).

Strawberry production saw a similar rise and fall in the Ozarks between the late 1890s and until about 1955. The spread of strawberry growing was due to similar conditions that caused tomato production to flourish: the availability of railroads and infrastructure in northwest Arkansas, the fact that strawberries grew well on chert-choked soils of Ozark hillsides, care and

harvesting of strawberries was labor intensive and there was a surplus of labor available on Ozark farms of the time, strawberries could be grown on small patches of land, and they commanded a high price at market (Rafferty 2001). Strawberry production for market virtually stopped after World War II in northwest Arkansas due to labor shortages and continuing consolidation in the industry. However, in the central Arkansas Ozarks strawberry production actually increased during the war and continued strong until the 1960s due to the promotion of organizations such as the Flintrock Strawberry Growers Association based in Searcy County (Blevins 2002). Today, only a few commercial growers remain in operation in the Ozarks and are centered in Stillwell, Oklahoma and extreme northwest Arkansas. Cardinal strawberry, an old, non-hybrid variety that used to be grown commercially around Van Buren, Arkansas was located in this study (see Appendix Three). Other important truck crops during the specialized farming period of 1880 to 1955, albeit on a small-scale than tomatoes and strawberries; included green beans, greens, blackberries (*Rubus* spp.), and loganberries (*Rubus X loganobaccus*) (Blevins 2002). In the past decade truck farming has again become popular in the Ozarks as the growing national trend toward sustainable agriculture has proliferated in the region.

Viticulture is another form of specialized agriculture that has been popular to varying degrees in the Ozarks throughout the years. Viticulture was introduced by German, Swiss-German and Italian immigrants to the Ozarks beginning in 1845 (Rafferty 2001). The sunny Fall weather in the Ozarks is excellent for viticulture because it allows grapes (*Vitis spp.*) to fully ripen with full flavor. Enterprising immigrant Ozark grape growers even developed highly successful new varieties:

Swiss immigrant Hermann Jaeger settled in Newton County, Missouri, where in 1867 he produced a hardy new grape by crossing Virginia grapes with the wild Ozark variety. Jaeger developed a large vineyard near Neosho with his hybrid, which proved to be very successful. Later, when he learned that grape lice were causing much damage in the

vineyards of France, he suggested the adoption of cuttings from the wild Ozark grapes to give more resistance to the French vines. When his suggestions were received favorably, Jaeger sent seventeen cartloads of cuttings to France. Jaegar's plan proved successful and won him the Legion of Honor for his service to French agriculture. (Rafferty 2001:164)

Viticulture peaked in the Ozarks during the 1920s and then declined during the 1930s and 40s. Washington County, with 150,000 grape vines, was the chief vineyard county in Arkansas in 1920. Since the mid-1960s viticulture has seen a modest revival due to opening of several wineries in the region, mostly in southern Missouri and northwest Arkansas (Rafferty 2001).

Agricultural use of animals in the form of dairy farming, poultry production, and livestock ranching and farming are the final three forms of specialized agriculture that have dominated Ozark farming in the modern era. Dairy cows, chickens and various livestock were kept traditionally for household and occasional commercial use in the 19th century Ozarks (Campbell 2009), but all three animals types saw specialized and increased production starting shortly after 1900 (Blevins 2002). Excellent markets with high prices for milk, cream, and farm-churned butter in big cities such as Kansas City and St. Louis and larger towns stimulated the increased production of dairy products. Many Ozark farmers who were looking to maximize their earning potential on small farms turned to dairy farming. Small-scale commercial dairy farming saw remarkable growth in the southern Missouri and northwest Arkansas Ozarks from 1900 to 1940.

However, since 1950, the trend toward larger, vertical integrated dairy operations had led to a decline in Ozark dairy farms. For the most part only large cooperatives and corporations still engage in dairy production in the Ozarks today (Rafferty 2001). Poultry farming has undergone a similar trend. Early Ozark homesteads usually kept free-range chickens around the farm for production of eggs and meat (Campbell 2009). After 1900, specialized production

began to increase as the first incubators were introduced to the region and the egg crate was invented. “By 1930 the semiwild and nondescript flocks that foraged for themselves and laid eggs in the loft or in the woods had given way to a flock of some one hundred or two hundred hybrid birds” (Rafferty 2001:168). In the late 1930s modern poultry production under contractual agreements began in Washington and Benton counties and northwest Arkansas became the leading center for broiler production in the state. Today the area still remains one of the major broiler districts in the US. The largest poultry operation in northwest Arkansas is Tyson Foods, a Fortune 500 company located in Springdale that is also the world’s largest processor and marketer of chicken, beef and pork (Tyson 2009). Tyson first introduced vertical integration of the poultry industry in 1947 when it assured farmers contractually that if they bought Tyson chicks and feed at a set price that the company would buy back the grown birds (Rafferty 2001). Small-scale poultry production has subsequently disappeared almost completely in the Ozarks, succumbing to the trend toward vertical integration in the northwest counties and in the southeastern Ozarks around the town of Batesville:

The changes in poultry farming are strikingly evident in the landscape. The traditional farm chicken house has all but vanished. Many abandoned barns, representing an intermediate stage in the trend toward larger production units, are in various states of disrepair and decay. This anomalous mixture of decaying poultry barns, side by side with apparently prosperous poultry farms, repeats itself again and again through southwest Missouri and northwest Arkansas. Recently poultry farming has added a new element to the rural landscape. This is the large integrated poultry farm that includes a feed mill and a cluster of long, low poultry barns, a management office, and various other support buildings. (Rafferty 2001:170)

Beef and swine farming in the Ozarks have undergone similar production trends that have taken place in the poultry industry, albeit on a smaller scale. Early Ozark settlers practiced free-range ranching with breeds that had been brought over largely from the southern Appalachians. They also participated in occasional livestock drives to larger towns such as Little Rock,

Arkansas and Springfield, Missouri; and to neighboring states such as Texas, for much needed income (Rafferty 2001). From 1900 to 1940, farmers raised corn to produce “finished” (fattened) hogs and beef cattle for market. After World War II, however, the Ozark livestock industry trended back to producing unfinished feeder cattle. Throughout the 1950s, 60s and 70s this became a major economic focus in northwest Arkansas on the Springfield Plain and resulted in large amounts of conversion from forest to pasture land in the region (Rafferty 2001). Today the Ozarks are a cow-calf region (most growers maintain herds and sell off their calves for profit) of small and part-time operations. These types of beef-cattle operations have seen substantial increases during recent decades: “The number of beef cattle in the Ozark counties increased 142 percent from 1959 to 1997, considerably more than the 41 percent increase in the entire United States” (Rafferty 2001:172).

Part-time farming is a trend that has seen substantial increase in the Ozarks in recent decades:

Although the Arkansas Ozarks in the late twentieth century was largely a rural region, it was no longer an agricultural one. The cattle, poultry, and dairy farmers whose barns and animals inhabited the hills and hollows were only a sparse remnant of the tens of thousands of agriculturalists who once farmed the rocky hillsides and fertile bottoms. The intraregional diversity that had once described the region’s agriculture—cotton in the east; grain, dairy, and fruit in the west; and general semi-subsistence farming in the mountainous interior—had been replaced by a generally homogenous system of small, part-time cattle raisers and contract poultry farmers. The vast majority of Ozarkers made their livings in the region’s towns, where small factories, wood and agricultural processing plants, and low-paying government and service jobs had largely transformed the last two generations of Ozarkers from farmers and farm laborers into blue-collar workers. (Blevins 2002:273-4)

From 1900 to 1940 and most noticeably after World War II, increasing suburbanization of farms around the bigger towns and cities in the Ozarks also led to an increasing number of middle-class and professional people from farming backgrounds that either used family farms or bought small acreages and participated in “weekend farming” (Rafferty 2001). Others, as Blevins describes

above, were still-poor rural people who could not make a living in the increasing industrialized agriculture of the region and had to take low-paying (and often seasonal) wage jobs in the timber, agriculture and service industries but still participated in farming to make additional income. This mirrored a trend in southern Appalachia during the same time period, and continuing into the present day, toward part-time farming and “multiple livelihood strategies” (Halperin 1990).

Today both upland regions of the American South have become post-agrarian rural societies. Since the 1990s, part-time farming in both regions has increasingly included sustainable/organic local production of an assortment of vegetables, herbs, landscape plants, poultry, eggs, milk, beef and pork. This has, in part, helped return some sectors of Ozark agriculture back toward its pre-modern roots:

Ozark agriculture appears to have come full circle. The original farmer was a part-time agriculturalist, keeper of livestock, and hunter. The cultivated land was safe and secure in stream bottoms, protected from erosion, and threatened only by occasional floods. The economy was more in tune with the existing natural resources than some subsequent types of farming. Development of commercial agriculture in the Ozarks has been a long and sometimes destructive process replete with experimentation and constant adjustments in the relationships between people and land. Large-scale contemporary agriculture in the Ozarks leans heavily on poultry, beef-cattle, and dairy farming. The general farm has all but disappeared; dairy farming continues under heavy pressure; grape and wine production struggles to hold its own; and only vestiges of fruit and truck farms remain. Like their forbears, the less-progressive Ozark farmers often find greater reward in alternative pursuits than in attempting to wrest a total livelihood from reluctant soils. One can speculate that mutual benefits may accrue to persons and land. (Rafferty 2001:174).

Like southern Appalachia (Veteto 2008), the majority of agrobiodiversity in the Ozarks today can be found in the home gardens that dot the landscape every spring and summer and provide a living link to Ozark agricultural history. The majority of participants in this study, in both southern Appalachia and the Ozarks, were home gardeners of the older generation.

3.4 Home Gardens of the Mountain South

Home gardens are socially constructed spaces that exist close to the household and are managed by various household members, thereby contributing not only to subsistence and commercial production, but also to the continuance and reproduction of cultural identity (Eyzaguirre and Linares 2004). The term “home garden” is generally preferred by researchers to other terms used to describe these garden production systems because it emphasizes the close interrelationship between the social group living at home and the dooryard garden. Tree species within home gardens make them a multifunctional agroforestry system that contributes toward maintaining the sustainability of ecosystems through reducing erosion and evaporation, adding nutrients, and regulating soil temperature. Home gardens vary in structure and size according to a variety of cultural, socioeconomic, and ecological factors but comparative studies have shown that they average between 0.1-0.5 ha in size. Empirical studies have also shown that home gardens in remote villages tend to be cultivated for subsistence needs, whereas village’s closer to urban centers plant them more for commercial production (Eyzaguirre and Linares 2004). Other important aspects of home gardens from a plant genetic resources perspective include their functions as plant introduction and distribution centers, experiment centers for new species and varieties, and refuges for genetic diversity (Engels 2002). Home garden agrobiodiversity studies have become a research priority within the Consultative Group on International Agriculture (CGIAR) system in recent years (Watson and Eyzaguirre 2002).

In the Mountain South, home gardens have likely been present in some form since food plants were first domesticated around semi-permanent and permanent human dwellings and settlements 5000 years ago (Smith 2009). The crop assemblages in home gardens have completely changed over time, most notably when the early “eastern complex” domesticates



Figure 3.1 Appalachian Home Garden, Yancey County, North Carolina

such as marshelder and chenopod were gradually replaced by corn and beans beginning around 1 AD and almost completely by 900 AD (Gragson et al. 2008, Davis 2000). According to oral tradition, some folk crop varieties in the Mountain South have origins stretching back as far as the early 19th century. It is possible that some varieties, in particular Cherokee cultivars, originated in the Mississippian or Late Woodland Mountain South, but genetic testing would have to be correlated with archaeological evidence to provide evidence of such a chronology.



Figure 3.2 Appalachian Home Garden, Micaville, North Carolina

Whatever the historical origins of the oldest folk crop varieties in the Mountain South, it is clear that they provide living links to several centuries of agricultural history and evolution.

All of the participants in this study keep home gardens, even farmers who have bigger fields for commercial production. Mountain South home gardens vary in size and composition, but most are significantly less than an acre in size and contain about 12 different folk crop varieties. Contemporary home gardens in the Mountain South provide all of the functions described by Eyzaguirre, Linares, and Engels above. Of particular importance to Mountain South growers are the fresh ingredients that home gardens provide for traditional regional



Figure 3.3 Eastern Cherokee Gardeners in Winter Home Garden

culinary dishes and the role that home gardens play in cultural identity and memory (see Chapter Five). Home gardens exist as milieus of memory and conservation, qualitatively different but also interpenetrating with conservation projects in the Mountain South—which are sites of memory and conservation that are more archival in nature (Nazarea 2006; see Chapter Six).

3.5 Conclusion

Agrobiodiversity in the Mountain South has a long and varied history and evolutionary trajectory. Beginning about 5000 years ago, Native Americans began to experiment with and domesticate early squashes and small seed crops, a process that continued until larger scale “three sisters” agriculture commenced in the Mississippian Period beginning in 900 AD up until



Figure 3.4 Ozark Home Gardener and Garden, Carroll County, Arkansas

European contact in the 16th century. Historical and contemporary Native Americans, in addition to Pioneer, Antebellum, and New South Euro- and African-Africans, have all made significant contributions to Mountain South agrobiodiversity. In the modern period, Mountain South farmers and gardeners have been increasingly marginalized and agrobiodiversity has declined as agriculture as a way of life has largely disappeared. Yet, home gardeners of the older generations continue to plant and save the seeds that have been passed down in their families for centuries, and newer generations of ecological farmers provide hope that Mountain South agrobiodiversity will continue to be maintained for its various cultural and utilitarian values. This chapter has provided the broader agro-historical context within which Mountain South

agrobiodiversity has evolved and presently exists. Chapter Four will analyze folk crop varieties currently being maintained in the Mountain South and the socioeconomic characteristics of growers interviewed in this study.

CHAPTER 4

CONTEMPORARY MOUNTAIN SOUTH AGROBIODIVERSITY

4.1 Introduction

To date, there has been no systematic or historical documentation of agrobiodiversity across the Mountain South. What little information that does exist resides in scattered seed catalogue descriptions, brief passages from historical works, and an occasional popular article (see Veteto 2008, 2005; Best 1999a and 1999b; and Gray 1999 for academic exceptions). The history of folk crop cultivation in the region thus resides in the historical memories, fields, and seeds of home gardeners and farmers. It is a familial and oral tradition that has been passed down through the generations since the 18th century by Mountain South people of Euro-American and African-American descent, and for thousands of years by Cherokee gardeners and the many mixed-ancestry descendants of the Southern mountains (see Appendices A through D for folk crop variety descriptions based on cultural memory banking results).

This chapter will provide an introduction and overview of the contemporary structure of agrobiodiversity across the Mountain South based on the results of this study. Detailed analysis from the results of oral history interviews, free listing exercises, and socio-economic surveys will be presented. A prominent emergent theme in this study—evidence for continuing farmer experimentation and gene flow in Appalachian seedsaving traditions—suggests that folk crop complexes are not static and are instead an ever-evolving and complex body of traditional knowledge and practice. Before concluding the chapter, a list generated by this research—and

combined with other seed lists of seedsaving projects in the region (see Appendix E)—will be compared with lists that have been generated by researchers working in other regions of North America in collaboration with the Renewing Americas Food Traditions (RAFT) alliance (Nabhan 2008). Doing so will help contextualize southern/central Appalachian and Ozark folk crop varieties within the broader study of the persistence and maintenance of agrobiodiversity across much of North America and other selected world regions. Such agrobiodiversity inventories have been identified as a key task and research methodology in research and conservation in mountain ecosystems across the world (Spehn and Körner 2009, Rhoades 2006).

4.2 Overview of Contemporary Agrobiodiversity in the Mountain South

Mountain environments worldwide are recognized as hotspots of biological diversity, both among wild and domesticated populations. Life zones, each with a characteristic biological inventory, are compressed in mountainous regions as a result of rapid altitudinal changes of climatic conditions over short distances. In recognition of the species richness in mountain landscapes, over a third of all conservation projects in the world are located in mountains (Spehn and Körner 2009).

Most of the world centers of plant domestication and agrobiodiversity have been located in mountainous landscapes. Mountains contain ideal conditions for moving crop species and varieties across ecological zones, allowing them to adapt and be isolated in new environments. Mountain life zones and microclimates create natural barriers for isolating both plant populations and farming cultures (Rhoades 2007, Brush 2004). Soils, temperature, drainage, aspect, wind exposure, and evapotranspiration are highly variable in heterogeneous mountain landscapes, providing numerous ecological niches for local isolation and adaptation. Throughout history and in the present day, mountains have provided barriers to markets and social and technological

change that threatens diversity in lowland environments. Mountain environments serve as repositories for biocultural diversity in agriculture (Rhoades 2007, Brush 2004).

Crop diversification is undoubtedly fostered by heterogeneous mountain environments, yet more recent work in ecology cautions that a high degree of niche specialization cannot be assumed (Zimmerer 1996). Crop-cultivator ties are not only results of environmental outcomes, but are fundamentally shaped by cultural practices. A non-adaptationist perspective on agroecology and crop-cultivator ties recognizes that the attitudes and symbolic expressions of farmers have high relevance to environmental resource management. Many folk crop varieties exhibit a broad-based style of adaptation to diverse farm environments and are typically exchanged through familial and culturally mediated seed flows (Zimmerer 1996).

In the Mountain South, where vertical zonation is not as extreme as in high mountain areas such as the Andes and Himalayas, crop diversity shows broad-based adaptation that is shaped by cultural attitudes and networks of seed exchanges. Strict environmental adaptation can only be assumed on very broad scales or with particular crops that are exceptions to the broad-based adaptation pattern. In southern Appalachia, certain crops such as Southern peas, watermelon, okra, and cotton grow much better and sometimes exclusively (depending on the particular variety) in the warmer, more southern parts of the range. There is one variety of potato traditionally grown on Sugar Mountain in Avery County, North Carolina—the New York Pide potato—that is demonstrably adapted to cooler, high elevations and will not grow very well in elevations less than 3000 feet (Veteto 2005). In the Ozarks, where vertical zonation is much smaller in scale than in Appalachia, broad based adaptation is nearly universal. The warmer climate of the Ozarks is more suitable to growing warmer season crops—for example, peaches and pecans grow better in the Ozarks, whereas apples and cherries are more successful and

abundant in southern Appalachia. Throughout the Mountain South, crop varieties have been diversified by geographic, economic, and social isolation. Gray (1999) describes this how this process has taken place historically in Appalachia:

Each family saved its life-sustaining vegetables and corn seed-stocks from the previous year's crop. Since the families within a hollow formed a community to themselves, and there was little contact among families in different hollows, each clan's knowledge and resources came largely from its own members. Central Appalachia remained isolated from the time of its initial settlement until the 1950s, when paved roads and improved transportation were extended into the more remote communities. During that period of isolation, there was little change in the internal approach to agriculture and little interaction with agricultural developments beyond the mountains. Rather, a folk agriculture flourished through the practice of transmitting knowledge orally and by customary example, from one generation to the next. This folk agriculture was both self-sufficient and self-contained.

The 100 to 150 year period of isolation provided for Appalachian agriculture the most ideal conditions for both natural and artificial selection, resulting in distinct varieties of vegetables, fruits, ornamentals, and field crops. Many of these crop are now identified as heirlooms... (p. 41)

Today the Mountain South is not as functionally isolated as it once was. Many outsiders live in the region and travel is much easier than it was in former years. Yet among elderly seed savers and remnant agrarian communities where the bulk of remaining traditional agrobiodiversity is still located, seed diffusion still largely takes place in familial and community-based settings, as one 61 year-old Ozarker describes:

All the families in here are related. At one time here when you turned off the highway there was thirteen consecutive Horton's [his family name]. All of them were related. They settled here. The main reason my grandfather settled right here is that there are seven springs on this farm. Water was the main source of any settlement when you start looking at house placement here in the Ozarks. The all settled within 100 yards of a spring. The actual seeds that I have here I have been collecting for several years—at least ten years—and my mother, I've got some seeds out here from her. Each one of them are old seeds that are from our family or a family adjacent to us.

I was telling you, I called my mother and she just sat down and fixed you a little sample of each one of the seeds that she had. These are bean seeds [gestures] and then she had some pumpkin seed in there—fresh beans, these are pole beans, cornfield beans, pumpkin seed. She tells where they each came from—these came from a family called the

Taylor's. We've had these seeds about 70-80 years. These other seeds she didn't actually say how long but I know that all these folks around here are 80 plus years old if they're still living and some of them are over 100. They're between 80-100 years old. All these seeds I've either eaten or had a connection to. [Interview 48]

As illustrated in the above quote, seed diffusion take place largely among elders in Mountain South communities and a commonly mentioned theme among interview participants in this study is that younger generations have little or no interest in carrying on seed saving traditions or growing their own food. However, even among elders, seed networks have dwindled from what they were in the past. Kevin Welch founded The Center for Cherokee Plants (see Chapter Six for in-depth discussion) largely because he could no longer find the Cherokee seeds he remembered from his youth and seed stocks had dwindled so much among elders that they were no longer sharing seeds like they had in former years:

So, these days we got into the Center for Cherokee Plants thing and I guess I have to give credit for the Center for Cherokee Plants to the Rattlesnake Pole bean. It actually came from talking to Sarah about it [his wife, non-Cherokee]. I was saying how I missed that variety and some of the older varieties of October beans. She asked me why I can't find them. I was explaining how it is kind of an atypical thing. Most Cherokees tend to keep their family lines of seeds around by sharing them so that it doesn't die out, or if we have a drought or early freeze or something where your crop doesn't come in, or you have a crop failure—that you can actually go and see your cousin or aunt or somebody and they'll have some seeds so that it's not totally lost, which is the normal way of doing things. But people were getting stingy [because their seed stocks had become so low] which is atypical. [Interview 29]

The Mountain South has traditionally contained all of the preconditions for high agrobiodiversity levels: diverse ecological niches created by environmental variability, geographic, economic, and sociocultural isolation; and a long-standing agricultural tradition among diverse cultural groups. In addition, according to Appalachian native and heirloom seed expert Bill Best (personal communication), the cultural conservatism and natural inquisitiveness of Southern mountaineers allows for both the maintenance of time-honored heirlooms and innovation if a variant or mutation is noticed in the process of seed grow outs. In recent years



Figure 4.1 Candyroaster Squash (on right), Macon County, North Carolina

seed saving traditions have been increasingly threatened by a host of developments associated with the modernization process (see Chapter Three). This chapter explores agricultural biodiversity and the socioeconomic characteristics among seed savers across southern Appalachia and the Ozarks and seeks to inventory and assess existing agrobiodiversity levels across the Mountain South.

Among the sixty growers formally interviewed and other individuals consulted during the research process across the Mountain South, four variety lists (one each for non-Cherokee

Table 4.1 Total *N* Folk Crop Varieties Documented

	<i>N</i>
Western North Carolina	352
Non-Cherokee	253
Eastern Band of Cherokee Indians	128
Ozarks	191
Non-Cherokee	167
Cherokee Nation	29
Total	543

Appalachians, EBCI, non-Cherokee Ozarkers, and CN) with associated (agri)cultural histories were created using memory banking methodologies (see Appendices A-D). The variety list from Appalachia contains a total of 352 folk crop varieties, among 43 species (see Table 4.2) and the Ozark list contains a total of 191 folk crop varieties, among 39 species (see Table 4.4). 543 total folk crop varieties from the Mountain South, among 53 species, were documented in this study (Table 4.1). In the following sections results from each sub-group in the study region will be analyzed.



Figure 4.2 Tater Onions, Yancey County, North Carolina

4.3 Agrobiodiversity Results from Non-Cherokee Appalachian Growers

253 total folk crop varieties are being grown among thirty-two species of plants by non-Cherokee Appalachian growers (see Table 4.2). Beans were most numerous among varieties being maintained (n=66) followed by apples (n=49), tomatoes (n=41) and other vegetables and fruits. The fifteen growers formally interviewed were maintaining 311 traditional varieties (this includes 58 varieties that are maintained by multiple growers, so the total is higher than the 253



Figure 4.3 Cherokee Tender October Beans

total distinct heirloom varieties grown cited above) in their gardens and fields, an average of 20.73 varieties per grower. Some of the most culturally significant folk crop varieties include Mr. Stripey, a large yellow tomato with red streaks that is a preferred “slicer” for sandwiches because of its low acid content and a sweet flavor; Candyroaster squash, a sweet winter squash (*C. maxima*) that originated with the Eastern Cherokee and has been called “the best baking squash in the world” by Fedco Seed Company (2003; see Figure 4.1); Tater onions, a spicy onion that overwinters, is good for making relish, and has tops and bulbs that can both be eaten (see



Figure 4.4 Cherokee Butterbeans

Figure 4.2); and Hickory King corn, a tall dent corn that is either yellow or white and is regarded as the premiere hominy corn in the region.

4.4 Agrobiodiversity Results from the Eastern Band of Cherokee Indians

128 total folk crop varieties are being grown among thirty-two species of plants by the Eastern Cherokee (see Table 4.3). Beans were most numerous among varieties being maintained

Table 4.2 Total Appalachian Folk Crop Varieties Documented

Plant Type	Scientific Name	Total Varieties N=352	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i> <i>P. coccineus</i> <i>Dolichos lablab</i> <i>Richinus communis</i>	101	Greasy Cutshort, Tender October, Little White Bunch, Pink Tip, Cherokee Butterbean, Peanut, Lazywife, Turkey
Apple	<i>Malus X domestica</i>	63	Belflower, Crows Egg, Fallawater, Winesap
Tomato	<i>Lycopersicon esculentum</i>	44	Stripey, Cow Tits, Red Oxheart, Tommytoe, White
Corn	<i>Zea mays</i>	28	Hickory King, Wild Goose, Puddin Pile, Indian
Squash/Pumpkin	<i>Cucurbita maxima</i> <i>C. argyrosperma</i> <i>C. pepo</i>	24	Blue Candyroaster, Cushaw, Grey Winter Squash, Sugar Pumpkin
Greens	<i>Brassica juncea</i> <i>Lepidum sativum</i> <i>Rorippa nasturtium</i>	10	Creasy Greens, Curly Mustard, Slick Mustard
Flowers	<i>Dahlia</i> spp. <i>Tagetes</i> spp. <i>Helianthus annuus</i>	9	Dinner Plate Dahlia, Rust Colored Marigold, Big Purple Dahlia, Sunflower
Okra	<i>Abelmoschus esculentus</i>	9	Long Pod Green, Short Green Pod, White Pod
Gourd	<i>Lagenaria siceraria</i> <i>Luffa acutangula</i> <i>Trichosanthes anguina</i>	7	Birdhouse, Vine Okra, Dipper, Snake
Sweet Potato	<i>Ipomoea batatas</i>	7	Poplar Root, Sweet Gum
Grape	<i>Vitis</i> spp.	6	Pond Mountain, Pink, White
Cowpea	<i>Vigna unguiculata</i>	5	Clay, Beige Crowder
Pepper	<i>Capsicum annum</i>	5	Cowhorn, Doorknob, Pencil
Cucumber	<i>Cucumis sativus</i>	4	Little White, Pickling
Raspberry	<i>Rubus</i> spp.	4	Black, Red, Yellow
Cherry	<i>Prunus avium</i>	3	Sweet, Starks, Wild
Onion	<i>Allium cepa</i>	3	Tater, Walking, Winter
Peach	<i>Prunus persica</i>	3	Little White, Purple Indian
Plum	<i>Arachis hypogaea</i>	3	Blue Danville, Wild
Garlic	<i>Allium sativum</i>	2	Old-time, Elephant
Sorghum	<i>Sorghum bicolor</i>	2	Ashe County Cane
Asparagus	<i>Asparagus officinalis</i>	1	Beech Mountain
Cantaloupe	<i>Cucumis melo</i> var. <i>reticulatus</i>	1	Little Cantaloupe
Gooseberry	<i>Ribes</i> spp.	1	Gooseberry
Ground Cherry	<i>Physalis pubescens</i>	1	Yellow
Jerusalem Artichoke	<i>Helianthus tuberosus</i>	1	Jerusalem Artichoke
Jobs Tears	<i>Cox lacryma-job</i>	1	Cornbeads
Lettuce	<i>Lactusa sativa</i>	1	Greenleaf
Peanut	<i>Arachis hypogaea</i>	1	Georgia Red
Potato	<i>Solanum tuberosum</i>	1	Irish Cobbler
Rhubarb	<i>Rheum rhabarbarum</i>	1	Rhubard

Table 4.3 Non-Cherokee Appalachian Folk Crop Varieties Documented

Plant Type	Scientific Name	Total Varieties N=253	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i> <i>P. coccineus</i>	66	Greasy Cutshort, Little White Bunch, Pink Tip, Peanut, Lazywife, Turkey
Apple	<i>Malus X domestica</i>	49	Belflower, Crows Egg, Fallwater, Winesap
Tomato	<i>Lycopersicon esculentum</i>	41	Stripey, Cow Tits, Red Oxheart, Tommytoe, White
Squash/Pumpkin	<i>Cucurbita maxima</i> <i>C. argyrosperma</i> <i>C. pepo</i>	18	Blue Candyroaster, Cushaw, Grey Winter Squash, Sugar Pumpkin
Corn	<i>Zea mays</i>	15	Hickory King, Wild Goose, Puddin Pile, Indian
Flowers	<i>Dahlia</i> spp. <i>Tagetes</i> spp. <i>Helianthus annuus</i>	9	Dinner Plate Dahlia, Rust Colored Marigold, Big Purple Dahlia, Sunflower
Sweet Potato	<i>Ipomoea batatas</i>	7	Poplar Root, Sweet Gum
Okra	<i>Abelmoschus esculentus</i>	6	Long Pod Green, Short Green Pod, White Pod
Grape	<i>Vitis</i> spp.	5	Pond Mountain, Pink, White
Pepper	<i>Capsicum annum</i>	5	Cowhorn, Doorknob, Pencil
Cucumber	<i>Cucumis sativus</i>	4	Little White, Pickling
Raspberry	<i>Rubus</i> spp.	4	Black, Red, Yellow
Cowpea	<i>Vigna unguiculata</i>	3	Clay, Beige Crowder
Greens	<i>Brassica juncea</i> <i>Lepidum sativum</i>	3	Creasy Greens, Curly Mustard, Slick Mustard
Gourd	<i>Lagenaria siceraria</i> <i>Luffa acutangula</i>	3	Birdhouse, Vine Okra, Dipper
Onion	<i>Allium cepa</i>	3	Tater, Walking, Winter
Cherry	<i>Prunus avium</i>	2	Sweet, Starks
Garlic	<i>Allium sativum</i>	2	Old-time, Elephant
Plum	<i>Arachis hypogaea</i>	2	Big Blue, Blue Danville
Sorghum	<i>Sorghum bicolor</i>	2	Ashe County Cane
Asparagus	<i>Asparagus officinalis</i>	1	Beech Mountain
Cantaloupe	<i>Cucumis melo</i> var. <i>reticulatus</i>	1	Little Cantaloupe
Lettuce	<i>Lactusa sativa</i>	1	Greenleaf
Peach	<i>Prunus persica</i>	1	Little White

Table 4.4 Eastern Cherokee Folk Crop Varieties

Plant Type	Scientific Name	Total Varieties N=128	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i> <i>P. coccineus</i> <i>Dolichos lablab</i> <i>Richinus communis</i>	45	Tender October, Cherokee Butterbean, Yellow Hull Cornfield, Greasy Cutshort, Striped Creaseback
Apple	<i>Malus X domestica</i>	20	Green striped Winesap, Horse, Lunsford, Sheepnose, Stamen
Corn	<i>Zea mays</i>	14	Cherokee White Flour, Cherokee Yellow Flour, Pearl Hominy
Greens	<i>Brassica</i> spp. <i>Lepidum sativum</i> <i>Rorippa nasturtium</i>	8	Cherokee Mustard, Creasy Greens, Watercress, Winter Mustard
Squash/Pumpkin	<i>Cucurbita maxima</i> <i>C. argyrosperma</i> <i>C. pepo</i>	8	Old-time Pie Pumpkin, Roughbark Cherokee Candyroaster, Cushaw, White Winter Squash
Tomato	<i>Lycopersicon esculentum</i>	7	Cherokee Purple, Walter Johnson Stripey
Gourd	<i>Lagenaria siceraria</i> <i>Luffa acutangula</i> <i>Trichosanthes anguina</i>	6	Caveman, Vine Okra, Dipper, Snake
Okra	<i>Abelmoschus esculentus</i>	3	Red, Green
Cowpea	<i>Vigna unguiculata</i>	3	Clay, Little Red Field, Whipporwill
Grape	<i>Vitis</i> spp.	2	Pink, Purple
Peach	<i>Prunus persica</i>	2	Purple Indian, White Indian
Cherry	<i>Prunus avium</i>	1	Wild
Gooseberry	<i>Ribes</i> spp.	1	Gooseberry
Ground Cherry	<i>Physalis pubescens</i>	1	Yellow
Jerusalem Artichoke	<i>Helianthus tuberosus</i>	1	Jerusalem Artichoke
Jobs Tears	<i>Cox lacryma-job</i>	1	Cornbeads
Peanut	<i>Arachis hypogaea</i>	1	Georgia Red
Pear	<i>Pyrus communis</i>	1	Barlett
Plum	<i>Prunus</i> spp.	1	Wild
Potato	<i>Solanum tuberosum</i>	1	Irish Cobbler
Rhubarb	<i>Rheum rhabarbarum</i>	1	Rhubard

Table 4.5 Total Ozark Folk Crop Varieties Documented

Plant Type	Scientific Name	Total Varieties N=191	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i>	37	Thousand-to-One, Creaseback, Cutshort, Potato, Crawdad, Booker, White Half-runner
Corn	<i>Zea mays</i>	26	Pencil Cob, Tennessee Red Cob, White Hickory Cane, Red Indian
Cowpea	<i>Vigna unguiculata</i>	17	Whipporwill, Red Ripper, White Crowder, Goose, Rice, Pink-eyed Purple Hull, Speckled
Peach	<i>Prunus persica</i>	14	White Cling, Mountain Gold, Alberta, Indian
Gourd	<i>Lagenaria siceraria</i> <i>Luffa acutangula</i> <i>Trichosanthes anguina</i>	11	Dipper, Vine Okra, Dishrag, Bird House, Buffalo, Basket, Kettle
Okra	<i>Abelmoschus esculentus</i>	9	Cowhorn, Texas Long Horn, Long-podded White
Tomato	<i>Lycopersicon esculentum</i>	9	Nettie's Juice, Texas Pink, Big Orange
Apple	<i>Malus X domestica</i>	6	Hensley/Cash
Grape	<i>Vitis</i> spp.	6	Bronze Muscadine, Scuppernong, White Muscadine
Squash/Pumpkin	<i>Cucurbita maxima</i> <i>C. argyrosperma</i> <i>C. pepo</i>	6	Old-fashioned Field Pumpkin, Cushaw
Flowers	<i>Celosia</i> spp., <i>Clematis</i> spp. <i>Euphorbia pulcherrima</i> <i>Helianthus annuus</i> <i>Lychnis coronaria</i>	5	Cockcomb, Old-time Poinsettia, Rose Campion, Sunflower
Pear	<i>Pyrus communis</i>	5	Barlett, Small Hard
Pecan	<i>Carya illinoensis</i>	5	Mayhan, Stewart
Sorghum	<i>Sorghum bicolor</i>	5	Tennessee Tall Girl, Honey Drip
Watermelon	<i>Citrullus lanatus</i>	5	Yellow Meated, Moon and Stars
Pepper	<i>Capsicum annum</i>	4	Bouquet, House
Garlic	<i>Allium sativum</i>	3	Old-time Hardneck, Old-time Softneck
Cucumber	<i>Cucumis sativus</i>	2	White, Long Slim
Fig	<i>Ficus carica</i>	2	Brown Turkey, Celeste
Onion	<i>Allium cepa</i>	2	Winter
Plum	<i>Prunus</i> spp.	2	Red, Wild
Tobacco	<i>Nicotiana rustica</i>	2	Old-time
Blackberry	<i>Rubus</i> spp.	1	Black
Blackhaw	<i>Viburnum prunifolium</i>	1	Blackhaw
Cherry	<i>Prunus avium</i>	1	Cherokee
Greens	<i>Rudbeckia laciniata</i>	1	Sochani
Jerusalem Artichoke	<i>Helianthus tuberosus</i>	1	Jerusalem Artichoke
Lemon Balm	<i>Melissa officinalis</i>	1	Lemon Balm
Mulberry	<i>Morus</i> spp.	1	Black
Peanut	<i>Arachis hypogaea</i>	1	Grannies Red Skin
Strawberry	<i>Fragaria X ananassa</i>	1	Cardinal
Sweet Potato	<i>Ipomoea batatas</i>	1	Japanese Leaf

Table 4.6 Non-Cherokee Ozark Folk Crop Varieties Documented

Plant Type	Scientific Name	Total Varieties N=167	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i>	30	Thousand-to-One, Creaseback, Cutshort, Potato, Booker, White Half-runner
Corn	<i>Zea mays</i>	18	Pencil Cob, Tennessee Red Cob, White Hickory Cane
Cowpea	<i>Vigna unguiculata</i>	16	Whipporwill, Red Ripper, White Crowder, Goose, Rice, Speckled, Mississippi Silver
Peach	<i>Prunus persica</i>	14	White Cling, Mountain Gold, Alberta, Indian
Gourd	<i>Lagenaria siceraria</i> <i>Luffa acutangula</i> <i>Trichosanthes anguina</i>	9	Dipper, Vine Okra, Dishrag, Bird House, Kettle
Tomato	<i>Lycopersicon esculentum</i>	9	Nettie's Juice, Texas Pink, Big Orange
Okra	<i>Abelmoschus esculentus</i>	8	Cowhorn, Texas Long Horn, Long-podded White
Grape	<i>Vitis</i> spp.	6	Bronze Muscadine, Scuppernong, White Muscadine
Apple	<i>Malus X domestica</i>	5	Hensley/Cash
Flowers	<i>Celosia</i> spp., <i>Clematis</i> spp. <i>Euphorbia pulcherrima</i> <i>Helianthus annuus</i> <i>Lychnis coronaria</i>	5	Cockcomb, Old-time Poinsettia, Rose Campion, Sunflower
Squash/Pumpkin	<i>Cucurbita maxima</i> <i>C. argyrosperma</i> <i>C. pepo</i>	5	Old-fashioned Field Pumpkin, Cushaw
Pear	<i>Pyrus communis</i>	5	Barlett, Small Hard
Sorghum	<i>Sorghum bicolor</i>	5	Sea Island Cane, Seedless Orange
Watermelon	<i>Citrullus lanatus</i>	5	Yellow Meated, Moon and Stars
Pecan	<i>Carya illinoensis</i>	4	Mayhan, Stewart
Pepper	<i>Capsicum annum</i>	4	Bouquet, House
Cucumber	<i>Cucumis sativus</i>	2	White, Long Slim
Fig	<i>Ficus carica</i>	2	Brown Turkey, Celeste
Garlic	<i>Allium sativum</i>	2	Old-time Hardneck, Old-time Softneck
Plum	<i>Arachis hypogaea</i>	2	Red, Wild
Blackberry	<i>Rubus</i> spp.	1	Black
Blackhaw	<i>Viburnum prunifolium</i>	1	Blackhaw
Cherry	<i>Prunus avium</i>	1	Cherokee
Jerusalem Artichoke	<i>Helianthus tuberosus</i>	1	Jerusalem Artichoke
Lemon Balm	<i>Melissa officinalis</i>	1	Lemon Balm
Mulberry	<i>Morus</i> spp.	1	Black
Onion	<i>Allium cepa</i>	1	Winter
Peanut	<i>Arachis hypogaea</i>	1	Grannies Red Skin
Strawberry	<i>Fragaria X ananassa</i>	1	Cardinal
Sweet Potato	<i>Ipomoea batatas</i>	1	Japanese Leaf
Tobacco	<i>Nicotiana rustica</i>	1	Old-time

Table 4.7 Cherokee Nation Folk Crop Varieties Documented

Plant Type	Scientific Name	Total Varieties N=29	Examples of Local Variety Names
Bean	<i>Phaseolus vulgaris</i>	8	Crawdad, Cherokee Trail of Tears, Black Turkey Grizzard
Corn	<i>Zea mays</i>	8	Cherokee White Eagle, Red Indian
Gourd	<i>Lagenaria siceraria</i>	3	Buffalo, Basket
Cowpea	<i>Vigna unguiculata</i>	2	Pink-eyed Purple Hull
Apple	<i>Malus X domestica</i>	1	Yellow Delicious Seedling
Garlic	<i>Allium sativum</i>	1	Old-time
Greens	<i>Rudbeckia laciniata</i>	1	Sochani
Okra	<i>Abelmoschus esculentus</i>	1	Green
Onion	<i>Allium cepa</i>	1	Winter
Pecan	<i>Carya illinoensis</i>	1	Small River Seedling
Squash/Pumpkin	<i>Cucurbita maxima</i>	1	Georgia Candyroaster
Tobacco	<i>Nicotiana rustica</i>	1	Cherokee Ceremonial

(45) followed by apples (20), corn (14) and other vegetables and fruits. The fifteen growers formally interviewed were maintaining 185 traditional varieties (this includes 56 varieties that are maintained by multiple growers, so the total is higher than the 128 total distinct heirloom varieties grown cited above) in their gardens and fields, an average of 12.33 varieties per grower. Some of the most culturally significant folk crop varieties include Cherokee White Flour Corn, a tall white flour corn that is only grown among the Eastern Cherokee and is used in making bean bread, corn pone, hominy, lye dumplings, and is eaten fresh in the “roasting ear” stage (see

Figure 6.4); Cherokee Tender October Bean (*P. vulgaris*; see Figure 4.4), a round and beige colored bean that is mottled with maroon streaks and is eaten as a dry or “shelly” (immature, early harvested) soup bean; and Cherokee Butterbean (*P. coccineus*; see Figure 4.3), a very large bean of various colors that is used as an ingredient in bean bread, and is eaten as soup bean in both shelly and dried stages of processing.

4.5 Agrobiodiversity Results from Non-Cherokee Ozark Growers

In the Ozarks, non-Cherokee growers were found to be maintaining 167 distinct heirloom varieties among 38 species, which is significantly lower than the results from non-Cherokee Appalachian mountaineers (see Table 4.4). It was also more difficult to locate seed savers in the Ozarks due to various historical and agroecological reasons (see Chapters Three and Seven). Bean varieties were most numerous among non-Cherokee Ozarkers (n=30), followed by corn (n=18), southern peas (n=16), and peaches (n=14). The twenty-six growers interviewed were maintaining a total number of 202 varieties, including varieties that are being saved by multiple growers, an average of 7.48 varieties per grower. Culturally significant cultivars from the Ozarks include the Thousand-to-One bean (see Figure 4.5 below), a bean that originated in Wayne County, Tennessee in the 19th century that has oval beige seeds of medium size with black speckles and mottles on them, is eaten fresh, canned and frozen, and is very popular in Searcy County, Arkansas; Pencil Cob corn (see Figure 4.5), a yellow-seeded dent corn with a very small cob that is dependable, germinates well, and is used for cornbread and hominy and to roll fish in for frying; and Rice Pea, a very small, cream colored pea with a black eye, cooks fast and has a unique flavor quite different than black-eyed peas, and is typically eaten on top of cornbread.



Figure 4.5 Pencil Cob Corn (top) and Thousand-to-One Bean, Searcy County, Arkansas



Figure 4.6 Indian Corn, Cherokee Nation, Oklahoma

4.6 Agrobiodiversity Results from the Cherokee Nation of Oklahoma

The fewest folk crop varieties were found among the Cherokee Nation of Oklahoma (CN). 29 varieties among 13 species were documented, an average of 9.67 varieties per grower among three growers. The three mostly commonly grown heirloom crop types were beans (n=8), corn (n=7), and gourds (n=3). Significant attempts were made to include more Cherokee Nation heirloom growers, but severe erosion of the gardening tradition among the Western Cherokee made it very difficult to locate CN growers (the original research plan was to interview fifteen

CN growers to replicate the Eastern Cherokee phase of research—see Chapters Three and Six for further discussion). Culturally significant varieties—among the limited cultivars located— included Indian Corn, a flinty corn with a very small cob and kernels that are multi-colored (containing yellow, red, dark red, and blue kernels) and eaten both fried and boiled (see Figure 4.6 above); Kochani (Cutleaf Coneflower, *Rudbeckia laciniata*), a traditional favorite spring green of the Cherokee that is both harvested wild and cultivated in gardens and prepared by boiling in water and discarding the water several times; and an old-time variety of garlic that is used to flavor foods, as medicine for colds, and to wear around the neck to ward off skillies (a type of spirit sent out by witch doctors, boogers and shapeshifters—all supernatural beings who can cause harm to humans):

That was the one thing [Old-time Garlic] he mixed with other things and that if you wear it around your neck it will keep the skillies away because it smelled so bad.

The skillies are witch doctors and boogers...They can come in your house...they used to be stronger than what they are now. They don't have the strength that they used to have. You know in the morning they would go out around your house and the smoke would protect the house but if they were real strong they could come in underground.

They could change form, mostly into birds a lot...I'm thinking of one particular lady that lived down the road just a little ways...she was a strong, strong skillie.

But don't be afraid, because if you're afraid—I've always been taught—then it can hurt you. If you don't have fear and you don't believe then...it can't hurt you. [Interview 59]

4.7 Lost Varieties

Growers were also questioned about varieties that they remembered growing in the past but are no longer maintaining. This is a methodology that has rarely been used in agrobiodiversity studies (Nabhan, personal communication; for an exception see Veteto 2008), but has excellent potential for constructing and corroborating historical baselines when used in combination with historical written sources. A total of 81 lost varieties were documented for the

Mountain South, 51 in western North Carolina and 30 in the Ozarks (see Appendices F and G for lost variety descriptions). The varieties lost results for the two regions were commensurate with the varieties still being maintained in each in region. The higher number of lost varieties in southern Appalachia indicates that agrobiodiversity levels were higher than in the Ozarks in the past as well as in the present, and that knowledge about heirloom varieties maintained and lost is higher in western North Carolina than in the Ozarks. Since these lost varieties now exist in the memories of growers and not in their seed collections, there are limitations in placing too much emphasis on historical memory. Prominently, some growers have sharper memories than others and it is more difficult to recall important details about folk crop varieties that may not have been grown for several decades in comparison with cultivars that are still being maintained contemporaneously. Yet, inquiring about lost varieties does give us important information about cultivars that are likely lost to time and some sense of what agrobiodiversity levels may have been in the past.

The total number of lost varieties that growers reported in the Mountain South (n=199) is higher than number of lost varieties that are reported here (n=81; see Table 4.8). This discrepancy is due to the phenomenon of certain varieties being lost to particular growers that are still being maintained by others. For agrobiodiversity researchers, it is more useful to know the total lost varieties in a region or community rather than every variety that is reported as being lost by every grower. The results are reported regionally instead of according to subgroups as they are above with varieties maintained (Tables 4.3, 4.4, 4.6, 4.7) in order to get a better idea of total varieties lost for each region, and to avoid duplicating varieties that have been lost across subgroups. In addition, this study is focused on persistence, so loss will not be investigated in as much detail.

When comparing varieties lost across the Mountain South and the two regions, it is apparent that there are a lot more varieties being currently maintained than varieties lost that growers can remember. In the Mountain South total, 6.7 varieties are maintained for every variety that has been lost; in western North Carolina the ratio is 6.9:1 and in the Ozarks it is 6.37:1. It might be tempting to interpret these figures as evidence that growers in the Mountain South are doing an excellent job of conserving folk crop varieties, maintaining far more heirloom cultivars than are being lost. However, at least two main factors mitigate against prematurely assuming this interpretation to be true. First, as mentioned above, the varieties lost lists are only those lost varieties that growers could remember being grown in the past. There may be other varieties that were grown in their families or communities that they have forgotten about over the years. Secondly, since the farming population has decreased so drastically in the Mountain South over the past 100 years, there are far fewer growers left to interview than there would have been in former years. It is likely the case that many folk crop varieties grown by families and farmers in the past are lost to time as many individuals have ceased growing heirloom cultivars, moved out of the region, or are deceased.

In addition to providing useful information about heirloom varieties that have likely fallen out of circulation in the Mountain South, the lists of lost varieties provided here can be used as supplemental data for a future in-depth study on historical Mountain South agrobiodiversity.

Table 4.8 Lost Varieties, Mountain South Total

Plant Type	Scientific Name	Total Varieties N=81	Examples of Local Variety Names
Corn	<i>Zea mays</i>	20	Red Sweet, Cherokee Flint, White Cap
Bean	<i>Phaseolus vulgaris</i> <i>P. lunatus</i>	16	Little Red Bunch, Eight Bushel, Purple Hull, Black Bunch, Speckled Butterbean
Squash/Pumpkin	<i>Cucurbita</i> spp.	12	Black Winter Squash, Dark Green Coushaw
Sweet Potato	<i>Ipomoea batatas</i>	6	Nancy Hall, Texas White
Potato	<i>Solanum tuberosum</i>	4	Old Indian Purple, Red Irish
Apple	<i>Malus X domestica</i>	3	Black Hoover, Duckett
Brassicas	<i>Brassica rapa</i>	3	White Lady Turnip, Tender Green Turnip
Watermelon	<i>Citrillus lanatus</i>	3	Cleckley Sweet, Stone Mountain
Flowers	<i>Papaver somniferum</i>	2	Old Poppy, Night Blooming Cereus
Sorghum	<i>Sorghum bicolor</i>	2	Sugar Drip, Georgia Poor Land
Cantaloupe	<i>Cucumis melo</i> var. <i>reticulatus</i>	1	Rocky Ford
Cherry	<i>Prunus avium</i>	1	Black Heart
Cotton	<i>Gossypium</i> spp.	1	Big Boll Wrowden
Lettuce	<i>Lactusa sativa</i>	1	Winter
Parsnip	<i>Pastinaca sativa</i>	1	Old-time
Peach	<i>Prunus persica</i>	1	Bella Georgia
Peanut	<i>Arachis hypogaea</i>	1	Black
Pear	<i>Pyrus communis</i>	1	Magnus
Plumgranny	<i>Cucumis melo</i>	1	Plumgranny
Strawberry	<i>Fragaria X ananassa</i>	1	Blakemore

Table 4.9 Lost Varieties, Western North Carolina

Plant Type	Scientific Name	Total Varieties N=51	Examples of Local Variety Names
Corn	<i>Zea mays</i>	14	Red Sweet, Cherokee Flint, Wilkes
Squash/Pumpkin	<i>Cucurbita spp.</i>	12	Black Winter Squash, Dark Green Coughaw, Simbling
Bean	<i>Phaseolus vulgaris</i>	11	Bird Eye, Little Red Bunch, Eight Bushel, Purple Hull, Wren Eggs
Potato	<i>Solanum tuberosum</i>	4	Old Indian Purple, Red Irish, Sequoyah
Sweet Potato	<i>Ipomoea batatas</i>	3	Short White, Texas White
Apple	<i>Malus X domestica</i>	2	Black Hoover, Duckett
Flowers	<i>Papaver somniferum</i>	2	Old Poppy, Night blooming Cereus
Brassica	<i>Brassica rapa</i>	1	Old-time Seven Top Turnip
Parsnip	<i>Pastinaca sativa</i>	1	Old-time
Sorghum	<i>Sorghum bicolor</i>	1	Sugar Drip

Table 4.10 Lost Varieties, Ozarks

Plant Type	Scientific Name	Total Varieties N=30	Examples of Local Variety Names
Corn	<i>Zea mays</i>	6	White Cap, Early Golden Glow, Yellow Popcorn
Bean	<i>Phaseolus vulgaris</i> <i>P. lunatus</i>	5	Black Bunch, Bird Egg, Speckled Butterbean
Sweet Potato	<i>Ipomoea batatas</i>	3	Nancy Hall, All Gold
Watermelon	<i>Citrullus lanatus</i>	3	Cleckley Sweet, Stone Mountain, Tom Watson
Brassica	<i>Brassica rapa</i>	2	Tender Green Turnip, White Lady Turnip
Apple	<i>Malus X domestica</i>	1	Lodi
Cantaloupe	<i>Cucumis melo</i> var. <i>reticulatus</i>	1	Rocky Ford
Cherry	<i>Prunus avium</i>	1	Black Heart
Cotton	<i>Gossypium spp.</i>	1	Big Boll Wrowden
Lettuce	<i>Lactusa sativa</i>	1	Winter
Peach	<i>Prunus persica</i>	1	Bella Georgia
Peanut	<i>Arachis hypogaea</i>	1	Black
Pear	<i>Pyrus communis</i>	1	Magnus
Plumgranny	<i>Cucumis melo</i>	1	Plumgranny
Sorghum	<i>Sorghum bicolor</i>	1	Georgia Poor Land
Strawberry	<i>Fragaria X ananassa</i>	1	Blakemore

4.8 Socio-Economic Background of the Growers

Using benchmark socioeconomic surveys as suggested by Nazarea's (1998) memory banking protocols, several key characteristics of Mountain South heirloom growers were investigated. The results from the surveys (see Table 4.8 below) among Mountain South heirloom growers show that they are predominately male, elderly, retired, Baptist, low-income home gardeners with less than a high school level of education. On average, each grower was maintaining about twelve heirloom varieties on 1.8 acres of land and all but seven of the growers (n=53) were producing primarily for household consumption in home gardens. Among the 53 growers who responded to a question about their ethnic origins, most were of mixed heritage, which is consistent with Mountain South settlement history (see Chapter Two). For example, one Ozarker self-identified as having degrees of German, English, Scottish, Black Dutch, French, and Native American ancestry. Primary ethnic heritages self-identified were (in descending order from most to least): Eastern Cherokee (15), Scots-Irish (12), Irish (6), English (5), German (4), Scottish (3), Oklahoma Cherokee (3), English (2), Welch (1), Plain Old American (1—no knowledge of other origins), and African-American (1).

A multiple correlation analysis was run to cross-check socio-economic variation in relation to agrobiodiversity in three ways—using the number of crop varieties known, the number of varieties maintained, and the number of varieties lost, as the separate dependent variables on each trial (see Table 4.16 below). The relationships between each of these knowledge indicators are highly commensurate with the sociodemographic variables they were correlated against: age, years of education, income, acres of land in cultivation, etc. In general, the seedsavers whose knowledge and involvement in heirloom cultivation are highest are those whose incomes are proportionally lower. This can be seen by the negative correlation coefficient

Table 4.11 Socioeconomic Data, Mountain South Total

	Gender	Age (Mean)	Income (Median Household)	Education (Mean years)	Acres Grown (Median)	Religion
Western NC	26 male 4 female	68.4	25,000	10.2	2.882	Baptist (n=20)
Ozarks	16 female 14 male	67.4	25,000	13.07	0.78	Baptist (n=5)
Total	40 male 20 female	67.69	25,000	11.74	1.83	Baptist (n=25)

Table 4.12 Socioeconomic Data From 15 Non-Cherokee Appalachian Heirloom Growers

	Average
N Heirloom Varieties Grown	20.73
Acres in Production	4.09
Age	66.73
Annual Median Household Income (N=12)*	\$ 24,500 (Median)
Years of Education (N=12)*	9.5

*several growers chose not to provide this data on the survey and this is reflected in the lower number of responses.

Table 4.13 Socioeconomic Data From 15 Eastern Cherokee Heirloom Growers

	Average
N Heirloom Varieties Grown	12.33
Acres in Production	1.68
Age	70.07
Annual Median Household Income (N=13)*	\$ 25,000 (Median)
Years of Education (N=13)*	10.69

*several growers chose not to provide this data on the survey and this is reflected in the lower number of responses.

Table 4.14 Socioeconomic Data From 27 Non-Cherokee Ozark Heirloom Growers

	Average
N Heirloom Varieties Grown	7.481
Acres in Production	0.838
Age	67.59
Annual Median Household Income (N=24)*	\$ 26,250 (Median)
Years of Education (N=26)*	13.31

*several growers chose not to provide this data on the survey and this is reflected in the lower number of responses.

Table 4.15 Socioeconomic Data From 3 Cherokee Nation Heirloom Growers

	Average
N Heirloom Varieties Grown	9.67
Acres in Production	0.283
Age	65.67
Annual Median Household Income	\$ 15,000 (Median)
Years of Education	11

scores, which reveal an inverse relationship between heirloom plant knowledge and income. An inverse relationship can also be seen between heirloom plant knowledge and years of education. Taken together, these analyses confirm that agrobiodiversity is persistent among low income residents with less than a high school equivalency of formal education. Table 4.16 also shows that as the age of growers increases, they are either losing more heirloom varieties or have more memories of more heirloom varieties that have been lost (significant at the $p < .05$ level). The

number of varieties lost is also negatively correlated to level of education (significant at the $p < .05$ level), which shows that individuals with higher levels of education are either losing less heirloom cultivars or have fewer memories of the varieties that they have lost.

To assess relative levels of heirloom cultivar knowledge, a series of T-tests was also completed to compare the mean level of heirloom plant knowledge between Southern Appalachian and the Ozarks. Each of the three tests, run separately for each of the three knowledge indicators, reveals a similar trend. The proprietors of genetic diversity in the form of seedsaving are significantly more knowledgeable about heirloom varieties in the Appalachian region ($p < .001$, $p < .001$, $p < .001$) (see Table 4.17 below). Appalachian residents shared substantially more information about the topic as evidenced in the length of their freelists, in addition to the supplemental patterns of preferred uses and expressive wisdom about heirloom varieties. Taken together, the descriptive and inferential socioeconomic statistical analyses illustrate a number of relevant patterns associated with agrobiodiversity: most of the more knowledgeable respondents are male, Appalachian, low-income, home gardeners with less than twelve years of formal education. Cultural knowledge associated with heirloom cultivars is more prevalent in southern Appalachia than in the Ozark mountain bioregion.

An analysis of variance (ANOVA) was also completed for total varieties known (maintained and lost) across all four Mountain South subgroups (see Table 4.18 below). The ANOVA takes the data for all four subgroups and compares their response patterns to every other group using the t-test. Significant differences in response patterns are apparent between non-Cherokee Appalachians and non-Cherokee Ozarkers and also between The Eastern Cherokee and non-Cherokee Ozarkers. No significant difference is seen between Cherokee Nation participants and other subgroups because of the small sample size ($n=3$) for the CN.

Table 4.16 Multiple Correlation Analysis for Total Varieties Known, Maintained, and Lost in the Mountain South

	N Varieties Known	Age	Years Education	Acres in Production	Household Income
N Varieties Known	1				
Age	0.06	1			
Years Education	-0.29	-0.46**	1		
Acres in Production	-0.11	-0.20	0.16	1	
Household Income	-0.22	-0.41**	0.44**	0.15	1

	N Varieties Maintained	Age	Years Education	Acres in Production	Household Income
N Varieties Maintained	1				
Age	-0.07	1			
Years Education	-0.17	-0.46**	1		
Acres in Production	-0.05	-0.20	0.16	1	
Household Income	-0.14	-0.41**	0.44**	0.15	1

	N Varieties Lost	Age	Years Education	Acres in Production	Household Income
N Varieties Lost	1				
Age	0.32*	1			
Years Education	-0.36*	-0.46**	1		
Acres in Production	-0.17	-0.20	0.16	1	
Household Income	-0.26	-0.41**	0.44**	0.15	1

* significant at the p<.05 level

** significant at the p<.01 level

Table 4.17 T Test for Difference of Means: Cultivars Known, Maintained, and Lost for Appalachian Respondents (n=30) and Ozark Respondents (n=30)

	Appalachia	Ozarks
Mean of Total Varieties Known (maintained and lost)*	21.13	9.73
Mean of Varieties Maintained*	16.53	7.7
Mean of Varieties Lost*	4.6	2.03

* T-test results yielding significance of $p < .01$.

Table 4.18 Analysis of Variance (ANOVA) for Total Varieties Known for All Sub-groups

	CN	Non-Cherokee Ozarkers	EBCI	Non-Cherokee Appalachians
Non-Cherokee Appalachians	$p = .146$ (n.s.)	$p < .001$ (significant difference)	$p = .213$ (n.s.)	*****
EBCI	$p = .155$ (n.s.)	$p = .011$ (significant difference)	*****	
Non-Cherokee Ozarkers	$p = .873$ (n.s.)	*****		
CN	*****			



Figure 4.7 Heirloom Growers from Across the Mountain South

4.9 Agricultural Innovation and Gene Flow in Mountain South Heirloom Crop

Populations

Although it is typically recognized in agrobiodiversity studies in the Global South that landrace crop varieties are very often managed as populations that are prone to gene flow and genetic drift, hybridization, and selection experimentation by local growers (e.g. Brush 2004, Rhoades and Bebbington 1995), such studies in the US do not always recognize this phenomena if it exists. More often, US-based seedsaving experts speak of “heirloom” varieties as if they pass-me-down artifacts from older generations that are static and only need to be dusted off (i.e.

planted) every few years to maintain their authenticity (e.g. Ashworth 2002, Weaver 1997). Although Appalachian heirlooms that can be identified as unique folk crop varieties that have been passed down according to relative standards of purity (352 named varieties identified in the fieldwork portion of this study alone), that is not the end of the story. There is significant evidence that agricultural innovation continues in the Appalachian mountains as amateur seedsavers/plant breeders continue to improve and experiment on time-honored varieties much as their ancestors did to create them in the first place.

For example, an 85 year-old African-American farmer/gardener interviewed in this study from Cherokee County, North Carolina gave an inspired reason for his continued experimentation with heirloom varieties, in contradiction to what he had been taught in school by an agriculture teacher:

The agriculture man, when we went to school, he said that you can't mix the big corn and the sweet corn. But I said, "Wait sir until I go home, I'll bring a whole lot of different things that I mixed." I said, "The Lord mixed it but he showed me how to do it."

He continued on to say:

See what is was—I didn't tell them really—because they says they knows so much, they's educated (I'm glad people educated), but what it was, you plant you your sweet corn and then three weeks later you plant you your big corn and they tassel the same time and they pollinate each other you know. (Interview 14)

This innovative farmer-breeder has come up with several varieties that may now be considered as moving toward distinct (new) folk crop varieties. He self-identified them as Prolific/River Shoepeg Corn and Red/White Sweet Potato.

Further examples of how Appalachian heirloom traditions are fluid and in the process of continuing evolution are also evidenced at The Cherokee Indian Fair agricultural exhibit held every Fall near the Cherokee New Year in early October, where Cherokee amateur plant breeders are sometimes rewarded for showy innovations they have made on traditional cultivars

by receiving prizes in the fair (for in-depth analysis of The Cherokee Indian Fair agricultural exhibit, see Chapter Six).

The Cherokee have nurtured their heirloom varieties for hundreds—if not thousands—of years and have carefully selected cultivars that are adapted to local soil types and pests and diseases, in addition to tasting good in traditional Cherokee culinary dishes and playing an important role in Cherokee cultural history and identity. However, since most Cherokee today do not depend on agriculture for their subsistence, agricultural innovation through selection and adaptation to a changing environment has likely slowed down considerably. During the course of oral history interviews, it became apparent that the agricultural exhibit provides a more modern venue for continuing innovation and selection of Eastern Cherokee crops. Two examples will illustrate this point. One Cherokee gardener (see Figure 4.8 below) had a lavender variety of Cherokee October bean in his collection, a rare and unique color that is not often seen in October Beans in western North Carolina. When asked about this anomaly, the grower replied:

They had two or three colors of October beans [previously] and the other lavender bean was a butterbean. And seeing dad develop stuff I said, “I wonder if I could get that color in these other beans?” So I planted them together and it was three or four years and I was going through—well I’ll never forget it, up in the holler—and there was a pod shaped like a butterbean but it was much smaller. I knew it wasn’t a butterbean. I said, “I wonder,” so I marked it and it got dry shelly and it was the same shape as a butterbean, but it wasn’t that big. It had the color I was looking for. So the next year I began to get the color in the October Beans and in—I call the kidney-type beans—I got color in them too [this is interesting since mountain butterbeans and October/kidney beans are two different species, *P. coccineus* and *P. vulgaris*].

[Researcher]: What color is that?

The lavender. And I got a few here to show you [gesturing]. See these are the butterbeans in the lavender color. I kept the better ones, until I got the lavender color in them that you see. I kept on until I got the color in the October beans.



Figure 4.8 74 Year-old Cherokee Seedsaver and Amateur Plant Breeder



Figure 4.9 Cherokee October and Other Beans Including New Variations

[Researcher]: Oh wow, those are pretty. So you developed those? You never saw any that color around until you bred it in?

Oh no, there wasn't any around. If anybody's got them, they've gotten them from me. And I can show you what those beans originally were. [Interview 16]

This Cherokee gardener is a local legend for winning many of the grower categories at the Cherokee Indian Fair and has done so for many years. The agricultural exhibit provides him motivation for breeding new variation into his Cherokee heirloom seed stock and he is rewarded for his agricultural innovations by winning at the fair. However, this is not causing him to discontinue growing and maintaining the distinctiveness of his other traditional Cherokee cultivars, as he grows out and displays them as well. The overall diversity in his collection of seed stock is being increased through his informal plant breeding without sacrificing the original germplasm from where it originated (Interview 16).

Another Eastern Cherokee grower that was interviewed has developed a multi-colored Cherokee Flour corn that has white, yellow, blue, purple and red kernels. This colorful corn variety is in contrast to the white and yellow flour corn varieties, which are widely acknowledged as the long-time cultivars of the tribe. He has selected and bred it to display at the Indian fair agricultural exhibit, just as the other grower (above) has been doing with October Beans:

[Researcher]: So do you think that's White Flour Corn bred together with Indian Corn?

I did it on purpose to get the kernels bigger on the Indian corn. What it does is makes a wider grain.

[Researcher]: So how long have you been breeding these together?

These, maybe fifteen years. Probably been going on longer than that...There was a big competition at the festival. Each family would try to win it a long time ago. It's not that way anymore, not as much as it used to be. They would just about fight over first prize at the festival.



Figure 4.10 Cherokee Grower with Cherokee Multi-colored Flour Corn that He Developed. In 2009 He Won a First Place Prize at The Cherokee Indian Fair Agricultural Fair Exhibit.

[Researcher]: What are some other varieties that you crossed in there?

It's mostly just old flour corn really. Sometimes it gets mixed in with field corn but that depends on when you plant it and where you plant it...The old flour corn here is the white that you see in it. You can take all this out and plant it and it will eventually turn all back to white and take the color out of it. I usually plant a field of white but this year I didn't and they made a yellow. This is a yellow, it's just like the white and it will be this color [gestures]. So, this is all mixed up, it's really white and yellow [flour corns].

[Researcher]: Did you enter this into the Agricultural Fair?

At Cherokee. It got first prize. [Interview 22; see figures 4.10 and 4.11]



Figure 4.11 Cherokee Agricultural Innovation: Cherokee White Flour Corn (top), that was used as Seed Stock for Breeding Cherokee Multi-colored Flour Corn (bottom)

Again the agricultural exhibit was providing motivation for Cherokee grower innovation, but for aesthetic reasons that are likely different from motivations that Cherokee farmers hundreds or thousands of years ago selected their varieties for. However, it should be noted that even though these newer Cherokee varieties that are being developed by growers from traditional seed stock to display at the agricultural exhibit are being grown for aesthetic reasons, they are at the same time being adapted to local environmental conditions as they are bred and grown out in contemporary Cherokee gardens. And again, this grower is creating new varieties out of old seed stock, but is also careful to keep the original seed stock pure from mixing and being lost:

[Researcher]: So you grow the white and yellow [Cherokee Flour Corn] separately as well?

Yes. We'll have to send you some of that...a lot of old timers got their preference. If they like yellow corn they won't grow the white they stick with all yellow. There are certain people who like the yellow. I used to grow all of it and put it in different places where it would never mix and then you could take this color and the white and the yellow and mix it just by hanging it together and that makes it look real pretty...you can [also] plant in stages and have everything come up at different times and it won't cross.
[Interview 22]

The Cherokee Indian Fair Agricultural Exhibit provides a venue for continuing Cherokee agricultural innovation in a more modern setting and helps insure that Cherokee agrobiodiversity continues to change and evolve (as it always has), while also saving time honored and cherished heirloom varieties.

Folk crop varieties in the Ozarks also show characteristics of unintentional gene flow. Although farmer-breeders in the Ozarks who experiment specifically with improving crops were not encountered in this research project as they were in southern Appalachia, several Ozark growers were aware that some of their heirloom varieties had been affected by gene flow from other varieties. In addition, some Ozark growers manage their crop varieties as populations, as

Campbell (n.d., see below) has pointed out in detail. A 61 year-old miller from Searcy County, Arkansas identifies gene flow in the local corn varieties that he collects:

I was going to show you these. You can see it when you start looking at the Pencil Cob [heirloom corn variety]. You may have been exposed to this before. This one, this one and this one [gesturing]...people that I've got Pencil Cob from and each one of them, see what you got is corn that mixed with it—either a sweet corn or a field corn. So this is a yellow Pencil Cob. There's a white and a yellow. What happens is that the white corn is getting whiter and whiter as they I interbreed. You can see the difference in these.

Yeah, a lot of people around here will try to grow a little Pencil Cob and a little Tennessee Red Cob. Most of these you can see variations, the white ones are variations of Tennessee Red Cob...A fellow brought me this and I buy corn from him every year and his name is Wayne Griffin...This is one of my favorites. It's a variation of the Tennessee Red Cob.

[Gesturing toward another Tennessee Red Cob variation] What they've done is crossed, you see this one right here, I always tell people when they come in here: "If you're going to save your corn seed save it with the red cobs." The white cobs are variations of Tennessee Red Cob [that have cross-pollinated with other varieties of corn]. [Interview 48]

Unlike the Cherokee corn breeder who is intentionally cross-pollinating varieties to create new variations on Cherokee flour corn, the gene flow that is occurring in this example is unintentional. By default these corn growers are managing their corn varieties as populations that show different characteristics as new varieties are introduced into the gene pool. This process is similar to corn variety planting patterns that Louette (2000) has documented among the indigenous community of Cuzalapa on the Pacific Coast of Mexico. Farmers in Cuzalapa do not isolate their landraces and exotic corn varieties in separate seed lots, they grow them together in contiguous planting areas. This results in significant gene flow between corn rows that are next to each other and decreases with rows that are further apart. Thus, gene flow is constantly occurring in Cuzalapa farmer's fields, which may result in increased genetic variability and prevent varieties from becoming maladapted. The related phenomenon of increased genetic variability and pest/disease resistance as a result of gene flow between cultivated varieties and

closely related wild species in crop origin centers has been documented widely (Maxted et al. 1997, Brush 2004).

Other crop varieties in the Mountain South, particularly beans, are intentionally managed as populations and have been for many years. Campbell (n.d) provides an example of an Ozark farmer who grows out different bean, corn, okra, and pea varieties in the same field and does not worry about cross-pollination or even giving the specific names to his families heirloom varieties. In western North Carolina, beans that have a tendency to outcross because of their unique flower structure are called “pollinator beans” and typically contain seeds that are a mix of various sizes, shapes, and colors (Veteto 2005). Such crop populations are managed much more like landraces of subsistence based cultures in the Global South (e.g. Sperling and Sheidegger 1997) than heirloom cultivars that are prized for their distinctness and purity by US seed savers and seedsaving organizations (e.g. Ashworth 2002, Whealy 2005, Weaver 1997).

The examples given above have demonstrated that the characterization of folk crop varieties in the Mountain South is complex. Varieties are maintained as distinct heirlooms, managed as populations, and are intentionally bred by farmer-breeders to create new cultivars. This is consistent with the complexity revealed by anthropological studies on agrobiodiversity from around the world; for example, farmers in Chiapas, Mexico allow gene flow from non-local varieties to enter into their maize populations (Bellon 1991), whereas Hopi farmers are highly motivated to keep exotic varieties from “contaminating” their seed lines for ceremonial reasons (Soleri and Smith 1999, Waters 1963). Both tendencies—allowed gene flow and isolation for purity—can be witnessed in the fields and home gardens of the Mountain South, a pattern that can provide fruitful avenues for future agrobiodiversity research.

4.10 Comparison With Other Regions of North America and World Areas Using Data from the Renewing Americas Food Traditions Alliance

The Renewing America's Food Traditions alliance (RAFT—for further analysis see Chapter Six) has developed “red lists” for each “foodshed” (gastronomic region) of North America for heirloom food species and varieties that are either extinct or endangered (Nabhan 2008). These lists are roughly parallel to the endangered species lists that have been developed by biologists and ecologists for endangered wild flora and fauna and represent the first attempt at developing an inventory for endangered foodways across North America (and most likely anywhere else in the world). Using the RAFT red lists, it is therefore possible to place agrobiodiversity levels in the Mountain South in context by comparing them with other ethnogastronomic regions of North America.

I worked collaboratively with RAFT during the Appalachian portion of this research to compile varietal lists from other experts across the region and create an inventory of heirloom foods that incorporated the results from this fieldwork (see Appendix E). RAFT has targeted central and southern Appalachia (“Chestnut Foodshed,” as they have labeled it) as a priority area for its conservation work, so a comprehensive list was created. Parallel research in the Ozarks has not been pursued by the RAFT project and much less research has been done on Ozark agrobiodiversity by other researchers in general. Therefore, a comprehensive inventory was not compiled for the Ozarks. However, the 191 folk crop varieties documented in the Ozarks (see Appendices C and D) in eight months of fieldwork in this research creates a baseline from which a more comprehensive inventory can be created and suggests that the Ozarks could be targeted as a priority region by the RAFT alliance in its future research initiatives.

1730 folk taxa were inventoried for central and southern Appalachia. Apples are most prominent (n=893) in the region, followed by beans (n=490). The inventory for central/southern Appalachia totals 501 more heirloom food varieties than all the rest of the RAFT foodsheds (ecoregions) in North America combined did in the spring of 2009 (n=1229; RAFT 2009). However, these lists are currently incommensurable because of the different levels of research conducted in each foodshed and potential cultural over classification of folk taxa that are not genetically distinct. Not every foodshed has been the target of an intensive dissertation project like the current study and some of the corresponding inventories for other food nations have not been currently updated. Nonetheless, the results from central/southern Appalachia suggest that there is a high probability that is the region with the highest agrobiodiversity levels in the US, Canada, and northern Mexico. As RAFT continues to expand its research efforts and improve its methodologies, these preliminary findings will be able to be further confirmed or otherwise updated appropriately.

Comparing results from the inventory of central/southern Appalachia with selected other regions of the world also yields informative insights, particularly with regard to folk crop varieties of apples and beans. Sperling and Scheidegger have documented 550 local bean varieties in Rwanda and have characterized it as, “one of the most varied and vibrant bean varietal pools in the world” (1997:2). The 490 bean folk taxa documented in this study indicate that central/southern Appalachia may be nearly as rich in bean diversity as Rwanda. Further research may prove that the region is a secondary world center of bean diversity. Apples tell a similar story. Nabhan (2009:27) has noted that:

This part of Appalachia—particularly the region known as the Southern Highlands, which encompasses the Blue Ridge, Great Smoky and parts of the Cumberland and Alleghany mountain ranges—is one of the richest apple habitats in the nation. Today, somewhere between 800 and 1000 distinct heirloom varieties still grow in the area’s hill,



Figure 4.12 Diverse Heirloom Apples from Western North Carolina

coves, and hollers—more kinds, by some counts, than are found in all the other regions of North America combined.

The 893 heirloom apple varieties documented in this study in Appalachia are equal to over 30% of the 2500 total varieties of apples that have been gathered from around the world and are currently being maintained at the at the United States Department of Agriculture's Plant Genetic Resources Unit in Ithaca, New York. The USDA unit in Ithaca is home to the world's most extensive collection of apple varieties and associated wild relatives (USDA Plant Genetic Resources Unit 2010). Future research may prove central/southern Appalachia to be a world center for domesticated apple diversity.

4.11 Conclusion

The American Mountain South has very high levels of agrobiodiversity still existing in home gardens and fields throughout southern Appalachia and the Ozarks. In particular, central/southern Appalachia contains the highest known agrobiodiversity levels in the US, Canada, and northern Mexico, and may be a world diversity center for apple and bean folk crop varieties. Varieties documented specifically in this study in western North Carolina outnumber cultivars in the Ozarks by an almost 2:1 ratio. Crop varieties are being maintained as distinct heirloom cultivars, managed as heterogeneous populations, and improved upon by farmer-breeders who are actively creating the folk crop varieties of the future. Such stability and dynamism in Mountain South crop complexes illustrates the complex routes by which genetic diversity is created, maintained, and experimented with. Case studies from Mexico (Soleri and Cleveland 2001, Louette 2000, Bellon 1991), the Andes (Gonzales 2000, Rhoades 1989), and the American Southwest (Soleri and Smith 1999, Nabhan 1989), suggest that growers in the American Mountain South are following a prevailing pattern of mixing dynamism and stability in local crop populations that is practiced by smallholder agriculturalists worldwide.

Throughout the Mountain South, heirloom varieties are typically being maintained by male home gardeners of the elderly generation who are low-income, have less than a high school education, come from mixed ethnic origins (Cherokee and Scots-Irish being predominate), are culturally conservative, and members of the Baptist religion. Such individuals usually find themselves hanging on to a value system that is at odds with the modern values of most of mainstream America. They exist at the margins of current social and economic worlds and often self-identify as “old-timers.” The relationship between marginality and agrobiodiversity found in the American South finds parallels in case studies from around the world (Rhoades and Nazarea 1999). The ecological and cultural marginality of Mountain South growers suggest explanatory frameworks for understanding why southern Appalachia and the Ozarks are agrobiodiversity hotspots; yet do not tell the complete story. The next chapter will explore farmer decision making related to agrobiodiversity in local cultural contexts and investigate reasons for persistence from the point of view of farmers themselves.

CHAPTER 5

AGRICULTURAL DECISION MAKING, CULTURE, AND MOUNTAIN SOUTH AGROBIODIVERSITY PERSISTENCE

5.1 Introduction

Recent summaries have recognized that farmers use multi-dimensional and fuzzy criteria for the selection and maintenance of agrobiodiversity complexes, combining material and symbolic motivations. Rhoades and Nazarea (1999) identify several: ecology, economy, agronomy, the complete food system from seed handling to consumption, and particular cultural considerations such as culinary qualities, ritual, and cosmology. Nazarea-Sandoval (1995) also encouraged researchers to take into account how important variables in the internal differentiation of societies or communities such as gender and socioeconomic status affect decision making (see Chapter Three for discussion of gender and socioeconomic status of participants in this study). Models put forth by Brush (2004), Bellon (et al. 1997, 1996, 1991), Angel-Pérez and Mendoza B. (2004), and Lacy et al. (2006) put more emphasis on utilitarian reasons for folk crop variety maintenance and persistence, whereas a minority of other researchers such as Perrault (2005) and Rana et al. (2007) recognize a more complementary framework (see Table 1.1).

Nearly all studies have taken place in the context of communities of agriculturalists in the Global South. Little is known about why farmers and gardeners within the Industrialized Nations of the Global North persist in growing folk crop varieties. This research assumes that

there will be multiple selection criteria that might not conform to previous categories proposed by agricultural researchers. Following Rhoades (1989), the opinions of the farmers themselves are highlighted to complement scientific expertise and assumptions. Particular attention is given to the interconnection between culture and agrobiodiversity persistence.

Several theoretical and methodological lenses were used to understand grower decision making in growing and maintaining folk crop varieties. First, agricultural decision making was analyzed on a very micro-level in order to attempt to answer the research question, “Why are gardeners and farmers still continuing to grow a diversity of folk crop varieties in the American Mountain South?” Grower’s perspectives were sought by directly consulting farmers about their reasons for maintaining folk crop varieties. Sixty oral history interviews were coded and grouped by themes and attributes. To explore farmer decision making to maintain folk crop varieties, informants were simply asked, “What makes this a variety that you like to grow?” about every variety that they had mentioned in a free list activity and their reasons were recorded verbatim. This slight turn-of-words from the “What is this plant used for?” that is often employed ethnobotanical studies was used in an attempt to provide for a wider spectrum of farmer motivations for seed saving. Each response was then coded and placed into one of fifty-eight emergent categories (see Tables 5.2 and 5.3).

The fifty-five response categories and frequencies of response within those categories were then grouped into two overarching categories corresponding to underlying grower motivations for agrobiodiversity persistence: 1) cultural salience and 2) utilitarian salience. Each category is justified and discussed in detail below. Contrasting cultural and utilitarian reasons for agrobiodiversity persistence as primary explanatory variables is used as a methodological and interpretive categorization tool to highlight cultural salience and its

importance in complement to utilitarian reasons for crop selection and maintenance. This methodology corresponds with insights from Brush (2005), who after forty years of agrobiodiversity research around the world, suggested that cultural and utilitarian salience are the driving factors behind agrobiodiversity persistence in centers of crop domestication and diversity, and that more research is need to make explicit connections between culture and agrobiodiversity.

In addition to exploring grower reasons for maintaining specific folk crop varieties (Figure 5.1; Tables 5.1 and 5.2) and analyzing culturally salient reasons for persistence (Table 5.1), more general cultural themes emerged from coding oral history reviews that helped explain Mountain South agrobiodiversity persistence. These themes were consistent with insights made by Richards (1993, 1989) and Nazarea (2006, 2005; Nazarea-Sandoval 1995) regarding folk crop cultivators. Richards' agriculture as performance theory (1993, 1989) was used to understand the performance of cultural identity by Mountain South growers. This performance, in the context of a post-agrarian rural society in an industrialized nation, serves several goals that find parallels in the performance theory that Richards has put forth for African farmers (see Chapter One), but also differs in many respects. Growing and maintaining a diversity of crop germplasm is not essential to the survival of present day residents of the Mountain South like it is in West Africa, which results in a qualitatively different social setting than Richards has observed in West Africa. Although Mountain South growers do improvise and adjust their crop mixtures according yearly environmental fluctuations, this process is probably not as apparent and emphasized as it is among African farmers. More important to Mountain South growers is the cultural performance of an agrarian lifestyle that is increasingly marginalized and devalued in modern US society.

Nazarea (2005) has pointed out that the growing of heirloom seeds and gardens are powerful acts of countermemory that can serve to subvert the dominating discourse of modernity:

In landraces, folk varieties, and archaic cultigens that are maintained despite the fact that they are no longer (or never were) economically profitable, we find cultural conduits bridging past and present...Countermemory triggers reconnection to our past and our inner selves by subverting dominant messages that tend to deny identity and sense of place. (p. 43-4)

The counter memories that folk crop varieties and gardens evoke are simultaneously acts of everyday occurrences and resistances to dominant discourses as well as fertile ground for the conservation of biocultural diversity (Nazarea 2006, 2005, Nazarea-Sandoval 1995).

“Everyday” means that heirloom gardening by the residents of Appalachian and the Ozarks is not a form of organized resistance in the traditional sense. The growing of heirloom cultivars are acts that have been practiced for hundreds and thousands of years in the Southern mountains and are established ways of life that are quite often not thought of as occurrences that are anything out of the ordinary. Yet, when contrasted with more modern ways of living of farming, heirloom gardening takes on a form of everyday resistance that is evidenced in the discourses that growers produce. Mountain South growers in this study consistently emphasized the importance of historical counter memories and the affirmation of cultural identity and resistance to modernization that growing folk crop varieties provide for them.

This chapter begins with a brief discussion on the categorization of ethnographic phenomena in this study and is followed by an investigation of the importance of cultural and utilitarian salience in the decision making of Mountain South heirloom growers. The performance of cultural identity, everyday occurrences and resistances, and counter memory as important cultural elements for agrobiodiversity persistence are explored to close the chapter.

5.2 On Categories

It is probably ultimately the case that categories proposed by scientific researchers to describe cultural phenomena—and specifically in this case for understanding agricultural decision making and agrobiodiversity persistence—are too interconnected to be considered separate domains in holistic cultural systems, as cognitive ecological anthropologists such as Bateson (1972) have previously pointed out:

...our categories “religious,” “economic,” etc. are not *real* subdivisions which are present in the cultures we study, but are merely *abstractions* which we make for our own convenience when we set out to describe cultures in words. They are not phenomena present in culture, but are labels for various points of view which we adopt in our studies. (p. 64)

Such categorizing behavior by scientists has its roots in the western natural philosophy tradition (e.g. Aristotle, Descartes, Kant, etc.) and proceeds onward from basic distinctions that have been made between mind and nature and nature and culture (Ingold 2000).

As will be discussed in more detail below, cultural and utilitarian reasons for decision making cannot be completely separated. For example, although culinary traditions and tastes (ethnogastronomy) are highly cultural in nature, they also fulfill very practical nutritional needs for humans. Yet, despite the role of food in providing basic biological sustenance for human survival, it is still the case that nutritional needs can be met in a diversity of ways and that resulting gastronomic traditions are heavily tempered by cultural norms. As Minnis (2000:3) has pointed out, “A meal of peanut butter and fried worms topped off with chiles may be very nutritious, but it would be unacceptable to most North Americans because the foods are combined in culturally, not biologically, inappropriate ways.” The reasons for agrobiodiversity persistence that guide farmer decision making and their relationship to food traditions can be more properly understood as being biocultural in nature (Veteto and Skarbø 2009, Maffi 2001).

The more traditional categories of agronomic, economic, and ecological reasons for farmer decision making and agrobiodiversity persistence are not easily separated either, despite the tendency by previous researchers to rarely question their validity and accuracy (e.g. Bellon 1991). For example, if a farmer chooses to grow a folk crop variety for the agronomic reason that it produces well, that characteristic is most likely also related to its adaptation to local ecological conditions and may also be related to its success at local markets. Thus, categorizing reasons for farmer decision making is largely a heuristic device for researchers to better understand what is influencing farmer decision making and such decisions are rarely made along variables that are completely isolated from other influencing factors. Actual decision making is also heavily tempered by a preattentive process that is holistic and not easily broken down into categories: “The preattentive process is a nondeliberate simplification that hinges on the actors ‘feel’ of the situation. It narrows down the range of alternatives from those possible to those feasible and thereby sets the stage for deliberate or attentive consideration of the remaining options” (Nazarea-Sandoval 1995:16).

Despite the complexity and holistic nature of agricultural decision making, coding grower responses and categorizing them is a useful—if not perfect—exercise for helping researchers understand why farmers make decisions. In categorizing reasons for agrobiodiversity persistence in the Mountain South as being either cultural or utilitarian in nature (or “other” if they are largely idiosyncratic and do not qualify for either category), this study has done so following recognition of the need to conduct more research into investigating the cultural context of agrobiodiversity research (Perales et al. 2005, Brush 1992). By contrasting cultural salience with utilitarian salience (agronomy, economy, ecology) in interpreting agrobiodiversity persistence in the American Mountain South, it is hoped a clearer picture emerged toward explaining why

growers still choose to maintain high levels of agrobiodiversity in two unique post-agrarian subregions of the most industrialized nation in the world.

5.3 Cultural Saliency

Cultural saliency plays an integral role in the selection and maintenance of folk crop varieties worldwide, yet has been underemphasized in traditional scientific studies. As noted in Chapter One, when anthropologists began playing an increasing role in international agricultural development, cultural saliency of farmer cultivars began to gain increasing attention in research circles (Brush et al. 1981, Rhoades 1984). Nonetheless, utilitarian saliency has continued to dominate as the causal, explanatory factor in the selection and persistence of agrobiodiversity. For example, Lacy et al (2006:331), *a priori*, assume that farmers in Southern Mali choose to maintain traditional sorghum varieties “to optimize outputs in the face of variation in the growing environment and in human managed inputs such as labor and tools.” Their research results confirmed their hypothesis and little attention was paid to explicitly cultural selection criteria, which may be a result of the marginal environmental conditions that farmers in Mali experience. Yet, Brush et al. (1981) found that Peruvian farmers, also facing marginal conditions, often chose to grow traditional cultivars that were favored according to culturally-defined tastes, culinary traditions, and social networks; even when they produced less or were of inferior nutritional quality. The evaluation of farmer selection criteria can be heavily influenced by the assumption of researchers, a fact that was considered carefully in designing the methodology of this research.

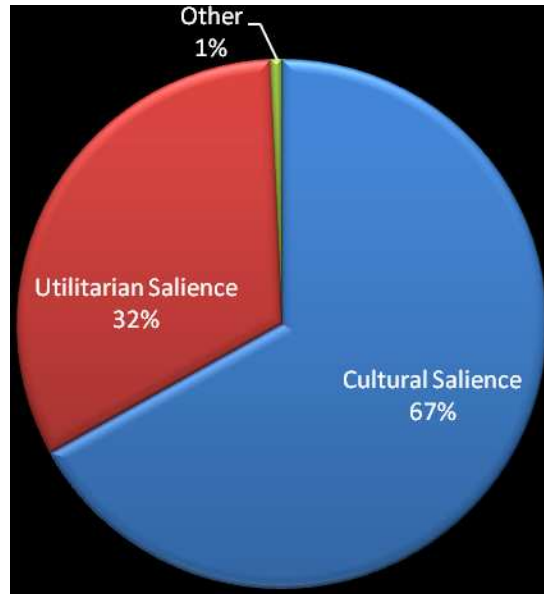
Cultural saliency, broadly defined, refers to selection criteria that are specifically related to culturally defined preferences and influences such as heritage and memory, sense of place, culinary traditions and tastes, spiritual beliefs and rituals, and values that are learned and shared.

The insight that different ethnic groups often grow different folk crop varieties in the same general environmental circumstances follows basic findings in cultural ecology that various cultural groups can adapt to similar ecosystems in vastly different ways (e.g. Bennett 1969). Culture and ethnicity play a major role in determining what folk crop varieties are grown and are gaining increasing importance in agrobiodiversity studies (Nazarea 2006, 1998; Perales et al. 2005, Nabhan 2007).

Results from this study show that cultural salience is the most frequently mentioned reason that Mountain South farmers gave for maintaining folk crop varieties (see Figure 5.1 below). Among the sixty informants, 66.89% of stated reasons for maintaining specific folk crop varieties were cultural. In Appalachia, this percentage was slightly higher (67.88% to 64.72% for the Ozarks), but not significantly (Figure 5.1). Significant differences were recorded, however, between non-Cherokee Appalachian growers and the Eastern Band of Cherokee Indians and between non-Cherokee Ozark growers and those in the Cherokee Nation of Oklahoma. Both groups of Cherokee stated cultural reasons (73.40% for the EBCI and 84.78% for the CN) for maintaining folk crop varieties in higher ratios than their non-Cherokee neighbors (Figure 5.1).

There are several likely reasons that the Cherokee emphasize cultural salience of their folk crop varieties. First, they are a more bounded group than their non-Cherokee neighbors, with their own language, and have a cultural tradition that goes back thousands of years in the American Mountain South. Both groups of Cherokee—along with many other Native American tribes—have have been experiencing what Kevin Welch of The Center For Cherokee Plants describes as “a cultural renaissance” (Interview 29) over the past two decades that has emphasized pride in Cherokee cultural identity, lifeways, and language (Nolan et al.

Total Results from the Mountain South (respondents n=60)



Results from Southern Appalachia (respondents n=30)

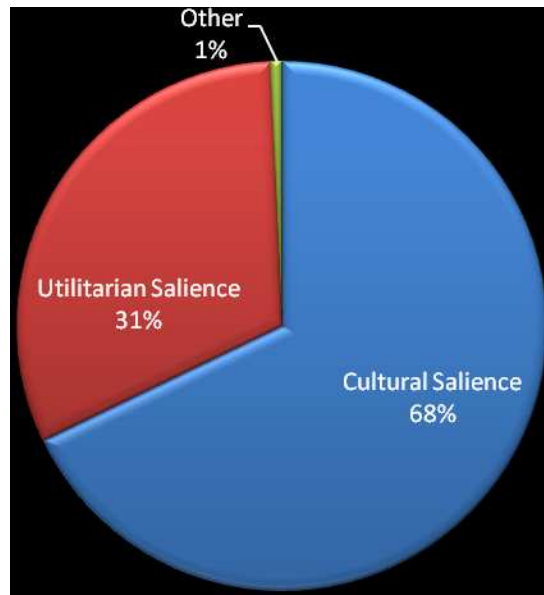
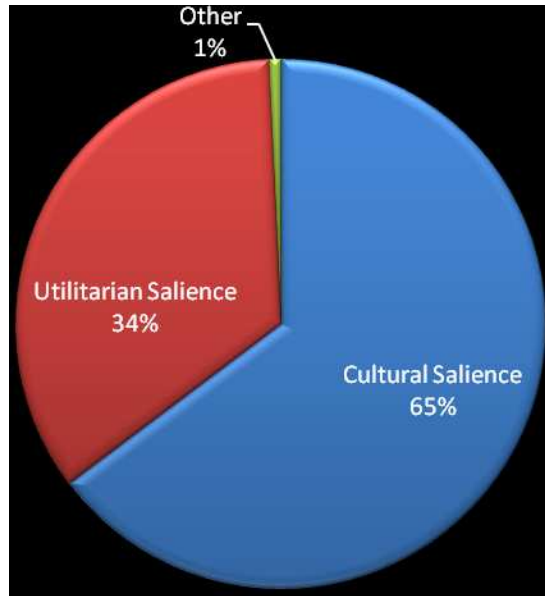
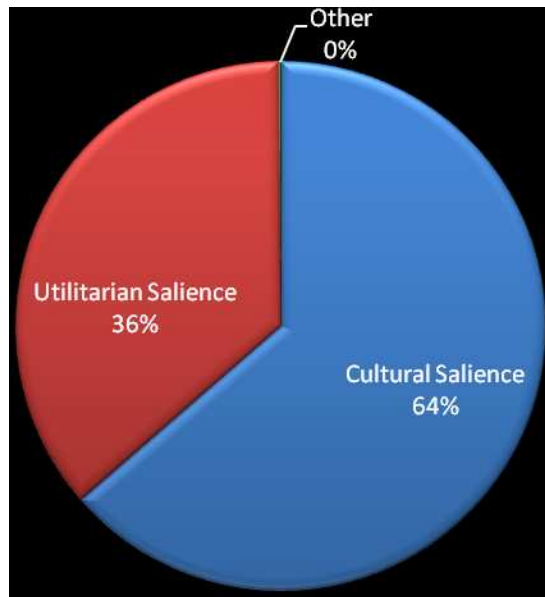


Figure 5.1 Reasons Given for Growing Folk Crop Varieties: Cultural and Utilitarian Salience

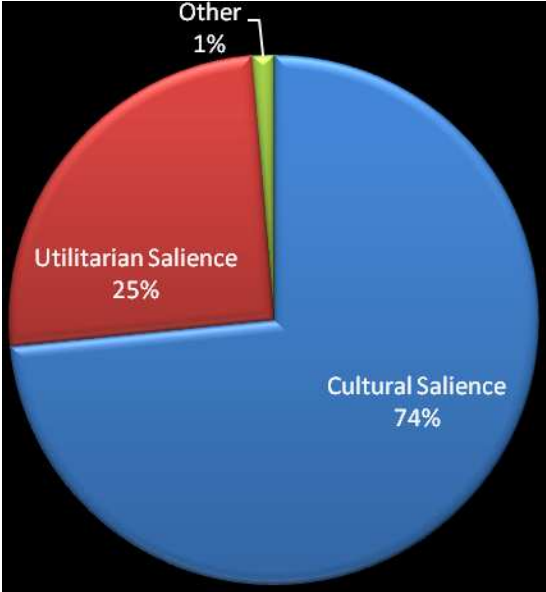
Results from the Ozarks (respondents n=30)



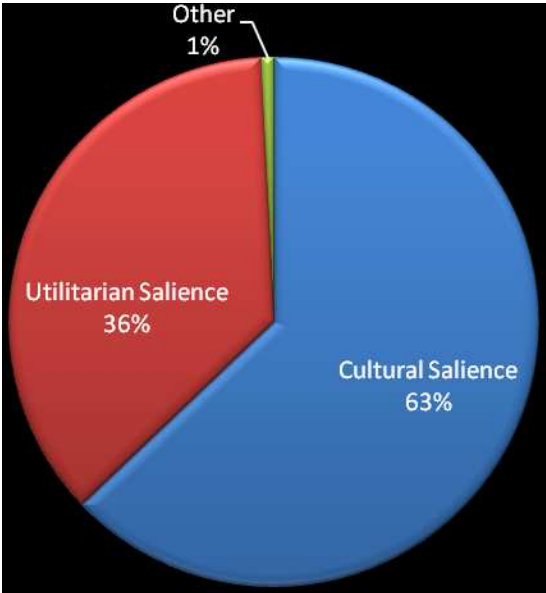
Results from Non-Cherokee Appalachians (respondents n=15)



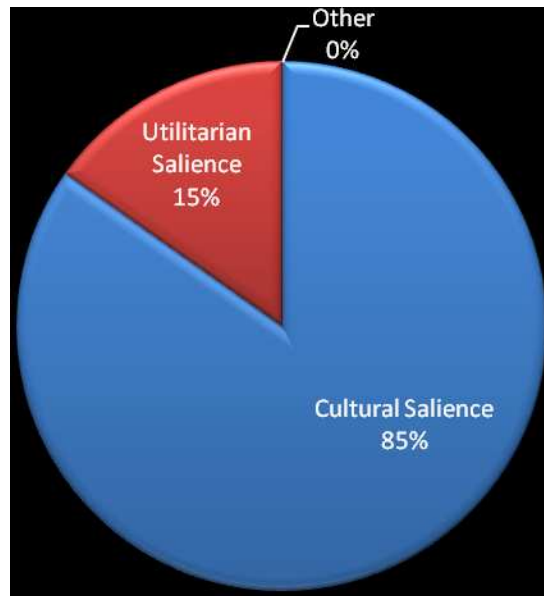
Results from The Eastern Band of Cherokee Indians (respondents n=15)



Results from Non-Cherokee Ozarkers (respondents n=27)



Results from The Cherokee Nation (respondents n=3)



n.d.). In addition, the agricultural exhibit at The Cherokee Indian Fair, the publication of Cherokee cookbooks emphasizing traditional foods, and the recent founding of The Center for Cherokee Plants have provided local mechanisms for emphasizing the importance and conservation of folk crop varieties for the Eastern Cherokee. The Cherokee Nation Seedbank has also been established by the Western Cherokee to help promote and conserve agrobiodiversity as a culturally salient part of the tribe (see Chapter Six for a detailed discussion of these indigenous conservation programs). Given all the efforts the Cherokee have been making to highlight the cultural salience of their traditional foods and seeds (e.g. the motto of The Center For Cherokee Plants is “putting culture back into agriculture”), it is not surprising that Cherokee growers would emphasize cultural reasons for persistence more than non-Cherokee growers. Nonetheless, growers across the Mountain South, Cherokee and non-

Table 5.1 Categories and *N* Responses for Cultural Salience

Cultural Salience	Mountain South	Appalachia	Ozarks	Non-Cherokee Appalachians	EBCI	Non-Cherokee Ozarkers	CN
Specific Culinary Preferences	585	403	182	192	211	166	16
Taste/Flavor	422	311	111	221	90	108	3
Cultural Heritage	122	73	49	22	51	33	16
Cherokee Fair	26	26	0	0	26	0	0
Sharing with Others	10	6	4	2	4	4	0
Mountain Musical Instrument Making	4	0	4	0	0	4	0
Cherokee Jewelry	4	4	0	0	4	0	0
New Year's Good Luck	3	0	3	0	0	0	3
Cultural Education	3	3	0	0	3	0	0
Spiritual Offering	1	0	1	0	0	1	0
To Ward Off Spirits	1	0	1	0	0	0	1
Art	1	0	1	0	0	1	0
TOTAL*	1182	826	356	437	389	317	39

* The total number of responses for cultural salience are greater than the total number of folk crop varieties documented in this study. In addition to the occurrence of several different cultural reasons being given for maintaining an individual variety (e.g. for use in a specific culinary dish and because of cultural heritage), some individuals also gave several different culinary dishes as reasons for maintaining any one single variety (e.g. "I choose to grow bean x because it is good as a soup bean and also because it makes good leather britches). Responses were recorded, coded, and categorized regardless of the issue of potential "double counting." Any and all reasons that growers gave for maintaining folk crop varieties were counted in order to give a more nuanced and holistic understanding of multivariate farmer decision making. The same methodology was used for counting responses under the utilitarian salience category (see below).

Cherokee, overwhelmingly emphasize cultural over utilitarian reasons for continuing to maintain folk crop varieties.

Specific Culinary Preferences, Taste/Flavor, and Cultural Heritage were the three most important cultural reasons given for maintaining folk crop varieties across all four subgroups in the American Mountain South (Table 5.1 above). Other important cultural reasons for persistence included growing for The Cherokee Indian Fair, sharing with others, making Cherokee jewelry, making mountain musical instruments, for cultural educational purposes, for good luck on New Years, for art, for spiritual offerings, and to ward off spirits (Table 5.1). Specific culinary preferences and tastes (foodways)—the most frequently mentioned reason for maintaining heirloom cultivars in the cultural salience category in this study—have been identified as one of the most salient cross-linkages between agrobiodiversity and culture (Nabhan 2008, 2007; Nazarea 2006, Sutton 2001). Mountain South foodways will be examined across all four subgroups of this study in detail below to illustrate how cultural salience can play an essential role in whether or not growers decide to continue to maintain traditional folk crop varieties in the American Mountain South, to provide a concrete example of why grower responses were coded into the cultural salience category, and to examine the direct linkage between agrobiodiversity and culture that ethnically distinct local foodways provide.

5.3.1 *Southern Appalachia Foodways*

Appalachian folk crop varieties are often grown because they add unique flavors and textures to culinary dishes that are traditionally prepared in the region. Southern Appalachian cookery, in its more traditional forms, can be distinguished from lowland Southern cookery and culinary traditions from other American regions by its unique combination of ingredients and preparation methods. Culinary traditions in southern Appalachia are characterized by their

reliance on simple (e.g. locally available whole foods that are cooked without the addition of many additional ingredients for flavor, see below), seasonal foods that are hunting and gathered wild from the surrounding mountain environment, grown in home gardens and fields, and preserved through drying, canning, and pickling:

True Appalachian cooking remains, today, unadorned and loyal to its origins in the earth. It is a cooking style that grew out of hard times...Although Appalachian mountain people are prolific gardeners, they use herbs and spices sparingly. Salt, pepper, and sugar are frequently the only seasonings in an entire meal. The simplicity of the Appalachian table bespeaks the cuisine's working-class, even hardscrabble, origins—food that fed farmhands, coal miners, and mill workers...Offerings on Appalachian tables are governed, in large part, by the cycles of the seasons. (Sauceman 2007:19)

Traditional southern Appalachian meals are characterized by large breakfasts often including stack cakes and beans, sauerkraut and relishes, and fruit cobblers or candyroaster pies; large midday meals called “dinner” featuring hog meat and/or wild game, cornbread, beans, sauerkrauts and relishes, and fruit cobblers or candyroaster pies; and suppers at the end of the day that often consist of little more than a cool glass of milk (a traditionally carry-over from Scotland and Ireland) and a thin slice of cornbread topped with homemade butter and sorghum molasses (Dabney 1998). In the summertime, heirloom vegetables form the bulk of traditional mountain meals:

Appalachians' veneration of vegetables is so deep that, in midsummer, tables are often devoid of meat. A typical meal might include boiled sweet corn, seasoned only with a pat of butter and a shake of salt, pork-flavored green beans cooked until no trace of a crunch can be found, new potatoes just grubbed out of the ground, sliced tomatoes on a stark white plate, and garden-fresh cucumbers bathed in ice water. The best mountain cooks see no reason to embellish nature's creations. Then, as the summer garden wanes, end-of-season green tomatoes and peppers are gathered to make a type of relish called chow-chow, used as a topping for the ever-present bowl of soup beans. (Sauceman 2007:20-1)

Such meals are the exception instead of the rule in more recent times (Interview 29), but traditional dishes are more likely to be kept alive by those who continue to grow out heirloom

gardens, raise animals, and hunt and gather in Appalachian forests. Like the settlement and farming patterns in southern Appalachia, culinary traditions in the region reflect a blend of ethnic foodways that were combined to form a unique Appalachian cuisine. Influences from Cherokee, Scots-Irish, English, and German traditions are most prominent, but Appalachian foodways are also influenced in subtle ways by other traditions such as those of the Italian and Swiss (Lundy 2005, Dabney 1998). A few of the most salient culinary dishes of the region documented in this study will be highlighted below, to provide a basic understanding of how folk crop varieties in southern Appalachia are transformed into unique, culturally-valued and time-honored foodstuffs.

Green beans sound like nothing out-of-the-ordinary to most Americans, but in southern Appalachia, they complement cornbread as a veritable staff of life (and also, in combination with corn, form a complete protein). A pot of beans is ubiquitous on the traditional southern Appalachian table and is featured sometimes at breakfast, always at dinner (lunch), and is available for snacking on throughout the day. An Ashe County, North Carolina farmer described his families green bean culinary tradition, contrasting Appalachian-style green beans with those eaten by other Americans:

...every meal that we had I mean, you know, it sounds weird now looking back on it, but if we had pizza we had a pot of green beans, I mean that's what we called them all was green beans it didn't matter what variety they were there was a pot of green beans on the table every time we sit down to it and that's not an exaggeration. And we weren't poor folks either...that's just the way it was.

...canned beans from the grocery store, I can't eat that, I mean I hate it. I guess for somebody who has grown up in these mountains and lived I'm a pretty cultured fellow—I mean I've been to some of the nicest restaurants I guess in the eastern United States and everywhere you go they bring out the old steamed green bean and I can't do it, I can't stand it, so that'd be the difference, they [mountain beans] taste like food instead of what do they call it, a medley of vegetables? I think a lot of it's in the cooking of it too, the way that people up here cook with the seasonings and what not, it's a lot different...I just can't eat that other stuff, especially those beans... (Veteto 2005: Interview 5)

Appalachian green bean dishes are prepared differently from green beans in other parts of the US and the world, from the varieties grown to the harvesting methods and the methods of cooking them. What results is a qualitatively different eating experience. In addition, the Appalachian region is much more reliant on beans than neighboring Southern regions such as the Piedmont and the Deep South. In warmer climates to the south of the mountains, home gardeners and farmers are more likely to be growing Southern peas (*Vigna unguiculata*) than they are green beans, as Southern pea (cowpea) is originally an African/Asian crop adapted to warmer climates and is closely associated with African-American culinary traditions (African-American population levels are much lower in the Southern mountains than in surrounding areas). Appalachian pole beans, half-runners, and bunch beans do not grow as well as Southern peas in warmer climates. Rodger Winn, a seedsaver and farmer from the foothills of South Carolina, calls this geographic phenomenon the bean/pea line (at a more southern latitude than the more famous Mason-Dixon line), which he lives at the transition of (personal communication).

The preparation of Appalachian green beans starts in the garden. One of a diversity of available varieties can be used and many families have selected for their own special bean varieties over the years. Some of the most popular varieties for making green beans (among hundreds) in western North Carolina include Greasy Cutshort, a pole bean with ‘cutshort’ white seeds and a shiny pod that looks ‘greasy’ that is preferred for green bean dishes because of its unique taste and because of the large seed that fills up the pod; Pink Tip, a bean with brown seeds and yellow pods with a ‘pink tip’ that has a unique earthy flavor (see figure 5.3 below); and Turkey Crow, a bean with brown/white blush seeds that is rumored to have originated in the



Figure 5.2 Full-podded Snowball Greasy Beans from Yancey County, North Carolina ready to purchase for cooking or canning

stomach of a turkey and is favored for making bean dishes with dark cooking water (see Appendix One for complete variety descriptions).

No matter what the variety, Appalachian beans are most typically harvested when there is a fully formed bean in the pod (see Figures 5.2 and 5.3) and they always have strings, two characteristics which make them unlike typical beans available in US supermarkets.

Appalachian bean expert Bill Best of the Sustainable Mountain Agriculture Center Inc. in Berea,



Figure 5.3 Full-podded Pink Tip Beans from Ashe County, North Carolina ready for harvesting

Kentucky, is of the opinion that when professional plant breeders started breeding out the “strings” in green beans that they also bred out the flavor as well (personal communication).

Among growers interviewed in this study, most asserted that a green bean without strings is undesirable and that Appalachian beans are eaten for the fully formed bean (seed), not the pod:

I like my green beans to have [fully formed] beans, I don’t like beans hulls. That’s what a market bean [mainstream commercial variety] is to me—it’s just hulls and no beans. [Interview 29]

Once an Appalachian green bean is harvested out in the field, it is brought back to the homestead and “snapped” in half so that the fibrous strings on either side of the pod can be more easily removed. “Snappin” and “Stringin” beans are typically (though not exclusively) carried out by the women of the household and are often occasions for multiple generations of women from a family or community to get together:

The summertime maturity of green beans—usually in Mid-June—marked a time of Appalachian celebration. Many families staged “bean-stringings,” inviting in neighboring wives. As country music personality Dwight Yokum told Ronni Lundy, “My granny (Tibbs) would come to the back porch with a big laundry basket full of beans. We would sit down and we would snap ‘em, and string ‘em and crack ‘em, and throw ‘em in the pan. We would sit there snapping and stringing for the whole afternoon. (Dabney 1998:317)

Once the strings have been removed by snapping the beans, they are then ready to be cooked. In Appalachian cookery, this is typically done in a very simple way, with somewhat surprising results. They are cooked in the pods over low heat with the addition of a small chunk of fatback (the fatty part of a pig’s back) and salt for seasoning. The amount of water is small and just enough to cover the beans in the pot. This is a key point. If there is too much water then the beans become soupy and lose a lot of their flavor. Flavors come out in the Appalachian-style cooked beans that are not present in other ways of cooking them, resulting in a uniquely Appalachian culinary creation. Tender-pod heirloom varieties of Appalachian beans perform particularly well in this cooking process. An Ashe County, North Carolina grower described how different Appalachian bean varieties he grows produce distinctly different tastes:

[Researcher]: The Greasy Back, what makes that one you like to grow?

It’s just got its own flavor.

[Researcher]: So most of these you grow because of their specific flavors?

Right. I mean you can cook all four of these separate and they have got four flavors. There is no two of them gonna taste alike. You’ve got a white hull which means it has

very little chlorophyll in it with a brown bean, you've got a white bean that don't have as much chlorophyll, you've got just basically green hulls which is real high in chlorophyll and this has more chlorophyll than these would but it still has a big bean and then you're going into one that is just totally different. Because of that grease texture I reckon it has a whole different wax, the hull itself has a whole different flavor than any of the ones that don't have that shiny texture. [Interview 6]

Another traditional Appalachian foodstuff is *hominy*, the making of which is a carryover from the Cherokee and other Appalachian Native Americans. Hominy has traditionally been prepared in other regions of the US as well, including the Deep South and the Southwest—where it is called *posole* and usually cooked in a spicy Hispanic-American stew—but within the southeastern US it is most closely associated with mountain communities, where particular folk crop varieties of field (dent) corn have been developed and used specifically for hominy recipes from the Pioneer Period forward. Though it is an endangered culinary tradition, pockets of more traditional Appalachian cooks still prepare hominy in the traditional way today and assert that homemade hominy is qualitatively different from canned hominy that can be purchased in supermarkets.

The first part of the hominy-making process involves soaking corn kernels in a big pot with hardwood ashes to remove the husks. This results in the outer hull of the corn kernel being removed which is then boiled in a cast iron pot (see Figure 5.4 below) until it is soft enough to eat (anywhere from four to twenty-four hours depending on the recipe). Scientific studies have shown that this process of making hominy increases the overall nutritional quality of corn by allowing increased absorption of lysine, leucine, and tryptophan and the addition of potassium (Katz et al. 1975). A 94 year-old gardener from Swain County, North Carolina still makes hominy in the traditional way using wood ashes:



Figure 5.4 Appalachian Cast Iron Pots Used For Making Hominy

[Researcher]: Do you still make hominy?

We made hominy about three or four weeks ago. Yep, we made our first batch and we're going to make some more maybe the third week in this month, maybe a day or two before Thanksgiving. A lot of them like to have hominy on Thanksgiving, and they cook it with pork and it makes a good dish for Thanksgiving to eat. Cook it with pork, pork ribs, or pork backbones, or whatever you have.

[Researcher]: Do you use wood ash or lime, what do you use?

You use wood ashes. But now my son makes ashes down in his shop. He cut hardwood, but he hadn't been burning no wood when we made our first batch. I got the ashes he made last winter and some of those ashes had sawdust in them. Down in the shop where he makes things you know, and that sawdust you know it has acid in it. It sort of made the hominy corn a little bit green, it didn't look good. But there wasn't nothing wrong with it you know. So my granddaughter, about a week or two ago, she

called around to these places where they make barbecue, they burn hickory wood. She went about a week ago and took a barrel down to Bryson City, a small barrel, she took it in my truck, and they saved the ashes for her. She took my truck today to go pick the ashes up. I won't know how many ashes I'm gonna get until she gets back. They have to make another trip before we can make the hominy. It takes quite a few ashes you know, about a gallon.

[Researcher]: A gallon of ashes to how many ears of corn?

About fifty or more. I guess about fifty would do it.

[Researcher]: Do many people around here still make hominy?

Yeah, a few. [Interview 24]

In Appalachian cookery, hominy is prepared in characteristically simple ways, often just fried in a skillet with fatback or bacon grease and served with beans or other foods. Other mountain dishes that use hominy include hominy and cracklins' (hominy fried in a skillet with the hard leftovers—cracklins—from the rendering of pork lard), Cherokee hominy (cooked with flour, pinto beans and walnuts), and the more-modern Appalachian hominy casserole (including pork sausage, garlic, green pepper, onion, celery, tomatoes, sugar, salt and pepper) (Dabney 1998). There was a general consensus among growers interviewed that White or Yellow Hickory King is the premiere (dent) corn for making traditional hominy. Other heirloom corn varieties that research participants mentioned growing because they are good for making hominy include Yellow Pearl Hominy, White Pearl Hominy and Cherokee White Flour (see Appendices One and Two for full variety descriptions).

5.3.2 *Eastern Band of Cherokee Indians Foodways*

The Eastern Cherokee have a unique and varied culinary tradition that includes many traditional dishes that are prepared from heirloom varieties. Although some Cherokee cooking overlaps with traditions found in the elsewhere in the Appalachian mountains and the

US in general, many culinary traditions are uniquely Cherokee contributions, illustrating the close connection between ethnicity and foodways that anthropological researchers have documented worldwide (e.g. Sutton 2001, Counihan and Van Esterik 1997, Weismantel 1988). Several of the most popular Eastern Cherokee dishes prepared among research participants illustrate how Cherokee agrobiodiversity is transformed into culturally valued foodstuffs through the medium of cooking and other food preparation technologies. *Bean bread* (Cherokee: *Tu-ya-di-su-yi-ga-du*; see Figure 5.5 below) is a dough made of cornmeal, flour, and cooked beans that have been mixed together, wrapped with soaked hickory (*Carya spp.*) leaves and tied together with young river grass (botanical name not known), and low-boiled for about thirty minutes (Plemmons et al. 2000). The bean bread is unwrapped after cooking and can be eaten with toppings such as animal grease or cooked greens. Cherokee heirloom corn and bean varieties favored by traditional cooks in this study for making bean bread include Cherokee White Flour Corn and Cherokee Butterbeans as the main ingredients.

Leather Britches (Cherokee: *A-ni-ka-yo-su-hi-tu-ya*; see Figure 5.6 below) are beans that are prepared by a traditional method of picking them when they make a full bean in the pod, taking a needle and thread and stringing dozens of beans together, and then hanging them up in a dry area to save for winter cooking. A more modern way of preparation is to cut them in half and remove the strings, lay them out to dry in an area such as a greenhouse, and then store them in ziplock bags until they are needed for cooking. In winter time the leather breeches are soaked overnight in slightly salty water and then cooked for several hours with fatback or pieces of bacon and a little bit of salt. The taste of leather breeches is unique and quite different from green beans that are cooked fresh. Preferred heirloom varieties for making leather breeches include Cherokee October Beans, Yellow Hull Cornfield beans, Greasyback beans, and White



Figure 5.5 Cherokee Bean Bread (lower left) with Other Food Items Served at The Cherokee Indian Fair

Half-runner beans. Leather britches, unlike bean bread, are a food preservation and culinary tradition that white Appalachian settlers adopted from the Cherokee and is still used widely by old-time Appalachian gardeners and farmers.

An 83 year-old Eastern Cherokee grower relates an interesting story about how he played a joke on a dietician from the Northern US who didn't know what leather britches are and



Figure 5.6 Leather Britches (Appalachian Dried String Beans)

demonstrates that even Southerners from as close by as South Carolina are unfamiliar with leather britches if they are not from mountain communities:

You know what leather britches is?

[Researcher]: Yes sir.

Good. I run into a lot of people that don't know what leather britches is. Milford Garret he's from South Carolina and he come up here to pastor at the church in the fall of the year. He was going around visiting the neighborhood and about everywhere he went women was working in the beans and some of us was making leather britches. He said, "I want to know what in the world everywhere I go there's these leather britches. What in the world is leather britches?" We just had to tell him it's dried green beans. About the leather britches, I had a heart attack in 1995 and I was on the hospital development board over here to help develop a hospital plan with a cardiac rehab unit.

When I went and did cardiac rehab after I did that, the dietician in the hospital came in to meet with us while I was in the hospital, and she instructed us to keep a record of what we ate for a week, to write it down and the amount. So she [his wife] cooked a pot of leather britches that week. So one day I wrote down that I ate a cup of leather britches, the next day a cup of leather britches, the next day a cup of leather britches. I took that back in and the lady who was running the cardiac rehab she saw that and I turned it in and she said, “What in the world is leather britches?” I said, “I’ll tell you what I’ll do. I’ll tell you what leather britches are.”

So, the dietician was from, she was coming to Murphy Medical from Atlanta. She was from up north somewhere originally and I could tell by her dialect that she was from up north. So I told her [the nurse in the cardiac lab], “Don’t you tell that dietician.” So I told her and about two weeks later the dietician came back. She came in about eight in the morning and all of us cardiac rehab people was in there. I was sitting there and she walked in and she stopped and looked at me and said, “Good morning leather britches.” She said she had taken the reports home with her and she was reading and then she came across that and she said she was so puzzled and frustrated. She could not figure out what in the world leather britches was and so she called the nurse and the nurse wouldn’t tell her. So the next day she came to the hospital and one of the ladies was cooking in there. She was a native lady and she asked her if she knew what leather britches were. She said, “Boy, I reckon I do. I’d like to have some right now.” She told her what it was. They had a meeting after that, a get together with all of the rehab people and had a covered dish supper. Some of us were finished with it and they wanted us to bring a dish. So they asked me to bring leather britches. I took a bowl of them and put a label on ‘em. You know what? It wasn’t no time before the leather britches were all gone. People who knew what they were, they have a distinct taste far better than other green beans.

[Researcher]: How do you dry them out, in the sun?

Yeah, I put them in the sun and then with a gas stove with a pilot light, you can just slip them right back in there and you would be surprised and how much they dry over night.

[Researcher]: Then to cook them do you just boil them up?

What I do, if I’m going to cook them tomorrow, I put them in water over night and let them soak. Then get ‘em and wash them after I take them out of that water. Then put them on with whatever seasoning you’re gonna season ‘em with. Then cook ‘em slow. Best thing you can do is put a hambone and that gives ‘em good flavor. A ham hock or something. [Interview 24]

Corn, Beans and Walnut (Cherokee: *Ce-di Selu I-asa Asu-yi*) is another Cherokee dish that is prepared by research participants using folk crop varieties. It is a mixture of corn that has

been processed into hominy, cooked beans, and black walnuts (*Juglans nigra*) that have been pounded into a paste to flavor it. This dish is eaten as a dessert and covered with honey or sugar to sweeten it. Heirloom corn and bean varieties such as Cherokee White Flour corn, White Hickory King corn, Cherokee October beans, or Cherokee Cornfield beans are preferred to give the dish its proper flavor.

The three dishes used as examples above constitute only a brief introduction to the distinct culinary traditions of the Eastern Cherokee. Other dishes such as Candyroaster and Cushaw Fritters (Cherokee: *U-ja-she-gwa U Je-sdi*), Sweet Potato Bread (Cherokee: *Oo-gu Na Sti-nu-nv Ga-du*), Gritted Bread, Hickory Nut Soup (Cherokee: *Ga Na-sti*), Persimmon Pudding (Cherokee: *Sa-li*) and Hominy Corn Drink (Cherokee: *Gu-no-he-nv*) utilize heirloom garden plants and wild harvested foods in an extremely diverse Cherokee culinary repertoire (Plemmons et al. 2000). The results of this research indicate the majority of Cherokee heirloom food plants are grown because of their preferred flavor in traditional Cherokee dishes (Table 5.1; Appendix B), illustrating a direct cross-linkage between agrobiodiversity and Cherokee culture.

5.3.3 *Ozark and Cherokee Nation Foodways*

Less research has been conducted on Ozark foodways than the culinary traditions of Appalachia, but what has been documented suggests that the region also has unique mountain foodways. Many of the informants in this study reported growing heirloom varieties for use in Ozark dishes. Like traditional foods in Appalachia, Ozark foodways have been characterized by reliance on simple, seasonal foods that are hunted and gathered wild from the mountains and grown on Ozark farms (Pinkley-Call 2005). The culinary tradition of the Ozarks is similar to that of Southern Appalachian, being corn based and heavily influenced by Native American crops and foodways, while also showing influences from various European traditions,

most prominently those of the British Isles and Germany (McNeil 1995, Pinkley-Call 2005, Gerlach 1976). In the Ozarks, however, growers show more of a tendency towards utilizing crops that are better adapted to warmer climates, as summer temperatures are significantly warmer (on average about ten degrees Fahrenheit) in the Arkansas Ozarks than in Western North Carolina. This results in warmer season crops such as Southern peas (*Vigna unguiculata*; 17 varieties documented in the Ozarks, five in Southern Appalachia) and watermelons (*Citrullus lanatus*; Ozarks: 5 varieties; S. Appalachia: none) being more prominent in the Ozarks.

Southern Peas (*V. unguiculata*), both traditionally and contemporaneously, have been an important part of Ozark diets and fields. Stories abound in the region about particular varieties that helped Ozark families through tough economic times. One such variety is the Whippoorwill pea (see Figure 5.7 below)—a small pea with seeds that range from dark to light brown with brown mottles and streaks—that is sometimes eaten fresh like green beans in the pod but more commonly is eaten as shelly peas or dried or frozen for later use. A grower from Searcy County, Arkansas reported that:

Back when I was growing up, if you didn't have black-eyed peas, you starved to death. Now that's back—I'm 78 years old—back when I was growing up, if you didn't have black-eyed peas, you literally starved to death. So these are [a family heirloom variety], well these are the Whippoorwill peas. [Interview 33]

The Minnie Patterson Pea, a medium sized brown crowder pea that is reliable and easy to grow, helped one Carroll County, Arkansas family survive the depression by providing a reliable protein source through times of widespread food shortages. Today it is grown because of its importance in the family history of the gardener who maintains it (Interview 51). Another Southern pea, the Red Ripper (see Figure 5.8 below), was brought into the region at an early date and is grown for a complexity of reasons but primarily for the value of the familial cultural memory and local history that it contains:



Figure 5.7 Whipporwill Peas

Now I like the Red Ripper—it's a very good pea. This is one that's been in the family; I guess my great grandfather brought it here from KY about 1890. Everybody and all his sons, which would have been my great uncles and all their families still grow—the ones that are still growing stuff—they grow Red Ripper peas. I have a cousin here in town, my father's brother's son—Rex Simmons—and he's growing them. Now he got his from his grandmother and I got mine of course through my dad and through my Grandpa Simmons, my Grandfather Simmons, he brought them here. From the best I can figure out it was 1890 when they came. He lived in Kentucky and I guess like a lot of the people then, he heard of the land that was available here to homestead, so he came over and brought my grandfather and his twin brother Ike and that was the first time they was in Stone County. Then they came to Big Flat which is over in the NE corner of Stone County and sharecropped that summer down on Leatherwood Creek and raised a big crop of corn.



Figure 5.8 Red Ripper Peas

[Researcher]: So on the Red Ripper pea, what makes that a variety that you like to keep growing?

It's just a family variety that we've had for so long. Actually my father planted it a lot more for ground cover than he did for an edible pea because it's such a prolific viner, it really does grow big vines. I know I've planted it in the garden maybe three rows away from my tomato cages and by the end of the season it will be climbing up my tomato cages. It does grow really long, great long vines and it's great if you want to chop it up in the fall and turn it back into your soil. It's a good soil builder.

[Researcher]: Do you still do that with it [use Red Ripper for soil improvement]?

Yeah. So, that's what my dad liked it for even better than eating. Of course me, I like it, I just grow it to eat really... I grow them I guess, to be very honest, I guess because it's a family heirloom and just to keep it going. Hopefully my children and grandchildren and great grandchildren will be growing it 100 years from now. [Interview 43]

Red Ripper pea is also well liked because of the thick “gravy” that is created when it is cooked slowly and eaten over rice (Interviews 38 and 43). The different types of liquids that are produced by particular varieties of Southern pea is very important to Ozark growers and cooks and they select what peas they like to grow taking this factor into account. An 82 year-old Pope County, Arkansas woman grows White Crowders because they produce a clear liquid that is desirable in soups and Purple Hull Peas because of their dark liquid that is preferred for eating with cornbread:

I like to put them [White Crowder Peas] in the soup especially because they're white and it doesn't turn the soups dark like the other.

...Oh, that dark soup [liquid], you take a bun or a hot roll and sop it in there, or cornbread. That's why we like the Purple Hull. [Interview 32]

Sorghum Molasses is another traditional Ozark food and is the traditional sweetener used in the region, often on top of cornbread or biscuits for breakfast or dinner:

It is really good if you got good hot butter, cow butter, and hot biscuits with it, it's good. [Interview 50]

Sorghum (*Sorghum bicolor*) was introduced to the Ozarks by at least the 1850s from Appalachia (McNeil 1995; Interview 50). Although several growers interviewed in Western North Carolina were still making sorghum molasses, only two were still using traditional varieties. In the Ozarks, five varieties of sorghum were still being maintained (Black Amber, Honey Drip, Seedless Orange Cane, Tennessee Tallgirl, and Sea Island Cane—see Appendix Three). One grower's family brought Sea Island Cane with them when they migrated to the Ozarks from Kentucky in the 1870s:

The funniest story is that my great grandpa brought this cane seed out of Kentucky. That old man Carr, when my great grandpa got up around Forsyth and Branson area [Missouri Ozarks], when he got there he ran into Earle Carr. Earle was his neighbor in Kentucky and Earle lived down around Beulah and he had some of that seed. Grandpa brought some with him [from Kentucky to the Ozarks] and then they started making sorghum and of course they made enough for their family because that's the only way they had anything sweet to sweeten with was the molasses. [Interview 50]

Making Sorghum molasses is very labor intensive; subsequently it is not made very much in the Mountain South today, but is still a highly valued food item. To make sorghum molasses, a large field is planted with sorghum seed. At harvest time (usually in September in the Ozarks) the outer leaves of the stalks are stripped (traditionally with a specially made wooden paddle) and they are left standing in the field to cure. The cane is then cut down, stacked, and carried to a mule or tractor-driven mill where it is pressed. The stalks of the cane are fed through the roller of the press and the juice is captured in a cooking pan or cast iron pot, under which a fire is maintained. The tender of the fire is very important to the process because he or she determines the color, taste, and texture of the molasses. In the traditional Ozarks (as well as in Appalachia), sorghum molasses making was carried out as a family or community affair (Interviews 46 and 50; McNeil 1995).

Since only three informants from the Cherokee Nation (CN) were identified and interviewed, only preliminary information is known about the relationship between agrobiodiversity and CN culinary traditions and an extensive literature search was not conducted. *So-Chan-i* (Eastern Cherokee: *So-Chan*; *Rudbeckia lacianata*) is both gathered as a wild food and cultivated in garden plots in the CN today (Interview 59), suggesting that some Cherokee culinary patterns have been carried over from east to west. The use of an heirloom variety of black-eye pea as a dish on New Year's Day in order to bring good luck also provides evidence

that members of the CN have adopted culinary patterns and folk crop varieties from Deep South traditions (see Egerton 1993).

5.4 Utilitarian Salience

Utilitarian salience refers to agronomic, economic, or ecological reasons that farmers decide to grow, maintain, or discontinue different crop varieties from their agricultural systems. In most studies on crop agrobiodiversity, utilitarian salience dominates as a primary causal factor(s) in explaining farmer decision making. Researchers have chosen to categorize reasons for selection into agronomic, economic, or ecological reasons for persistence (see Table 1.1), often pushing cultural salience to the margins as a residual explanatory variable (Brush 2005, Bellon et al. 1997, Angel-Pérez and Mendoza B. 2004), or ignoring cultural factors altogether (e.g. Lacy et al. 2006).

For purposes of this study, agronomic, economic, and ecological reasons for choosing to maintain folk crop varieties were collapsed into the category of utilitarian salience. This was done because each of these three variables are all directly related to their utility in helping farmers survive external agronomic, economic, and ecological forces and are all highly interrelated. Because they are all directly related to the material means of production and survival, it will be easier to analyze how farmers makes decisions by contrasting utilitarian reasons for agrobiodiversity persistence with those that can be understood as primarily cultural in nature. This is not to say that cultural and utilitarian reasons for persistence are not highly interrelated as well—they are (see discussion above). Ultimately, categorizing reasons for farmer decision making is a heuristic device that makes understanding research questions easier for scientists and is heavily dependent on the assumptions and interpretations of the researcher. Nonetheless, such as an exercise is useful and cannot only help agricultural researchers

understand farmer decision making, but can also be useful in informing conservation programs (see Chapter Six).

Results from this study show that utilitarian salience is the secondary motivation Mountain South growers gave for maintaining folk crop varieties (Table 5.1). Among the sixty informants, 32.43% of stated reasons for maintaining specific folk crop varieties were utilitarian. In the Ozarks, this percentage was slightly higher (34.54% to 32.43% for Appalachia), but not significantly (Figure 5.1). Significant differences were recorded, however, between non-Cherokee Appalachian growers and the Eastern Band of Cherokee Indians and between non-Cherokee Ozark growers and those in the Cherokee Nation of Oklahoma. Both groups of non-Cherokee stated utilitarian reasons for maintaining folk crop varieties in lower ratios than their Cherokee neighbors (25.28% for the EBCI and 15.22% for the CN; Figure 5.1). Despite the lower percentage of overall responses for all subgroups, there was a much higher level of variation in the number of utilitarian reasons that were given for persistence (41 different utilitarian reasons were given for folk crop varieties being grown and 12 cultural reasons; see Tables 5.1 and 5.2). The five most important utilitarian reasons for maintaining specific folk crop varieties were: 1) food preservation; 2) market value; 3) texture; 4) ornamental; and 5) high yield. Analysis and quotations from Mountain South growers are provided below to illustrate three of the most commonly mentioned utilitarian reasons for agrobiodiversity persistence and why they were coded into the utilitarian salience category.

5.4.1 *Food Preservation*

Food Preservation was difficult to place in the utilitarian salience category because food preservation techniques are also closely related to Mountain South culinary traditions. The long winters and relative self-sufficient nature of farms in southern Appalachia and the Ozarks have

Table 5.2 Categories and N Responses for Utilitarian Salience

UTILITARIAN SALIENCE	MOUNTAIN SOUTH
Food Preservation	196
Market Value	94
Texture	32
Ornamental	31
High Yield	29
Size	19
Low Acid	18
Economical	13
Easy to Grow	12
Easy Harvest, Animal Feed	11
Local Adaptation	10
Disease/Pest Resistance	9
Early Harvest	8
Seed Production	7
Easy Processing, For Kids, Non-Hybrid Seed	6
Cover Crop, Growth Habit, Animal Medicine	5
Seed Trial, Continuous Harvest, Produce Quality	4
Medicinal Use, Nutrition, Animal Habitat, Subsistence/Survival, Whiskey Making	3
Low Fertility Requirement	2
Fast Cooking, Pest Control, Trellis, Water Vessel, Germination Testing, Hunting Call, To Smoke, Strong Genetics, To Wash Dishes, Bath Scrub, Tea	1
TOTAL	573*

* The total number of responses for utilitarian salience are greater than the total number of folk crop varieties documented in this study. Several different utilitarian reasons were sometimes given for maintaining an individual variety (e.g. because it produces well and sells well at the market). Responses were recorded, coded, and categorized regardless of the issue of potential “double counting.” Any and all reasons that growers gave for maintaining folk crop varieties were counted in order to give a more nuanced and holistic understanding of multivariate farmer decision making. The same methodology was used for counting responses under the cultural salience category (see above).

contributed to a plethora of food preservation techniques in the region. Fred Sauceman (2007:21) has made the observation that, “Perhaps Appalachia’s greatest contributions to the world’s cuisine are the ingenious ways mountain cooks have devised to preserve the bounty of the farm” and in the Ozarks, “Storage of food was a continuing problem in pioneer homes...” (McNeil 1995:45). In western North Carolina, diets contain relatively high numbers of pickled foods. An Eastern Cherokee grower described the process by which his wife makes spicy sauerkraut:

If you believe in the old time ways, and if you do your share, the lord will do the blessing. You can always come up with a good garden to suffice, you will always have a garden and still have enough. Marie [his wife], she cans a lot. She still has one of them old time canners. To make kraut, she wraps hers [mason jars] up in newspaper and puts it back down in the box and put it in the cellar. We’ve never had, well one time when we had a real bad cold spell the beans on the top shell got that mush ice in it, but it didn’t hurt them. That’s the only time it ever got that cool in there. Used to, after that I started leaving the light on just to keep the chill out. I keep my potatoes in the cellar and all of our canned goods. Now she makes good kraut. She chops it up the old time way and she chops her peppers up. She likes three or four different kind—the habanero, the jalapeno, the cayenne, you know. Sam found her a little old grinder that chops it up fine, into little chunks. Boy she loves that thing, she used to have to set and cut it, but she puts a lot of pepper in it. When she packs it in the jars, she mixes it all up in the dish pan, then she’ll put it in the jars and she puts in a tablespoon of canning salt and a teaspoon of vinegar. That makes the difference and boy you talk about some good kraut. She tightens the lid just snug and turns I back a bit because when it ferments it’ll come out. She lets it set a few weeks and then she’ll go out and check it and she’ll tighten each lid a little bit snug and wraps it up. It’s always in a dark place I wrapped it up in black plastic behind the house there and when it’s time to get it out we wrap it up and put it in the cellar. [Interview 20; see Figure 5.9]

Despite their importance in cultural culinary traditions, Mountain South food preservation methods evolved in the context of subsistence farming and survival needs over the long mountain winters, so they began as utilitarian methodologies and retain many of their utilitarian characteristics. Although it is relatively easy to purchase canned foods from the supermarkets today, Mountain South elders can remember a time when food was scarce and still carry over behavior patterns such as preserving as much food as possible through the summer



Figure 5.9 Eastern Cherokee Canning Shed—Jars of Sauerkraut Wrapped in Newspaper

and every fall. The interrelatedness of cultural and utilitarian salience embedded in growing folk crop varieties because they are well adapted to preservation technologies again demonstrates that these categories are not truly separate domains (see above for further discussion). For the purposes of this study, food preservation is considered utilitarian and it is still clearly seen that way by many Mountain South growers. One 78 year-old grower from Searcy, County Arkansas cans because she likes to do it and also for health benefits:

I like to do this [can foods]. It's a summertime job I guarantee but I like it. See, I have a reaction to MSG, oh it makes me so sick...as long as I can my own stuff I don't have to worry about it. I like to know what I'm eating. [Interview 33; see Figure 5.10]

A 79 year-old Ozark grower, also from Searcy County, shows how the practicality of saving seed and preserving food is a carryover from more difficult times that is still practiced by many heirloom growers today:

Well, they grew 'em because you know, they're a good tasting bean and also because seeds are getting expensive. The people that live here in the hills as a whole, the old timers had to be careful. They try to can and preserve and take care of the seeds and that's just part of their culture of conservativeness, of trying to make their money go as far as it will. They had to learn that when a drought come, it was really hard, and they can and dry [food]. [Interview 42]

Growers were very specific in oral history interviews throughout the Mountain South about pointing out heirloom varieties that are particularly well-suited to the pickling and canning processes. Examples included Snowball Greasy Bean—a pole bean with a large white seed and 'greasy' pods from Yancey County, North Carolina that holds up well in the canning process; Little White cucumber—a small white variety of cucumber from Western North Carolina that makes excellent pickles; Candy Roaster squash—a large hard-skinned *Cucurbita maxima* with pale orange skin from Western North Carolina that is canned into 'pumpkin butter' that is eaten with biscuits and breads; Cow Tits, a red tomato from Western North Carolina that ripens from



Figure 5.10 Ozark Canner and Canning Room

the bottom up—giving it the appearance of having a nipple—that is very meaty and is good for making canned tomatoes and salsa; Lunsford Apple—a red and green striped seedling apple from The Eastern Band of Cherokee Indians that ripens early and is good for drying and making apple sauce; George Sladursky Okra—a large tender-podded okra from Searcy County, Arkansas that holds up well in the canning process; Bouquet Pepper—a small multi-colored hot pepper from Carroll County, Arkansas that is used to make hot pepper vinegar; Whipporwill Pea—a small beige Southern pea from Arkansas with brown mottles on it that is canned and frozen (see Figure 5.7 above); and White Cling Peach—a large peach with white flesh from Arkansas that is

excellent for canning and may have originated as an early Spanish introduction (for more extensive information on varieties that are valued for their preservation qualities, see Appendices 1-4).

5.4.2 *Market Value*

Although most Mountain South growers in this study are not currently commercial farmers, several are at least part-time farmers (eight out of sixty growers), and others sell produce occasionally when they have an excess and/or to help maintain multiple livelihood strategies. Market value was the second most important utilitarian reason for continuing to maintain folk crop varieties in this study. Comments from a 64 year-old farmer from Macon County, North Carolina (but originally from Florida, so a relative newcomer to Western North Carolina despite living there since 1967) make it clear that even commercial farmers whose bottom line is profit still need to take into account local tastes and preferences to have a successful farming operation:

The demand from the old-timers around here that think this is only bean there is to eat [Greasyback Bean]. I think that the white half-runner [bean—a commercial variety] has a much smoother texture and a much sweeter flavor. A lot of the mountaineer people—the ancestry goes back a hundred, a hundred and fifty years—just think that’s the only bean there is [the Greasyback].

We cater to those families. We’ve owned this farm here since 1967 and that makes me a newcomer. [Interview 4]

Another farmer (51 years-old) from Yancey County, North Carolina grows Snowball Greasy beans for sale at local markets and grows a Brown Greasy to sell at markets with different local tastes in Kentucky:

More or less, they [Brown Greasy beans] go to Kentucky. They sell pretty good all the time. Nobody has any seeds for them. When they cook, they look like a dark bean. Most people [from around here] don’t like a dark bean. They look like they’ve been warmed over. Like the greasy beans where you warm them over? They already dark when you cook ‘em. I like ‘em as much as others, but most people don’t around here,

won't have nothing to do with 'em. They cook dark. They [locals] want a light bean.
[Interview 3]

Farmers who grow heirloom varieties commercially in the Mountain South have to match the varieties they grow to local tastes. Although this process has to take into account the preferences of local culture, ultimately the farmers are trying to make a profit—so growing folk crop varieties for the stated reason of their market value can be considered largely, though not exclusively, utilitarian in nature.

5.4.3 *High Yield*

Growing folk crop varieties because of their ability to produce high yields is a largely agronomic motivation that can be considered utilitarian. Generally, heirloom varieties are not known for their ability to produce high yields compared to modern hybrid varieties. Twenty-nine varieties documented in this study were exceptions to that rule and were singled out for their ability to yield relatively high returns. Most growers just mentioned that one of the reasons they grew a particular variety was because it “produces well,” which is self-explanatory, but a few varieties elicited more detailed explanations. One such variety, the Pink Oxheart tomato, was elaborated on by a 73 year-old greenhouse operator from Graham County, North Carolina as earning a place in local lore as a good producer:

One of them is the Pink Oxheart and it's been around that I know of since the forties. Its kind a pink meat meaty tomato and it's another mild-flavored and a good producer. And one of our local people grew that and won the contest for having the biggest one in the county this year. Usually Ruby [Orr, another heirloom tomato] wins it, but somebody beat her on the Oxheart this year. Sometimes they grow like double. I reckon the globes get mixed up or something, but it looks more like it's two [tomatoes], kind of growed together. And that was what that one was...it was the biggest one brought in. The bank gives away plants in the springtime, and then they have this little contest in the fall to see who growed the biggest tomato, and somebody with an Oxheart won this year.
[Interview 5]

5.5 Other Reasons for Folk Crop Variety Persistence

Other reasons that individuals in this study gave for maintaining folk crop varieties cannot be easily understood as being predominately utilitarian or cultural. Idiosyncratic responses such as include maintaining folk crop varieties for the stated reasons of curiosity and because of their good smell are included as “other” reasons for persistence and accounted for 00.68% of total responses for the Mountain South (see Table 5.3 below).

It should be noted that all agricultural decision making is tempered by idiosyncratic and individual factors and preferences. The anthropological literature has clearly established that individual agency is an important factor in all agricultural decisions (Barlett 1980). Both cultural and utilitarian reasons for maintaining folk crop varieties are influenced by individual agency, again showing that categories are only abstractions constructed by researchers to help them interpret a reality that is holistic in nature (see discussion above). To take one example from the cultural salience category, maintaining folk crop varieties because they taste good is also a matter of individual preference. Yet individual tastes are also culturally constructed and bounded (Minnis 2000), in addition to being directly related to local food traditions, so taste was considered a cultural reason for persistence in this study. Smell is a response that was coded into the “other” distinction, yet is also culturally constructed to some extent. It is beyond the scope of this study to determine how smell is perceived through individual and cultural lenses, but it is assumed that because only a few individuals (n=2) mentioned growing folk crop varieties because of their good smell in this study that it could be understood that smell is a largely idiosyncratic response.

Table 5.3 Other Categories and N Responses

Individual Salience	Mountain South	Appalachia	Ozarks	Non-Cherokee Appalachians	EBCI	Non-Cherokee Ozarkers	CN
Curiosity	10	6	4	1	5	4	0
Good Smell	2	2	0	0	2	0	0
Total	12	8	4	1	7	4	0

5.6 The Performance of Cultural Identity

The gardens of Mountain South growers are not their only (or oftentimes their primary) source of food and modern agricultural inputs are also readily available to help manage such fluctuations. The performance of Mountain South heirloom growers is for a different audience and in a different context with a different set of external and internal conditions than the West African farmers that Richards (1993, 1989) works with. Whereas the emphasis has somewhat lessened on immediate material survival (subsistence and survival remain a predominate ideological theme) over the past fifty years in the Mountain South, it has shifted to the cultural importance of maintaining traditional lifeways and connections to ancestors and a (somewhat idealized) way of living that mostly exists in the past and the memories of individuals. Contemporary home gardens and folk crop varieties in the Mountain South are remnants for native residents of the region who, more often than not, would rather be living in the social environment they experienced growing up than the one they live in now:

But there's not too many people that can grow corn [anymore]. They give it all up. I think the old way of living is a lot better, a lot cleaner and everything. I mean, it's just the way it ought to be. But if you spend all your time a farmin' and you ain't got no money to pay the light bill, they gonna cut your electric off. [Interview 1]

Mountain South growers commonly comment that they would rather live in the Southern mountains than any other place in the world because of the prevailing cultural climate:

Of all the places I've been—and I've been to Mexico, I've been all over the US, I've been to Italy, Germany, Hungary, Romania—and this is the richest culture. There's something about this area [Ashe County, North Carolina] that draws you back, there's a pull. I really can't explain it. [Interview 6]

Seed saving and gardening practices are particularly important to the cultural identity of Eastern Cherokee people because of their longstanding agricultural tradition in southern Appalachia. One Cherokee gardener said:

People run around when it's counting time [when a census is taken] and everyone's a Cherokee. But do you really know what it means to be Cherokee? You're a gardening people. You come from agriculture. It ain't the wardrobe or the dancing or any of the other stuff, this [gardening] is what has allowed you to have those other things. [Interview 25]

Each spring thousands of gardeners get out their tillers and tractors and prepare their garden plots and fields. These farmers are harboring very high levels of agrobiodiversity in the seeds stored in their cellars and freezers, just waiting to be planted. Such synchronous activity could be viewed as a cultural performance of life “as it should be,” something akin to an orchestra giving a spring time concert brimming with a cacophony of plants of different sizes, shapes, and colors for instruments; and capable of evoking powerful cultural memories and everyday resistances.

5.7 Everyday Occurrences, Resistances, and Countermemory

The agricultural performance by Mountain South growers is an act, not only of cultural solidarity and identity, but of countermemory and everyday occurrences and resistances (Nazarea 2005, Nazarea-Sandoval 1995, Scott 1990, 1985). Evidence of heirloom gardening as acts of countermemory and everyday resistance abound throughout oral history interviews conducted with Mountain South growers. One grower from Yancey County, North Carolina contrasted

modern farming with the old-time Appalachian gardening and seed saving practiced by his one of his older cousins with a particular talent for growing tomatoes:

The modern farm is all about production and how much we can make and how fast we can get it there. It ain't about feeding the people. It's about how fast I can fatten my pocket book up...It's all about how fast we can grow it, how many steroids can we get in it or you know, how much ammonium nitrate it can take. It's ridiculous.

...He just gardens. One of those fellers who still believes in the old ways, you know. And he come down through a family that done that. I mean, he's second cousin to us, his daddy and our grandma was brother and sister and that's all they ever done—they saved those seeds. I mean I don't care what it was they saved those seeds, they didn't believe in going over there and buying those seeds and they would trade seeds, you know, part of them lived down on the creek, she lived over here and another one lived down on the creek and you start getting that [a particular variety] wasn't producing good and they'd just trade seeds amongst each other, raise it a year or two, go get it back, kept it going. He hasn't got nothing we ain't got because we're all in the same family except he does have the tomato seed and he has good luck with them. (Veteto 2005: Interview 6; see Figure 5.11 below)

A 45 year-old grower from the Cherokee Nation of Oklahoma reported that growing heirloom Cherokee gardens is both a way of life he grew up (everyday occurrence) with and a cultural strategy by their current chief to help the Cherokee maintain a degree of autonomy and self-sufficiency from the federal government (everyday resistance):

The Chief is a very big self sufficiency expert and he has his opinion that one day the federal government is—not today or in ten years—but there is going to come a time when the Cherokee Nation is going to remain an entity only because of the Cherokee Nation, that the federal government is going to offer no assistance. He thinks that, he believes that to do that, it's going to be important for the Cherokees to retain a certain amount of culture, of cultural identity, to assist in that process you know. He sees this [seedsaving and gardening] and a hundred other cultural tidbits as part of the puzzle. I think it's got a lot of validity to it.

To me it's always been something that I've always done. I grew up in Oklahoma, not financially well off and we did it because it helped save money when I was a kid. Then as you grow older and become somewhat more successful and you don't have to do that you realize the stuff that you buy at the grocery store is not nearly the same quality as you can grow at your house. So I just have always done it. Now when I was a kid I would have swore that I would never done it. So that's really where we are [The Cherokee Nation Seedbank]. We're maintaining some seeds so that we have a good chain of custody for lack of better wording. [Interview 58]



Figure 5.11 Southern Appalachian Heirloom Grower (left) with Ethnobotanist Gary Nabhan (right)

Another example of everyday resistance comes from a sixty-eight year-old gardener from Carroll County, Arkansas. He contrasts his heirloom yellow-meat watermelon with the hybrid varieties that are sold at the commercial bastion of modern US culture—Wal-mart. The grower offers his watermelons for sale at a very low price, informally, next to his mailbox for community members:

That one [the Yellow Meated watermelon], I got twenty hills down yonder and they'll make eight or ten to a hill. That little patch of 'em will make about 200 melons and the

price Wal-mart gets for ‘em is seven or eight dollars and I can get as much just growing watermelon than anything else I can think of. I just give ‘em away. One year down here—I had over there down the creek across the spring—I had a couple hundred melons. Small ones I put a dollar on ‘em and bigger ones I put two dollars and set them down there by the mailbox and put a coffee can for the money in. Just about everybody was eating ‘em. Some fella wouldn’t put his money in there, he came up here [to the house] to give us the money and he said, “Somebody’s going to pick up that money.” I said, “Well, hell, they can pick up the watermelons so what’s the difference?” Didn’t make any difference, they can steal the money or they can steal a watermelon, doesn’t matter to me. If they do they’ll have to live with it the rest of their lives and on. I don’t so I can live with that. [Interview 50]

Local knowledge and spiritual beliefs are other ways in which Mountain South growers use countermemory to resist the dominating discourses of modern US society and agricultural science (Campbell 2005). The 65 year-old Eastern Cherokee gardener below describes this process as, “not learning and not studying up,” by adhering to the traditional Appalachian ways of planting crops by astrological signs and phases of the moon. He continues to cultivate both his garden and memories in spite of nearly overwhelming health difficulties:

Well, we’ve got a farmer’s almanac and it gives you the same [information] as if you—well the old-timers didn’t have a farmer’s almanac to look in but they went by the moon and knowed about when and what to do. You can [do that]—but farmer’s almanac gives you some good data on about anything. Like cutting and when to plant, when to kraut [make sauerkraut]. Now Marie [his wife] won’t kraut unless the signs are in the head or in the neck [astrological signs]. She loves to kraut when the signs are in the neck. If you kraut when they are in the stomach or down in the feet, you open a can and you can’t stand it, it stinks. People learn this lesson by not listening and not studying up I guess. At certain times we plant our corn according to the moon. The signs—you want to clear new ground off where it won’t come back and get sprouts and stuff you clear it off when it’s in the heart and it kills it you see.

[Researcher]: Ok, so you try to do everything by the signs and find that works pretty good for you?

Yeah. It works. I believe in it and you’ve got to have that belief. Then you do it accordingly and like I said you plant the seed and the good lord gives the increase if you follow his direction and you’re willing to work at it. I call it piddling, a lot of people call it work. I’m just thankful that with my condition—I’ve had four back surgeries and five heart attacks—I’m just thankful that I can keep going. [Interview 20; Figure 5.12]



Figure 5.12 Eastern Cherokee Gardener (left) Who Plants by the Signs with the Author (right)

Such steadfast determination to plant a garden in the “old way” is not atypical of Mountain South heirloom growers. One encounters this dedication to carrying on the annual (and everyday) planting tradition continually when interviewing and conducting participant observation across southern Appalachia and the Ozarks. One also encounters the idea, in both clear statements and subtle undertones, that growers are fiercely proud of their gardening acts—acts that convey deep seated resistances to much of the modern way of life in the contemporary United States.

5.8 Conclusion

Cultural and utilitarian reasons for agricultural decision making and agrobiodiversity persistence are highly interrelated categories that are useful in helping researchers understand why farmers make decisions to maintain folk crop varieties. Responses from intensive oral history interviews asking growers why they chose to grow each folk crop variety documented in this study were coded and placed into the categories cultural salience or utilitarian salience. The results from this study indicate that growers across the Mountain South are maintaining folk crop varieties for reasons that can be understood primarily as cultural and secondarily as utilitarian (Figure 5.1).

Heirloom growers across the Mountain South are not “hobby” growers that plant folk crop varieties because they are historical oddities and curiosities, for purely genetic conservation, or because it is the popular thing to do in the social network of the organic farming movement—as many hobby growers in the US do (Ausubel 1994). With very few exceptions, the participants in this study are “old-timers” who are continuing to maintain and pass along the seeds that have been saved in their families for generations. They were brought up to do so by their parents and grandparents, to whom seedsaving was not only an important way of life that celebrated local culture and history, but also an essential method of survival. However, “old-timey” Mountain South growers face different social conditions today than they did growing up. Subsistence and commercial farming is no longer the predominant way of life in the Appalachians or the Ozarks. As of the year 2000, less than 2% of the population listed their primary occupation of farming in the Appalachians (Gragson et al. 2008) and very few people farm full-time in the Ozarks today either (Blevins 2002, Rafferty 2001).

In the contemporary Mountain South, most folk crop varieties are grown by members of the older generation in small home gardens outside their residences. Heirloom foods are grown mainly for personal, familial, and sometimes community use, and help Mountain South people (who face a long historical tradition of poverty that continues into the present day) maintain multiple livelihood strategies for survival (Halperin 1990). Yet many of these foodstuffs (not heirloom types, but foods products made from modern hybrid crop varieties) can be purchased at the grocery store for less money than they can be grown for. Folk crop varieties do not have the utility of providing the means for material survival that they did in the Mountain South before 1950, although with the recent increase in food prices and lack of jobs due to economic recession, many growers have commented that heirloom varieties may end up playing a more important role in the material survival of Mountain South people in the near future. Cultural reasons for persistence are emphasized by Mountain South growers of folk crop varieties and these reasons are most often related to their desire to taste the unique and particular foods that they grew up with; or because maintaining heirloom seeds reminds them of their ancestors, cultural heritage, and place.

The maintenance of folk crop varieties and the yearly appearance of home gardens across the Mountain South can be viewed as a cultural performance—a performance of identity, way of life, countermemory, and everyday resistance—that is endangered and in contrast with that of the dominant, mainstream US culture that has increasingly engulfed traditional people in the Mountain South in recent years and pushed them to the margins of their own native mountains. The primacy of cultural themes in Mountain South agrobiodiversity persistence can also help provide lessons for the conservation of crop genetic resources within the region, a subject that will be examined in detail in Chapter Six.

CHAPTER 6

AGROBIODIVERSITY CONSERVATION IN THE AMERICAN MOUNTAIN SOUTH

6.1 Introduction

The results of this research indicate that the majority of seedsavers in the American Mountain South who are maintaining local folk crop varieties are doing so in an *in vivo* manner, with cultural salience as the primary causal agent guiding their decision making. There are a variety of agrobiodiversity conservation programs active in the Mountain South and this research project engaged with most of them through participant observation and collaborative conservation (see Chapters One and Six). This chapter will describe and analyze each of these conservation programs, evaluating the degree to which they support *in vivo* seed saving and agriculture as a way of life (Hunn 1999), and the extent to which they emphasize cultural themes in their initiatives. The organization structure of each program and how it engages with local people will also be evaluated.

Nazarea's seven suggestions (below) for researchers to "thoroughly reexamine principles and guidelines for *in situ* conservation in farmer's fields" (2005:155) and Nora's concepts of "milieu" and "sites" of memory (1996; see Chapter One) will be used as the theoretical and practical scaffolding from which to analyze each of the programs in terms of their support of local *in vivo* seedsavers and colporteurs, who are highlighted as the backbone of Mountain South agrobiodiversity conservation to begin the chapter. Based on the results of this research and analysis of ongoing conservation programs, recommendations for strengthening conservation

efforts will be given to conclude the chapter. Nazarea's seven suggestions for researchers to recognize in their support of *in vivo* seed savers are as follows:

1. Recognition of gardeners and small-scale farmers as creators and curators of a significant component of biodiversity, with a wealth of experiences and memories to share;
2. Documentation of local beliefs and practices associated with landraces or folk varieties along with local systems of categorization, evaluation, and management; transmission of this knowledge to the youth and use of these parameters and insights as the primary basis for setting goals and defining priorities;
3. Conservation of diversity not only *in situ*, but more fundamentally, *in vivo* through whole complexes of plant symbolism and usage, including cooking, commensality, healing, ritual, and aesthetics that define identity and sense of place;
4. Evolution of a new language of conservation that does not diminish or patronize farmers' knowledge or ways of life in order to strengthen its scientific base, one that eschews strict requirements of design and celebrates difference, agency, and choice;
5. Acknowledgement of sensory embodiment as been no less legitimate than scientific characterization and prescription; incorporation of cross-experiential learning, including exchange visits, participant observation, and storytelling in finding new ways of communication between farmers and scientists;
6. Extension of support and incentives to seedsavers who propagate and pass along heirloom or old-timey varieties, farmers who practice low-input agriculture and multi-cropping, and women who tend home gardens, for their contribution to conservation;
7. Development of "niche" or specialty markets, along with a new pricing mechanism that would value heirloom crops as well traditional food and medicinal preparations, and novel uses for old-timey varieties and recipes that would further motivate their producers. (2005:155-6)

6.2 *In vivo* Conservation and Community Seed Savers

Most seed saving in the Mountain South is carried on *in vivo* and has been largely beyond the reach of conservation initiatives. In this research a distinction is made between *colporteurs*—individuals with a penchant for gathering the seeds of their families, friends, community members, or region and keeping them alive both in gardens and in story—and seed savers who are strictly growing varieties that have been passed down in their family. This is a distinction that Nazarea (2005) does not make, as she refers to all seed savers as *colporteurs*. I think the *colporteur* metaphor would be more fitting in describing seed savers who gather a

wider variety of seeds than are available in their immediate family and serve as an acknowledged local reservoir for seeds, since the colporteurs of 17th-19th century France were peddlers of books and other objects of marginality who made intentional collections and spread them among the masses. In essence, they function as *in vivo* local conservationists, who are accomplishing what programmatic *in situ* programs set out to do, with only the motivation of their own curiosity and passion for local history and lineage as guideposts.

Such local conservationists can be contrasted with regional seedsavers or projects (e.g. Conserving Arkansas' Agriculture Heritage, The Southern Seed Legacy, and the Center for Cherokee Plants—see below), national seed savers or projects (e.g. RAFT—see below; The Seed Savers Exchange 2010 and their members), or international seed savers or organizations who grow and/or maintain folk crop varieties from around the world (e.g. The International Seed Saving Institution 2010 and the recent Svalbard Global Seed Vault 2010). It may more accurate to describe seed savers as falling into several categories and the following distinctions are proposed here:

- 1) Familial seedsavers (maintaining seeds passed down in their family)
- 2) Community seed savers (maintaining family seeds and those of their larger community)
- 3) Regional seed savers (those who maintain region-wide seeds inclusive of family and community)
- 4) National seed savers
- 5) International seed savers

Of the sixty growers interviewed for this research, twenty-five can be considered colporteurs, and will from here forward be referred to as community seed savers. This distinction means that they are not only growing local seeds that have been passed down within

their own family or they have acquired gradually through seed exchanges with neighbors and friends, but that they have also consciously gathered other heirloom cultivars from within their own community and are known locally as individuals who have particular interest in traditional cultivars.

Several quotations from oral history interviews illustrate what motivates community seed savers to seek out and perpetuate collections of local seeds. A 74 year-old Eastern Cherokee gardener (see Figure 4.9) said:

I plant a lot of corn, a lot of potatoes, a lot of beans. And the beans, I really enjoy that. Now when I came back here I went to the [Cherokee Indian] fair, they had some beans there. I thought, oh, those are the most colorful beans. I didn't remember them at the time, because we didn't raise them. People would give me two or three. Well, that's how I started. People would give me two or three of something I didn't have. I'd plant them and next year I'd have the seed. This was about in—well I moved back in 1975—so in '76 they started giving them to me. There at one time, several years back, I had fifty-something different kinds and colors of beans that I had gotten at the fair.

And I give seed to anyone who asks. Whatever kind, all of these, I'll wind up—other than what I keep for seed—I'll wind up giving them away by planting time next year. And it's just to try and get them to keep raising them...Well, I'm glad to see that it's being saved and not becoming extinct you know. [Interview 16]

What started out as a curiosity and appreciation for the variety of colors in Cherokee bean seeds has evolved a conscious local seed saving effort for this Cherokee gardener. Kevin Welch of the Center For Cherokee Plants estimates that this individual is responsible for sixty-five percent of the October Beans that are being circulated among the Eastern Cherokee today [Interview 16].

Another community seed saver from the Ozarks has been collecting local corn varieties for many years (see Figure 6.1 below). He restores old-time corn mills and operates one on his property in Searcy County, Arkansas. When local residents bring in heirloom varieties to be milled, this individual saves seed from each and keeps them in his freezer, illustrating that his



Figure 6.1 Ozark Miller and Community Seed Saver with Mill (above) and Seeds (below)

milling business also serves to conserve and promote local agrobiodiversity (he is known in his community know as both a miller and collector of heirloom cultivars):

I normally grind anywhere from 3,000-5,000 pounds [of corn] a year...my dad and my mom and all them they've always grown meal at our home—we normally produce 50 or 100 pounds every year—we produce and grind and I get that from them. Local people they'll bring anywhere from twenty-five pounds to as much as 300 or 400 pounds and leave it here to be ground.

The actual seeds that I have here I've been collecting for at least ten years and then my mother—I've got some seeds I'll show you. Each one of them are seeds that have been in our family or families adjacent to us...A lot of people around here will try to grow a little Pencil Cob and a little Tennessee Red Cob. Most of these [corn varieties]—you can see these are all variations, these white ones, are variations of Tennessee Red Cob. A lot of people will call them—like this one here—this is the cob that the corn came off of [gesturing]. A feller bought me this and I grind corn for this feller every year—his name's Glen Griffin—that's a variety that he brought me here and I just shelled it and stuck it in this freezer out here because I like the taste of his corn. I sample all of these, when I grind them folks want me to sample them so I'll take some—you see corn is best when it's fresh ground. You grind, take it up there [to the house] and cook it, can't beat it. This is one of my favorites [gesturing]. It's a variation of Tennessee Red Cob...I always tell people when they come in here if you're gonna save your [Tennessee Red Cob] corn seed save it with the red cob [to prevent gene flow away from what he considers to be the more pure strain]. The white cobs are variations of Tennessee Red Cob...it could have crossed with some other corn.

A lot of time people will sometimes lose their corn...That's the reason you see me take a sample—I just throw it in there in the freezer—somebody will come back by and say, “I want a sample of the Pencil Cob.” Well, I'll show them these two and say, “Which one do you want?” And they'll say, “Which one do *you* like?” And I'll say, “Well, all of them are good on the Pencil Cob.” To me it's got the best flavor. If I was picking a corn between the Pencil Cob and Tennessee Red Cob—the Pencil Cob's got more flavor than any of them, it's got the best flavor to me. [Interview 48]

This Ozark miller and seed collector is serving as a local seed bank, interpreter of gene flow and variation among closely related varieties, and promoter of certain varieties [e.g. Pencil Cob corn] because of their specific tastes and use in culinary dishes.

The examples above, of a collector of seeds and competitor at The Cherokee Indian Fair and a local Ozark miller, illustrate some of the complex motivations and avenues by which

community seed savers in the Mountain South collect, maintain, and promote local folk crop varieties. Their efforts are beyond formal seed saving conservation programs, yet are extremely effective in contributing to the preservation of local agrobiodiversity.

In the following sections, ongoing conservation programs in the Mountain South—which are more formalized and a step removed from *in vivo* seed saving—will be evaluated, compared, and contrasted, using Nazarea and Nora’s insights, to the extent that they support and complement the *in vivo* foundation of Mountain South agrobiodiversity.

6.3 The Center for Cherokee Plants

The Center for Cherokee Plants is a conservation program that was officially established by Kevin Welch in 2007 (however, work on the center’s projects has been ongoing since 2005). The motto of the center is “Putting Culture back into Agriculture” (see Figure 6.1) and it is located at the traditional Kituwah “mothertown” sacred site on two acres that contains two abandoned dairy buildings on-site that are being re-modeled for the center’s use. The land was donated by the business committee of the Eastern Band of Cherokee Indians (EBCI) (McClellan-Welch 2008a). Welch, an enrolled member of the EBCI and born and raised in the traditionalist Big Cove Community, spent many years away from the reservation working at different professions. Upon returning to the reservation in 2000, he began to search around for the old-time Cherokee cultivars that he remembered from his youth such as Cherokee October beans and Rattlesnake pole beans (*P. vulgaris*). He found that far fewer Cherokee people were growing out traditional cultivars than in the past and that the growers were elderly and spread out in small pockets across different Cherokee communities. Many of the growers possessed seed stocks that were so low that they could no longer share seeds with their neighbors, a time-honored Cherokee tradition. Kevin was disturbed by the limited availability of traditional Cherokee seeds and



Figure 6.2 Official logo of The Center For Cherokee Plants. Their motto is “Putting Culture Back Into Agriculture.”

plants so he started The Center for Cherokee Plants as a way to conserve, promote, and revitalize Cherokee seeds, plants and foodways:

A lot of the seeds that I grew up with were disappearing. They were around but people weren't sharing them like they used to. So when I moved back from Alaska, I had a garden spot and I told my mom, "I think I'd like to grow some of the old varieties." I started looking around and they were pretty scarce. I always liked Rattlesnake Pole Beans, mostly because to me I like the flavor. Also, they made good leather britches—that's one of my favorite things. I liked those and the Tender Octobers...I like the Rattlesnakes and Tender Octobers and Peanut beans and the Early Snow peas.

I would like to see us to be able not only to supply people with seeds every year, but for people to get to the point where they have enough of their own seed stock that they can exchange among themselves and we would just be there in the event that something

happened like a crop failure, be there as a support mechanism in the future as opposed to being the primary supplier. I think that would be the mark of success if we were able to get that many seeds back into the hands of the enrolled members [of the tribe]. To me that was the goal, the original intent of this project is to get these seeds reintroduced to people. That's why our slogan is trying to put culture back into agriculture. We're trying to get our people back into understanding why these seeds are important to us. Not just that these are seeds—and 'yeah I like the October Beans'—but understanding why they are important to you. If they do understand why they're important, then maybe they will take that extra step and not lose them again. It's just that simple. [Interview 29]

Since 2007, The Center for Cherokee Plants has been engaging in grow outs of Cherokee heirloom seeds and making them available to the local community. They participate in the "Chief's Cherokee Family Garden Project" to help get heirloom seeds back in the hands of Cherokee growers and to promote local gardening and food production. In addition to seed conservation and distribution, the center has also established a tribal plant nursery to grow out plants that are utilized by Cherokee artists, wild food plants, medicinal plants, wildlife habitat and erosion control plants, and heirloom fruit varieties. The nursery also serves as a repository for plants that have been rescued from local construction sites (McClellan-Welch 2008a). The Center for Cherokee Plants and Kevin Welch give educational programs on traditional Cherokee agriculture at various locations in the southern Appalachian region and have engaged in outreach, networking, and consultation to heirloom seed conservation projects of several other American Indian tribes. The center also periodically hosts potlucks highlighting traditional Cherokee foods, which provides a venue for dishes cooked with heirloom varieties to be appreciated by the larger Cherokee community.

As was discussed above and in Chapter Five, promoting Cherokee culture is central to the mission of The Center For Cherokee Plants. Their cultural approach to conservation is likely to have a high degree of success and is consistent with the findings of this research that local growers are maintaining folk crop varieties largely because of their cultural salience.

Conservation initiatives among other indigenous people, for example “cultures of the seed” in the Peruvian Andes (Gonzales 2000), have been highly successful by promoting cultural themes (Nazarea 2006).

The Center for Cherokee Plants engages each of Nazarea’s first six suggestions in their innovative local Cherokee approach to conservation. Nazarea’s seventh suggestion, the development of niche or specialty markets for heirloom crops, is beyond the scope of the present work done by the center. However, since the center has recently been incorporated into the Cherokee Reservation Cooperative Extension Service and Kevin Welch has been hired as an employee of Extension, it is likely that the center will engage more with the farmer’s market in Cherokee, NC since it is supported by the Cherokee Cooperative Extension. In the meantime, The Center For Cherokee Plants has been indirectly supporting the local development of markets for heirloom crops by providing seeds to growers who then market their crops at the Cherokee Farmer’s Market (Interview 21).

The Center for Cherokee Plants project represents an interesting interconnection between milieus and sites of memory. The project was born out of the experience of Kevin Welch after returning from twenty years away from the reservation and finding that the heirloom cultivars that he had grown up growing and eating had nearly fallen out of circulation. By seeking out the elders of the tribe who are still maintaining the seeds of the Cherokee, learning from and documenting their memories and uses for such varieties, and encouraging Cherokee youth to cultivate and cherish them, Welch is attempting to both repair and re-invigorate a gap within his own milieu of memory while also complementing it with archival memory work that is meant to inform and inspire Cherokee milieus of memory of the future (Interview 34). By establishing the Center for Cherokee Plants as a physical location on the reservation, the project is quite literally

a conservation “site” as well. This unique project illustrates how milieu and sites of memory and conservation are not quite as distinct as Nazarea (2006) has described them, but are often informing and interacting with each other.

6.4 The Cherokee Indian Fair Agricultural Exhibit

The Cherokee Indian Fair is a fall festival that has been ongoing since 1914. It is held every October and Greene and Robinson (1987) have argued that it represents a modern, modified carry-over of the Green Corn Ceremony which was traditionally held near the end of September when the corn crop had matured. The agricultural exhibit at the fair gives Cherokee growers a chance to compete at growing traditional Cherokee crops. The agricultural exhibit gives Cherokee growers at least two incentives for promoting agrobiodiversity conservation and agricultural innovation using traditional crops: 1) awards are given in categories of traditional Cherokee food crops and plants; and 2) amateur plant breeders are sometimes rewarded for showy innovations they have made on traditional cultivars (see Chapter Four).

In the Fall of 2008 there were twenty-three competing categories at the agricultural exhibit (see Table 6.1 below). There was also an award given for the Chief’s Cherokee Family Garden Project with the following guidelines: “Mount on a 2’ x 3’ stiff poster board, foam core or similar: 1) photos of your garden; 2) an estimate of the amount of each vegetable produced; 3) a list of who worked in the garden; 4) estimated size of the garden; and 5) one paragraph describing ‘What made this garden special?’” (McClellan-Welch 2008b). Small cash awards are given for each category. These prize categories encourage the growing of a wide diversity of traditional Cherokee plants. Many of the growers interviewed in this study participate in the agricultural exhibit and for several it is the main venue and motivation that they have for continuing to grow out traditional varieties. Therefore, the agricultural exhibit acts to promote

Table 6.1 Competition Categories at The Cherokee Indian Fair Agricultural Exhibit

Corn Multi-colored kernels (<i>Zea mays</i> —thirty ears)	Other winter squash (<i>Cucurbita</i> spp.)
Indian Flour Corn (<i>Zea mays</i> —thirty ears, no dent, eight rows of kernels per ear—yellow, white, other colors)	Pumpkin (<i>Cucurbita</i> spp.—largest, ugliest, painted)
Indian Beans (<i>Phaseolus vulgaris</i> , <i>P. coccineus</i> —one peck, shelled and dried, displayed in an Indian basket, including October beans and Butterbeans and other traditional Cherokee bean types)	Ornamental Gourds (<i>Lagenaria siceraria</i> , <i>Trichosanthes anguina</i> ; fresh, undecorated, displayed in an Indian basket)
Corn Beads (<i>Cox lacryma-job</i> —1/2 gallon, displayed in an Indian basket)	Other Pumpkin (<i>Cucurbita</i> spp.)
Traditional Crops of the Cherokee (a display of three to five different traditionally cultivated crops, including the Cherokee and English names of each crop)	Herb Display (five different fresh or dried herb plants, all labeled, with Cherokee name and plant uses including food, flavor, medicine, dye or fiber)
Field Corn (<i>Zea mays</i> —ten ears; white, yellow and other colors)	Any Other Traditional Cherokee Crop (wild or cultivated, must include a card with an explanation of what it is and how it is used, and the Cherokee name and plant uses)
Honey Production (three jars—without comb, with comb)	Largest gourd (<i>Lagenaria siceraria</i>)
Sweet potatoes (<i>Ipomoea batatas</i> —one peck)	Largest Sunflower (<i>Helianthus annuus</i> , diameter of head)
Winter Squash (<i>Cucurbita</i> spp.)	Unusual Vegetable
Candy Roaster (<i>Cucurbita maxima</i>)	Largest Candy Roaster (<i>Cucurbita maxima</i>)
Cushaw (<i>Cucurbita argyrosperma</i> , orange or green striped)	Popcorn (<i>Zea mays</i> —five ears, displayed in an Indian basket)
Irish potatoes (<i>Solanum tuberosum</i> —one peck, white and red)	



Figure 6.3 Kevin Welch and Sarah McClellan-Welch attaching awards ribbons at The Cherokee Indian Fair Agricultural Exhibit. They are holding a snake gourd (*Trichosanthes anguina*). Photo by Keith Nicholson used with permission.

Cherokee agricultural and wild plant diversity by providing a community outlet for celebrating Cherokee cultural identity and traditional plant use. The inclusion of the agricultural exhibit in a larger cultural event such as The Cherokee Indian Fair provides a tangible link between culture and agriculture which highlights the cultural salience of Cherokee agrobiodiversity.

Although the agricultural exhibit is not an official or intentional conservation program, it still directly promotes Nazarea's suggestions one and seven by recognizing Eastern Cherokee gardeners as creators and curators of agrobiodiversity and by giving incentive for seed savers to propagate Cherokee heirloom cultivars. The exhibit is a tangible site of memory and indirect promoter of *in situ* conservation, and also engages the milieu of memories of local gardeners as they maintain local varieties in their fields to compete in the fair. Memories of past agricultural exhibit events are alive in the circulation of local Cherokee stories as well (Interviews 16, 19, 22).

6.5 Cherokee Nation Seed Bank

The Cherokee Nation Seed Bank was founded in 2007 by the Cherokee Nation (CN) Natural Resources Department at the request of current CN Chief Chad Smith in an attempt to combat diabetes and to make the tribe more self-sufficient (Interview 58). The current manager of the seed bank was sent by the tribe to the 2007 annual meeting of a Native American nursery and garden group in Minnesota to gather information relevant to operating a seed bank. At the meeting the manager met Kevin Welch of the Center For Cherokee Plants and invited him to Oklahoma to visit the incipient CN Seed Bank. Kevin brought about fifteen Eastern Cherokee varieties for the CN to trial in their garden grow out program. The CN Seed Bank found that many of the North Carolina varieties did not grow well in the hot Oklahoma summers so they sent out queries to seed companies and seed banks around the country to locate Cherokee seeds that were better adapted to their local agroecological conditions. After two growing seasons they have settled on fifteen varieties of Cherokee seeds (see Appendix F) that grow well in Oklahoma and have a program where they make those varieties available to the tribe (as of 2009 they had mailed out over 6,000 seed packets to Cherokee people all over the world) and also offer free

plowing of CN citizens' gardens at the beginning of every growing season (Interview 58, Custer 2010). A recent press release by the CN Natural Resources Department makes it clear that a significant goal of the CN Seed bank is to preserve Cherokee culture and history through growing heirloom seed varieties:

We have an extremely limited number of seeds we would like to give to citizens so they can also grow their own Cherokee history. We have several varieties of corns, gourds, and beans, as well as a few specialized plants such as tobaccos and squashes. Many of these plants represent our living ancestors and make delicious tablefare. Others are great for art or ceremonial applications. All are uniquely Cherokee. (Cherokee Nation Announcement 2010)

The CN Seed Bank faces a different set of circumstances than The Center for Cherokee Plants. The CN has not been able to find a significant number of Western Cherokee people who are still maintaining heirloom varieties of the tribe. This is unlike the situation of the Eastern Band, among whom 128 folk crop varieties were documented in this research in two months of concentrated fieldwork. The manager of the CN Seed Bank attempted to locate Western Cherokee heirloom varieties by contacting 2000 employees of the CN and also by sending out feelers throughout the CN community for several years. He was not able to find a single folk crop variety in his queries and mentioned that it likely has to do with the historical circumstances of the Cherokee in western Oklahoma. When the CN was allotted land by the US government, it was often the most marginal land that was not conducive to gardening. The Western Cherokee survived by a mix of hunting, gathering, and keeping hogs. In the modern era the Cherokee who continued to keep animals switched over to cattle. Because of the harsh gardening conditions of western Oklahoma, the CN Seed Bank manager thinks that his tribe has relied less on gardening and crop farming than the Eastern Cherokee (Interview 58).

Although the results of this study indicate that the Western Cherokee are currently maintaining far fewer folk crop varieties than the Eastern Cherokee (29 varieties for the Western

Cherokee, 128 for the Eastern Band), the complete lack of success by the CN Seed Bank may also have something to do with their methodologies. The Chief of the tribe has been explicitly interested in heirloom varieties that can be traced back to their origins among the Eastern Cherokee. The CN Seed Bank manager mentioned several times that he had been told about heirloom seeds among the Western Cherokee but that they did not meet the requirements of what he was looking for:

We sent a couple of really broad feelers you know we have two thousand employees and we sent out emails and stuff like that. For the most part folks would be like, “Well my grandmother has some seeds but she’s too old to get out,” and we just couldn’t get a good handle. Our Chief really likes to chase these things back to Cherokee, North Carolina—the original territory. He finally made the decision that we should just go back and start from scratch, so that’s what we did...I know it sounds strange and it’s hard to believe, but we talked to two or three people that were keeping seeds and in every instance they had no documentation, generally they were just in a jar...We had zero. So we just stopped and luckily we were able to get with Kevin and a couple of heirloom seed companies that took us under their belt and a few respected people in the field and we just started from there. [Interview 58]

It is likely because of their goal of finding seeds that can be explicitly traced back to North Carolina and requiring some kind of documentation that the CN Seed Bank has not gathered seeds from their own community. If they adopted memory banking protocols (Nazarea 1998) in their process of locating heirloom seeds like the Eastern Cherokee have done, it is more likely that they would find more folk crop varieties unique to their community. It is often just such seeds that are being neglected in jars or in the freezer or are only being planted by elderly people that oral history interviews can help bring out a history for from the memories of those who have held onto them.

Nonetheless, it is true that the CN is currently maintaining lower levels of agrobiodiversity than the Eastern Band. Outside of the CN Seed Bank manager, only two other Western Cherokee heirloom growers in eight months of fieldwork in the Ozarks were identified.

This follows the general trend of lower agrobiodiversity levels in the Ozarks than in southern Appalachia. The two Western Cherokee growers were maintaining thirteen heirloom varieties that were being passed down in their communities and families so it is likely the case that other citizens of the Cherokee Nation are also growing out folk crop varieties. Further research may be able to locate such individuals, but they are almost certainly fewer than the heirloom growers of the Eastern Cherokee. The emphasis on only maintaining seeds that have a provable historic link to the Cherokee in North Carolina means that certain folk crop varieties like the Crawdad bean—a flat, white bean with black markings on the top of it that looks like a crawdad; and a local variety of Pink-eyed Purple Hull pea—a medium-sized white pea with pink eyes and purple hulls that is eaten with cornbread, are not likely to be targets for conservation by the CN Seed Bank. Capping their collection at 15 selected heirloom varieties also means that the CN Seed Bank will not expand their conservation efforts beyond what they have already collected (see Appendix F) unless they have a change of policy.

Despite their lack of success in locating folk crop varieties in their own communities, the CN Seed Bank has nonetheless done an admirable job of tracking down historical Cherokee varieties from other sources and promoting them as a source of cultural pride, identity, and good nutrition. This almost exclusively qualifies the CN Seed Bank as a site of conservation, since they have essentially ignored the endangered and not entirely “authentic” (e.g. historically traceable back to the North Carolina Cherokee) milieu of memory in their own communities. They do not engage with preexisting *in vivo* seed savers, instead promoting the use of introduced historical Cherokee varieties, and therefore do not incorporate any of Nazarea’s suggestions.

6.6 Conserving Arkansas' Agricultural Heritage (CAAH!)

The Conserving Arkansas' Agriculture Heritage (CAAH!) program was started by Dr. Brian Campbell at the University of Central Arkansas (UCA) in 2007 (Conserving Arkansas' Agricultural Heritage 2010). Campbell, a graduate of The University of Georgia's program in ecological and environmental anthropology, was trained by Robert Rhoades and Virginia Nazarea, co-directors of The Southern Seed Legacy Project (see below):

I worked under Drs. Rhoades and Nazarea in the Andes and the U.S. South and have participated in the Southern Seed Legacy while a graduate student in the University of Georgia Anthropology Department. I have participated in Seed Fairs in the Andes and Seed Swaps at the Agrarian Connections Heritage Farm in Oglethorpe County, Georgia. I know the success these initiatives have had first hand and I also knew from my Ozark research experiences how ripe the region was for such a project when I arrived here three years ago ready to establish an applied research program. After conducting six months of exploratory ethnographic research on Arkansas Ozark agrobiodiversity, I assembled a cohort of farmer/gardeners, community activists, and interested students and we followed the lead of pioneers such as Native Seeds/SEARCH (University of Arizona, Nabhan), The Southern Seed Legacy (University of Georgia, Nazarea and Rhoades) and Seed Savers Exchange (Whealy) and developed a regional agrobiodiversity conservation initiative. (Campbell n.d.)

CAAH! pursues a complementary *in situ* and *ex situ* strategy of agrobiodiversity conservation, focusing on the documentation of cultural history and memories through the implication of memory banking strategies (Nazarea 1998), the promotion and proliferation of Arkansas heirloom cultivars by hosting state-wide seed swaps and educational programs (CAAH! 2009, 2008), and genetic conservation by maintaining a seed bank at UCA and conducting local grow outs of regional folk crop varieties. As of February 2010, the CAAH! seed bank was maintaining 118 heirloom seeds, most of which were gathered by the project from local seed savers within the state of Arkansas (Conserving Arkansas' Agricultural Heritage



Figure 6.4 UCA Student Watering Seedlings as Part of the CAAH! Program (photo courtesy of Conserving Arkansas' Agricultural Heritage 2010)

2010). Many of the 195 Ozarks cultivars documented in this study were recently donated to CAAH!, along with oral history recordings and transcripts, so the total number of seeds in their seed bank and local histories in their memory bank will increase considerably at the time of next inventory.

Cultural themes and conservation are considered central to the mission of CAAH!, which is consistent with the goals of the other formal and informal conservation initiatives above. The website description of the project illustrates CAAH!'s focus on the importance of cultural

diversity to the preservation of biological diversity and the consistency of its approach with the findings of the importance of cultural salience in this research:

Gardening is not just about planting seeds. It is a tradition that is often passed down through generations. Seeds may be shared across families, communities, and time. The seeds carry with them not just genetic diversity, but also long-standing traditions. They provide more than sustenance. They support and reinforce culture.

CAAH! is a project dedicated to preserving agricultural folkways and knowledge by *in situ* and *ex situ* conservation methods. Agricultural tradition is spread by saving seeds in a central seed bank and giving them to gardeners throughout Arkansas along with the stories and meaning that have become a part of their essence. (Conserving Arkansas' Agricultural Heritage 2010)

CAAH! directly incorporates Nazarea's suggestions one, two, four, five and six into their conservation initiatives. This is not surprising given the fact that Campbell received training from Nazarea. CAAH! also does some work to support and encourage local farmers markets and may work more to create niche markets for heirloom crops in the future.

The CAAH! project, starting from an archival vantage point as a university research project by a principle investigator with no family seed saving heritage of his own, through its attention to collecting oral history interviews and interacting with local seed savers is also interacting with and promoting milieu's of memory. However, CAAH's work is a step more removed from local milieu than is The Center for Cherokee Plants that was founded by a member of the Eastern Cherokee and is focused on his own native community. Therefore, CAAH! can be seen more accurately as a site of memory and conservation.

6.7 Renewing America's Food Traditions (RAFT)

The Renewing America's Food Traditions (RAFT) alliance was founded in 2004, "...on the premise that chefs, gourmands, consumers, and others in the 'food chain' can play positive roles in the conservation, restoration, and celebration of the food traditions unique to the North American continent" (Nabhan 2008:1). RAFT is a national collaboration founded by seven

organizations: Slow Food USA, the Center for Sustainable Environments, American Livestock Breeds Conservancy, Chefs Collaborative, Native Seeds/Search, Cultural Conservancy, and Seed Savers Exchange (Nabhan 2008). RAFT has divided the US, Canada, and Northern Mexico into corresponding “Foodsheds of North America” based on continuities that they found in the culinary traditions in each of these North American “ecogastronomic regions”: Chestnut, Cornbread, Gumbo, Crabcake, Clambake, Maple Syrup, Wild Rice, Bison, Moose, Chili Pepper, Pinyon Nut, Acorn, and Salmon. The foodsheds were named “...for a traditional food that has served as an ecological and cultural keystone there for centuries, if not millennia” in the hope “to encourage residents of that region to take particular pride in their iconic food and in all the other food species associated with it” (Nabhan 2008:21). As discussed in Chapter Four, RAFT has been developed “red list” inventories for the different North American foodsheds in the hope that the documentation of endangered heirloom foods will help to catalyze their revival. Southern Appalachia resides in the RAFT-delineated Chestnut Foodshed and the Ozarks are in the Cornbread Foodshed.

RAFT’s programs promote four different benefits that renewed heirloom foodways can provide for society: 1) ecological, 2) culinary, 3) cultural, and 4) health (RAFT 2010). RAFT’s recognition of the importance of cultural salience to agrobiodiversity and culinary persistence is consistent with the results of this research. For RAFT, combating the disappearance of heirloom foods is central to promoting local culture and sense of place:

With these losses come a decline in traditional ecological and culinary knowledge, and declines in the food rituals that link communities to place and cultural heritage. If these culinary delights persist only in our history books, we will have lost an important cultural legacy and future generations will be deprived of the nutrition and exquisite flavors found in these heritage foods. (RAFT 2010)

RAFT is a North American alliance associated with several national organizations, so it is several steps removed from local *in vivo* seed savers and can be seen as an initiative that constructs sites of conservation with a focus on conserving and promoting local milieus. The project most prominently employs Nazarea's suggestions 5-7 in the Mountain South and other regions by helping develop niche markets for heirloom crops and connecting farmers with chefs and consumers, promoting regional culinary foodways gatherings to celebrate sensory embodiment of the smells and tastes of heirloom foods, and the extension of support grants to local farmers and progenitors of culinary traditions.

6.8 The Ozark Seed Bank and The Southern Seed Legacy Project

Two other agrobiodiversity projects that operate in the Mountain South are The Ozark Seed Bank and The Southern Seed Legacy Project (SSL). This research did not collaborate as extensively with these projects as it did with The Center for Cherokee Plants, CAAH!, and RAFT. Since the SSL is a decentralized network not specifically focused on The Mountain South, extensive collaboration was not necessary or pursued. However, given the intellectual and practical influence that the SSL has had on both this research project (I coordinated the SSL for three years and have been associated with the project for over a decade) and CAAH! (see above), the Southern Seed Legacy is briefly reviewed here. The Ozark Seed Bank, since it is one of several conservation programs specifically targeting the Ozark bioregion, is also briefly reviewed.

The Ozark Seed Bank is located in Brixey, Missouri (just north of the Arkansas border) and is a non-profit organization dedicated to saving Ozark seeds in an *ex situ* seed bank, sharing Ozark seeds through a membership program and sharing excess produce with local residents through regional food banks, and providing education and outreach on the topics of seed saving

and agricultural sustainability (Ozark Seed Bank 2009). As an *ex situ* seed bank, The Ozark Seed Bank is more similar to the Cherokee Nation Seed Bank than any other of the conservation programs discussed above. Since they focus almost exclusively on procuring seeds from heritage seed companies and promoting local food production using those seeds, they have had little interaction with *in vivo* Ozark seed savers, do not employ any of Nazarea's suggestions, and can properly be understood as a conservation site with few current cross-linkages to local memory and culture.

The SSL is a project housed in The University of Georgia's Department of Anthropology whose mission is "to reverse the plant erosion of genetic diversity and cultural knowledge in the American South by encouraging and supporting local seed saving exchange networks and *in situ* conservation of plant genetic resources" (Southern Seed Legacy Project 2010). It was founded in 1996 by Robert Rhoades and Virginia Nazarea, who are both anthropologists and international agrobiodiversity researchers. The SSL maintains a small seed bank that serves as a backup for local varieties that have been documented and collected, a memory bank of oral history interviews, hosts an annual old-timey seed swap (see Figure 6.5 above), and conducts educational workshops within the state of Georgia. The project operates as a decentralized network dedicated to promoting and encouraging seed saving and local cultural knowledge throughout each of the major ecoregions of the American South.

The Southern Seed Legacy shares an intellectual history with CAAH! through Brian Campbell, and with The Center for Cherokee Plants through their adoption of Nazarea's memory banking protocols (1998) and Kevin Welch's training in ethnoecological methods. Since Nazarea is one of the co-directors of the project, it is no surprise that they employ most of her suggestions for strengthening local *in vivo* conservation, with the exception of the development



Figure 6.5 Participants at the 2007 Southern Seed Legacy Seed Swap. Photo by SSL used with permission.

of local specialty markets, since the project is a University-based initiative focused primarily on education. SSL's status as a University project founded by two non-local international researchers means that it is a step removed from actual *in vivo* seed saving. The SSL is a conservation site that shows concern with engaging, promoting, and conserving conditions that allow *in vivo* seed saving and milieu's of memory to continue to exist and thrive.

6.9 Conclusion

In recent years both southern Appalachia and the Ozarks have attracted the attention of a wide range of conservation initiatives in recognition of the high diversity levels and endangered states of folk crop varieties that are still grown in the fields of farmers and gardeners in both regions. Programs such as The Center for Cherokee Plants and CAAH! emphasize the celebration and promotion of local culture in the conservation of agrobiodiversity and practice *in situ* conservation with seed banks providing a back-up for local heirloom varieties. Other programs are focused more on the *ex situ* conservation of crop genetic resources through centralized seed banks with cultural themes playing a more supplementary role. The Cherokee Nation Seed Bank and Ozark Seed Bank are two such seed banks that have been established in the Ozarks in the past five years. Other programs such as RAFT and SSL are more widely focused on broader national and regional scales, but also support conservation in the Mountain South through a variety of *in situ* and *ex situ* measures. Longstanding (agri)cultural events such as the agricultural exhibit at The Cherokee Indian Fair promote local agrobiodiversity by creating awards and community approval for the cultivation of heirloom cultivars and for continuing agricultural innovation. At the most basic and longstanding level, *in vivo* seedsavers and community-based colporteurs continue what they have been doing their whole lives—and what their ancestors have been doing for hundreds or thousands of years—by passing along cherished folk crop varieties, using them in unique regional culinary creations, and telling stories about who and where they came from. Such heirloom varieties can also function as markers for important life events and historical memories of local people.

Following Nora (1996) and Nazarea (2006), familial and community seed savers are living in—and perpetuating—a milieu of memory related to local agrobiodiversity, whereas the

various conservation programs in the Mountain South are closer to what can be considered archival sites of memory and conservation. Yet milieu and sites of memory are not completely separate, but interpenetrating in the various experiences of Mountain South seed savers and conservationists. None of the participants in this research can be considered to be living in a purist rendering of Nora's idea of milieu (e.g. pre-modern rural life), but an argument can be made that they still experience milieu of memory in the context of modernity. For example, many of the Eastern Cherokee seed savers interviewed in this research lived in remote areas of the reservation, far away from the commercial center of town, and largely interact with elders of their own generation (average age: 70 years-old) along with other family members. They grew up in a context where most Eastern Cherokee were farmers and everybody kept gardens and saved seeds from year to year. As living progenitors of this tradition that stretches back into antiquity—and which has tempered the context of most of their lives and still exists in their remote gardens and homesteads—the memories of these seedsavers cannot be considered merely modern and archival. As was discussed in Chapter Five, the planting and tending of heirloom gardens represents a material manifestation of this milieu of memory and can be interpreted as both a performance of cultural identity and everyday resistance to the dominating discourse of modern US society.

On the ground and in the fields throughout the Mountain South, milieu and sites of memory interact with and are interconnected to each other. Yet it is the milieu of memory and the idiosyncratic—and effective—efforts of local seed savers that serve as the backbone of any conservation efforts in southern Appalachia or the Ozarks. The results of this research (see Chapter Five) indicate that such seed savers emphasize cultural themes in their individual acts of seed saving. *In situ* conservation programs, in the Mountain South and beyond (e.g. Nazarea

2006, Gonzales 2000), should therefore continue to expand their documentation and promotion of local culture and memory and work to create conditions that facilitate the persistence of *in vivo* agricultural lifeways.

CHAPTER 7

CONCLUSION

As the industrialization of global agriculture increased in pace throughout the 20th century, pioneering scientists increasingly issued forth calls for the conservation of agrobiodiversity. This discourse started with a “narrative of erosion” (Brush 2005) that climaxed in the wake of The Green Revolution and focused on the *ex situ* conservation of endangered landrace varieties in centralized gene banks (Holden and Williams 1984), shifted in the 1990s to a focus on *in situ* conservation in farmers fields and the grow-out plots of researchers (Brush 2000, Maxted et al. 1997), and has more recently begun to orient toward the recognition that cultural diversity (Perales et al. 2005) and the idiosyncratic *in vivo* efforts of individual seed savers are primary movers in the maintenance of agrobiodiversity—worthy of promotion, recognition, and support (Nazarea 2005).

Throughout the history of western scientific interest in agrobiodiversity the bulk of attention has been focused on documenting, collecting, and conserving landrace varieties in the Global South. Much less research has been conducted in Global North nations, the assumption being that the industrialization of agriculture has driven family farmers out of business and eliminated the diversity that once existed in farmers fields (Fowler and Mooney 1990). Yet, studies from around the world have shown that high agrobiodiversity levels often exist in communities or populations characterized by environmental, economic, and social marginality (Rhoades and Nazarea 1999). This research investigated whether such high agrobiodiversity

levels exist in one of most historically marginalized areas of the US, the Mountain South, which has been understudied to date. Providing baseline data about the persistence of heirloom seed savers and cultivars in the region will help inform future research, enable comparative studies with other regions of North America and the world, and clarify whether it is an appropriate area for conservation efforts.

This results from this research show that the American Mountain South maintains some of the highest known levels of folk crop diversity in North America. In particular, Southern and Central Appalachia are home to nearly 2000 documented folk crop varieties of heirloom vegetables and fruits, which makes it the region with the highest known agrobiodiversity levels in the US, Canada, and Northern Mexico. Within the American Mountain South, Appalachian folk crop varieties outnumber Ozark heirloom cultivars by an almost 2:1 ratio. The Eastern Band of Cherokee Indians is still maintaining high levels of agrobiodiversity whereas the Cherokee Nation of Oklahoma has lost almost all of their heirloom cultivars due to various historical and agroecological reasons. Beans, Apples, Tomatoes, and Corn are most prominent among traditional crops being saved across the region. Seed savers are primarily male, low income home gardeners who average almost 70 years old and have less than a high school education.

The relation of farmer decision making to agrobiodiversity is also a question that has increasingly interested anthropologists. No longer content to describe and collect folk crop variety complexes that exist in farmer's fields, researchers have been more recently trying to understand underlying reasons why farmers and gardeners continue to maintain agrobiodiversity in the midst of social and economic pressures that would otherwise be assumed to threaten it. Increased market and road penetration, a tendency for younger generations to work off farm at wage paying jobs, and the loss of local cultural traditions and subsistence livelihood practices in

an increasingly globalized world increase the probability that local farmers will no longer choose to grow landrace cultivars (Tuxill 2005). Early frameworks for understanding farmer selection and maintenance of traditional cultivars were guided by ecological, economic, and agronomic interpretations, but more recent work has shifted the focus to understanding the cultural contexts, meanings, memories, and identities that motivate farmers to conserve agrobiodiversity (Nazarea 2006, Tuxill 2005). This research project sought to understand why farmers and gardeners across the Mountain South are maintaining folk crop varieties by conducting in-depth oral history interviews and garden visits that included detailed questioning about the reasons why growers chose to grow every variety documented in this study.

This results of this research show that growers of heirloom crops across the Mountain South emphasize cultural themes when expressing why they continue to maintain the seeds of their ancestors. Specific culinary uses, locally-defined tastes, food preservation technologies and their resulting foodways, and cultural heritage and memory are the most important reasons why heirloom cultivars are maintained. Folk crop diversity is an important aspect of what it means for local people to live in distinctly Mountain South ways that they consider to be appropriate and good. Cherokee bean bread wrapped in hickory leaves and served at the Indian Fair, a pot of Greasy Cutshort beans served up at an Appalachian family get together or local church meeting; or cornbread made from Pencil Cob corn, ground at the local mill, and consumed in the Ozarks all give special cultural significance to local foodways throughout the Mountain South and fundamentally contribute to their maintenance and conservation. Secondary utilitarian reasons for persistence such as market value, high yield, and local adaptation are complementary reasons for agrobiodiversity maintenance; but are ultimately seen as less important from the perspectives of local farmers and gardeners.

Conservation strategies across the region are utilizing a variety of approaches. The Center for Cherokee Plants with their motto, “Putting Culture Back in Agriculture,” and Conserving Arkansas’ Agricultural Heritage are both using memory banking methodologies to emphasize cultural themes in their complementary *in situ* and *ex situ* conservation strategies. The Cherokee Nation Seedbank is also using complementary strategies to help improve the self-sufficiency and nutritional health of their tribe, and is emphasizing the performance of Cherokee identity in propagating heirloom cultivars, despite having lost most of their own folk crop varieties in the recent history of the western branch of the tribe. The agricultural exhibit at The Cherokee Indian Fair, though not explicitly a conservation program, has been encouraging the promotion of Eastern Cherokee agrobiodiversity for almost 100 years by rewarding local growers for maintaining tribal folk crop varieties and for continuing agricultural innovation.

The results of this research confirm that heirloom growers throughout the Mountain South, who are largely beyond the reach of any conservation program and practice time-honored *in vivo* seed saving, emphasize cultural themes in their maintenance of local agrobiodiversity and could benefit from support from conservation programs and researchers who share the same perspective. Examples from around the world, including diversity fairs and repatriation efforts in the Andes (Tapia 2000), the revitalization of local foods throughout North America by the RAFT alliance (Nabhan 2008), the ritual importance of folk crop varieties among indigenous people in Mexico and Peru (Tuxill 2005, Zimmerer 1996), and everyday resistances and occurrences in the Philippines (Nazarea-Sandoval 1995), provide evidence that the prominence of cultural reasons for agrobiodiversity persistence are not a merely US phenomenon.

Heirloom gardeners in the Mountain South are maintaining the folk crop varieties of their ancestors despite trends all around them to acquiesce to a more modern lifestyle and mentality.

They value the cultural memory and heritage in their seeds and gardens, the unique tastes and flavors heirloom varieties give to their time-honored culinary traditions, and the everyday resistances and occurrences the persistence of their gardens represent in an increasing unstable and alien world. Mountain South seeds, gardens, and gardeners are indeed a milieu of memory and conservation that is living and vibrant—yet threatened—and are worthy of our support and respect as the groundwork for any conservation efforts in the region.

7.1 Applied, Collaborative Contributions to Conservation

This research project had a goal of not only documenting agrobiodiversity levels, farmer decision making, and conservation efforts across the Mountain South; but also to contribute to existing efforts through applied, collaborative conservation. This approach is consistent with The University of Georgia Anthropology Department's stance that, "We believe the distinction between basic and applied research and development should be abandoned" (University of Georgia Department of Anthropology 2010). Working collaboratively with several of the conservation initiatives in the region made it easier to study and understand their motivations and methodologies. It is probably a human truism that people are more willing to share with you if they are receiving something that benefits them in return and more recent developments in environmental and ethnoecological research suggest that communities should have control over their own local knowledge and should receive tangible benefits from the research process (Hunn 2007).

Collaborative conservation was achieved during the course of this research with several projects in the following ways: 1) The Center for Cherokee Plants—two months of collaborative fieldwork produced recordings and transcriptions with fifteen Eastern Cherokee Seed Savers; 128 folk crop varieties were identified, documented, and many were gathered for *ex situ* storage;

a Cherokee intern was trained in ethnoecological research methods and the center adopted memory banking protocols as one of its major conservation methodologies; 2) CAAH!—recorded and transcribed oral history interviews and seed varieties collected during the Ozark research phase were donated; 3) RAFT—a master list of at-risk central/southern Appalachian folk crop varieties was developed. Due in part to the results obtained from this research, RAFT identified Appalachia as its current region of focus for its local foodways conservation initiative “Forgotten Fruits”; 4) The Ozark Seed Bank—thirty Ozark heirloom cultivars collected in this research were donated and an invited lecture on Ozark agrobiodiversity was given at the program’s Brixey, Missouri facility. It should be noted that all of these projects are not-for-profit educational programs explicitly focused on supporting and promoting local agrobiodiversity.

Local seed savers and colporteurs were also supported during the course of the research in ways that are less publicly visible. Most participants in this study were pleased that anyone would take an interest in their local and familial heirloom varieties. Oral history interviews about seeds provide a non-politicized venue for local people to celebrate memory and culture and to be recognized for the valuable contributions that they are making to conservation. It is likely that such occasions help to reinforce the commitment that participants have to maintaining heirloom cultivars by emphasizing the importance of such everyday acts. Another, unexpected, way in which this project contributed to the promotion of local agrobiodiversity was by facilitating the transfer of certain seed varieties. On many occasions research participants would lament the loss of varieties that they had grown in years past. Several of those lost varieties had been gathered from other seedsavers during the course of this research and were shared with those who had lost them. In this way, the seed collections of participants were complemented

and associated cultural memories that had been latent were re-kindled and brought back into circulation.

7.2 Limitations and Future Directions

As research and conservation continue in the American Mountain South, further inventorying will need to take place to more completely understand agrobiodiversity persistence in the region. This research project, in collaboration with RAFT, has provided a baseline, but further research is necessary. Now that a master heirloom variety list (Appendix E) has been created for central/southern Appalachia, a similar task could be undertaken in the Ozarks, and again this research provides a good baseline to work from. Although results from this study indicate that the Ozarks contain lower agrobiodiversity levels than in Appalachia, the Ozarks are still relatively rich in folk crop varieties and local foodways. Once the master list from Appalachia has been fully incorporated into the RAFT project in the near future and lists from other regions of North America are updated, it will be possible to further verify the tentative conclusions of this research.

In addition, levels of bean and apple diversity can be compared more definitively with other secondary and primary centers of world diversity. This research shows that when compared with results from Sperling and Scheidegger (1997) in Africa, that central/southern Appalachia is likely a secondary world center for bean diversity. The list of heirloom apple folk taxa generated in this research also suggests that Appalachia could be a secondary world center for apple diversity. The insurance of methodological commensurability needed to further validate such comparisons is beyond the scope of this research, but is a fruitful future direction for agrobiodiversity researchers. Lists will have to continue to be cross-checked as much as possible to eliminate redundancies caused by cultural over-classification for some cultivars and

grow outs and/or genetic testing conducted to provide further empirical validation. Such research is time consuming and never ending, but RAFT has created a collaborative umbrella under which future work can be fruitfully pursued. Attempts must also be made to make sure that similar research assumptions and protocols have been followed in each region studied in order to insure legitimate comparability. This process is unlikely to ever be perfect, but attempts at improving methodologies and results can continue to evolve.

More research is needed among orchardists and fruit tree owners across the Mountain South. Although this research did some preliminary investigation into heirloom fruits, it was hindered from being more comprehensive because of its sampling methodologies. A criterion for inclusion in this study was that an individual needed to be maintaining several heirloom vegetable varieties, but not necessarily fruit varieties as well. Heirloom fruit cultivars were documented but only as a complement to vegetable folk crop varieties. A more focused and comprehensive ethnographic investigation of the relationship between apples and culture in southern Appalachia is warranted to supplement the long-term apple collecting and documentation of regional experts such as Lee Calhoun (1995) and Tom Brown (2010). RAFT recently announced that is focusing its most recent agrobiodiversity conservation initiative called “Forgotten Fruits” on documenting, promoting, and reviving apple diversity in southern Appalachia, a development that could serve as a useful collaborative platform for more intensive research. In the Ozarks, apple orchards and backyard varieties have decline precipitously since the 1940s and are a rarity in the region today due to a variety of agroecological and economic factors (see Chapter Two). Since Ozark environmental conditions favor the growing of warmer season fruits, an intensive study of heirloom peaches and related cultural patterns would likely produce more significant results.

This research has shown that recent calls for more studies on the interrelationship between culture and agrobiodiversity (e.g. Nazarea 2006, 2005, 1998; Brush 2005, Perales et al. 2005, Gonzales 2000) are not unfounded. Cultural salience was the most important factor guiding decision making in the Mountain South for continuing to grow heirloom cultivars. The recognition that agrobiodiversity persistence can be interpreted as falling into two broad categories—cultural and utilitarian salience—correlates with conclusions that Brush (2005) has made after four decades of intensive worldwide agrobiodiversity research. Further research could be conducted in diverse areas of the world to investigate motivations for agrobiodiversity persistence in comparative context. This research suggests vigorousness with which to pursue such studies. For every variety that is documented, farmers can be asked, “Why is this a variety that you choose to grow?” and then answers recorded verbatim and coded into cultural or utilitarian categories.

Researchers should discontinue *a priori* assumptions (usually based on previous studies that employed *a priori* assumptions) about why farmers maintain folk crop varieties and make sure that they question growers during fieldwork *about every variety that they are maintaining* before they come to conclusions. This last suggestion makes for intensive fieldwork but should be viewed as unavoidable if empirical understanding of the subject is desired to complement and develop conceptual frameworks. In addition, questions should continue to be asked about the categories that researchers employ to describe agricultural decision making. Though cultural and utilitarian salience are the most useful variables found in this research, they are not without their drawbacks (see Chapter Five), and the categories of researchers should never be assumed to correlate exactly with on-the-ground reality. Categories are a useful heuristic tool to understand

research questions; but should always be questioned, refined, and improved upon by subsequent developments in the research process.

Local *in vivo* familial and community seed savers and are the basis for agrobiodiversity persistence in the Mountain South. *In situ* conservation programs that emphasis cultural identity, memories, and heritage along with local culinary traditions have already been established in the region and correlate directly with grower decision making processes that perpetuate heirloom cultivars. The strong interrelatedness of agrobiodiversity, culture, decision making, and conservation that this study reveals is in agreement with recent conceptual developments in anthropology (Nazarea 2006, Brush 2005) and also with empirical fieldwork conducted by researchers such as Tuxill (2005) in Mayan milpas in Yucatan, Mexico:

One of the challenges for scientists and practitioners alike it to recognize that cultural revitalization projects, language retention efforts, and rural development programs aimed at household sufficiency can also be *in situ* conservation projects when they strengthen and reinforce the ideological backdrop for diverse smallholder agriculture. When formal *in situ* conservation brings concern for and knowledge about specific local crops and varieties into the above efforts, local crops have a better chance of retaining their roles as symbols of cultural heritage, culinary tradition, and personal identity—and retain their place in diverse Mayan fields. (p. 353)

It would not be surprising if direct links between the retention of culture and agrobiodiversity were a worldwide phenomenon, as recent research on the subject has shown. However, applied collaborative research projects such as this one will need to be pursued in diverse locales to provide more empirical evidence on the subject and help improve *in situ* conservation and support *in vivo* seed savers. In the Mountain South, as is probably the case in other areas, agrobiodiversity conservation projects are hampered by low budgets, few personnel, and time crunches. Local seed savers often labor on the margins of society, are usually low-income and of the older generation, and do not often receive recognition or support for their important contributions to culture and agriculture. Academic research that is intent on both

studying and supporting such *in situ* and *in vivo* efforts is indeed a timely example of how collaboration can be of benefit to everyone involved.

REFERENCES

- Abu-Lughod, Lila
1991 Writing Against Culture. *In* *Recapturing Anthropology: Working in the Present*. Richard G. Fox, ed. Pp. 137-162. Sante Fe: School of American Research Press.
- Algeo, Catherine
1998 Tobacco Farming in the Age of the Surgeon General's Warning: The Cultural Ecology and Structuration of Burley Tobacco Production in Madison County, North Carolina. Doctoral Dissertation, Louisiana State University, Baton Rouge, Louisiana.
- Altieri, Miguel A., and Laura C. Merrick
1988 Agroecology and *In Situ* Conservation of Native Crop Diversity in the Third World. *In* *Biodiversity*. E.O. Wilson, ed. Pp. 361-369. Washington D.C.: National Academy Press.
- Angel-Perez, Ana Lid Del, and Martin Alfonso Mendoza B.
2004 Totonac Homegardens and Natural Resources in Veracruz, Mexico. *Agriculture and Human Values* 21:329-346.
- Appadurai, Arjun
1996 *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis: University of Minnesota Press.
- Appalachian Land Ownership Task Force
1981 *Land Ownership Patterns and Their Impacts on Appalachian Communities: A Survey of 80 Counties*.
- Ashworth, Suzanne
2002 *Seed to Seed: Seed Saving and Growing Techniques for Vegetable Gardeners*. Decorah, Iowa: Seed Savers Exchange, Inc.
- Ausubel, Kenny
1994 *Seeds of Change: The Living Treasure*. San Francisco: Harper San Francisco.
- Barlett, Peggy F.
1980 Editor. *Agricultural Decision Making: Anthropological Contributions to Rural Development*. Orlando, Florida: Academic Press, Inc.
1982 *Agricultural Choice and Change: Decision Making in a Costa Rican Community*. New Brunswick, New Jersey: Rutgers University Press.
- Bateson, Gregory
1972 Culture Contact and Schismogenesis. *In* *Steps to an Ecology of Mind*. G. Bateson, ed. Pp. 61-87. New York: Ballantine Books.
- Beaver, Patricia D.
1984 Appalachian Cultural Adaptations: An Overview. *In* *Cultural Adaptations to Mountain Environments*. Edited by Patricia D. Beaver and Burton L. Purrington. Pp. 73-93. Athens: University of Georgia Press.

- Bellon, Mauricio R.
- 1991 The Ethnoecology of Maize Variety Management: A Case Study from Mexico. *Human Ecology* 19(3):389-418.
 - 1996 The Dynamics of Crop Intraspecific Diversity: A Conceptual Framework at the Farmer Level. *Economic Botany* 50(1):26-39.
 - 2001 Demand and Supply of Crop Intraspecific Diversity on Farms: Towards a Policy Framework for On-Farm Conservation. CIMMYT Economics Working Paper 01-01. Mexico, D.F.: CIMMYT.
 - 2004 Conceptualizing Interventions to Support On-Farm Genetic Resource Conservation. *World Development* 32(1):159-172.
- Bellon, Mauricio R., J.-L. Pham and M.T. Jackson
- 1997 Genetic Conservation: A Role for Rice Farmers. *In Plant Genetic Resource Conservation: The In Situ Approach*. N. Maxted, B.V. Ford-Lloyd, and J.G Hawkes, eds. Pp. 263-289. London and New York: Chapman and Hall.
- Bennett, John W.
- 1969 *Northern Plainsmen: Adaptive Strategy and Agrarian Life*. Los Angeles: University of California Press.
- Berlin, Brent
- 1992 *Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies*. Princeton: Princeton University Press.
- Berlin, Brent, D.E. Breedlove, and P.H. Raven
- 1966 Folk taxonomies and Biological Classification. *Science* 154:273-275.
 - 1974 *Principles of Tzeltal Plant Classification*. New York and London: Academic Press.
- Bernard, H. Russell
- 2002 *Research Methods in Anthropology: Qualitative and Quantitative Approaches*. Walnut Creek: Altamira Press.
- Berry, Wendell
- 1977 *The Unsettling of America: Culture and Agriculture*. San Francisco: Sierra Club Books.
- Best, Bill
- 1999a Heirloom Beans. *Appalachian Heritage* 26(4):19-24.
 - 1999b Heirloom Tomatoes. *Appalachian Heritage* 26(4):24-30.
 - 2005 Saving Heirloom Bean Seeds—How You Can Help. Electronic document, <http://www.heirlooms.org/help.html>, accessed June 14, 2008.
- Billings, Dwight B., Mary Beth Pudup and Altina L. Waller
- 1995 Taking Exception with Exceptionalism: The Emergence and Transformation of Historical Studies of Appalachia. *In Appalachia in the Making*. Edited by D.B. Billings, M.B. Pudup, and A.L. Waller. Pp. 1-24. Chapel Hill and London: The University of North Carolina Press.
- Blevins, Brooks
- 2000 Retreating to the Hill: Population Replacement in the Arkansas Ozarks. *Agricultural History* 74(2):475-488.
 - 2002 *Hill Folks: A History of Arkansas Ozarkers and Their Image*. Chapel Hill: University of North Carolina Press.

- Boster, James S.
 1996 Human Cognition and Domestication. *In* Reconfiguring Nature: Humans, Environment, and Domestication. Edited by Roy Ellen and Hayuse Tagaguchi. Cambridge: Cambridge University Press.
- Braun, E.L.
 2001 (orig. 1950). Deciduous Forests of Eastern North America (Second Edition). Caldwell, New Jersey: The Blackburn Press.
- Brosius, J. Peter
 1999 Analyses and Interventions: Anthropological Engagements with Environmentalism. *Current Anthropology* 40(3):277-309.
- Brown, Tom
 2009 Apple Search. <http://www.applesearch.org/>, accessed August 20.
- Brush, Stephen B.
 1992 Ethnoecology, Biodiversity and Modernization in Andean Potato Agriculture. *Journal of Ethnobiology* 12(2):161-185.
 1995 *In situ* Conservation of Landraces in Centers of Crop Diversity. *Crop Science* 35(2):346-354.
 2000 Editor. *Genes in the Field: On-farm Conservation of Crop Diversity*. Rome, Italy; Ottawa, Canada; Boca Raton, FL: International Plant Genetic Resources Institute; International Development Research Centre: Lewis Publishers.
 2004 *Farmers' Bounty: Locating Crop Diversity in the Contemporary World*. New Haven: Yale University Press.
 2005 Cultural Research on the Origin and Maintenance of Agricultural Diversity. *In* *Nature Knowledge: Ethnoscience, Cognition, and Utility*. G. Sanga and G. Ortalli, eds. Pp. 379-385. New York: Berghahn Books.
- Brush, Stephen B., H. Carney, and Z. Huaman
 1981 Dynamics of Andean Potato Agriculture. *Economic Botany* 35(1):70-88.
- Brush, Stephen B., J. Edward Taylor and Mauricio R. Bellon
 1992 Technology Adaptation and Biological Diversity in Andean Potato Agriculture. *Journal of Development Economics* 39(2):365-387.
- Bureau of Agricultural Economic, Bureau of Home Economics, and Forest Service
 1935 Economic and Social Problems and Conditions of the Southern Appalachians. Miscellaneous Publication No. 205. Washington D.C.: United States Department of Agriculture.
- CAAH!
 2008 Conserving Arkansas' Agricultural Heritage. CAAH! Newsletter 1(2):1-2.
 2009 Conserving Arkansas' Agricultural Heritage. CAAH! Newsletter 1(3):1-2.
- Calhoun, Lee.
 1995 *Old Southern Apples*. Blacksburg, Virginia: The McDonald & Woodward Publishing Company.
- Campbell, Brian C.
 2005 *Developing Dependence, Encountering Resistance: The Historical Ethnoecology of Farming in the Missouri Ozarks*. Doctoral Dissertation, Department of Anthropology, University of Georgia.

- 2009a In Search of Arcadia: Agrarianism and Agricultural Biodiversity Conservation in the Ozarks. Presentation at the 3rd Annual Ozark Studies Symposium. West Plains, MO: Missouri State University-West Plains.
- 2009b "A Gentle Work Horse Would Come In Right Handy": Animals in Ozark Agroecology. *Anthrozoös* 22(3):239-253.
- n.d. Beyond Purity: Ozark Seed Saving Traditions and Agricultural Biodiversity. Unpublished Manuscript.
- Chapman, J. and A.B. Shea
 1981 The Archaeobotanical Record: Early Archaic Period to Contact in the Lower Little Tennessee River Valley. *Tennessee Anthropologist* 6:61-84.
- Cherokee Nation News Announcement
 2010 Cherokee Nation Heirloom Seed Project Returns. http://www.cherokee.org/docs/publicnotices/seed_exchange.pdf, accessed January 26.
- Clawson, David
 1985 Harvest Security and Interspecific Diversity in Traditional Tropical Agriculture *Economic Botany* 39:56-67.
- Cleveland, David A., and Daniela Soleri
 1987 Household Gardens as a Development Strategy. *Human Organization* 46:259-270.
- Clifford, James
 1988 *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art*. Cambridge: Harvard University Press.
- Conklin, Harold C.
 1954 An Ethnoecological Approach to Shifting Agriculture. *Transactions of the New York Academy of Sciences (series II)* 17:133-142.
- Conserving Arkansas' Agricultural Heritage (CAAH!)
 2010 <http://arkansasagro.wordpress.com/>, accessed January 8.
- Counihan, Carole and Penny Van Esterik
 1997 *Editors. Food and Culture: A Reader*. New York and London: Routledge.
- Cozzo, David N.
 2004 *Ethnobotanical Classification System and Medical Ethnobotany of the Eastern Band of the Cherokee Indians*. Doctoral Dissertation, Department of Anthropology, University of Georgia.
- Crawford, Martin
 2001 *Ashe County's Civil War: Community and Society in the Appalachian South*. Charlottesville and London: University Press of Virginia.
- Cunningham, Rodger
 1987 *Apples on the Flood: The Southern Mountain Experience*. Knoxville: University of Tennessee Press.
- Custer, Jami
 2010 *Community Gardens Make a Comeback*. Online Cherokee Phoenix. <http://www.cherokeephoenix.org/3079/Article.aspx>, accessed January 26.
- Dabney, Joseph E.
 1998 *Smokehouse Ham, Spoon Bread, and Scuppernong Wine: The Folklore and Art of Southern Appalachian Cooking*. Nashville, Tennessee: Cumberland House Publishing.

- Davis, Donald Edward
 2000 *Where There Are Mountains: An Environmental History of the Southern Appalachians*. Athens and London: The University of Georgia Press.
- Dicke, Tom
 2005 *Red Gold of the Ozarks: The Rise and Decline of Tomato Canning, 1885–1955*. *Agricultural History* 79(1):1-26.
- Dove, Michael
 1999 *The Agronomy of Memory and the Memory of Agronomy: Ritual Conservation of Archaic Cultigens in Contemporary Farming Systems*. *In Ethnoecology: Situated Knowledge/Located Lives*. Edited by Virginia D. Nazarea. Pp. 45-70. Tucson, AZ: The University of Arizona Press.
- Driscoll, David L., Afua Appiah-Yeboah, Philip Salib, and Douglas J. Rupert
 2007 *Merging Qualitative and Quantitative Data in Mixed Methods Research: How To and Why Not*. *Ecological and Environmental Anthropology* 3:19-28.
- Dunaway, Wilma
 1996 *The First American Frontier: Transition to Capitalism in Southern Appalachia, 1700-1860*. Chapel Hill: University of North Carolina Press.
- Egerton, John
 1993 (1987) *Southern Food: At home, On the road, In History*. Chapel Hill and London: The University of North Carolina Press.
- Ellen, Roy
 1982 *Environment, Subsistence and System: The Ecology of Small-Scale Social Formations*. Cambridge: Cambridge University Press.
 1993 *The Cultural Relations of Classification: Analysis of Nualu Animal Categories from Central Seram*. Cambridge: Cambridge University Press.
- Eller, Ronald
 1982 *Miners, Millhands, and Mountaineers*. Knoxville: The University of Tennessee Press.
- Engels, J.
 2002 *Home Gardens: A Genetic Resources Perspective*. *In Home Gardens and In Situ Conservation of Plant Genetic Resources in Farming Systems, Proceedings of the Second International Home Gardens Workshop, 17-19 July, Witzenhausen, Federal Republic of Germany*. J.W. Watson and P.B. Eyzaguirre, eds. Pp. 3-9. Rome: International Plant Genetic Resources Institute.
- Eyzaguirre, Pablo B. and J. Watson
 2002 *Home Gardens and Agrobiodiversity: an Overview Across Regions*. *In Home Gardens and In Situ Conservation of Plant Genetic Resources in Farming Systems, Proceedings of the Second International Home Gardens Workshop, 17-19 July, Witzenhausen, Federal Republic of Germany*. J.W. Watson and P.B. Eyzaguirre, Eds. Pp. 10-13. Rome: International Plant Genetic Resources Institute.
- Eyzaguirre, Pablo B., and Olga F. Linares
 2004 *Home Gardens and Agrobiodiversity*. Washington: Smithsonian Books.
- Finger, John R.
 1991 *Cherokee Americans: The Eastern Band of Cherokee Indians in the Twentieth Century*. Lincoln and London: University of Nebraska Press.

- Fischer, David. H.
 1989 Borderlands to the Backcountry: The Flight from North Britain 1717-1775. *In* Albion's Seed: Four British folkways in America. Pp. 605-782. New York: Oxford University Press.
- Fisher, Mary and Harnish, Mary
 1980 Losing a Bit of Ourselves: The Decline of the Small Farmer. *In* Appalachia/America: Proceedings of the 1980 Appalachian Studies Conference. The Appalachian Consortium Press, East Tennessee State University and the Appalachian Studies Conference.
- Fletcher, Arthur L.
 1963 Ashe County: A History. Charlotte, N.C.: Heritage Printers.
- Fowler, Cary, and Pat Roy Mooney
 1990 Shattering: Food, Politics, and the Loss of Genetic Diversity. Tucson: The University of Arizona Press.
- Frankel, O. H.
 1970 The Genetic Dangers of the Green Revolution. *World Agriculture* 19:9-13.
- Friedman, Jonathan
 1994 Cultural Identity and Global Process. London: Sage.
- Fritz, Gale J.
 1997 A Three Thousand Year Old Cache of Crop Seeds from Marble Bluff, Arkansas. *In* People, Plants, and Landscapes: Case Studies in Paleoethnobotany. K. J. Gremillion, ed. Pp. 42-62. University of Alabama Press, Tuscaloosa.
 2000 Native Farming Systems and Ecosystems in the Mississippi River Valley. *In* Imperfect Balance: Landscape Transformation in the Precolumbian Americas. D.L. Lentz, ed. Pp. 225-249. Gainesville: University Press of Florida.
- Gerlach, Russel L.
 1976 Immigrants in the Ozarks: A Study in Ethnic Geography. Columbia: University of Missouri Press.
- Gonzales, Tirso A.
 2000 The Cultures of the Seed in the Peruvian Andes. *In* Genes in the Field: On-farm Conservation of Crop Diversity. Stephen Brush, ed. Pp. 193-216. Rome, Italy; Ottawa, Canada; Boca Raton, FL: International Plant Genetic Resources Institute; International Development Research Centre: Lewis Publishers.
- Gragson, Ted. L., and Paul V. Bolstad
 2006 Land Use Legacies and the Future of Southern Appalachia. *Society & Natural Resources* 19:175-190.
 2007 A Local Analysis of Early-Eighteenth-Century Cherokee Settlement. *Social Science History* 31(3):435-468.
- Gragson, Ted L, Paul V. Bolstad, and Meredith Welch-Devine
 2008 Agricultural Transformation of Southern Appalachia. *In* Agrarian Landscapes in Transition. Charles Redman and David Foster, eds. Pp. 89-121. New York: Oxford University Press.
- Gray, Elmer
 1999 Preservation and Utilization of Appalachian Crop Germ Plasm. *Appalachian Heritage* 27(4):35-43.

- Greene, J and H. F. Robinson
 1987 Maize was Our Life: A History of Cherokee Corn. *Journal of Cherokee Studies* 11:40-52.
- Halperin, Rhoda
 1990 *The Livelihood of Kin: Making Ends Meet the "Kentucky Way."* Austin, Texas: University of Texas Press.
- Hammer, Karl
 2003 A Paradigm Shift in the Discipline of Plant Genetic Resources. *Genetic Resources and Crop Evolution* (50):3-10.
- Handwerker, W. Penn and Daniella F. Wozniak
 1997 Sampling Strategies for the Collection of Cultural Data: An Extension of Boas's Answer to Galton's Problem. *Current Anthropology* 38:869-875.
- Hannerz, Ulf
 2003 Being There . . . and There . . . and There! Reflections on Multi-sited Ethnography. *Ethnography* 4:229-244.
- Harlan, Harry V., and M.L. Martini
 1936 Problems and Results in Barley Breeding. *In* USDA Yearbook of Agriculture. Pp. 303-346. Washington, D.C.: US Gov. Print Office.
- Harlan, Jack R.
 1975 Our Vanishing Resources. *Science* 188:618-621.
 1992 *Crops & Man*. Madison, Wis., USA: American Society of Agronomy/Crop Science Society of America.
- Heywood, V.
 1995 Editor. *Global Biodiversity Assessment*. United Nations Environment Programme (UNEP). Cambridge: Cambridge University Press.
- Holden, J.H.W, Williams, J.T.
 1984 Editors. *Crop Genetic Resources: Conservation and Evaluation*. London; Boston: Allen and Unwin.
- Hudson, Charles and Carmen Chaves Tesser
 1994 Editors. *The Forgotten Centuries: Indians and Europeans in the American South, 1521-1704*. Athens: University of Georgia Press.
- Hunn, Eugene
 1982 The Utilitarian Factor in Folk Biological Classification. *American Anthropologist* 84(4):830-847.
 1999 The Value of Subsistence for the Future of the World. *In* *Ethnoecology: Situated Knowledge/Located Lives*. Virginia D. Nazarea, ed. Pp. 23-36. Tucson, Arizona: The University of Arizona Press.
 2007 Ethnobiology in Four Phases. *Journal of Ethnobiology* 27(1):1-10.
- Ingold, Tim
 2000 *The Perception of the Environment: Essays in Livelihood, Dwelling, and Skill*. London: Routledge.
- International Seed Saving Institution
 2010 <http://www.seedsave.org/issi/issi.html>, accessed January 27.
- Johnson, Allan W.
 1974 Ethnoecology and Planting Practices in a Swidden Agricultural System. *American Ethnologist* 1:87-101.

- Jones, Timothy
 2000 Commentary on "Cultural Conservation of Medicinal Plant Use in the Ozarks." *Human Organization* 59(1):136-140.
- Jordan, Terry G.
 1970 The Texan Appalachian. *Annals of the Association of American Geographers* 60(3):409-427.
- Jordan-Bychkov, Terry G.
 2003 The Upland South: The Making of an American Folk Region and Landscape. Santa Fe: Center for American Places.
- Katz, Solomon H., Mary T. Hediger and Linda A. Valleroy
 1975 The Anthropological and Nutritional Significance of Traditional Maize Processing Techniques in the New World. *In Biosocial Interrelations in Population Adaptation*. Elizabeth S. Watts, Francis E. Johnston, and Gabriel W. Lasker, eds. Pp. 195-223. The Hague, Paris: Mouton Publishers.
- Kennedy, Mary C. and Patty Jo Watson
 1997 The Chronology of Early Agriculture and Intensive Mineral Mining in the Salts Cave and Mammoth Cave Region, Mammoth Cave National Park, Kentucky. *Journal of Cave and Karst Studies* 59(1):5-9.
- Kroeber, A.L. and Clyde Kluckhorn
 1952 *Culture: A Critical Review of Concepts and Definitions*. New York: Vintage Books.
- Lacy, Scott M., David A. Cleveland and Daniela Soleri
 2006 Farmer Choice of Sorghum Varieties in Southern Mali. *Human Ecology* 34(3): 331-353.
- Louette, Dominique
 2000 Traditional Management of Seed and Genetic Diversity: What is a Landrace? *In Genes in the Field: On-farm Conservation of Crop Diversity*. Stephen Brush, ed. Pp. 109-141. Rome, Italy; Ottawa, Canada; Boca Raton, FL: International Plant Genetic Resources Institute; International Development Research Centre: Lewis Publishers.
- Lundy, Ronni
 2005 Editor. *Cornbread Nation 3: Foods of the Mountain South*. Chapel Hill: The University of North Carolina Press.
- Maffi, Luisa
 2001 Editor. *On Biocultural Diversity: Linking Language, Knowledge, and the Environment*. Washington and London: Smithsonian Institution Press.
- Maffi, Luisa and Ellen Woodley
 2010 Editors. *Biocultural Diversity Conservation: A Global Sourcebook*. London: Earthscan Publications Ltd.
- Marcus, George
 1995 Ethnography in/of the World System: The Emergence of Multi-sited Ethnography. *Annual Review of Anthropology* 24:95-117.
- Martin, Gary. J
 1995 *Ethnobotany: A Methods Manual*. London, New York: Chapman & Hall.

- Maxted, Nigel; Brian Ford-Lloyd and J. G. Hawkes
 1997 Plant Genetic Conservation: The *In Situ* Approach. London and New York: Chapman & Hall.
- Maxted, Nigel, L. Guarino, L. Myer, and E. A. Chiwona
 2002 Towards a Methodology for On-Farm Conservation of Plant Genetic Resources. *Genetic Resources and Crop Evolution* 49(1):31-46.
- McDonald, Michael
 2001 Protecting Precious Life. *The Seedhead News* 72:1-2.
- McClellan-Welch, Sarah
 2008a Agriculture exhibits for the 2008 fair. *The Cherokee One Feather*, October.
 2008b How we are growing! *Center For Cherokee Plants Newsletter*, Fall.
- McNeil, W.K.
 1995 Ozark Country. Jackson: University Press of Mississippi.
- Minnis, Paul E.
 2000 Introduction. *In Ethnobotany: A Reader*. Paul E. Minnis, ed. Pp. 3-10. Norman: University of Oklahoma Press.
- Mintz, Sidney, and Christine M. Dubois
 2002 The Anthropology of Food and Eating. *Annual Review of Anthropology* 31:99-119.
- Mooney, James
 1992 History, Myths, and Sacred Formulas of the Cherokees. Asheville, North Carolina: Historical Images/Bright Mountain Books.
- Nabhan, Gary Paul
 1985 Native American Crop Diversity, Genetic Resource Conservation, and the Policy of Neglect. *Agriculture and Human Values* 11(3):14-17.
 1989 *Enduring Seeds: Native American Agriculture and Wild Plant Conservation*. Tucson: The University of Arizona Press.
 1992 Epilogue: Native Crops of the Americas: Passing Novelties or Lasting Contributions to Diversity? *In Chilis to Chocolate: Food the Americas Gave to the World*. Nelson Foster and Linda S. Cordell, eds. Pp. 143-162. Tucson: The University of Arizona Press.
 2007 Agrobiodiversity Change in a Saharan Desert Oasis, 1919-2006: Historic Shifts in Tasiwit (Berber) and Bedouin Crop Inventories of Siwa, Egypt. *Economic Botany* 61(1):31-43.
 2008 Editor. *Renewing America's Food Traditions: Saving and Savoring the Continent's Most Endangered Foods*. Vermont: Chelsea Green Publishing.
 2009 *Forgotten Fruits: Dedicated Preservationists are Bringing Heirloom Apples Back to the Table*. *Saveur*, October.
- Nabhan, Gary Paul, Jesus Garcia, Rafael Routson, Kanin Routson and Micheline Carino-Olvera
 2010 Desert Oases as Genetic Refugia of Heritage Crops: Persistence of Forgotten Fruits in the Mission Orchards of Baja California, Mexico. *International Journal of Biodiversity and Conservation* 2(4):56-69.
- Nabhan, Gary Paul, Ken Wilson, Ogonizar Aknarov, Karim Aly-Kassam, Ken Wilson, Laurie Monti, David Cavagnaro, Shawn Kelly, Tai Johnson, and Ferrell Sekacucu
 (Forthcoming) *Agro-biodiversity Shifts on Three Continents Since Vavilov and Harlan: Assessing Causes, Processes and Implications for Food Security*.

National Research Council

- 1991 *Managing Global Genetic Resources: The U.S. Plant Germplasm System*. Washington D.C.: National Academy Press.

Nazarea, Virginia D.

- 1998 *Cultural Memory and Biodiversity*. Tucson: University of Arizona Press.
1999 Editor. *Ethnoecology: Situated Knowledge/Located Lives*. Tucson, Arizona: The University of Arizona Press.
2005 *Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity*. Tucson: University of Arizona Press.
2006 Local Knowledge and Memory in Biodiversity Conservation. *Annual Review of Anthropology* 35(1):317-335.

Nazarea, Virginia, Robert Rhoades, Erla Bontoyan, and Gabriela Flora

- 1998 Defining Indicators Which Make Sense to Local People: Intra-cultural Variation in Perceptions of Natural Resources. *Human Organization* 57:159-170.

Nazarea-Sandoval, Virginia D.

- 1995 *Local knowledge and Agricultural Decision Making in the Philippines: Class, gender, and resistance*. Ithaca: Cornell University Press.

Neely, Charlotte

- 1991 *Snowbird Cherokees: People of Persistence*. Athens and London: University of Georgia Press.

Negash, Almaz and Anke Niehof

- 2004 The Significance of Enset Culture and Biodiversity for Rural Household Food and Livelihood Security in Southwestern Ethiopia. *Agriculture and Human Values* (21):61-71.

Negri, Valeria

- 2003 Landraces in Central Italy: Where and Why They are Conserved and Perspectives for their On-farm Conservation. *Genetic Resources and Crop Evolution* 50:871-885.

Netting, Robert Mcc.

- 1974 *Agrarian Ecology*. *Annual Review of Anthropology* 3(2):21-56.

Nolan, Justin M.

- 1998 The Roots of Tradition: Social Ecology, Cultural Geography, and Medicinal Plant Knowledge in the Ozark-Ouachita Highlands. *Journal of Ethnobiology* 18:249-269.

Nolan, Justin M., and M.C. Robbins

- 1999 Cultural Conservation of Medicinal Plant Use in the Ozarks. *Human Organization* 58:67-72.

Nolan, Justin M., Mary Jo Schneider, Shawna Cain, Roger Cain, Michael C. Robbins, James R. Veteto and J. Matthew Reynolds

- n.d. *Patterns, Programs, and Persistence: Native Language Revitalization in the Cherokee Nation*. Unpublished Manuscript.

Nora, Pierre

- 1996 *Rethinking the French Past: Realms of Memory (Volume I: Conflicts and Divisions)*. English Language Edition Edited by Lawrence D. Kritzman under the Supervision of Pierre Nora. New York: Columbia University Press.

- Opie, John
 1980 Where American History Began: Appalachia and the Small Independent Family Farm. *In Appalachia/America: Proceedings of the 1980 Appalachian Studies Conference*. The Appalachian Consortium Press, East Tennessee State University and the Appalachian Studies Conference.
- Otto, John S.
 1985 The Migration of the Southern Plain Folk: An Interdisciplinary Synthesis. *Journal of Southern History* 51:183-200.
 1987 Forest Fallowing in the Southern Appalachian Mountains. *Culture and Agriculture: Bulletin of the Culture and Agriculture Group of the American Anthropological Association* 33:1-4.
 1989 Forest Fallowing in the Southern Appalachians: A Problem in Comparative Agricultural History. *Proceedings of the American Philosophical Society* 133(1): 51-63.
- Otto, John S. and Augustus M. Burns III
 1981 Traditional Agricultural Practices in the Arkansas Highlands. *The Journal of American Folklore* 94:166-187.
- Otto, John S. and N.E. Anderson
 1982 Slash-and-burn Cultivation in the Highlands South: A Problem in Comparative Agricultural History. *Comparative Studies in Society and History* 24:131-147.
- Ozark Seed Bank
 2009 Saving and Sharing Ozark Seeds. *Ozark Seedbank Newsletter* 1(1):1-11.
- Perales, Hugo R., Bruce F. Benz, and Stephen B. Brush
 2005 Maize Diversity and Ethnolinguistic Diversity in Chiapas, Mexico. *Proceedings of the National Academy of Sciences* 102:949-954.
- Perales, Hugo R., Stephen B. Brush, and Calvin O. Qualset
 2003 Landraces of Maize in Central Mexico: An Altitudinal Transect. *Economic Botany* 57:7-20.
- Perdue, Theda
 2005 *The Cherokees*. New York: Chelsea House Publishers.
- Perreault, Thomas
 2005 Why Chacras (Swidden Gardens) Persist: Agrobiodiversity, Food Security, and Cultural Identity in the Ecuadorian Amazon. *Human Organization* 64:327-339.
- Pinkley-Call, Cora
 2005 *From My Ozark Cupboard: An Ozark Cookbook*. Eureka Springs, Arkansas: Jenkins Enterprises.
- Pittillo, J. Dan., Robert D. Hatcher, and Stanley W. Buol
 1998 Introduction to the Environment and Vegetation of the Southern Blue Ridge Province. *Castanea* 63:202-216.
- Plemmons, N., T. Plemmons and W. Thomas
 2000 *Cherokee Cooking: From the Mountains and the Gardens to the Table*. Gainesville, GA: Georgia Design and Graphics.
- Rafferty, Milton D.
 2001 *The Ozarks: Land and Life (Second Edition)*. Fayetteville: The University of Arkansas Press.

- RAFT (Renewing America's Food Traditions)
 2010 Why Raft?
http://www.slowfoodusa.org/index.php/programs/raft_detail/why_raft/, accessed February 28.
- Rana, Ram, Chris Garforth, Bhuwon Sthapit, and Devra Jarvis
 2007 Influence of Socio-Economic and Cultural Factors in Rice Varietal Diversity Management On-Farm in Nepal. *Agriculture and Human Values* 24(4):461-472.
- Rappaport, Roy A.
 1979 On Cognized Models. *In Ecology, Meaning, and Religion*. Edited by Roy A. Rappaport. Pp. 97-144. Richmond, CA: North Atlantic Books.
- Reyes-Garcia Victoria, Tomas Huanca, Vincent Vadez, William Leonard, and David Wilkie
 2006 Cultural, Practical, and Economic Value of Wild Plants: A Quantitative Study in the Bolivian Amazon. *Economic Botany* 60:62-74.
- Rhoades, Robert E.
 1984 *Breaking New Ground: Agricultural Anthropology*. Lima, Peru: International Potato Center.
 1989 The Role of Farmers in the Creation of Agricultural Technology. *In Farmer First: Farmer Innovation and Agricultural Research*. Robert Chambers, Arnold Pacey, and Lori Ann Thrupp, eds. Pp. 3-9. London: Intermediate Technology Publications.
 1994 The World's Food Supply at Risk. *Biodiversity* 4(1):4-11, 21.
 2006 *Development with Identity: Community, Culture and Sustainability in the Andes*. Wallingford, UK; Cambridge, MA: CABI Publishing.
 2007 *Listening to the Mountains*. Iowa: Kendall/Hunt Publishing Company.
- Robert E. Rhoades and Anthony Bebbington
 1995 Farmers Who Experiment: An Untapped Resource for Agricultural Research and Development. *In Indigeneous Knowledge Systems: The Cultural Dimension of Development*, D.M. Warren, D. Brokensha, and L.J. Slikerveer (eds). Pp. 296-307. London: Intermediate Technology Publications.
- Rhoades, Robert E., and Virginia D. Nazarea
 1999 Local Management of Biodiversity in Traditional Agroecosystems: A Neglected Resource. *In Biodiversity in Agroecosystems*. W.W. Collins and C.O. Qualset, eds. Pp. 215-36. Boca Raton: Lewis Publishers, CRC Press.
- Richards, Paul
 1989 Agriculture as Performance. *In Farmer First: Farmer Innovation and Agricultural Research*. Robert Chambers, Arnold Pacey, and Lori Ann Thrupp, eds. Pp. 39-43. London: Intermediate Technology Publications.
 1993 Cultivation: Knowledge or Performance? *In An Anthropological Critique of Development: The Growth of Ignorance*. Mark Hobart, ed. Pp. 61-78. London and New York: Routledge.
- Ryan, Gery W., Justin M. Nolan, and P. Stanley Yoder
 2000 Successive Free Listing: Using Multiple Free Lists to Generate Explanatory Models. *Field Methods* 12:83-107.

- Sauceman, Fred W.
 2007 Appalachian Foodways. *In Foodways (The New Encyclopedia of Southern Culture, Volume 7)*. John T. Edge, ed. Pp. 18-22. Chapel Hill: The University of North Carolina Press.
- Scott, James C.
 1985 *Weapons of the Weak: Everyday Forms of Peasant Resistance*. New Haven, CT: Yale University Press.
 1990 *Domination and the Arts of Resistance: Hidden Transcripts*. New Haven and London: Yale University Press.
- Seed Savers Exchange
 2010 <http://www.seedsavers.org/>, accessed January 27.
- Skarbø, Kristine
 2006 Living, Dwindling, Losing, Finding: Status and Changes in Agrobiodiversity of Cotacachi. *In Development with Identity: Community, Culture and Sustainability in the Andes*. R.E. Rhoades, ed. Pp. 123-139. Oxford, UK: CABI Publishing.
- Smale, Melinda, Mauricio R. Bellon, Devra Jarvis, and Bhuwon Sthapit
 2004 Economic Concepts for Designing Policies to Conserve Crop Genetic Resources on Farms. *Genetic Resources and Crop Evolution* 51:121-135.
- Smith, Bruce D. and Richard A. Yarnell
 2009 Initial Formation of an Indigenous Crop Complex in Eastern North America at 3800 B.P. *Proceedings of the National Academy of Science* 106(16):6561-6566.
- Soleri, Daniela, and David A. Cleveland
 1993 Hopi Crop Diversity and Change. *Journal of Ethnobiology* 29:493-524.
 2002 Farmers' Genetic Perceptions Regarding Their Crop Populations: An Example with Maize in the Central Valleys of Oaxaca, Mexico. *Economic Botany* 55(1):106-128.
- Soleri, Daniela and Steven E. Smith
 1999 Conserving Folk Crop Varieties: Different Agricultures, Different Goals. *In Ethnoecology: Situated Knowledge/Located Lives*. Virginia D. Nazarea, ed. Pp. 133-54. Tucson, Arizona: The University of Arizona Press.
- Southern Seed Legacy Project
 2008 Seed List. Electronic document, <http://www.uga.edu/ebl/ssl/activities/seedlist/>, accessed June 14, 2008.
 2010 <http://www.uga.edu/ebl/ssl/>, accessed February 1.
- Spehn, Eva M. and Christian Körner
 2009 Mountain Diversity—A Global Heritage. *Mountain Forum Bulletin* IX(2):3-4.
- Sperling, Louise. and Urs Scheidegger
 1997 Participatory Selection of Beans in Rwanda: Results, Methods, and Institutional Issues. Gatekeeper Series No. 51: IDRC. Available online at <http://archive.idrc.ca/library/document/104582>
- Stepp, John Richard, Hector Castaneda, and Sarah Cervone
 2005 Mountains and Biocultural Diversity. *Mountain Research and Development* 25(3):223-227.

- Stertzer, Jennifer
 2001 Agrarian Transformation: Environment and Civil War in Cherokee and Macon Counties, North Carolina. Masters Thesis, Appalachian State University, Boone, North Carolina.
- Stevens, Elizabeth
 1987 Economic Development and Cultural Values in Appalachia: The Case of Christmas Tree Growers in Avery County, North Carolina. Masters Thesis, Appalachian State University, Boone, North Carolina.
- Sutton, David
 2001 Remembrance of Repasts: An Anthropology of Food and Memory. London: Berg.
- Svalbard Global Seed Vault
 2010 <http://www.regjeringen.no/en/dep/lmd/campain/svalbard-global-seed-vault.html?id=462220>, accessed January 27.
- Tapia, Mario E.
 2000 Mountain Agrobiodiversity in Peru. Mountain Research and Development 20(3):220-225.
- Tuxill, John
 2005 Agrarian Change and Crop Diversity in Mayan Milpas of Yucatan, Mexico: Implications for *In Situ* Conservation. Ph.D. Dissertation, Yale School of Forestry and Environmental Studies and The New York Botanical Garden.
- Tyler, Edward B.
 1871 Primitive Culture. London: J. Murray.
- Tyson
 2009 Tyson Today.
<http://www.tyson.com/Corporate/AboutTyson/CompanyInformation/>, accessed August 15.
- US National Arboretum
 2010 USDA Plant Hardiness Zone Map.
<http://www.usna.usda.gov/Hardzone/ushzmap.html>, accessed January 21.
- USDA Plant Genetic Resources Unit
 2010 http://www.ars.usda.gov/main/site_main.htm?modecode=19-10-00-00, accessed February 5.
- University of Georgia Department of Anthropology
 2010 <http://www.anthro.uga.edu/programs/doctorate.htm>, accessed January 20.
- Van Willigen, John and Anne Van Willigen
 2006 Food and Everyday Life: On Kentucky Farms 1920-1950. Lexington: The University Press of Kentucky.
- Veteto, James R.
 2005 The History and Survival of Traditional Heirloom Vegetable Varieties and Strategies for the Conservation of Crop Biodiversity in the Southern Appalachian Mountains of Western North Carolina. Masters Thesis, The Center For Appalachian Studies, Appalachian State University, Boone, North Carolina.
 2008 The History and Survival of Traditional Heirloom Vegetable Varieties in the Southern Appalachian Mountains of Western North Carolina. Agriculture and Human Values 25(1):121-134.

- Veteto, James R. and Kristine Skarbø
 2009 Sowing the Seeds: Anthropological Contributions to Agrobiodiversity Studies. *Culture and Agriculture* 31(2):73-87.
- Virchow, Detlef
 1999 Conservation of Genetic Resources: Costs and Implications for a Sustainable Utilization of Plant Genetic Resources for Food and Agriculture. Berlin; New York: Springer.
- Vogl, C.R., B. Vogl-Lukasser, and J. Caballero
 2002 Homegardens of Maya Migrants in the District of Palenque, Chiapas, Mexico. *In* *Ethnobiology and Biocultural Diversity*. J.R. Stepp, F.S. Wyndham, and R.K. Zarger, eds. Athens: University of Georgia Press.
- Waters, Frank
 1963 *Book of the Hopi: The First Revelation of the Hopi's Historical and Religious Worldview of Life*. New York: Penguin Books.
- Weaver, William Woys
 1997 *Heirloom Vegetable Gardening: A Master Gardener's Guide to Planting, Growing, Seed Saving, and Cultural History*. New York: Henry Holt and Company.
- Weismantel, Mary
 1988 *Food, Gender and Poverty in the Ecuadorian Andes*. Illinois: Waveland Press Inc.
- Whealy, Kent
 1998 Foreword. *In* *Heirloom Vegetables: A Home Gardener's Guide to Finding and Growing Vegetables from the Past*. S. Stickland, ed. Pp. 7-9. New York: Fireside.
 2005 Editor. *Garden Seed Inventory (Fifth Edition)*. Decorah, Iowa: Seed Savers Exchange, Inc.
- Williams, John
 2002 *Appalachia: A History*. Chapel Hill and London: The University of North Carolina Press.
- Windingstad, J.D., S.C. Sherwood, K.J. Gremillion, and N.S. Nash
 2008 Soil Fertility and Slope Processes in the Western Cumberland Escarpment of Kentucky: Influences on the Development of Horticulture in the Eastern Woodlands. *Journal of Archaeological Science* 35(2008):1717-1731.
- Zimmerer, Karl S.
 1996 *Changing Fortunes: Biodiversity and Peasant Livelihood in the Peruvian Andes*. Los Angeles and Berkeley: University of California Press.

APPENDIX A⁷

NON-CHEROKEE WESTERN NORTH CAROLINA VEGETABLE, FRUIT AND FLOWER FOLK CROP VARIETIES DOCUMENTED

VEGETABLES

Asparagus

Beech Mountain Asparagus An asparagus variety that was recovered from a friend of the growers home site on Beech Mountain. It is very big with huge crowns and a great taste that is better than hybrids that the grower has cultivated. The older generation seems to have grown asparagus for its flowers and this one is very showy. Grows well in alkaline conditions.

(Lansing, Ashe County)

⁷ Appendices A, B, C, D, F, and G construct folk crop variety descriptions, based on results from oral history interviews, for each of the varieties documented in this study. This methodology follows the assumptions of memory banking protocols developed by Virginia Nazarea (1998). Memory banking makes an effort to collect as much local cultural and agroecological knowledge about folk crop varieties as possible in an effort to complement and extend the relatively sparse passport data of *ex situ* seed collecting methods. The variety descriptions in this study vary according to length and depth of detail about each cultivar. This is unavoidable, as some interview participants were more forthcoming with information than others, were willing to spend more time answering interview questions, or in general had more knowledge about the cultivars that they were growing or had lost. Some varieties are being maintained by multiple growers, and new paragraphs are started in the descriptions to indicate separate grower descriptions. Each variety description is followed, in parentheses, by the community/town and county in which the grower lives, and by tribal affiliation (EBCI or CN) for Cherokee growers.

Beans, Common (*Phaseolus vulgaris*)

Bunch (Bush)

Fall Shelly A striped bunch bean with round red and white seeds (fall type). The hulls are tough so the beans need to be shelled. (Wedge, Mitchell County)

Great Grandma Bean A bean with brown seeds and huge leaves. (Lansing, Ashe County)

Lilah The bean originally came from a woman named Lilah. It has a very tender hull and has been grown for 36 years by the seedsaver. It has been passed down from the family of the grower's wife. (Big Creek, Yancey County)

Little White Bunch (7) The seedsaver originally got this bean from Mitchell County. (Big Creek, Yancey County)

This little white bunch bean is called "Coffee Ridge" and originated in Flag Pond, Unicoi County, Tennessee. It is an early and productive bean with a good flavor. (Micaville, Yancey County)

A bean that is good for canning and smaller than a half-runner. (Carson Branch, Willits, Jackson County)

A bean with medium and small sized white seeds, some of which are cutshort. (Bald Mountain, Yancey County)

This seed is over 100 years old. It tastes better than greasy beans to the grower and cans well (makes a clear liquid that makes the canned beans look beautiful). A drawback is that the pods won't come off the stalk easily, making harvesting it difficult. The grower still has seed but has stopped growing it for this reason. (Barnardsville, Buncombe County)

A bean with a ¾ inch pod and small white seeds. It tastes good and the seeds sell well locally. (Wedge, Mitchell County)

A prolific bean with white seeds and short pods. It takes a long time to harvest a ‘mess.’ It is an early bean with a good taste that is used for fresh cooked green beans. (Fork Mountain Community, Mitchell County)

The grower original got the seed for this bean from a Snowbird Cherokee man. It has a good flavor and is very productive. (Sweetgum Home, Anthony Branch, Graham County)

Mary’s Little White Bunch Collected by the grower from a woman named Mary who had a stroke and can no longer garden. (Big Creek, Yancey County)

Peanut/ Brown Six Week (3) A very early bean that has been grown since at least the 1940s in Yancey County. (Big Creek, Yancey County)

A bean with dark brown seed that grows smaller than a half-runner. (Wedge, Mitchell County)

(Jack’s Creek, Yancey County)

Sulfur The seed of this bean is greenish-brown with a green pod that turns white after you pick it. (Lansing, Ashe County)

Turkey Bean This turkey bean is a bunch bean that is good for eating fresh, canning and drying. (Pink Fork, Barnardsville, Buncombe County)

White Hull Peanut This bean was selected out from the regular “Peanut Bean” variety by selecting for white hulls. (Big Creek, Yancey County)

White Potato Bean An old Tennessee variety from near Watauga Lake. It has a small white seed and is cutshort. It is very productive, particularly for canning, and makes 28 quarts of bean

per bushel, making it more productive than State or Mountaineer half-runners and does not have very many disease problems. (Lansing, Ashe County)

Half-runners

Mountain Half Runner This half runner has a mix of white and brown seeds. They are used for fresh cooked green beans and for canning. You don't have to spray them as they are highly resistant to pests and disease. (Happy Top Community, Andrews, Cherokee County)

Old-timey Half Runner (5) Between a pole and bush type, you don't have to trellis this bean. It has a good taste, cans well, and has few disease problems. You have to eat them quickly after harvest because they start to turn brown, therefore they are not a good commercial variety. (Lansing, Ashe County)

A good tasting bean that sells well locally. The grower thinks it tastes as good as greasy-type beans. (Bull Creek, Mars Hill, Madison County)

A good tasting bean that is good for fresh eating and canning. The pod is 'slick' (meaning it has a greasy appearance) and pretty and has a good texture. (Rutherford County)

A bean with small white seeds that is used for canning, shuck beans (leather britches), and is pickled with corn. It was mentioned by the grower that the bean is a pretty white color when canned. (Fork Mountain Community, Mitchell County)

(Green Valley, Watauga County)

Pole Beans

Addie Tifton's Early Cornfield (Big Creek, Yancey County)

Big Greasy (3) A greasy bean with a big white seed that is easy to harvest. (Barnardsville, Buncombe County)

(Mitchell County) (Yancey County)

Big John A bean with large, long white seeds. Some of the seeds are cutshort. (Vilas, Watauga County)

Big October Soup Bean This bean has big oval beige/white seeds with red stripes and speckles. It looks to me to be more of a French Horticultural-type bean than a true October. The grower got it when he has living in Maryland around 1957 from a farmer there. It produces well, vines vigorously and sells well locally. It is used as a soup bean, a frozen bean and for canning. (Fork Mountain Community, Mitchell County)

Black Cornfield A blue colored cornfield bean grown together in a population complex with tender October, white cornfield, blue cornfield, rattlesnake, and butterbeans. (Carson Branch, Willits, Jackson County)

Blue Cornfield A blue colored cornfield bean grown together in a population complex with tender October, white cornfield, black cornfield, rattlesnake, and butterbeans. (Carson Branch, Willits, Jackson County)

Blue Tip (Big Creek, Yancey County)

Brown Greasy (Jack's Creek, Yancey County)

Brown Pinto A pinto-shaped bean with a unique brown seed. The vines grow 10-12 feet tall. They are used as fresh cooked green beans and for canning. You don't have to spray them because they are highly resistant to pests and disease. (Happy Top Community, Andrews, Cherokee County)

Buck Eye (Jack's Creek, Yancey County)

Cherry A fall bean with a red seed that in the pod looks like it has a stem like a cherry hanging off a cherry tree. It has a yellow hull that turns white and a unique flavor that some people don't like. (Lansing, Ashe County)

Cora Wilson Little Greasy A bean with medium sized white seeds, some of which are cutshort seeds. (Bald Mountain, Yancey County)

Cranberry A big red bean that is productive, has a great taste, and cans and freezes well. Similar to an October Bean, but the seedsaver maintains that people in Ashe County call them Cranberry beans. (Lansing, Ashe County)

Cornfield (4) A pole-type bean. This is the grower's favorite variety for flavor and he uses them as a dry bean and a green bean. They can be grown in a cornfield but produce better if they are trellised separately. The grower originally acquired the seed from Althea Bryant. (Big Creek, Yancey County)

A good flavored bean originally from Troy's Greenhouse. (J.B. Silvers, Micaville, Yancey County)

A bean that is good for canning, fresh eating, drying and taste. (Darlene Hardwood, Pink Fork, Barnardsville, Buncombe County)

A cornfield bean with some cutsort seeds that has a good flavor and is productive. (Sweetgum Home Anthony Branch, Graham County)

Cutshort A very meaty and good tasting bean. (Sweetgum Home Anthony Branch, Graham County)

Dark Greasy This greasy-pod bean has a brown seed. It doesn't sell very well in western North Carolina but is more popular in east Tennessee. (Wedge, Mitchell County)

Doubleback The pod of this bean has a “double hump” on the back of it, which is where this bean gets its name. It is a big-sized bean that cans and dries well. (Lansing, Ashe County)

Flat Greasy A good tasting, pretty bean that sells well locally. (Bull Creek, Mars Hill, Madison County)

Georgia Rattlesnake (Macon County)

Grandma Miller Cornfield A bean with a largish greenish seed with a white blush. It looks like it could be a “turkey” type. (Vilas, Watauga County)

Greasy (3) A bean with white seeds that are bigger than the cutshort beans (above). They have a good flavor and are productive. (Sweetgum Home Anthony Branch, Graham County)

(Big Creek, Yancey County) (Cane River, Yancey County)

Greasyback (2) This bean has a more defined “hump” on the back of it than regular greasy beans and is greasy on the “back” of the bean rather than on the sides like a regular greasy. It has good disease resistance. (Lansing, Ashe County)

(Macon County)

Greasy Cornfield A white-seeded bean with a great taste (the grower’s favorite) that is used for fresh cooked green beans and is pickled with corn. (Fork Mountain Community, Mitchell County)

Greasy Cutshort (4) A bean with a 2-3 inch pod. (Wedge, Mitchell County)

A white-seeded cutshort bean with a good taste and “full” bean that is good for canning. The seedsaver got this from his uncle who is currently 92 years old and originally acquired the seed from a farm along the Catawba River in McDowell County. (Crooked Creek Community, McDowell County)

A good tasting, pretty bean that sells well locally. (Bull Creek, Mars Hill, Madison County)

(Jack's Creek, Yancey County)

Herb Gouge Big Soup Bean A big white bean that was originally from Herb Gouge. It is used as a 'soup' bean to eat on cornbread and is not good eaten as a green bean. (Fork Mountain Community, Mitchell County)

Lazywife (2) A bean with very large white seeds, some of which are cutshort. The pods grow in clusters along the vine, making them easy to harvest, which is appreciated by housewives and provides the tongue-in-cheek origins of the variety name. (Vilas, Watauga County)

(Jack's Creek, Yancey County)

Little Black and Brown Cornfield (Buncombe County)

Long Greasy (6) A bean with medium sized white seeds. Some of the seeds are cutshort. (Vilas, Watauga County)

A good tasting bean that is easy to pick and easy to string. (Micaville, Yancey County)

A long-podded greasy good for eating fresh, canning and drying. (Pink Fork, Barnardsville, Buncombe County)

A bean with a long, skinny, greasy pod. It produces well, tastes good and is good for canning and "leather britches" (beans dried in the pod). (Wedge, Mitchell County)

(Jack's Creek, Yancey County) (Big Creek, Yancey County)

Lucy's Beans The seedsaver got these from his aunt but hasn't planted them yet. His aunt got them from another seedsaver and said they had a good flavor. (Big Creek, Yancey County)

Mattie Bean The grower got this bean from his wife's parents. It is similar to a white half-runner but bigger and more productive. It originally came from Mattie Lowing, who was among

a group of families who were re-settled in McDowell County as a result of the Fontana Dam project and the seed was originally grown in the Fontana Dam area. (Crooked Creek Community, McDowell County)

Medium Greasy (Yancey County)

Molly Greer (Vilas, Watauga County)

Molly Ward A bean with medium sized white seeds. Some of the seeds are cutshort. (Vilas, Watauga County)

Nanny Has a small white seed with some of the seeds cutshort. (Warne, Clay County)

Pa Fish Valentine A bean with pink and beige mottled seeds. It was originally from another county over, but it has been grown by Pa Fish in Macon County for three or four generations. (Franklin, Macon County).

Pink Tip (3) An early bean with a brown seed and yellow pod and pink tip. The pod gets more pink the longer it is grown. It has a unique taste that some people like and some don't. (Lansing, Ashe County)

An early bean that can also be grown as a half-runner. (Micaville, Yancey County)

(Jack's Creek, Yancey County)

Pole A pole bean with a big seed and long pod. A good canning bean. (Big Creek, Yancey County)

Rattlesnake Cornfield A blue colored cornfield bean grown together in a population complex with tender October, white cornfield, blue cornfield, black cornfield and butterbeans. (Willits, Jackson County)

Reverend Arnt Greer Pink Tip A bean with flat, brown and round seeds. (Vilas, Watauga County)

Rindy A big bean with a yellow hull with a purple stripe on it. When you cook it the purple stripe disappears. (Big Creek, Yancey County)

Short/Little Greasy (4) A short pod bean with great flavor. It is good to eat fresh, dried, and pickled. It takes a long time to string. (Micaville, Yancey County)

A short pod bean with good flavor, that is good for canning, eating fresh, and drying. It is good cooked with a little fatback. (Pink Fork, Barnardsville, Buncombe County)

A little greasy that tastes better than the big greasy but is hard to harvest. It gets bean weevils more than any other bean, so you have to harvest it quickly after it ripens, but it will still germinate despite this. The grower sells seed at the North Asheville Farmers Market and by mail order. He usually sells between \$100-150/year of seed. Recently he sold too much of his seed stock to one person (\$75) and it weakened the quality of his seed. (Barnardsville, Buncombe County)

(Big Creek, Yancey County)

Singleback/Cornfield Bean A bean with a large pod that is brown striped when it is ripe. The pods bunch together on the vine so they are easy to harvest. Instead of two “humps” on the back of the bean it has one. The seedsaver thinks it is basically the cornfield version of the Spartan half-runner (a variety that is likely lost). It is productive and good for canning. (Lansing, Ashe County)

Snowball Greasy (4) One of the few beans in the county that have not been crossed with more modern varieties and gotten tough hulls, according to the grower. A pole string bean, used a lot for canning. It was originally from Yancey County and the seedsaver got them from a woman from Yancey County who was living in Johnson City, Tennessee. (Big Creek, Yancey County)

This greasy-pod bean has a large white seed and sells very well in Mitchell County.

(Jack's Creek, Yancey County) (Wedge, Mitchell County) (Cane River, Yancey County)

Snowball Big Greasy Mix (South Toe, Yancey County)

Ten Bushel Bean (Green Valley, Watauga County)

Tender October (2) An October bean with round, red and beige speckled October seeds. It has a red/yellow pod. It is grown together in a population with white, blue, black, rattlesnake, and butterbeans. (Carson Branch, Willits, Jackson County)

An October Bean with a tender hull. It is used for its unique taste as a fresh cooked green bean. (Fork Mountain Community, Mitchell County)

Turkey Crow (3) This seed originally came from a guy in Virginia who killed a wild turkey and found a bean in its craw. The bean has a brown seed that turns cooking water brown. (Micaville, Yancey County)

This bean has a brown seed with a white blush. It is used as a fresh cooked green bean and as a soup bean. (Fork Mountain Community, Mitchell County)

(Jack's Creek, Yancey County)

Twenty Foot Cornfield Bean (Yancey County)

White Cornfield A white cornfield bean that is grown together in a population with tender October, blue cornfield, black cornfield, rattlesnake, and butterbeans. (Carson Branch, Willits, Jackson County)

Butterbeans (Runner Beans) (Phaseolus coccineus)

Cherokee Lima A bean with large purple and black ‘butterbean’ seeds. Sold at the North Asheville Farmers Market. (Buncombe County).

Jack Bean/Butterbean The seeds of this bean are white, black with white spots, brown with white spots, and dark blue. They are a very large bean. They vine vigorously and have blooms of white, pink, orange, and yellow. This species is the closest that can be grown to a lima-type (*P. lunatus*) in NW North Carolina with the cold winters. (Lansing, Ashe County)

Old-time Butterbeans These large “butterbeans” have a mixture of purple, white, brown speckled, and white speckled seeds. They are grown together in a population complex with tender October, white cornfield, blue cornfield, black cornfield beans and rattlesnake cornfield beans. (Carson Branch, Willits, Jackson County)

Brassicas

Creasy Greens *Lepidium sativum* A small brassicacea green that is harvested in the late winter/early spring. The seedsaver cooks them in a pot, rinses them in cold water, and puts them in freezer bags to store. When prepared, they are then defrosted and fried up with some grease. The seed was originally purchased at Troy's Greenhouse. (Micaville, Yancey County)

Curly Mustard *Brassica juncea* A curly leafed mustard that has naturalized in the grower's garden. Because of the curly leaves you have to be careful to get all the bugs out when cleaning. It is grown for its good taste and for cooking fresh in greens mix with poke, speckled dock, dandelion and creasy greens (all naturalized wild greens). (Fork Mountain Community, Mitchell County)

Slick Leaved Mustard *Brassica juncea* A 'slick' leafed mustard that has naturalized in the grower's garden. It is easier to clean than the Curly Mustard. It is grown for its good taste and for cooking fresh in greens mix with poke, speckled dock, dandelion and creasy greens (all naturalized wild greens). (Fork Mountain Community, Mitchell County)

Cantaloupe (*Cucumis melo* var. *reticulatus*)

Little Cantaloupe A small cantaloupe the grower says is not available on the market. Highly productive, you only need 3 or 4 plants to feed a family. You eat them cold with a spoon like you would a grapefruit. Originally from a lady from Michigan. (Big Creek, Yancey County)

Corn (*Zea Mays*)

Dent (Bread, Hominy, Ornamental)

Coates Mixed Bread Corn This variety was bred by Jimmy Coates by mixing four different old-time corns: 1) Hawkins Prolific 2) Neal's Paymaster 3) Tennessee Red Cob 4) White Hickory King. It shells really easily and has large grains. It is used for cornmeal.

(Barnardsville, Buncombe County)

Indian A corn with white ears (an occasional ear is striped) that grows 14 feet tall. It has very hard kernels and is ground for cornbread. It is described as having a "nutty" flavor and has been grown 36 years by the seedsaver and was passed down in his family. (Yancey County)

Indian Corn This is a multi-colored long-eared Indian dent corn. Some ears are solid red, some are blue and yellow and some have kernels that have a mix of yellow, red, and blue colors in them. The grower got it from one of his marketers ten years ago who said he originally obtained the seed in West Virginia. The grower says he sells between \$2000-5000 worth of this variety per year for ornamental purposes. He also says it makes good cattle and hog feed and cornmeal.

(Bull Creek, Mars Hill, Madison County)

Lavender White Field Corn An 11-16 rowed long eared white field corn that is thought to have been brought from east Tennessee in the 19th century but is now lost there. It makes excellent cornmeal and grits. It has long, big grains. Lavender is the name of the family with whom the seed originated from in the Crooked Creek section of McDowell County. (Crooked

Creek Community, McDowell County)

Puddin Pile (Jack's Creek, Yancey County)

Hickory King (Big Creek, Yancey County)

Prolific This is a white dent corn that the grower uses for cornmeal/cornbread. He sometimes crosses it with River Shoepeg. It is possible that it may be a strain of ‘Hawkins Prolific.’

(Happy Top Community, Andrews, Cherokee County)

Red Field Corn This field corn has pure red kernels and is used for cornmeal/cornbread.

(Happy Top Community, Andrews, Cherokee County)

River Shoepeg This is a corn with white kernels that is used for cornmeal/bread. It may have come from a cross between a sweet corn and field corn. The grower sometimes crosses it with Prolific. (Happy Top Community, Andrews, Cherokee County)

Roasting Ear For fresh cob corn this variety needs to be eaten in 3 or 4 days after harvest or it will get too hard. It is also used for canning. (Big Creek, Yancey County)

Rutherford County White Field Corn A corn originally from Rutherford County. It has small white grains. (John McEntire, Crooked Creek Community, McDowell County)

White Bread A good corn for making cornbread. (Pink Fork, Barnardsville, Buncombe County)

White Dent This was traditionally grown for moonshine. As the saying goes, “you get a dropful of moonshine from every kernel.” You needed a specific mesh for your mill to grind it to the right consistency for moonshine. (Franklin, Macon County).

White Hickory King (3) A corn grown for cornmeal and animal feed. (Crooked Creek Community, McDowell County)

Grown for cornmeal/cornbread. (Happy Top Community, Andrews, Cherokee County)

Wild Goose (Jack’s Creek, Yancey County)

Cucumbers (*Cucumis sativus*)

Little Green A good tasting green cucumber that does not get bitter and is good for pickling.

(Burke County)

Little White (2) A good tasting white cucumber that does not get bitter and is good for pickling. (Burke County)

This small white cucumber is the oldest variety that the grower knows of in his community. It is eaten for its good taste, both picked fresh and pickled. (Fork Mountain Community, Mitchell County)

Long Green A long green cucumber variety that has been saved by the grower for about twenty-five years. It has a good taste and is eaten raw or pickled. (Fork Mountain Community, Mitchell County)

Pickling A green cucumber that has been around since the seventy-nine year old grower was a boy. It has a great taste and is eaten raw and pickled. (Fork Mountain Community, Mitchell County)

Garlic (*Allium sativum*)

Alabama Elephant Garlic This was given the seedsaver by a local friend who is a truck driver and picked up a few cloves of this variety in southern Alabama, where it has been grown on a plantation for at least 100 years. If it doesn't produce blooms, then it will turn into a garlic bulb instead of cloves. It has a great taste that is good in spaghetti sauce. (Lansing, Ashe County)

Old Time Garlic A white garlic with white skin that the grower got from his wife's parents garden, where it had naturalized. It is mainly grown just to keep it going because the grower doesn't like to cook with it because of its strong smell. (Fork Mountain Community, Mitchell County)

Gourds (*Lagenaria siceraria*)

Birdhouse (3) A gourd used for decoration. (Carson Branch, Willits, Jackson County)

A gourd used ornamentally and sells well locally. (Wedge, Mitchell County)

(Jack's Creek, Yancey County)

Dipper (2) A gourd used for decoration and in former years to scoop water out of springs.

(Carson Branch, Willits, Jackson County)

(Jack's Creek, Yancey County)

Vine Okra *Luffa acutangula* A loofa-type Asian gourd also known as “Chinese okra” or “Angled Luffa.” This variety has been grown in the mountains for years. It is vigorously vining, highly productive, and should be picked every other day. It is prepared and eaten when the fruits are very small like okra, usually breaded and fried in the mountains. (Big Creek, Yancey County)

Lettuce (*Lactusa sativa*)

Green Leaf Lettuce An old green leaf lettuce that has been around ‘forever’ and self-sows in the garden. (Fork Mountain Community, Mitchell County)

Okra (*Abelmoschus esculentus*)

Long Green Pod This long-podded green okra is steamed in butter, stewed or fried. (Happy Top Community, Andrews, Cherokee County)

Long A variety with a long pod that stays tender. The grower got the seed from her grandson who obtained it from his mother-in-law ten years ago. (Burke County)

Long Podded Okra This okra has a very long, red-streaked green pod that doesn't get tough when it is big. The pods get redder after a frost. It is good fried. (Crooked Creek Community, McDowell County)

Short A short pod okra. The grower got the seed from her grandson who obtained it from his mother-in-law ten years ago. (Burke County)

Short Green Pod A short-pod green okra that is steamed in butter, stewed or fried. (Happy Top Community, Andrews, Cherokee County)

White Pod This white-pod okra that is steamed in butter, stewed or fried. (Happy Top Community, Andrews, Cherokee County)

Onions (*Allium cepa*)

Tater (2) A sweet tasting mellow onion. You can eat the tops and the bulbs. It can overwinter in the mountains and is typically planted in the fall (November) and early spring. (Big Creek, Yancey County)

You can plant this variety in the fall and it produces its own seed and onion sets. It has a strong spicy flavor and sells well locally. It makes good pickled relish. (Wedge, Mitchell County)

Walking An “Egyptian” type walking onion with seeds that set on the top of the plant. It is harvested in around August in Yancey Co. and eaten as small green onions. They re-seed themselves so only have to be planted once. (Big Creek, Yancey County)

Winter A small onion with bulbs that look like shallots. It is sweet and is eaten in the winter for its green tops and bulbs. (Fork Mountain Community, Mitchell County)

Peppers (*Capsicum annum*)

Doorknob A short, sweet red pepper that ripens early and is used in making relish (Sweetgum Home Anthony Branch, Graham County)

Cowhorn A pepper shaped like a cowhorn that is mildly spicy. It gets hotter when the fruit is bigger and it produces well. (Sweetgum Home Anthony Branch, Graham County)

Pencil A long, thin, curvular, red hot pepper. The grower got it from a family from Nantahala many years ago. (Sweetgum Home Anthony Branch, Graham County)

Pizza Multi-colored sweet peppers that the grower acquired from a Georgia man who got them in Mexico. It produces well and the grower uses it for garnishing pizzas. (Sweetgum Home Anthony Branch, Graham County)

Red and Yellow A small bell pepper that the seedsaver got from his mother. He said she used to grow them together because she thought they were pretty. They start off green and then some of them turn red and some turn yellow. (Big Creek, Yancey County)

Sorghum (Cane) (*Sorghum bicolor*)

Ashe County Cane This variety could be “Sugar Drip” or “Honey Drip,” the two old-time varieties that were grown in Ashe County. Oftentimes people would mix the seeds of those two varieties to make a better molasses and this sample could also be a mixture of the two. It makes a very good sorghum molasses. (Lansing, Ashe County)

McDowell County Cane This cane makes good molasses and is from the Crooked Creek section of McDowell County, but the grower doesn't know exactly what old-time variety it is. (Crooked Creek Community, McDowell County)

Southern Peas (*Vigna unguiculata*)

Beige Crowder A beige crowder-type pea that has been grown in Yancey County for at least 50 years. It is used for fresh cooking, canning and freezing. (Big Creek, Yancey County)

Clay A small brown crowder-type pea that is used for soup and cornbread, dry beans, canning, and soil building. It has a high protein content (a 'strong' pea) and helped families survive during the depression and the early 1930s when people would pick them "on the shares." It has a long and curved pod. (Buncombe County)

Mixed Big and Little Beige Crowder The grower says that there are two types of these old-time beige mountain crowder peas: 1) big; and 2) little. These seeds are a mix of the two. They are used for canning, cooking (they swell up more than Clay peas) and dry beans. (Buncombe County)

Squash/Pumpkin (*Cucurbita* spp.)

Big Orange Pumpkin *Cucurbita maxima* A very large, award-winning pumpkin that has large seeds. It has thick meat and is used for making pies. (Sweetgum Home Anthony Branch, Graham County)

Blue Candyroaster (2) *Cucurbita maxima* A long blue Candyroaster squash with bright orange, sweet flesh. It has strings and is good for pie. (Wedge, Mitchell County)
(Carson Branch, Willits, Jackson County)

Candyroaster (4) *Cucurbita maxima* The seed for this candyroaster originally from Cane River in Yancey County. It is a large hard skinned Candyroaster than can weigh up to 50 lbs. It has a sweet tasting flesh that is good for pumpkin butter. (Micaville, Yancey County)

Very good for pie. (Pink Fork, Barnardsville, Buncombe County)

A sweet squash that is used for pumpkin butter. The grower used to sell seeds and fruits (\$10/fruit) at the North Asheville Farmers Market. The fruit can get up to 40-50 lbs.
(Buncombe County)

These are grown to give away to community members by the seedsaver. He says they are very big and can weigh up to seventy-five pounds. (Happy Top Community, Andrews, Cherokee County)

Cushaw *Cucurbita argyrosperma* A white and green striped squash with a sweet flesh. It is good for pies. (Wedge, Mitchell County)

Green Candyroaster *Cucurbita maxima* A light green, long Candyroaster that the grower has had 'forever' and thinks is the best of the Candyroaster types. It is used for pie. (Fork Mountain Community, Mitchell County)

Green and White Striped Candyroaster *Cucurbita maxima* This is a green and white striped candyroaster variety. It is sweet with strings and is good for pies. (Wedge, Mitchell County)

Grey Winter Squash This winter squash has been grown for at least 45 years in Ashe County and the seedsaver thinks it is similar to the “Hopi Grey” variety. It is grey and round with a very tough hide. It is a sweet and great baking squash that keeps through the winter into April/May. The seedsaver tells a story of dropping it on a hill, having it roll down a hill, bounce onto a concrete road, and then land in a ditch. When he went down to retrieve it, the Grey Winter Squash only has a few scuffs on it. They use an axe to split it open. (Lansing, Ashe County)

Little Cherokee Roaster *Cucurbita maxima* (Bald Mountain, Yancey County)

Little Sweet Cornfield Pumpkin (Bald Mountain, Yancey County)

Old-Fashioned Pumpkin A light yellow, thick meat pumpkin that is used for pumpkin pies and in the past for feeding livestock. (Sweetgum Home Anthony Branch, Graham County)

Orange Candyroaster *Cucurbita maxima* The seedsaver just grows this variety for its appearance and to give to older people who use it to eat. (Carson Branch, Willits, Jackson County)

A sweet, dark orange Candyroaster that has strings and is good for pie. (Wedge, Mitchell County)

Pale Candyroaster *Cucurbita maxima* A pale orange candyroaster that is sweet and good for pies. (Wedge, Mitchell County)

Pie Pumpkin (Jack’s Creek, Yancey Co.)

Pink Winter Squash A variation of the Grey Winter Squash, but with a slightly softer pink skin. It is a great baking and pie squash with a sweet flavor. (Lansing, Ashe County)

Snyder Family Pumpkin A cheese-type pumpkin that is light brown/tan, slightly ribbed, and flat. It is originally from the Snyder family in Lexington, North Carolina and has been grown in Macon County for 15 years. (Franklin, Macon County).

Sugar Pumpkin A small round orange pumpkin with a sweet flesh good for making pumpkin butter. This variety was originally from Flag Pond, Unicoi County, Tennessee, and has been grown in the seedsavers family as long as he can remember. (Micaville, Yancey County)

Sweet Potato Pumpkin A long, thin orange squash that looks a little like a candyroaster with a darker orange skin. The seed originally came from Bill Moretz. It is good for pie, pumpkin cake, and pumpkin bread, because of its sweet flavor. It is 'easy to work with' (to peel and cut). The seeds are good to eat. It is not a good variety for canning. (Lansing, Ashe County)

Yellow Straightneck Squash *Cucurbita Pepo* The grower can't remember where this seed originally came from but he has been saving the seed for many years. It is good fried. (Fork Mountain Community, Mitchell County)

Sweet Potatoes (*Ipomoea batatas*)

African-American Red Sweet Potato A large sweet potato with a purple skin and white flesh. The local name is actually a derogatory racial term so I re-named it “African-American” for the purposes of this study. (Wedge, Mitchell County)

Early Triumph/Poplar Root This old-time variety grows straight downward into the soil and grows in bunches, characteristics which make it easy to harvest. (Buncombe County)

Red (3) A disease resistant variety that is good for making ‘sweet tater butter.’ (Micaville, Yancey County)

These red sweet potatoes are grown for their taste and are fried in butter. (Happy Top Community, Andrews, Cherokee County)

(Jack’s Creek, Yancey County)

Red and White The grower says that he mixed red and white sweet potatoes together to create this variety just to see if he could do it. He says some of the potatoes will have both red and white colors in the flesh. (Happy Top Community, Andrews, Cherokee County)

Sweet Gum A local sweet potato with red skin and white meat that is sweeter than any of the commercial varieties available in the area. (Sweetgum Home Anthony Branch, Graham County)

White (4) A good tasting sweet potato that is susceptible to disease. (Micaville, Yancey County)

A short and blunt white sweet potato that has a good taste. (Buncombe County)

A long white sweet potato. The older generations locally think this is the best tasting sweet potato. (Wedge, Mitchell County)

These white sweet potatoes are grown for their taste and are fried in butter. (Happy Top Community, Andrews, Cherokee County)

Yellow A long and oval sweet potato with yellow flesh. It is sweet and dry and good mashed and buttered. (Buncombe County)

Tomatoes (*Lycopersicon esculentum*)

Arkansas Traveler A locally adapted Arkansas Traveler variety. It has medium sized, pink fruits and is less acidic than a lot of other tomatoes. (Sweetgum Home Anthony Branch, Graham County)

Ashe County Orange A medium, dark orange tomato that is perfectly round. It is shiny (making it ‘pretty’ for market) and meaty. It is a good slicer for sandwiches is low-acid. (Lansing, Ashe County)

Big Orange (Carson Branch, Willits, Jackson County)

Big Yellow (Carson Branch, Willits, Jackson County)

Big Yellow Pear A sweet low-acid pear-shaped tomato that is slightly bigger than the Little Yellow Pear. It is small, pear-shaped, sweet, and low-acid. (Lansing, Ashe County)

Black A dark black tomato with a good taste. (Micaville, Yancey County)

Brandywine (2) A very big pink tomato that has lower acid than regular red varieties. It makes a good fried green tomato and green tomato cake that is prepared in the fall once the cooler weather sets in and makes the green tomatoes sweeter. The seedsaver speculates that this variety was brought in very early by German settlers from Pennsylvania. (Lansing, Ashe County)

A good tasting tomato that sells well locally. (Bull Creek, Mars Hill, Madison County)

Candystripe (4) A large yellow and red striped tomato that is low-acid. (Micaville, Yancey County)

(Jack’s Creek, Yancey County) (Big Creek, Yancey Co.) (Cane River, Yancey County)

Cherokee Beefsteak (Bald Mountain, Yancey County)

Cherokee Purple (4) A purple/black colored tomato that has a great flavor and is perfect for sandwiches. The seedsaver remembers his grandparents growing them and it has a long heritage in the region. (Lansing, Ashe County)

The seedsaver uses the Cherokee Purple name synonymously with “Russian Black” for this dark purple/black, large tomato. (Wedge, Mitchell County)

A good tasting tomato that sells well locally. (Bull Creek, Mars Hill, Madison County)
(Cane River, Yancey County)

Cow Tits A red tomato that looks like a Roma-type but is more square. It hangs off the vine like cow tits and ripens from the bottom up, which makes it look like it has a nipple when it is first ripening. It is meaty and good for canning and salsa and produces earlier than the Red Oxheart for canning. (Lansing, Ashe County)

Floyd Milsaps A smooth-skinned, light yellow tomato that produces well and is low-acid. (Sweetgum Home Anthony Branch, Graham County)

Georgia Belle The grower bought a plant of this variety at the north Asheville Farmer’s Market and has been growing it out and saving the seeds. It is a small pink tomato. (Pink Fork, Barnardsville, Buncombe County)

German Johnson An almost purple, dark pink tomato that is very large. It is low-acid and makes a good slicer for sandwiches. (Lansing, Ashe County)

German Pink A good tasting tomato that the grower uses synonymously with the name “German Johnson.” It sells well locally. (Bull Creek, Mars Hill, Madison County)

German Striped Another of the “Stripey” variants. This one is a deep pink tomato with yellow stripes. It is a good slicing tomato with a sweet taste. (Fork Mountain Community, Mitchell County)

Granny Mary (Yancey County)

Horace/German Stripe This seed was saved by a man named Horace in Mitchell County. It is a large yellow and red tomato. The seedsaver says that it is bigger than the “Mister Stripey” variety and is unique from the other types as well such as “Pineapple.” It is her sweetest tomato and she believes that it originated in Germany. (Wedge, Mitchell County)

Kentucky One Hundred A smooth-skinned, gold colored tomato that produces well. Local people acquired seed of it when they were on a hunting trip up in Kentucky. (Sweetgum Home Anthony Branch, Graham County)

Little Yellow Pear A small pear-shaped tomato that is sweet and low acid. It is slightly smaller than the Big Yellow Pear. (Lansing, Ashe County)

Louis Slaw’s Yellow (Burnsville, Yancey County)

Mr. Stripey (2) A big yellow tomato with red streaks. It is a good “slicer” for sandwiches with low acid and a sweet flavor. The seedsaver thinks it is an improvement of Yellow German Johnson and it is not as prone to cracking as that variety. (Lansing, Ashe County)

A good tasting tomato that sells well locally. (Bull Creek, Mars Hill, Madison County)

Old Time Red A tomato that the grower has saved for many years and has more juice than Better Boy or Oxheart types. The grower’s wife uses it medicinally to treat acid reflux, drinking a teacup full every night, which has solved the problem. She maintains that fresh and canned store bought tomatoes do not work as a substitute for this remedy. (Fork Mountain Community, Mitchell County)

Pink Brimmers/German Pink A sweet, pink and large pink tomato that the seedsaver believes originated in Germany. She also thinks it is synonymous with German Pink but my previous

research indicates that Pink Brimmers is a separate variety so is given a separate listing here.
(Wedge, Mitchell County)

Pink Oxheart A deep pink tomato that is low-acid and produces well. It has been grown locally since at least the 1940s and has won first prize at the Graham County fair for its large size. (Sweetgum Home Anthony Branch, Graham County)

Pepper Originally from the Phillip's family in Graham County, this tomato is shaped like a Roma-type, is low-acid, and produces well. It makes good tomato paste. (Sweetgum Home Anthony Branch, Graham County)

Pineapple (Macon County)

Pink German (4) A variety given to the seedsaver 25 years ago and referred to as "pink," it sounds like a Pink German. A very big meaty tomato, grows to two or three pounds. It is good for slicing and eating on biscuits or with bread and mayonnaise. (Pink Fork, Barnardsville, Buncombe County)

(Macon County) (Big Creek, Yancey County) (Cane River, Yancey County)

Red Cherry A flavorful local variety of cherry tomato that produces well. It can bear 25-30 fruits per cluster. (Sweetgum Home Anthony Branch, Graham Co.)

Red Oxheart A tomato with a unique shape thought to look like an ox heart. It's main drawback is that it ripens very late in the season and is therefore susceptible to late blight. It used to be the main canning tomato in Ashe County and is still mainly used for that purpose. It is great for making tomato sauce and salsa; and also makes good juice because it stays uniform and does not separate in the can. It is easy to de-seed and doesn't fall apart in boiling water, because it is very meaty. (Lansing, Ashe County)

Red Pear (Yancey County)

Red Roma This Roma-type tomato has been maintained by the grower for many years. It is a good fresh eating tomato. (Fork Mountain Community, Mitchell County)

Red Tommytoe (4) A good, small tomato used for pickling and making hot relish. A small tomato. (Dexter Randolph, Big Creek, Yancey Co.)

A very productive red cherry tomato that is self-sowing, good for snacking, and kids love them. (Lansing, Ashe County)

A self-seeding cherry tomato that is fairly sweet and good for fresh eating. (Pink Fork, Barnardsville, Buncombe County)

A small, red cherry-type tomato that is used for fresh eating. (Fork Mountain Community, Mitchell County)

Ruby Orr This variety was given to the grower in 1965 by a local woman named Ruby Orr, who originally got it from the Garland family. It is light yellow with some red streaks in it. It looks like Mr. Strikey but is sweeter. It is a low-acid tomato that has good flavor and produces well. (Sweetgum Home Anthony Branch, Graham County)

Yellow (Cane River, Yancey County)

Yellow German Johnson A big yellow tomato that has a red core. The seedsaver thinks this may have been a parent plant of “Mr. Strikey.” It is a good slicer for sandwiches with even less acid than regular German Johnson. (Lansing, Ashe County)

Yellow Pear A yellow pear-type tomato that is sweet and low-acid. (Sweetgum Home Anthony Branch, Graham County)

Yellow Roma This was acquired by the grower from people in Nantahala two years ago. It produces well and tastes good. (Sweetgum Home Anthony Branch, Graham County)

Yellow Stuffer A small yellow tomato, almost like a pear but bigger and more square. It has almost no juice, so you can remove its contents and stuff it like a bell pepper, which gives it a unique use that other tomatoes don't have. The seedsaver got it from a local farmer at the farmers market, but doesn't know if it is a purely local heirloom variety or not. (Lansing, Ashe County)

Yellow Tommytoe (4) A small tomato that is good for pickling and making hot relish. (Big Creek, Yancey County)

A small tomato (cherry-type) with low acid and a sweet flavor. (Lansing, Ashe County)

A small, yellow cherry-type tomato that is used for fresh eating. (Fork Mountain Community, Mitchell County)

(Big Creek, Yancey County)

White (Big Creek, Yancey County)

FRUIT

Apple (*Malus X domestica*)

Belflower A big yellow apple that is used for cooking and fresh eating. (Fork Mountain Community, Mitchell County)

Betsy Deaton Originally a Yancey County apple, the grower got the scion wood from David Duncan. A good fresh eating apple that is also good for apple sauce and keeps well over the winter. (Lansing, Ashe County)

Black (Jack's Creek, Yancey County)

Black Annie This variety is also sometimes referred to as 'Crow Egg' but its shape is rounder than other conical shaped 'Crow Egg' apples that I have seen. It is red to dark red/black. It is good as a fresh eating apple and is also good fried and used for dried apples. (Fork Mountain Community, Mitchell County)

Blood Red Small A very small red apple with red flesh that is tart and good for jelly. (Carson Branch, Willits, Jackson County)

Buff (Jack's Creek, Yancey County)

Crow Egg/Sheepnose An excellent eating apple unless it is overripe, then it becomes dry and pasty. It is not good for apple sauce because it turns grey when cooked. The grower originally got it from Yancey County. (Lansing, Ashe County)

A good fresh eating apple. (Wedge, Mitchell County)

Green Pippin A big green apple tinged with yellow that is not sour and a good eating apple. It is commonly used for making apple sauce. (Sweetgum Home Anthony Branch, Graham County)

Golden Pippin This apple is green initially and yellow/gold when ripe. It is good for apple butter and apple sauce. It can be used as a fresh eating apple but has a strong 'tang' to it. (Fork Mountain Community, Mitchell County)

Early Harvest (2) An early apple that is ready in late June and early July and is gone quick. It is good for fresh eating, apple sauce, apple butter and jelly. (Carson Branch, Willits, Jackson County)

A medium sized apple that is yellow when ripe and makes the best apple sauce that is white in color. It is also a good fresh eating apple. (Fork Mountain Community, Mitchell County)

Early Harvest/Transparent An early fall apple that is good for apple sauce and sells well locally. (Wedge, Mitchell County)

Early MacIntosh An early apple that is ready in late June and early July and is gone quick. It is good for fresh eating, apple sauce, apple butter and jelly. (Carson Branch, Willits, Jackson County)

Early Yellow Transparent An early apple good for apple sauce and frying. (Lansing, Ashe County)

Fallwater A variety that is good for apple sauce and keeps well over the winter. (Lansing, Ashe County)

Ginger Gold A yellow/gold apple that is good for fresh eating and sells well locally. (Wedge, Mitchell County)

Golden Sweet A medium sized green apple that is sweet and eaten as a fresh apple and cooked as apple sauce. (Fork Mountain Community, Mitchell County)

Guyandotte Pippin Originally from near the Guyandotte River in West Virginia, this is a good fresh eating apple. (Lansing, Ashe County)

Harden (Jack's Creek, Yancey County)

Horse (2) A big yellow apple that ripens in September. It is not sour, is eaten fresh, and is used in pies and for making fried apples. (Sweetgum Home Anthony Branch, Graham County)

A green apple with a red tinge that is early in late June/early July. It's good for fresh eating, cooking, and apple sauce. (Carson Branch, Willits, Jackson County)

Johnny Gold A good fresh eating apple that sells well locally. (Wedge, Mitchell County)

Johnson Winter/York Imperial A good fresh eating apple that is good for cooking, a good keeper, and makes good dried apple rings. It is also used to make apple sauce and keeps well over the winter. (Lansing, Ashe County)

Jonathan A good fresh eating apple that sells well locally. (Wedge, Mitchell County)

June An early apple that ripens in July. It is good for fresh eating, cooking and jelly. (Carson Branch, Willits, Jackson County)

Little Red Pearmain A very small red eating apple. (Lansing, Ashe County)

Little Yellow A very small yellow apple that is tart and good for jelly. (Carson Branch, Willits, Jackson County)

Lodi An early apple that is ready in late June and early July and is gone quick. It is good for fresh eating, apple sauce, apple butter and jelly. (Carson Branch, Willits, Jackson County)

Motherbud A medium sized red apple that the grower grafted from his neighbor. It is good for fresh eating and freezing. (Fork Mountain Community, Mitchell County)

Mudhole (Bald Mountain, Yancey County)

No Name A yellow apple with a pink blush that is off of a tree that may be one-hundred years old in Claude Garland's yard. The grower is seventy-nine and says the tree was old when he was boy. He has grafted off of it. It is a good fresh eating apple with a tangy taste but the best flavor in his opinion of any fresh eating apples other than the old-time Virginia Beauty. It is also a good cooking apple. (Fork Mountain Community, Mitchell County)

Notley P. A good apple for making apple sauce that keeps well over the winter. (Lansing, Ashe County)

Old-timey Sweet An early apple that ripens in August and is used for fresh eating. (Sweetgum Home Anthony Branch, Graham County)

Pound A good variety for apple sauce that keeps well over the winter. (Lansing, Ashe County)

Pound Pippin A good variety for apple sauce that keeps well over the winter. (Lansing, Ashe County)

Red and Green (Jack's Creek, Yancey County)

Rusty Coat These are big apples that are green with a rusty brown looking coat when they are ripe. They are sweet and are eaten as a fresh apple, fried, and used in pies. It is not good for apple sauce. The grower also calls it 'Rusty Sweet.' (Fork Mountain Community, Mitchell County)

Rusty Golden A golden colored apple that is good for fresh eating and sells well locally. (Wedge, Mitchell County)

Sheepnose/London Lady An excellent eating apple with a sweet taste. It keeps well in the fall. This tree was originally grafted from Haywood County. (Carson Branch, Willits, Jackson County)

Stamen Good for cooking and sells well locally. (Wedge, Mitchell County)

Stump the World A variety that is good for apple sauce and keeps well over the winter.

(Lansing, Ashe County)

Summer Rambo An apple originally from Medieval France. It is a good cooking, fresh eating, and drying apple. (Green Mountain Community, Watauga County)

Sun Glow A golden apple with a little bit of a red tint. It is good for eating and sells well locally. (Wedge, Mitchell County)

Sweet (3) This variety is called sweet but the grower does not think it has that sweet of a taste. It is good for fresh eating, pies, and drying. (Pink Fork, Barnardsville, Buncombe County)

A small to medium green apple that is good for fresh eating. It is very sweet. (Crooked Creek Community, McDowell County)

(Jack's Creek, Yancey County)

Sweet Russett (2) (Jack's Creek, Yancey County)

Taylor's Sweet (Dexter Randolph, Big Creek, Yancey County)

Virginia Beauty (6) The most desired fresh eating apple in Ashe County. It also makes good apple sauce. (Lansing, Ashe County)

This is the old-time variety of Virginia Beauty, not the one of the newer commercial one's that are widely regarded as having less flavor. The grower commented, "anything they improve ain't good yet." It is a medium-sized apple with that is red/maroon with a green blush. It is the grower's favorite fresh eating apple. (Fork Mountain Community, Mitchell County)

A good fresh eating apple. (Wedge, Mitchell County)

An excellent fresh eating apple. (Sweetgum Home Anthony Branch, Graham County)

(Big Creek, Yancey County) (Jack's Creek, Yancey County)

Walker No Name (Green Valley Community, Watauga County)

Winesap (3) A good fresh eating apple that makes good apple juice and is a good keeper over the winter. It makes good apple sauce if you like its particular flavor. (Lansing, Ashe County)

A good fresh eating and cooking apple that makes good apple sauce and sells well locally. The grower thinks Winesap is a variation of Stayman. (Wedge, Mitchell County)

An apple variety that is used for apple sauce and making jelly. (Sweetgum Home Anthony Branch, Graham County)

Winter Banana A good fresh eating apple that sells well locally. (Wedge, Mitchell County)

Wolf River An apple that is good for cooking, apple butter, and sells well locally. (Wedge, Mitchell County)

Cherries (*Prunus avium*)

Starks This is a sour cherry good for making pies. The grower's father got it out of the Starks Brothers nursery catalog in the 1940s and planted it. The crows and other birds love it. (Carson Branch, Willits, Jackson County)

Sweet A good, sweet cherry but the crows and other birds almost always get the harvest first. (Carson Branch, Willits, Jackson County)

Grapes (*Vitis* spp.)

Paul Carpenter Red (Sweetgum Home Anthony Branch, Graham County)

Pink The grower originally grafted these grapes off of someone's homestead in the Yellow Mountain/Highlands/Cashiers area. It is sweet and good for fresh eating and making juice. (Carson Branch, Willits, Jackson County)

Pond Mountain Grape A white grape that turns yellow with a rusty side. Originally grown near the Virginia border, it doesn't produce very well in NW North Carolina. (Lansing, Ashe County)

Roaring Fork Old Home (Big Creek, Yancey County)

White Grape A white grape that turns yellow when ripe. Originally from Flag Pond, Unicoi County, Tennessee. (Micaville, Yancey County)

Peach (*Prunus persica*)

Little White Peach This small white peach is good for fresh eating and is also good pickled.

(Happy Top Community, Andrews, Cherokee County)

Plum (*Prunus* spp.)

Big Blue A large blue plum that is used for fresh eating and for jelly. (Fork Mountain Community, Mitchell County)

Blue Danville An old-timey sweet tasting plum originally from Flag Pond, Unicoi County, Tennessee. (Micaville, Yancey County)

Raspberry (*Rubus* spp.)

Ashe County Red This raspberry blooms and ripens at the same time as the wild black raspberries (ripen around July 4th), which is different from most of the commercial hybrids that ripen in the fall in NW North Carolina. It has a sweet taste and a bigger grain on the fruit than commercial varieties. It does not keep well once harvested, so is not marketable. It turns from red to yellow to a rust color as it gets more ripe. (Lansing, Ashe County)

Ashe County Yellow Like the Ashe County Red, this variety follows the same life cycle pattern as the wild black raspberries. It is unique because the briars have a yellow stem. It is sweet but does not store well. (Lansing, Ashe County)

Black Although the grower has this domesticated variety, he actually thinks the wild Black Raspberries taste better. He uses them for fresh eating, canning, freezing, cobbler, on top of cereal, and eating with sugar and milk. (Fork Mountain Community, Mitchell County)

Yellow (2) This has been maintained for 10-12 years by the grower. It has large, sweet yellow raspberries. (Carson Branch, Willits, Jackson County)

This yellow variety is used for fresh eating. (Fork Mountain Community, Mitchell County)

FLOWERS

Big Purple Dahlia *Dahlia* spp. A light purple/pink dahlia with a very large flower head originally from Flag Pond, Unicoi County, Tennessee. (Micaville, Yancey County)

Big White Dahlia *Dahlia* spp. A large-flowered white dahlia originally from Flag Pond, Unicoi County, Tennessee. (Micaville, Yancey County)

Hyacinth Bean *Dolichos lablab* A bean grown for its showy flower around the area of Cherokee, North Carolina. (Little Canada, Tuckaseegee)

Little Pom-Pom Dahlia *Dahlia* spp. This variety has pink and other various colored blooms. (Pink Fork, Barnardsville, Buncombe County)

Old-time Yellow Dahlia *Dahlia* spp. (Pink Fork, Barnardsville, Buncombe County)

Orange/Red/Hot Pink Dahlia *Dahlia* spp. A dahlia with a large head of orange, red, and hot pink blooms. (Pink Fork, Barnardsville, Buncombe County)

Rust Colored Marigold *Tagetes* spp. (Big Creek, Yancey County)

Sunflower *Helianthus annuus* A bright yellow sunflower, very unique, similar to the commercial variety “Teddy Bear.” It has up to fifty blooms per plant of various sizes, some large and some small. It was originally acquired by the grower in Buncombe County. The seeds need to be protected or finches will eat them. (Big Creek, Yancey County)

White Dinner Plate Dahlia *Dahlia* spp. This variety was acquired 7-8 years ago from the growers neighbor. (Pink Fork, Barnardsville, Buncombe County)

Yellow Dinner Plate Dahlia *Dahlia* spp. This variety was acquired 7-8 years ago from the grower’s neighbor. (Pink Fork, Barnardsville, Buncombe County)

APPENDIX B

EASTERN BAND OF CHEROKEE INDIAN VEGETABLE, FRUIT AND FLOWER FOLK CROP VARIETIES DOCUMENTED

VEGETABLES

Beans, Common (*Phaseolus vulgaris*)

Bunch (Bush)

Cherokee October Bush Bean (2) This variety is grown for its taste, as well as being a good seller on the reservation. It is a prolific producer thought to have originated in the 1830s with the Cherchei Nation in Tennessee. (Jenkins Creek, Wolf Town, Swain County, EBCI)

This bean has a beige/cream colored seed with red stripes and is eaten as a shelly bean for its unique taste. (Vengeance Creek, Cherokee County, EBCI)

Half-runners

Big White Half Runner This bean has a larger white seed than many half-runners do. The grower distinguishes between a 'big' and 'small' half-runner. He says this is a highly productive bean with a good taste and is one of the best canning beans. (Big Y, Wolf Town, Jackson County, EBCI)

Mountain White Half Runner (3) A white-seeded bean that is a prolific producer and eaten as a shelly bean by the grower. In recent years this variety has had trouble with getting black spots on the pods. (Bird Town, Swain County, EBCI)

This small white seeded half-runner bean has a good flavor and is used for fresh cooked green beans, leather britches (dried in the hull), freezing and canning. (Vengeance Creek, Cherokee County, EBCI)

This bean with small white seeds is grown for its good taste and is used for fresh cooked green beans, pickled beans and leather britches (dried in the pod). The grower also referred to them as being 'white man's beans.' (Little Snowbird, Graham County, EBCI)

Nantahala Bean This is a white-seeded bean obtained by Leonard Tali from a mountain grower in Nantahala. The grower has found it to be almost identical to the Mountain Half Runner with one exception, that it is resistant to the black spots on the pods that have been affecting the Mountain Half Runner in recent years. (Bird Town, Swain County, EBCI)

Old-time White Half Runner This bean has little fat white seeds that are about the same size as Greasy Cutshort seeds. These seeds originally came from the Hendersonville area and the grower says they are distinct from the Mountain Half Runner and State Half Runner varieties. They have tender pods and are grown for their good taste and for canning. (Adams Creek, Bird Town, Swain County, EBCI)

Peanut (3) This bean has a beige/reddish seed that is medium sized, with many of the seeds cutshort. This peanut bean seems larger than many other descriptions of the peanut bean mention. The grower finds it to have a good taste and it is used a fresh cooked green bean and for canning. (Big Y, Wolf Town, Jackson County, EBCI)

This bean with a pinkish seed is hard to pick because they are a bush type with smaller pods. They hull turns pink when they are ready to harvest. The pod makes dark leather britches and they are grown for their unique flavor, to cook as fresh green beans and to freeze. This old-time variety is thought to be superior to what you can buy at local seed stores because of its tender, not tough, pod. (Vengeance Creek, Cherokee County, EBCI)

Grown for its good flavor and as a shelly soup bean. It is also sometime called 'Pink Half Runner' or 'Old Joe Clark Bean.' (Big Cove, Swain County, EBCI)

Pole Beans

Anasazi These are a long white and maroon mottled bean that originated in the SW United States and are rumored to have been found in an ancient Anasazi Indian cave. They are a runner bean that prefers to run along the ground. The grower has popularized to some extent on the eastern Cherokee Reservation and eats them as dried bean and displays them with his Cherokee bean varieties at the Cherokee Agricultural Fair. (Bird Town, Swain County, EBCI)

Beige and Black Striped October These October bean seeds are beige with dark black stripes. The grower selects these specifically for their aesthetic quality for displaying at the Cherokee Agricultural Fair, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

These October bean seeds are beige with dark black stripes. They are grown as a distinct variety and not mixed with other October beans by the grower. (Big Cove, Swain County, EBCI)

Black October These have solid black colored seeds. The grower selects these specifically for their aesthetic quality for displaying at the Cherokee Agricultural Fair, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

Black Turkey Gizzard These are a ‘Turkey Gizzard’ type bean that are white with a black blush on one end. The grower mainly grows them out of curiosity and for displaying at The Cherokee Agricultural Fair, but not for eating. (Bird Town, Swain County, EBCI)

Cherokee Cornfield (2) These cornfield beans have seeds of all sizes and colors, including some blue seeds. They are traditionally planted in cornfield two weeks after the corn is planted. They are traditionally used as soup beans and in a dish called “sweetening corn.” (Boundary Tree, Cherokee, Swain County, EBCI).

These seeds originated from the Seed Savers Exchange and are described as: “A traditional variety of ornamental earth-tone shades and markings. They yields very well in this climate, especially when grown up cornstalks. The story goes that the different color varieties should not be separated out or else they will barely flower. Much like a family they are stronger when kept together. “Excellent when eaten as a snap or dry bean.” (reproduced from the Center for Cherokee Plants seed list) (Big Cove, Swain County, EBCI)

Cherokee Greasy These white-seeded greasy beans were originally obtained by the grower from Bill Best, who maintains that they are representative of the original Cherokee Greasy beans. They are used as a fresh cooking green bean and are popular sellers on the reservation. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Cherokee Trail of Tears Bean (4) A bean with a long, shiny, black seed. This seed was received from a packet that Chief Michell Hicks gives out in the spring. The grower finds it to

have a nutty taste and is eaten both as a fresh green bean and a shell bean. (Wolf Town, Jackson County, EBCI)

The grower uses this long shiny black seeded bean for leather britches (dried in the hull) and for fresh cooked green beans. They have six inch green and purple pod, are resistant to many insects and diseases and were carried along the Trail of Tears by the Cherokee people in 1838-9. (Jenkins Creek, Wolf Town, Swain County, EBCI)

A bean with a black shiny seed that is used as a fresh cooked green bean. (Wolf Town, Jackson County, EBCI)

A black, shiny seeded bean the grower got from the Chief's garden packet. He uses it for fresh cooked green beans and in dried beans and rice. He doesn't think it tastes as good as greasy beans or half-runner. (Big Cove, Swain County, EBCI)

Cutshort This short-podded bean is grown for its good taste, to make leather britches (dried in the shell), freezing and canning. (Vengeance Creek, Cherokee County, EBCI)

Goose Bean (2) These seeds are long, black and shiny (unlike the flat green types usually called 'goose' in the region). The grower got them from someone from Dillsboro and it was his first year growing them. (Bird Town, Swain County, EBCI)

The grower received these from Roy Lambert (see above). (Jenkins Creek, Wolf Town, Swain County, EBCI)

Greasy A white seeded bean that the grower eats as fresh eating green bean in the pod. (Wolf Town, Jackson County, EBCI)

Greasyback (2) A white seeded bean that is good for eating as fresh podded green beans, canning and pickling. (Big Cove, Swain County, EBCI)

These greasy beans have a longer pod than the cutshorts and are grown because of their good taste, for leather britches (dried in the pod), and for canning and freezing. (Vengeance Creek, Cherokee County, EBCI)

Greasy Cornfield These seeds are white. They are a good fresh eating green bean with a long, tender pod that are easy to grow. They sell well at the market, getting a price double that of other beans. The grower is selecting for more seeds in a longer pod. He is currently getting 10-11 seeds per pod. (Bird Town, Swain County, EBCI)

Greasy Cutshort (3) A white seeded bean that is good to eat as cooked green beans. (Big Cove, Swain County, EBCI)

A white-seeded bean that is hard to harvest because of its short, small pods. It has a good taste. The water looks 'greasy' when cooked. (Wolf Town, Jackson County, EBCI)

A white-seeded bean that is used for picking and for fresh cooked green beans. (Little Snowbird, Graham County, EBCI)

Lavender/Purple October These have lavender/purple colored seeds, some of which are solid, some that have purple striped and mottles. The grower selected these specifically for their aesthetic quality for displaying at the Cherokee Agricultural Fair, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

The grower got this seed from Roy Lambert (see above) and he calls it a 'Blue October' bean, he selected out the purplish/blue/lavender seeds from a mix he got from Mr. Lambert. He is selecting it because he thinks it's a nice looking bean. (Wolf Town, Jackson County, EBCI)

Lazy Housewife (2) This bean has long white seeds and a long pod. The grower got them when he was living in Brevard from a mountain truck farmer and he believes they are similar to a

Macaslin bean. They are a full bean that produce well and are often eaten as shelly beans. (Bird Town, Swain County, EBCI)

This bean has a long white seed and is the grower's favorite bean for taste and it sells very well on the reservation—customers ask for it over and over by name. It is used for a fresh cooking green bean. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Light Red and Black Striped October These October seeds are a light red color with black stripes. The grower selects these specifically for their aesthetic quality for displaying at the Cherokee Agricultural Fair, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

Long Greasy This white seeded bean was originally obtained from Jenkins and Cub Shuler. The grower thinks it has a sweet taste and uses it for canning. (Adams Creek, Bird Town, Swain County, EBCI)

Maroon October (3) These beans have maroon colored round seeds with white eyes. The grower selects these specifically for their aesthetic quality for displaying at the Cherokee Agricultural Fair, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

These beans have maroon colored round seeds with white eyes. They have a tough hull and the grower likes to use them as soup beans. (Big Cove, Swain County, EBCI)

This Maroon October was originally in Roy Lambert's October bean mix and the grower selected them out since he remembers them being grown out as a distinct variety when he was young. Walker Calhoun also confirmed that they were grown as a distinct variety. David Bradshaw says that they also go by the name of 'Jennings Pole Bean.' The grower uses them for leather britches and shelly beans. (Big Cove, Swain County, EBCI)

Multi-colored Kidney These are multi-colored seeds (beige, lavender, white, brown etc.). The seeds are multi-colored in a single pod. They have been selected by the grower to be aesthetically pleasing due to their color diversity for displaying at the Cherokee Agricultural Fair. (Bird Town, Swain County, EBCI)

Multi-colored October This multi-colored October bean is eaten both as fresh green beans and shelled soup beans. They do well planted in new ground and should be moved around to a new patch of ground every two years. Since the grower did not distinguish each different color and shape as a separate variety and I did not get a seed sample, I am entering this as its own variety. It may have some of the same types that have been separated out in the populations of October Beans of other growers. October Beans produce well in cooler temperatures toward the end of summer until frost. (Big Cove, Swain County, EBCI)

These October beans have a wide variety of colors, some that are spotted and speckled. They have a tender hull and are good cooked as a green bean. The grower also calls these “Indian Beans.” (Big Cove, Swain County, EBCI)

The grower got these from the Chief’s garden project seed packets and they originated from Roy Lambert. He uses them for fresh green beans, bean bread, and shelly beans. (Big Cove, Swain County, EBCI).

Maroon and White October Beans These beans have round seeds that are a mixture of maroon and what the grower calls “Appaloosa” (red and white splotched, like Jacobs Cattle or Anasazi beans). They have a good taste and are used for shelly and soup beans, canning, and for fresh cooked green beans. They are cooked in a small amount of water to create a ‘soup’ and create a better flavor. The grower also calls them “Indian beans.” (Big Y, Wolf Town, Jackson County, EBCI)

Old-timey Cornfield Bean (Big Y, Wolf Town, Jackson County, EBCI)

Rattlesnake Pole Bean This bean has beige with brown stripes seeds and was acquired by Kevin Welch from Southern Exposure Seed Exchange. It is very productive with seven inch round pods which are stringless when small and have purple streaks on them when mature. They are very similar to the same variety that the grower remembers being grown in Cherokee as a youth. They have a good flavor and are used for leather britches and canning. (Big Cove, Swain County, EBCI)

Red Turkey Gizzard These are a ‘Turkey Gizzard’ type bean that are white with a red blush on one end. The grower mainly grows them out of curiosity and for displaying at The Cherokee Agricultural Fair, but not for eating. (Bird Town, Swain County, EBCI)

Striped Creaseback Tender Cornfield Beans This bean has a beige seed with brown stripes and mottles. It is generally a medium sized long round bean, but some seeds are smaller and cutshort. They can be canned, pickled, and they sell well at local markets. (Big Cove, Swain County, EBCI)

Tender October (5) These beans are round and beige colored mottled and striped with maroon. They are eaten as green beans, shelly beans and displayed at The Cherokee Agricultural Fair by the grower, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

The grower got these seeds in a spring planting packet from Chief Michell Hicks and they originally came from Roy Lambert (see description above). (Wolf Town, Jackson County, EBCI)

This bean has a cream/beige colored round seed with striped and mottled with maroon. The hulls turn red and yellow with red stripes as they mature. It is used as a fresh cooked green

bean because of its unique flavor and is not good canned or re-heated. (Adams Creek, Bird Town, Swain County, EBCI)

This big round bean has a white/cream seed with red streaks through it. The grower says it has a longer pod than regular October Beans, but I have not determined if it is different in that regard from the Tender October beans listed above. He also calls it a ‘cornfield bean.’ It runs vigorously. He uses it for fresh cooked green beans. It cooks faster than other bean varieties. (Wolf Town, Jackson County, EBCI)

This bean has beige seeds with red streaks. It has tender pods and is used for ‘soup beans.’ (Big Cove, Swain County, EBCI)

Turkey Crow/Gizzard (2) These beans have a brown seed with a white blush and are used for fresh cooked green beans. The grower heard a story from Mr. Johnson that the Cherokee were on the Trail of Tears and shot a turkey and found the seed of this bean in its craw. The seeds were originally from Mr. Johnson who got them from Kevin Welch. (Adams Creek, Bird Town, Swain County, EBCI)

These beans have a brown seed with a white blush and are used from fresh cooked green beans when their pod is young. These are said to have originated at the Whitaker Place, a Cherokee trading post in Kentucky when a hunter found the bean in a turkey’s craw. This seed was not obtained on the reservation, but Kevin Welch collects seeds from geographical places where Cherokee people traditionally lived at to grow them out for his work with The Center for Cherokee Plants. (Big Cove, Swain County, EBCI)

White October These have white colored seeds that have a brownish red splotch around the eye of the seed. The grower selects these specifically for their aesthetic quality for displaying at the

Cherokee Agricultural Fair, both individually and as a bean mix with other seeds. (Bird Town, Swain County, EBCI)

The seed of this been is white colored with a brownish red splotch around the eye. The hull is curved which the grower says makes it more tender. It has a mild taste and is good cooked as a green bean. The seed originated with Roy Lambert and was selected out for its white seeds. The grower also calls these “Indian Beans.” Walker Calhoun says they are similar to a bean they used to call ‘field beans.’ (Big Cove, Swain County, EBCI)

White/Red October These October beans have seeds that are white and red and look similar to an Appaloosa bean. Some of the seeds are dark maroon. They are grown for their excellent taste as a fresh cooked green bean, a dried bean and use in bean bread and for leather britches (dried in the pod). (Little Snowbird, Graham County, EBCI)

Yellow Hull Cornfield Bean This white seeded bean has a light yellow hull when it is mature. The grower got the seed from Medford Brown, Gladys Lunsford’s grandfather, in Clay County. They are also called by some people ‘Yellow Half Runner’, but the grower thinks they run too much to be planted in corn and that they taste better than White Half Runners. They have a tender hull and are used for fresh cooked green beans, canning, freezing, and make beautiful leather britches (dried in the hull). (Vengeance Creek, Cherokee County, EBCI)

Butterbeans (Runner Beans) (Phaseolus coccineus)

Beige with Brown Stripes Cherokee Butterbean These colored Cherokee Butterbeans are grown together with other colored types of Cherokee Butterbeans but are also considered separate types and displayed both as a mix with the other colored Cherokee Butterbeans and as

their own separate variety at the Cherokee Agricultural Fair by the grower. They are excellent dried as a soup bean. (Bird Town, Swain County, EBCI)

Black Cherokee Butterbean These colored Cherokee Butterbeans are grown together with other colored types of Cherokee Butterbeans but are also considered separate types and displayed both as a mix with the other colored Cherokee Butterbeans and as their own separate variety at the Cherokee Agricultural Fair by the grower. They are excellent dried as a soup bean. (Bird Town, Swain County, EBCI)

This is a black-seeded butterbean that Kevin Welch got from Alex Hornbuckle, who got it from his mother. It is harvested by the grower as a green shelly bean for use in beanbread and stew. (Big Cove, Swain County, EBCI)

Brown Cherokee Butterbean These brown colored Cherokee Butterbeans are grown together with other colored types of Cherokee Butterbeans but are also considered separate types and displayed both as a mix with the other colored Cherokee Butterbeans and as their own separate variety at the Cherokee Agricultural Fair by the grower. They are excellent dried as a soup bean. (Bird Town, Swain County, EBCI)

Brown with Beige Stripes Cherokee Butterbean These colored Cherokee Butterbeans are grown together with other colored types of Cherokee Butterbeans but are also considered separate types and displayed both as a mix with the other colored Cherokee Butterbeans and as their own separate variety at the Cherokee Agricultural Fair by the grower. They are excellent dried as a soup bean. (Bird Town, Swain County, EBCI)

Lavender/Purple Cherokee Butterbean (2) These colored Cherokee Butterbeans are grown together with other colored types of Cherokee Butterbeans but are also considered separate types and displayed both as a mix with the other colored Cherokee Butterbeans and as their own

separate variety at the Cherokee Agricultural Fair by the grower. Some have black stripes and some have thick black mottles. They are excellent dried as a soup bean. (Bird Town, Swain County, EBCI)

The grower got these in a seed packet from Chief Michell Hicks and they originally came from Roy Lambert (see description above). (Wolf Town, Jackson County, EBCI)

Light Brown/Red Butterbean These light brown/reddish butterbeans are used as a shelly or dried bean and for bean bread by the grower. (Big Y, Wolf Town, Jackson County, EBCI)

Multi-colored Butterbean (5) These butterbeans are grown together and have a mixture of white, purple, brown and black seeds. Many of the seeds are striped and mottled in different colors and patterns. The grower likes to cook them as “roastin ear beans” (shelled green). (Big Cove, Swain County, EBCI)

The grower got these multi-colored butterbeans from Roy Lambert after searching for them for a long time. He likes the taste of them and uses them as a shelly bean and also grows them on his porch for the aesthetically pleasing flower blooms. (Jenkins Creek, Wolf Town, Swain County, EBCI)

The grower got these multi-colored butterbeans as a seed packet from the Chief’s garden program and wanted to plant them out to get more seed. They originally came from Roy Lambert. (Adams Creek, Bird Town, Swain County, EBCI)

These are grown for their good taste and cooked as a boiled dry or shelly bean. They are traditionally used in bean bread. The grower will occasionally plant them for display at The Museum of the Cherokee Indian. (Wolf Town, Jackson County, EBCI)

These are grown for their flowers to attract hummingbirds. (Wolf Town, Jackson County, EBCI)

Hyacinth Beans (Dolichos lablab)

Hyacinth Bean The seeds of this bean are dark black with a white lip on one side of them.

They are grown ornamentally for their pretty flowers on front porches and mailbox poles. Pods are eaten throughout Asia and India, but the dried seeds can be toxic. Hyacinth Beans are not eaten by the Cherokee. According to Suzanna Ashworth, Hyacinth Beans are rarely grown in the U.S. but they appear to have a reasonably long tradition of being grown by the Cherokee. They are known locally by a common name that is a racially derogatory term. (Bird Town, Swain County, EBCI)

Brassicas (*Brassica* spp.)

Field Creasy Greens (3) *Lepidium sativum* The grower calls these ‘field’ Creasy Greens because they often grown out in fields that are used for gardens during the winter, but they are the same as other Creasy Green types. He got the seeds from Bryson’s farm supply in Sylva and finds this to be a sweet-tasting variety. He cooks the leaves and also eats them in salads when they are young. (Wolf Town, Jackson County, EBCI)

The leaves of this variety are cooked up the same as you would mustard greens. (Big Cove, Swain County, EBCI)

These are naturalized in the grower’s garden and he uses them cooked like turnip greens. (Big Cove, Swain County, EBCI)

Old-time Cherokee Mustard (3) *Brassica juncea* This is a mustard green with very long leaves that are pointed somewhat like the leaves of red oak. They are both planted and let come up as a naturalized garden volunteer plant. The grower finds it to have a better taste and aroma than commercially available mustard greens. It is cooked as fresh greens, with the stem when it has recently bolted and also with the roots still on the plant. (Big Cove, Swain County, EBCI)

Has a jagged red oak-like leaf. The grower thinks they are more tender and more nutritious than commercial mustard varieties. (Big Cove, Swain County, EBCI)

This mustard has a good flavor and is called by the grower ‘Mary Wahchacha Mustard’ after the woman he got the seed from. He says the excellent flavor is like the Old-time Cherokee Mustard and it is probably the same variety. (Big Cove, Swain County, EBCI)

Old-time Round Leaf Mustard *Brassica juncea* This mustard green has a round leaf and is used for freezing and frying. (Big Cove, Swain County, EBCI)

Old-time Winter Mustard *Brassica juncea* This mustard endures winter better than regular commercial varieties and is thought to have a better taste by the grower. It has been in the Sneed/Lunsford family for over 50 years and Gladys Lunsford originally got it from her aunt Clenard Sneed. The grower hangs it upside down in a dry place to let it dry and then crunches it up to get the seed out of it. It may be similar to the Old-time Cherokee Mustard but is listed separately because it comes from off the reservation in Cherokee County. (Vengeance Creek, Cherokee County, EBCI)

Rape *Brassica napus* This self-sows and comes up as a naturalized garden volunteer plant. It has the same uses as the Old-time Cherokee Mustard: cooked as fresh greens, with the stem when it has recently bolted and also with the roots still on the plant. (Big Cove, Swain County, EBCI)

Cherokee Turnip *Brassica rapa* This is a naturalized turnip that has a stronger flavor and darker green/thicker leaves than Seven Top turnips. It is boiled in a change of water (parboiled) to get rid of the bitterness and then seasoned to taste. This could be the same as the “Winter Turnip.” (Big Cove, Swain County, EBCI)

Watercress *Rorippa nasturtium var. acquaticum* The grower dug up the roots of these plants on a creek side that had been planted by older generations. He transplanted them to a creek side near his house. The leaves are cooked up in manner similar to mustard greens. (Big Cove, Swain County, EBCI)

Winter Turnip *Brassica rapa* A long, white turnip that has naturalized and over winters well. It tastes like a regular turnip. (Big Cove, Swain County, EBCI)

Corn (*Zea Mays*)

Dent (Bread, Hominy, Ornamental)

Cherokee Trail of Tears This corn variety has purple/blue and white kernels but the grower selects the white kernels out to make it solid purple/blue. It is rumored to have been popularized by Jimmy Carter after he received it from the western Cherokee. The grower originally received six or seven seeds from the late Myrtle Youngblood and has been growing it out ever since. He grows it out of curiosity, for ornamental value and for duck feed. (Wolf Town, Jackson County, EBCI)

Cherokee White Eagle This variety originated with Carl Barnes of Oklahoma and has blue kernels that have a vague white outline at the tip of each kernel that looks like an eagle in flight. (Big Cove, Swain County, EBCI)

Field Corn This dent corn has 10-12 rows of kernels with a hard starch. It was traditionally grown for cornmeal and grits. The grower currently grows it to display in the Cherokee Agricultural Fair and to give away to friends and neighbors. (Bird Town, Swain County, EBCI)

Multi-colored Indian Corn This corn has white, blue, purple, violet, yellow and red kernels. Many of the kernels have red stripes that are reminiscent of candy cane stripes. It is used ornamentally and for a flour corn. (Big Cove, Swain County, EBCI)

White Hard Field Corn This is a twelve-row corn that has white kernels with red stripes in each kernel. An occasional kernel (one or two per ear) is solid red. It was originally from Donna Long. It is used for cornmeal. Corn this hard cannot be pounded very well so must be milled. (Big Cove, Swain County, EBCI)

White Hickory King The grower uses this variety to feed his goats and cows, as a trellis for his beans and traditionally used it to make hominy which he doesn't do anymore. (Adams Creek, Bird Town, Swain County, EBCI)

Flint

Yellow Pearl Hominy This flint corn has a translucent yellow kernel. It is has very hard small ears that are hard to shell. This is a variety that used to be grown around the reservation but is now almost extinct. The 'variety' I am documenting here is actually just some translucent flint kernels that show up in ears of the growers Yellow Flour Corn. The grower and Kevin Welch have expressed interest in back breeding to get back to the Yellow Pearl Hominy Corn, so I list it here to document that the possibility exists. It's possible that it is not a flint type but that seems to be the closest corn type that I can identify. It has been traditionally used for hominy, hominy drink and grits. (Wolf Town, Jackson County, EBCI)

White Pearl Hominy This 'pearl' (clear) kernelled corn is not pure and 'full' like clear glass. It has been mixed with another variety of unknown origin. The seed was originally from a man named Posey. The grower has seen a 'pure' kind of this variety that Rachel Watie has. The grower likes it mixed with the Cherokee Yellow Flour corn for hominy. It was traditionally planted by digging a hole and planting seven or so kernels with three or four bean seeds. (Little Snowbird, Graham County, EBCI)

Flour

Cherokee Multi-colored Flour Corn (2) This is a traditional Cherokee Flour corn that was intentionally bred by contemporary Cherokee growers for its vibrant colors. The grower

originally got this variety from John Dugan and currently grows it to display in the Cherokee Agricultural Fair and to give away to friends and neighbors. (Bird Town, Swain County, EBCI)

The grower has been breeding this variety for 15 years in order to display at the Cherokee Agricultural Fair. It has a mixture of white, yellow, red, purple, and blue flour-type kernels. He also sells it for ornamental Indian corn. Through the years he has mixed several varieties into his current type: Cherokee White Flour, Cherokee Yellow Flour, Navaho Red, and Field Dent.

(Cooper Creek, Bird Town, Swain County, EBCI)

Cherokee White Flour (8) The most popular variety grown for cornmeal by the eastern Cherokee. This variety is one of the more primitive types with eight rows and a soft starch. The grower currently grows it to display in the Cherokee Agricultural Fair and to give away to friends and neighbors. (Bird Town, Swain County, EBCI)

This white flour corn is eaten by the grower as roasting ears (fresh corn-on-the-cob), ground up for cornmeal, striped off the cob to eat cooked fresh and for the traditional bean bread. (Big Cove, Swain County, EBCI)

This white flour corn has varied rows of more than eight. The grower uses it to make hominy and cornmeal for dumplings. (Big Cove, Swain County, EBCI)

This is an 8-rowed variety that the grower and his brother have raised for a long time. They take it to Cub Sneed's mill for grinding and they sift it out to make good flour. It has a unique taste all its own and is used for bean bread, lye dumplings and cornbread pone. (Big Y, Wolf Town, Jackson County, EBCI)

The grower displays this variety at the Cherokee Agricultural Fair and also sells it as an ornamental corn. (Cooper Creek, Bird Town, Swain County, EBCI)

The grower uses this variety for roasting ears and boiled corn on the cob or dried and boiled with pinto beans. He also occasionally plants it for display at The Museum of the Cherokee Indian. He can remember it being used traditionally for hominy, gritted bread and grits. (Wolf Town, Jackson County, EBCI)

This is the original 'Cotton Robinson' 8-rowed variety that was bred by Cotton Robinson as a collaborative project with the Cherokee Boys Club to come up with a pure, more ancient 8-rowed variety. It had been in a freezer for 10-15 years at The Boys Club without being grown out. The grower performed germination tests and got a 37% germination rate using organic methods and a 60% germination rate using commercial chemical fertilizer. (Big Cove, Swain County, EBCI)

This variety is used for hominy and roasting ears. It was also originally used as meal to make a drink and for a snake food when on hunting trips. The grower grows this variety in isolation to maintain purity. (Big Cove, Swain County, EBCI)

Cherokee White and Yellow Flour Mix The grower planted Cherokee White Flour and Cherokee Yellow Flour corn together intentionally and let them mix, so this variety now has both colors of kernels mixed together. It is used for hominy and cornmeal to make dumplings with. (Big Cove, Swain County, EBCI)

Cherokee Yellow Flour (3) This is a yellow seeded variety of the traditional and more well-known Cherokee White Flour corn. It was traditionally used as for cornmeal and for feeding animals. The grower currently grows it to display in the Cherokee Agricultural Fair and to give away to friends and neighbors. (Bird Town, Swain County, EBCI)

The grower displays this variety at the Cherokee Agricultural Fair and also sells it as an ornamental corn. (Cooper Creek, Bird Town, Swain County, EBCI)

This yellow version of the Cherokee Flour Corn may have originated with growers family and spread out from there to other families on the reservation. He thinks it may have originated from a cross between Cherokee White Flour corn and a yellow dent field corn, since some of the kernels are dented. He selects every year for the smoother flour corn kernels and keeps it isolated from other corns as a distinct variety. This variety is less likely to get corn ear worms than field corn. It is used for hominy and makes a softer hominy than the White Flour corn. The hominy is made from hickory or other hardwood ashes. He also uses it for cornbread and remembers it being used traditionally for grits and hominy drink. (Wolf Town, Jackson County, EBCI)

Indian Flour Corn This is a multi-colored 'Indian' corn that the grower got from his brother, who has raised it for a long time. His brother sells it at a craft shop in Cherokee and the grower uses it ornamentally and as duck feed. If it starts to lose the colors that the grower likes, he will mix them back in from other varieties. (Wolf Town, Jackson County, EBCI)

Popcorn

Yellow Popcorn This popcorn variety has long ears and deep yellow kernels. It was given to the grower and he grows it to show at The Cherokee Agricultural Fair. (Bird Town, Swain County, EBCI)

Corn Beads (Job's Tears) (*Coix lacryma-job var. lacryma-jobi*)

Cornbeads (5) This hard shelled grey-white member of the grass family is used locally for jewelry and for displays at the Cherokee Agricultural Fair. The seeds command a high market price for beads, though they are difficult to harvest in large amounts. (Bird Town, Swain County, EBCI)

These cornbead seeds are in various shades from grey to white. They are used for ornamental displays, jewelry making, and they sell at a high price. (Big Cove, Swain County, EBCI)

These grey to white cornbeads are grown by the seedsaver for little girls to string into necklaces. (Jenkins Creek, Wolf Town, Swain County, EBCI)

These cornbeads self-sow in the grower's garden every year and he uses them for making necklaces. His wife also uses them for a jewelry making activity for special needs kids that she teaches. (Wolf Town, Jackson County, EBCI)

The grower started with twelve seeds of these cornbeads and has multiplied them. His daughter grows them and his granddaughter sells them for \$55.00/gallon. (Big Cove, Swain County, EBCI)

Gourds (*Lagenaria siceraria*)

Birdhouse These gourds are used for bird houses and ornamentally. They are thin at the top and have a wide rounded body that makes a nice place for a bird to house. (Big Y, Wolf Town, Jackson County, EBCI)

Caveman This gourd is shaped like a small ‘caveman’ club and is warty and unique/primitive looking. It can be used as a birdhouse. (Big Y, Wolf Town, Jackson County, EBCI)

Climbing/Vining Okra *Luffa acutangula* A loofa-type asian gourd, also known as “Chinese okra” or “Angled Loofa.” Also called ‘Vine’ or ‘Vining’ okra. This variety has been grown in the mountains for years. Vigorously vining. Highly productive, should be picked every other day. Prepared and eaten like okra, usually breaded and fried in the mountains. The grower got this variety from his pastor Roland who got it from a man near Asheville. (Big Y, Wolf Town, Jackson County, EBCI)

The grower calls this variety ‘Vining Okra’ and got the seed from his wife Alice’s sister in the Clyde, NC area. It is harvested young and fried. (Adams Creek, Bird Town, Swain County, EBCI)

Long Handed Dipper Gourd This gourd has a very long and thin handle and a hollow round end. A hole is cut in the hollow round end and they are traditionally used in spring houses and left at springs and seeps so people can harvest water out of them. (Big Y, Wolf Town, Jackson County, EBCI)

Snake Gourd *Trichosanthes anguina* A very long green and white striped gourd that was displayed at the 2008 Cherokee Indian Fair. It is also known as ‘Serpent Gourd.’

Short Handled Dipper Gourd This gourd has a short and thin handle and a hollow round end.

A hole is cut in the hollow round end and they are traditionally used in spring houses and left at springs and seeps so people can harvest water out of them. (Big Y, Wolf Town, Jackson County, EBCI)

Ground Cherry (*Physalis pubescens*)

Yellow Ground Cherry (2) This are small sweet tomato-like fruits that grow along the ground in gardens and are naturalized. They are used for fresh eating. (Big Y, Wolf Town, Jackson County, EBCI)

This is naturalized in the growers garden and is eaten as a fresh sweet snack. (Big Cove, Swain County, EBCI)

Jerusalem Artichoke (*Helianthus tuberosus*)

Jerusalem Artichoke The roots are dug up and eaten fresh or cooked for their good taste. (Sallie Bradley, Big Cove, Swain County, EBCI)

Okra (*Abelmoschus esculentus*)

Green This a green-podded okra that has always been in the growers family and fried and pickled. (Big Y, Wolf Town, Jackson County, EBCI)

Red (2) This a red-podded okra that has always been in the growers family and fried and pickled. (Big Y, Wolf Town, Jackson County, EBCI)

This variety was originally obtained by the grower from a seed saver in from Alabama and has a larger pod than typical okra varieties that stays tender despite its size. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Old-timey Okra This variety has been passed down in the growers family and has a light green pod. It grows over 12 feet high and branches out at the bottom. The pods are round with a mixture of big and short pods that stay tender when they get big. It is fried, boiled and cooked in a stew with tomatoes. (Vengeance Creek, Cherokee County, EBCI)

Peanut (*Arachis hypogaea*)

Georgia Red Peanut The grower got this deep red peanut from an African-American man that he fishes with near Lavonia, Georgia. He doesn't know if it is an heirloom variety but has been growing if for several years and it grows true-to-type. It is a good dried peanut for eating. (Wolf Town, Jackson County, EBCI)

Potato (*Solanum tuberosum*)

Irish Cobbler A medium-sized old-time white potato. The grower says it has no problem with the late blight and that it is a very clean potato to harvest—it doesn't have a lot of dirt that sticks to it. He thinks it has a great taste and likes the mealy texture. (Big Y, Wolf Town, Jackson County, EBCI)

Rhubard (*Rheum rhabarbarum*)

Rhubard This rhubarb variety has been passed down in the growers family and is used in cobbler, pies and for preserves. (Vengeance Creek, Cherokee County, EBCI)

Southern Peas (*Vigna unguiculata*)

Clay Pea (2) This variety has a pinkish/orangish looking seed and is eaten as soup pea by the grower. (Big Cove, Swain County, EBCI)

This pea has a small beige/brown seed. It was acquired by the grower at the Asheville Farmers Market and may be a bit smaller than the clay field pea he remembers from his youth that his family would gather in a sack during the depression. It is grown as a shelly and dried pea for its unique flavor. (Vengeance Creek, Cherokee County, EBCI)

Little Red Field Pea This is a small red field pea that looks similar to the red field peas often grown by African-Americans in the southern U.S. coastal areas. The seed was acquired from a neighbor because it reminded the grower of clay peas, though the seed is red and a little bit bigger than clay peas. This plant will volunteer in the garden and is grown for its good taste and also for a cover crop. (Vengeance Creek, Cherokee County, EBCI)

Whipporwill A small beige and brown mottled field pea. This seed is on the larger side of the Whipporwill-type spectrum. The grower is unsure of where he originally got them. (Wolf Town, Jackson County, EBCI)

Squash/Pumpkins (*Cucurbita* spp.)

Candyroaster *Cucurbita maxima* The grower raises these candyroasters in his corn patch. They are prepared by cutting into squares, boiling and then baking them. It is also used in pumpkin pies. (Big Cove, Swain County, EBCI)

Cushaw *Cucurbita argyrosperma* A green and white striped variety. They are raised in the growers corn patch. They are prepared by cutting into squares, boiling and then baking them with brown sugar. It is also used in pumpkin pies. (Big Cove, Swain County, EBCI)

Jenkin's Creek Bumblebee White Zucchini *Cucurbita Pepo* This variety originated in the growers garden as a cross between a white patty pan squash and a zucchini. The grower has been selecting the hybrid and has come up with a unique looking white zucchini. The name references the true originator of the cross, a Jenkins Creek bumblebee. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Old-Time Pie Pumpkin This is a small orange pumpkin with thick flesh and a lot of seeds that is used for pumpkin pies. The grower also calls it a 'Yellow Pumpkin.' (Big Y, Wolf Town, Jackson County, EBCI)

Roughbark Cherokee Candyroaster *Cucurbita maxima* This is a pale orange candyroaster with rough skin that promotes longer storage. It was originally from the grower's aunt, M. Lossiah. It is used in various ways: baked with sugar and walnuts, boiled and seasoned, sautéed; and as an ingredient in stew, soup and pie. (Big Cove, Swain County, EBCI)

White Marebag Squash *Cucurbita Pepo* This is a white 'pattypan' type squash that the grower may got from the spring seed packets given out by Chief Michell Hicks. They may originate from commercial sources but he remembers white and green pattypanns being grown when he was

younger on the Cherokee reservation. He likes to cook them fried. (Wolf Town, Jackson County, EBCI)

Yellow Striped Orange Candyroaster *Cucurbita maxima* This is a medium to large-sized long shaped candyroaster that is deep orange with yellow stripes. The grower got the seed from Stan Watie, who grows them commercially. He says it tastes sort of like a sweet potato and is used in stews and roasted with cinnamon and sugar. (Big Cove, Swain County, EBCI)

White Winter Squash This is a smaller white squash about the size and shape of an Acorn squash. It has a sweet taste and is peeled, sliced and fried during the winter time. It preserves well stored in a cellar or in a barn under some hay. (Big Y, Wolf Town, Jackson County, EBCI)

Tomatoes (*Lycopersicon esculentum*)

Brandywine A large pink tomato that is good for fresh eating and canning and sells well at the market. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Cherokee Purple A large purple/black tomato that is used for fresh eating and sells well at the market. (Jenkins Creek, Wolf Town, Swain County, EBCI)

This tomato is also called ‘Cherokee Black.’ From the Center For Cherokee Plants seed listing: “Pre-1890. Tennessee heirloom, reportedly of Cherokee Indian origin. Large fruits (10-12 oz.) are smooth with slightly rigid shoulders. Ripens to a unique dark, dusky, pink/purple. Good resistance to septoria leaf spot. Juicy, delicious, fresh eating, but does not keep. Skin is thin and bruises easily.” (Big Cove, Swain County, EBCI)

Hillbilly A large red and white striped low-acid tomato that is good for fresh eating and sells well at the market. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Ruby’s German Green A good fresh eating tomato that sells well at the market. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Walter Johnson This is a big ‘stripey’ type tomato that is yellow with pink stripes and a pink core. The grower says it is unique from and different than “Mr. Stripey.” He originally got the seed from Walter Johnson in Clay County about fifty years ago. He starts the seed in containers by his sliding glass door and then plants them out in mid-May. They are grown for their good taste, for a slicing tomato, to make juice that is superior to store-bought, for fried green tomatoes (peel before frying) and as pickled green tomatoes. The grower will eat two tomato sandwiches every day during the summer and drink the juice of this variety during the winter. (Vengeance Creek, Cherokee County, EBCI)

Yellow Pear A small, sweet pear-shaped tomato that is good for fresh eating and sells well at the market. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Yellow Tommytoe These are a yellow cherry-type tomato that self-sow and are used for fresh eating because of their sweet taste. (Big Y, Wolf Town, Jackson County, EBCI)

FRUIT

Apples (*Malus Sylvestris*)

Blushing Gold The grower says this is an older variety of Golden Delicious that gets a pink tint to it when it is ripe. It is used for fresh eating and frozen spiced apples. (Vengeance Creek, Cherokee County, EBCI)

Early Harvest (2) A sour apple that is used for sliced cooked apples, apple sauce and apple butter. (Big Cove, Swain County, EBCI)

A soft yellow apple that is good for fresh eating. (Cooper Creek, Bird Town, Swain County, EBCI)

Garden This tree is grown in the garden and is a small yellow apple that stays hard until it is softened in the winter. The grower says it is similar to a wild crabapple. It is used for fresh eating, pies and apple sauce. (Wolf Town, Jackson County, EBCI)

Green Striped Winesap This apple is bigger and ripens earlier than Red Winesap. It is a green apple with red stripes that is used for fresh eating, drying and apple sauce. (Vengeance Creek, Cherokee County, EBCI)

Horse This is a tart yellow apple that ripens early and is used for apple sauce and fresh eating. (Vengeance Creek, Cherokee County, EBCI)

Kittageuskee (?) This small, sweet, yellow apple may be a Cherokee variety that was thought to be lost and is being sought after by apple hunter Tom Brown. It is a delicious fresh eating apple. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Light Yellow A light yellow sour apple that is used for cooked fruit. (Big Cove, Swain Co., EBCI)

Little Red A small red sour apple that is used for cooked fruit. (Big Cove, Swain County, EBCI)

Lunsford This is a seedling apple that the grower named after himself. He bought a house that subsequently burned. This seedling apple came up near the burned house. It is red and green striped and ripens in August. It is used as a fresh eating apple, a drying apple and for apple sauce. (Vengeance Creek, Cherokee County, EBCI)

Old-timey June (2) This apple is shaped like a Sheepnose variety and is white on one side and red on the other. It is an early apple that is good for fresh eating. (Cooper Creek, Bird Town, Swain County, EBCI)

There is one tree left on the growers family property that is almost dead. It is a good fresh eating apple. (Wolf Town, Jackson County, EBCI)

Old-timey Red June A very large Red June that is used for fresh eating, cooking and frying. The grower says it is different than the ‘Red June’ available at commercial nurseries. He grafted it off of a lady he knows whose deceased husband used to tend the tree. (Vengeance Creek, Cherokee County, EBCI)

Old-Time Red Delicious This is the old variety of yellow delicious that is a lighter red than commercial varieties with hints of yellow striping. It is a deliciously sweet fresh eating apple. (Jenkins Creek, Wolf Town, Swain County, EBCI)

Old-Timey Starks Red Delicious This Red Delicious is red with cream colored stripes. It is a good fresh eating and drying apple. (Vengeance Creek, Cherokee County, EBCI)

One Pounder This variety has very large misshapen apples. The grower grafted it from a tree near Clay County Georgia and uses it for apple sauce, fresh eating and drying. (Vengeance Creek, Cherokee County, EBCI)

Red Winesap This is a deep red apple if it gets enough sun that is used for fresh eating, drying and apple sauce. The grower grafted it off of one of his families old trees. (Vengeance Creek, Cherokee County, EBCI)

Rusty Gold The grower says this is an older variety of Golden Delicious and is used for fresh eating and for frozen spiced apples. (Vengeance Creek, Cherokee County, EBCI)

Sheepnose A good fresh eating apple. (Cooper Creek, Bird Town, Swain County, EBCI)

Stamen A good cooking and fresh eating apple. (Cooper Creek, Bird Town, Swain County, EBCI)

Stamen Winesap This variety is used for eating, drying and apple sauce. (Vengeance Creek, Cherokee County, EBCI)

Wolf River A sour apple that is good for cooking, pies and fresh eating. (Cooper Creek, Bird Town, Swain County, EBCI)

Cherry (*Prunus avium*)

Wild Cherry A wild cherry that is slightly bigger than a cranberry and is kept on the growers property for fresh eating. It bears fruit every few years. (Big Cove, Swain County, EBCI)

Gooseberry (*Ribes spp.*)

Gooseberry The grower got the cutting for this gooseberry plant from his neighbor. (Jenkins Creek, Wolf Town, Swain Co., EBCI)

Grapes (*Vitis* spp.)

Pink A pink grape used for fresh eating and fresh and canned juice. (Big Cove, Swain County, EBCI)

Purple A purple grape used for fresh eating and fresh and canned juice. (Big Cove, Swain County, EBCI)

Peach (*Prunus persica*)

Purple Indian A small purple skinned peach that has purple flesh all the way to the seed. It is used for fresh eating, canning and freezing. A traditional use was for pickled peaches. (Big Y, Wolf Town, Jackson County, EBCI)

White Indian (2) A small white skinned peach with white flesh. Many people around the reservation remember this variety but have lost it. It is used for fresh eating, canning and freezing. A traditional use was for pickled peaches. (Big Y, Wolf Town, Jackson County, EBCI)

The grower also calls this “Little Old-time White Peach,” but it is likely the same small naturalized variety that other growers are calling “White Indian.” It is a good fresh eating peach. (Big Cove, Swain County, EBCI)

Yellow Seedling A yellow peach that grew up as a seedling and has very large peaches. It is good for fresh eating and canning. (Big Cove, Swain County, EBCI)

Pear (*Pyrus communis*)

Barlett A good fresh eating pear. Despite being widely available at supermarkets, the Barlett pear is an heirloom pear that originated in England in 1765. (Wolf Town, Jackson County, EBCI)

Plum (*Prunus* spp.)

Wild Plum A dark red wild plum that is kept on the growers property for fresh eating. It bears profusely but only once every few years. (Big Cove, Swain County, EBCI)

FLOWERS/ORNAMENTAL

Castor Bean (Mole Bean) (*Ricinus communis*)

Mole Bean *Ricinus communis* These castor beans have a small bluish gray seed with black streaks. They were originally from Charles Crabtree who brought them from Michigan. They are planted ornamentally and to keep moles out of the garden. The grower's wife can remember her parents planting them when she was a kid. (Adams Creek, Bird Town, Swain County, EBCI)

APPENDIX C

NON-CHEROKEE OZARK VEGETABLE, FRUIT AND FLOWER FOLK CROP VARIETIES DOCUMENTED

VEGETABLES

Beans, Common (*Phaseolus vulgaris*)

Bunch (Bush)

Aunt Hett Black Speckled Bunch Bean A big seeded bean that is maroon with white speckles on it. The grower originally got the seed from her aunt and uncle. (Deer, Newton County, Arkansas)

Booker Bean (2) A bean with a medium-sized ovate tan seed with black mottles and streaks. Mr. Booker Cisco's mother gave the grower's wife these beans in 1947 when the growers first moved over to Osage, AR. They are known in the area as "Booker Beans" since Booker Cisco grew them. They are easy to harvest since they don't run and do not take a lot of work to grow. They are grown for their good taste and tender hull and are eaten as a fresh green bean and a shelly bean. The grower likes the Cutshort Bean better but he grew these because his mother-in-law preferred them (Osage, Carroll County, Arkansas)

This is the same bean as above, as the grower's grandma originally got the seed directly from Booker Cisco many years ago. It eaten as a fresh green bean, as a shelly bean, and as a 'dough bean' (local vernacular for a bean cooked down softly inside the pod). (North Polo, Carroll County, Arkansas)

Bunch Bean This bean has a small tan seed with black stripes on it. The pods have strings. She obtained the seed seventy years ago from Preacher Watson in Newton County, Arkansas, whose family has been growing it for 100 years. It has a unique taste and is eaten as a soup bean and canned. (Gravette, Benton County, Arkansas)

Cutshort A small ovate tan seed with black mottles and streaks. Many of the seeds are cutshort. The seed is similar to the Booker Bean but smaller, rounder, more cutshort, and has a higher occurrence of black mottles and streaks. It has short pods and originally came from Madison County, AR. It is rumored to have originated with Native Americans in the area. They are easy to harvest since they don't run and do not take a lot of work to grow. They are grown for their good taste and tender hull and are eaten as a fresh green bean and a shelly bean. (Osage, Carroll County, Arkansas)

Evangeline Fountain Bunch Bean An ovate, rounded medium-sized tan/brown bean with black streaks and mottles. The grower originally got it from Evangeline Fountain (who is presently 90 years old) of Welcome Home, AR seventy-five years ago. It is an early bean that is good for canning and snapping/cooking green. (Bear Creek, Searcy County, Arkansas)

Granny Clayborn Six Week Bean (2) A big seeded brown seeded with a flat pod that produces six weeks after planting. It is the grower's favorite tasting bean and is used for canning and as food at local funerals. It was grown by her great grandmother, her grandmother, her mother and herself (the grower is eighty-six years old). (Deer, Newton County, Arkansas)

The grower finally acquired this seed after years of looking for it from Brian Campbell of the Conserving Arkansas Agricultural Heritage program, who passed it along from Lorane Clayborn. She wanted to grow it because it had been grown in what is now the Hurricane Creek Wilderness area by Ms. Clayborn's family for many years before they moved to Deer, AR. (Hurricane Creek Wilderness Preserve, Johnson County, Arkansas)

Salsbury Bean A bean with a small-sized seed that is brownish/burgundy in color. The grower got it from his neighbor Ray Jennings, who brought it with him when he moved to Arkansas from Kentucky. It is eaten as a dry bean, a shelly bean, and frozen. (Rudd, Carroll County, Arkansas)

Tennessee Creaseback A bean with a medium-sized ovate tan seed with brown streaks and mottles. A small percentage of the seeds are cutshort and they have medium-sized pods. You can harvest the beans two or three times over until they are not blooming, re-fertilize them and pull dirt over the fertilizer, and they will produce another crop (they produce all summer long). The grower obtained the seed from a man 35-40 years ago who said that these seeds were brought from Tennessee by his great-grandfather well over one hundred years ago. They are grown for their good taste as fresh snap beans before the seed gets big. (Searcy, White County, Arkansas)

Half-runners

Brown Half-runner An early bean (six weeks) with a brown seed. They are a prolific bean that grows in 'wads' (bunches). The grower originally got the seed from Fay Davis (now deceased). The grower cans them. (Deer, Newton County, Arkansas)

Clark and Karr Family White Half-runner Bean This runner-bean with a small, white seed was brought to the Ozarks from Johnson County, Georgia in 1830. It is a multi-purpose “all around good family bean” that can be eaten as snap beans; shelly, dry or soup beans; and makes good baked beans. It is easy to grow and does not need to be trellised. (Prairie Grove, Washington County, Arkansas)

Creaseback (2) These half-runner beans originated with a man in Texas who gave them to Julie Yancey, who then passed them on to Frankie Ray, the grandmother of the grower's husband. The seed looks like a small pinto bean and it has green pods. (Snowball, Searcy County, Arkansas)

This is a half-runner bean that looks like a pinto with black streaks running through it. The grower obtained it from an old-time gardener in his valley and uses it for a dry bean. (Rudd, Carroll County, Arkansas)

Lola Creaseback Bunch Bean This variety has a beige seed with brown mottles but is longer than the cutshort cornfield beans. They originated from the grower's second cousin named Lola. It often has a dark streak on the seed and that is why they call it creaseback. (Gainesville, Ozark County, Missouri)

Ola Horton Little Blue Bean A fast growing and good tasting little “blue” seeded bean. The seed is dark blue/black with a white blush, much like a ‘Turkey’ type bean. It is used by the grower mainly for canning. (Marshall, Searcy County, Arkansas)

White Half-runner A white-seeded half-runner bean that the grower obtained from her niece from Russellville. It has a good taste and looks very good canned. (Gravette, Benton County, Arkansas)

Pole Beans

Black Stick A black-seeded bean that the grower's nephew obtained from an elderly lady in Oklahoma who had been growing them for many years. It has an "old-fashioned" taste and is eaten as soup beans and canned. (Gravette, Benton County, Arkansas)

Creaseback This bean has beige seeds with black speckles and streaks on it. It originally came from the grower's neighbor Ms. Parks and is eaten as a fresh green bean, frozen and canned. (Marshall, Searcy County, Arkansas)

Cutshort Cornfield Beans A tan/brown, speckled cutshort cornfield bean with strings and short pods. Both sides of the grower's family always grew this bean. They have been grown in the family since at least the 1930s. They are eaten as shelly beans when the pod turns yellow, frozen as shelly beans, canned, eaten as fresh snap beans, and cooked in chili. (Gainesville, Ozark County, Missouri)

Granny Veda Horton Cornfield A bean with a medium-sized ovate tan/brown seeds with brown streaks. The grower made a point of saying that it is a very old variety. It has a short pod and is used for fresh cooked snap beans, as shelly beans, for canning, and her mother-in-law would ferment (kraut) them in a crock with cabbage. (Bear Creek, Searcy County, Arkansas)

Green Beans This bean has largest grayish seeds that look like a variation of Kentucky Wonder. (Hollis, Perry County, Arkansas)

Kaiser Bean A bean with a medium sized, oval, dark beige/brown seed with black streaks. This bean was the special bean of Kaiser Wilhelm in early 20th century Germany. No one except Kaiser Wilhelm was allowed to grow it. The Kaiser's gardener secretly gave a few seeds to a friend that was immigrating to American around World War I. This immigrant friend of the Kaiser's gardener lived in Ohio next to Cecelia Bankhead's aunt, who gave the seed to Cecelia.

The long pod should be allowed to ripen for better taste. (Mt. Vernon community, Johnson County, Arkansas)

Kentucky Wonder This bean has a large brown seed and is the main bean grown by the seedsaver for many years. (Hollis, Perry County, Arkansas)

Lamberson Bean This bean has a white, oblong, medium-sized seed. It was obtained by the grower from a couple from Searcy, AR at a church potluck and he has been growing it for fifteen years. It is a very prolific bean that produces throughout the season. (Mountain Home, Searcy County, Arkansas)

Little Pink A bean with a pink pod that the grower's grandmother grew. (Durham, Washington County, Arkansas)

Massey Bean A pole bean with a white, long, flat seed. It is prolific and has very long pods (eighteen inches). The grower's neighbor, Sam A. Massey, got it from his aunt who "fed the Campbell community" on Cellar Creek with it many years ago. It has a slightly sweet taste to it and is eaten as fresh cooked green bean, canned and as a dried bean. (Marshall, Searcy County, Arkansas)

Potato Bean This bean has a big white oval seed. It originally came from Wayne County, Tennessee where many of the original settlers around Marshall, Arkansas came from. The seed originally came from Geraldine Parks (the grower's son-in-law's mother). It is harvested when the pod is yellow and used for canning and freezing. (Marshall, Searcy County, Arkansas)

Striped Cornfield This bean has a beige seed with brown stripes on it. It is planted along with the corn and is eaten as a fresh green bean and also canned. It was given to the grower by her husband's nephew many years ago. (Deer, Newton County, Arkansas)

Thousand-To-One Bean This bean has a beige oval seed of medium size with black speckles and mottles on it. It is very popular in Searcy County, Arkansas. It is eaten fresh, canned and frozen. (Marshall, Searcy County, Arkansas)

Vassey May Bean A string bean with a dark butterscotch-colored cutshort seed. It has been in the Fields family for five generations. The beans grow at different stages on the vine and are harvested all together and cooked as a snap and shelly bean combination. (Durham, Washington County, Arkansas)

White Crowder Bean A bean with a small, circular, white seed. They are originally from Elizabeth Nooner of Dry Fork and have been planted in her family for at least thirty-five years. They are eaten in the pod as a green bean. (Hollis, Perry County, Arkansas)

Wilma Horton Long Pole A bean with a large, long, flat, ovate, white seed. The pods are tender and have strings. This variety needs to be planted when the ground has warmed up completely—it will not germinate in cold soil. This bean needs to be trellised. (Bear Creek, Searcy County, Arkansas)

Corn (*Zea Mays*)

Dent (Bread, Hominy, Ornamental)

Bloody Butcher (3) A hardy field corn with red kernels and mixed yellow kernels

(approximately 25%) mixed in. It doesn't need much fertilizer and is resistant to insect damage.

The grower originally got it from Kent Bonner. (Hurricane Creek Wilderness Preserve, Johnson County, Arkansas)

A dent corn with dark red to yellowish-red large kernels. The grower got the seed from Jim Youngblood and grew it out of curiosity. (Osage, Carroll County, Arkansas)

A red dent field corn that grows 9-12 feet tall and is used for flour corn. The growers obtained it from a woman named Nancy at the Fayetteville, AR farmer's market many years ago. (Rudd, Carroll County, Arkansas)

Little Cob A white-seeded field corn that is very similar to the "Son Hendrix" variety, in fact it may be the same. It is eaten off-the-cob in the "roastin ears" (green) stage and made into creamed corn. (Snowball, Searcy County, Arkansas)

Little Wiley A field corn with little red cobs that is not Tennessee Red Cob or Pencil Cob. (Deer, Newton County, Arkansas)

Pencil Cob (2) A yellow-seeded field corn with a very small cob. This originally came from the growers husband's parents. It is dependable, germinates well, and is used for cornbread and hominy and to roll fish in for frying. (Marshall, Searcy County, Arkansas)

A yellow-seeded field corn with a very small cob. This miller has four different seed stocks of pencil cob grown by four different growers in his community: Leon Horton, Ezra Horton, John Love (from Scotland, AR), and the Parks Family. The kernels are all very similar

but are smaller on the Ezra Horton line, which also has some lighter-colored kernels and may have been crossed with White Pencil Cob. The grower thinks this is the most flavorful meal corn. It grows 8-9 feet tall. (Canaan, Searcy County, Ozarks)

Possum Walk Special A white-seeded field corn used for cornmeal. It is named after the community of Possum Walk where the grower grew up. The grower's father-in-law grew this variety for many years and it was supposedly brought into the area by a grandfather in the 1800s, possibly from the Carolinas. One of every hundred ears will turn up red or with white and red striped kernels. The corn has a big ear that is sometimes one foot long. (Crabtree Community, Van Buren County, Arkansas)

Rainbow Hickory King A Hickory King variety with solid blond, yellow, maroon, and burgundy; and also yellow and red striped kernels. It is heritage variety in the valley where the grower lives and he obtained it from an old farmer in his nineties who is now deceased. It is used as a flour corn. (Rudd, Carroll County, Arkansas)

Red Indian A 13-rowed, large kernel Indian corn that is dependable, germinates well and is used for cornbread and hominy. (Marshall, Searcy County, Arkansas)

Son Hendrix (2) A white-seeded field corn that originally came from "an old man over the mountain" named Son Hendrix. The grower thinks it may be a cross between Tennessee Red Cob and Pencil Cob, two heirloom corn varieties that are grown in the area. It is eaten off-the-cob in the "roastin ears" (green) stage and made into creamed corn. (Helen Griffin, Snowball, Searcy County, Arkansas)

A white-seeded field corn that a local miller originally got from Glen Griffin, so it comes from the same seed stock as above. (Canaan, Searcy County, Ozarks)

St. Charles White Corn A white field corn with large kernels, small cobs, and short ears. It has softer kernels than the hybrid field corn varieties. It has been raised in the growers family for many years. Since it has a small cob and large kernels, the grower says that it produces more corn per pound (of ear) than other varieties. Every once in a while a pure red-kernelled cob will appear and as kids they would throw it at each other. It is used for cornmeal and harvested in “roastin ears” stage and cooked with grease, butter, and sugar. (Gainesville, Ozark County, Missouri)

Ted Horton A white field corn with 10-14 rows of kernels. It is dependable, germinates well, and is used for cornbread and hominy. (Marshall, Searcy County, Arkansas)

Tennessee Red Cob (3) A field corn with a red cob that was given to the grower by her father. It has a flat yellowish seed with a red spot at the base. It is dependable, well adapted to the local climate, germinates well and is used for cornbread and hominy. (Marshall, Searcy County, Arkansas)

This grower originally got the seed from Dean Smyth (see above). (Marshall, Searcy County, Arkansas)

These are four different seed lines of TN Red Cob collected by a local miller from four growers. They are all white-kernelled and three out of the four (excepting the Ted Horton line) have a red coloring at the base where the kernel meets the red cob. Mosey Bower, Alfred Druery, and Ted Horton are the three named growers and one of the growers is unnamed. The miller mentioned that TN Red Cob is grown for its good tasting meal and is rumored to be a good variety for making corn whiskey. (Canaan, Searcy County, Ozarks)

White Hickory Cane (2) A white field corn that the grower says has bigger kernels than ‘Hickory King.’ The grower remembers this variety from his childhood and was able to recover

seed of it from War Eagle Mill, a local old-timey grist mill. (Durham, Washington County, Arkansas)

This is an 8-10 row Hickory King variety with medium-sized white kernels. The grower said the genuine Hickory Cane Corn has 7-9 rows. A neighbor who has had the seed in his family for many generations gave him this seed but the grower thinks it has too many rows and the kernels are too small to be the original Hickory Cane he grew up with. It grows to twelve feet tall and the rows need to be planted from east to west spaced by three feet the plants will shade each other out. It is grown to keep the seed going and to make white cornmeal. (Osage, Carroll County, Arkansas)

White Hickory King A white-seeded field corn that the grower uses to make cornmeal and hominy out of. He makes 40-50 quarts of hominy in his mom's old cast iron pot every other year. One year he ground 460 pounds of White Hickory King cornmeal that lasted about seven years. (Mountain View, Stone County, Arkansas)

Yellow Hickory King A more rare variety than White Hickory King, the grower got it from Danny Collins in Marshall, AR. It is used for cornmeal and animal feed. (Snowball, Searcy County, Arkansas)

Flint

Cornmeal A mixed flint corn that is not waxy and is used for cornmeal. (Prairie Grove, Washington County, Arkansas)

Mexican June An Indian-type flint corn with small kernels of a variety of colors—white, yellow, purple, red, orange—that originally came in from south Arkansas and is not traditional or widespread in the Ozarks. Many of the individual kernels are striped with different colors. A

local miller originally got it from Waylon Griffin. It grows 10-15 feet tall. (Canaan, Searcy County, Ozarks)

Rat Tooth A white flint corn that is used for cornmeal. (Prairie Grove, Washington County, Arkansas)

Popcorn

“Wild” Popcorn A popcorn variety that has been passed around the Ozarks for many years. It was acquired by the grower from Ron Chasteen of Jasper, AR who got it from a local farmer. The grower calls it “wild” because of its tendency to volunteer in her garden. It is a very hardy variety that survives well in drought and hot weather, is resistant to insect damage, and doesn’t need much fertilizer to grow well. (Hurricane Creek Wilderness Preserve, Johnson County, Arkansas)

Cucumber (*Cucumis sativus*)

Long Slim Cucumber The grower has been growing this long, slender, green cucumber variety since 1995. She cannot remember where she originally got the seed. It is eaten raw and in salads and made into bread and butter pickles. (Marshall, Searcy County, Arkansas)

White Cucumber A small, white cucumber that the grower obtained from an elderly lady in Marshall, Arkansas. (Snowball, Searcy County, Arkansas)

Garlic (*Allium sativum*)

Old-time Hard Neck A hard-necked variety that is used in cooking and for medicinal purposes.

The “seedlets” that grow at the top of the plant are very strong. (Prairie Grove, Washington County, Arkansas)

Old-time Soft Neck A “potent” soft-necked garlic variety. It is used in both cooking and for medicinal purposes. (Prairie Grove, Washington County, Arkansas)

Gourd (*Lagenaria siceraria*, *Luffa acutangula*, *Trichosanthes anguina*)

Apple Gourd A small apple shaped gourd that the grower makes thumb pianos out of and grows ornamentally. He originally got the seed from Ken Ackerman four years ago. Ackerman is an organic grower and Gourd Society member from Cyanet, Ohio who grows many different gourd varieties at ten mile isolation distances. The grower self-pollinates his plants and sells the seed locally at Mellon' Country Store in Mountain View, Arkansas; subsequently they are an heirloom gourd variety that is becoming part of the local Ozark landscape. (Mountain View, Stone County, Arkansas)

Birdhouse Gourd A gourd used to make birdhouses that the grower originally got from her grandpa. (Hollis, Perry County, Arkansas)

Dipper Gourd This is a long-handled dipper gourd that the grower uses for ornamental purposes and to call elk. (Hollis, Perry County, Arkansas)

Dishrag Gourd This is a luffa-type gourd that the grower bought at a bulk seed store near Seymore, MO many years ago for one cent per seed (she bought 25 seeds). She uses it to wash dishes and as a shower sponge. (Dardanelle, Yell County, Arkansas)

Extra Long Neck Dipper Gourd This is a dipper gourd with a very long neck. The grower supplies his friend Moon Mullius with these gourds so that he can make fiddles and banjos out of them. He also supplies them to a man in Memphis who makes ornate flying geese out of them. He originally got the seed from Ken Ackerman four years ago. Ackerman is an organic grower and Gourd Society member from Cyanet, Ohio who grows many different gourd varieties at ten mile isolation distances. The grower self-pollinates his plants and sells the seed locally at Mellon' Country Store in Mountain View, Arkansas; subsequently they are an heirloom gourd

variety that is becoming part of the local Ozark landscape. (Mountain View, Stone County, Arkansas)

Kettle Gourd A kettle-shaped gourd that can get up to two hundred pounds and two feet across in length. Native American used this variety for hauling water and gathering food. The grower cuts off the top, weaves pine needles and hemp to protect the opening and rubs it with leather dye, and makes a nice container out of it. He also uses it for making banjos and ornamentally. He originally got the seed from Ken Ackerman four years ago. Ackerman is an organic grower and Gourd Society member from Cyanet, Ohio who grows many different gourd varieties at ten mile isolation distances. The grower self-pollinates his plants and sells the seed locally at Mellon' Country Store in Mountain View, Arkansas; subsequently they are an heirloom gourd variety that is becoming part of the local Ozark landscape. (Mountain View, Stone County, Arkansas)

Large Martin Gourd A gourd that is used by the grower as a birdhouse, to make various old-time musical instruments, and ornamentally. He originally got the seed from Ken Ackerman four years ago. Ackerman is an organic grower and Gourd Society member from Cyanet, Ohio who grows many different gourd varieties at ten mile isolation distances. The grower self-pollinates his plants and sells the seed locally at Mellon' Country Store in Mountain View, Arkansas; subsequently they are an heirloom gourd variety that is becoming part of the local Ozark landscape. (Mountain View, Stone County, Arkansas)

Pear Gourd A pear-shaped gourd that the grower originally got from her grandpa. (Hollis, Perry County, Arkansas)

Vine Okra *Luffa acutangula* A loofa-type asian gourd also probably known as “Chinese okra” or “Angled Luffa.” The grower got it locally from an elderly woman. Vigorously vining.

Highly productive, should be picked every other day when it is small. It has a yellow blossoms that come out in the late evening and are very beautiful in the morning. The grower breads and fries it like you would regular okra. (Gainesville, Ozark County, Missouri)

Jerusalem Artichoke (*Helianthus tuberosus*)

Sunchoke The grower originally got this Jerusalem artichoke variety from a Shoshoni Indian woman who lives nearby. It is eaten raw. (Hollis, Perry County, Arkansas)

Okra (*Abelmoschus esculentus*)

Bartley This okra will form a long pod, but you must pick them when they are young or the pod will get tough. The grower has grown this variety his whole life. (Hollis, Perry County, Arkansas)

Cowhorn An okra with a longer, tender pod. Some of the pods are straight and some are curled like a cow horn. It was acquired locally from the Dlugosh's brother-in-law (now deceased). It has been grown in the local area for a long time. (Mt. Vernon community, Johnson County, Arkansas)

George Sladursky (2) This big-podded okra has been grown in Searcy County for at least one-hundred years. The grower got the seed from George Sladursky. The pod stays tender even when it gets very big. It is used for canning, freezing and eaten fried. (Marshall, Searcy County, Arkansas)

The grower has been growing this okra seed for forty years and got it from George Sladursky, same as Dean Smyth (see above). (Marshall, Searcy County, Arkansas)

Old-time This okra has a purple vein running down the pod. The grower obtained it from her friend's mother who had been growing it for as long as she could remember. (North Polo, Carroll County, Ozarks)

Long-Podded White A long, off-white podded okra that does not get tough when it grows large. The grower obtained it from Dorothy Grimm of Green Forest, Arkansas several years ago. It is eaten steamed on top of green beans and fried in cornmeal. (Green Forest, Carroll County, Arkansas)

Pappy Mellon's Jumbo Okra This is an okra with large tender pods that grows to eight or nine feet tall. The grower originally got the seed from Pop Ramsey (deceased) in Stone County, AR and he thinks it might be a cowhorn variety. The grower sells the seed of this okra at Mellon's General Store in Mountain View, Arkansas. (Mountain View, Stone County, Arkansas)

Texas Longhorn This is an okra with very long tender pods shaped like the horns on a Texas longhorn cow that stay tender when they get big. (Crabtree Community, Van Buren County, Arkansas)

White This okra variety makes fat and short pods that are light green/white. The grower's husband originally got them in Oklahoma from a Cherokee family prior to 1984. The fat pods make it easier to harvest a 'mess' and make big slices that are convenient for cooking. They are fried with onions and used in gumbo. (Elkins, Washington Co., AR)

Onion (*Allium cepa*)

Winter A perennial, self-sowing onion that the grower got from his grandfather many years ago. He thinks it is the same as the well-known “Egyptian Walking Onion.” They are eaten as early spring green onions and also year-round. (Durham, Washington County, Arkansas)

Peanut (*Arachis hypogaea*)

Granny’s Red Skin Peanut A red-skinned peanut handed down from the grandmother of the growers husband. It is used for fresh eating, roasting, and the tops of the plant are fed to the cows. (Snowball, Searcy County, Arkansas)

Pepper (*Capsicum annum*)

Blair Pepper A long, red pepper with a sweet taste. (Hollis, Perry County, Arkansas)

Bouquet Pepper A small, hot, bush pepper. The small peppers start white when they are young, then they get purple stripes before they turn orange and red. The grower's wife got them from her mother and they are used to make hot pepper vinegar and are grown ornamentally in pots on the porch. (Osage, Carroll County, Arkansas)

House Pepper A small, red, hot pepper that is used to flavor culinary dishes, as medicine, and to put in your socks to keep your feet warm during the winter. (Prairie Grove, Washington County, Arkansas)

Red Hot Ornamental Pepper A very small hot, red pepper. The grower cannot remember where she originally got the seed of it from. It is used as an ornamental plant and also cooked in beans to flavor them. (Elkins, Washington County, Arkansas)

Sorghum (Cane) (*Sorghum bicolor*)

Black Amber Sorghum This sorghum variety is well adapted to local conditions and does not need much care to grow well. It provides grain and syrup to the grower and was originally acquired from Kent Bonner. (Hurricane Creek Wilderness Preserve, Johnson County, Arkansas)

Honey Drip The grower bought the seed of this old-time variety from a seed dealer in Pope, AR twenty years ago and has been growing it out ever since to make molasses. (Canaan, Searcy County, Ozarks)

Seedless Orange Cane This sorghum variety has a less bushy top with fewer seeds than other varieties. It is used to make sorghum molasses. (Crabtree Community, Van Buren County, Arkansas)

Tennessee Tallgirl The grower originally got this variety many years ago from a sorghum farmer named Bon Wilson from Batesville, AR who used to grow 100 acres of sorghum. Bon Wilson did not really know where the seed originated for sure but said that it may have come from the Stone Mountain, Georgia area. It has a slim stalk and makes a mild, light brown, syrup. The grower thinks it makes better quality syrup than the popular variety 'Honey Drip.' Most people in the Ozark County area were traditionally sorghum growers, but few grow the crop anymore. The grower used to have a horse drawn sorghum mill that they eventually converted to motor-run, but these days he mainly grows it out to keep the seed going. (Gainesville, Ozark County, Missouri)

Sea Island Cane (2) A very productive sorghum variety that makes several gallons of molasses per acre. It makes a very dark molasses that is darker than the popular 'White African' variety. The seed heads do not grow to a point like many sorghum varieties, they droop out to the sides.

This variety was brought into Arkansas from Kentucky by his great-grandfather in the 1870s. His ancestors were originally from South Carolina before Kentucky, so it is possible that the 'Sea Island' name came from the coastal Carolina's but the grower was unsure about that. This variety will grow 12-14 feet tall in the first year, three feet in the second year, and only 1.5 feet tall in the third year because it is very hard on the soil. Therefore, it needs to be rotated and the grower recommends not growing it on the same ground until fifteen years later. It is used to make molasses and also makes good hay that stores well for winter cattle feed. (Osage, Carroll County, Arkansas)

The grower obtained this from a friend in Dardanelle, AR several years ago and has grown for chicken feed. (Dardanelle, Yell County, Arkansas)

Southern Pea/Cowpea (*Vigna unguiculata*)

Big White Pea A large black-eyed type pea that has brown eyes. (Hollis, Perry County, Arkansas)

Black-eyed (2) A black-eyed type pea with purple eyes. They have been grown a long time by the seedsaver. (Crabtree Community, Van Buren County, Arkansas)

The grower got the seed of the black-eyed pea variety from “Ms. Myrtle” in 1985. It has black/brown eyes. She eats it in the pod like a green bean. (Hollis, Perry County, Arkansas)

Black-eyed Pea Mix This black-eyed pea-type mix has both black and brown eyes. The grower plants it for its good taste and to keep the seed going. (Hollis, Perry County, Arkansas)

Black Pea A big black pea that the grower got from his wife’s grandfather over forty years ago. It is cooked and eaten with cornbread and also frozen. (Green Forest, Carroll County, Arkansas)

Cream Pea A medium-sized cream-colored southern pea. The grower got seed of this variety from her neighbor Omel Fields in Alpina and he originally got it from the farmers market in Dardanelle, AR. It is grown because of its good taste as a shelly pea in the ‘roasting ears’ stage (not brown and dry but with a full pea in the pod). It looks similar to Zipper Cream varieties that I have seen. (Osage, Carroll County, Arkansas)

Goose Pea A large brown and beige mottled pea that has very small black dots inside of the brown coloration. A small percentage of the seeds are purely tan, a characteristic which the grower tries to select against because they make a smaller pea than the mottled ones. The grower received these seeds from her brother-in-law, who lives in the Ozark-Paris, AR area, about twenty years ago. It is easy to harvest because it makes a big pea and is eaten as both a fresh and frozen shelly pea. (Elkins, Washington County, Arkansas)

Lady Pea A small white field pea. The grower's late wife planted this variety for over fifty years. (Hollis, Perry County, Arkansas)

Mississippi Silver Crowder A productive brown/beige crowder pea with a white eye. The grower got the seed over twenty years ago and started growing it because the taste reminded him of his mother's 'Cream Crowder' peas that had been lost. It shells easily and is eaten as a shelly pea (roastin ears) and is frozen. (Mountain View, Stone County, Arkansas)

Pete Halpain Field Pea A pea with striking maroon and white colored seeds. It has a good flavor and stores well. It is good eaten as a dry or shelly bean in the "roastin ear" stage. It is also traditionally used as "pea hay" to feed animals. (Prairie Grove, Washington County, Arkansas)

Purple Hull A purple hulled black-eye type pea. It does not vine as prolifically as the White Crowder and the deer really like to eat it. It is generally cooked and eaten with cornbread. (London community, Pope County, Arkansas)

Minnie Patterson Pea A medium-sized medium-to-dark brown crowder pea. It is a very reliable field pea that has been in the family for generations. A tradition says that the grower's family survived the depression by eating this pea and turnips. It is very reliable and easy to grow. (Osage, Carroll County, Arkansas)

Red Ripper (2) A large, red-seeded pea with a white eye that is vigorously vining and will climb. The grower's grandfather Simmons brought these seeds from the Appalachian mountains of Kentucky in 1890 and they have been passed down in the family ever since. They are eaten as shelly peas (roastin ears), used as a ground cover and worked into the soil as compost. (Mountain View, Stone County, Arkansas)

A large, red-seeded pea with a white eye that is vigorously vining and will climb. It is the grower's favorite pea and he originally got the seed from his father. He said this is the true old-time variety that has been grown in Arkansas for many years. It is grown for its good taste, because it produces throughout the season, and to eat as a shelly pea with fresh garden salsa and cornbread. (Searcy, White County, Arkansas)

Rice Pea This is a very small, cream colored pea with a black eye. It is very similar in appearance to the Lady Pea but is slightly smaller. The grower's parents got it from their neighbor Alaska Grisham about fifty years ago. It has a short pod and will vine out, but not vigorously. They cook very fast and have an excellent and unique flavor that is, in the grower's opinion, superior to black-eyed peas. (Gainesville, Ozark County, Missouri)

Speckled Cow Pea This pea has a beige seeds with brown mottling on it. It looks like a brown version of the 'Calico Crowder.' It was given to the grower by his father thirty years ago. It is eaten as a dried pea, is eaten fresh and frozen in the shelly/roastin ear stage and is the grower's favorite tasting pea. (Mountain View, Stone County, Arkansas)

Whippoorwill (4) This pea has a beige seed with brown mottles on it. This particular whippoorwill has larger seeds than many others that I have seen. They are cooked fresh, canned and frozen. (Marshall, Searcy County, Arkansas)

This is a dark brown whippoorwill pea with brown mottles on it. The grower eats this variety in the pod like green beans. She got if from Leonard Jones who originally got the seed from Homer Wells. (Hollis, Perry County, Arkansas)

A small beige pea with brown mottles. The grower got a start of two dozen of these seeds from a local woman and they are just like the ones she can remember growing up with.

They have a good taste and are dried and eaten through the winter. (Deer, Newton County, Arkansas)

This a large-seeded whippoorwill pea that has several different shades of color on different seeds. They range from dark to light brown with brown mottles. It originated from his mother and the grower keeps the seed going because his mother-in-law really likes the taste of it (he does not like the taste). (Osage, Carroll County, Arkansas)

White Crowder (2) A crowder pea with a white seed that vines vigorously. You have to keep picking them or the vine will turn yellow and die. They have a more mealy texture than other crowder peas and cook up with a clear liquid. (London community, Pope County, Arkansas)

A big white southern pea with a brown eye. The grower had planted these for years for their good taste and to keep the seed going. (Hollis, Perry County, Arkansas)

Squash/Pumpkin (*Cucurbita* spp.)

Banana Squash A long, bright yellow winter squash that is used in pies. (Crabtree Community, Van Buren County, Arkansas)

Indian Pumpkin (Coushaw) A white and green striped Coushaw Squash, “neck” type. It is eaten baked and in pumpkin pies. (Prairie Grove, Washington County, Arkansas)

Old-fashioned Field Pumpkin A light-beige colored pumpkin. Some fruits grow round and others grow flat. (Snowball, Searcy County, Arkansas)

Old-time Pumpkin A pumpkin with a small white seed that produces several large orange fruits per plant. The grower has cultivated it since she was a youth and has been grown in her family for 70 or 80 years. The seed originally came from Claude Taylor. It is very viney and is planted in the corn. It was traditionally used for cooking and to feed the cattle. It is not sweet but has a good taste and is good fried—with sugar and molasses until it is browned in a skillet—and canned. (Bear Creek, Searcy County, Arkansas)

White Pumpkin This seed of this small white pumpkin originally came from a decorative pumpkin that their neighbor had of unknown origin. It breeds true-to-type and is used for canning, pies and pumpkin bread. (Marshall, Searcy County, Arkansas)

Sunflower (*Helianthus annuus*)

Sunflower The grower has saved the seed of this medium-to-large sized sunflower variety since 1985. It is used for eating the seed raw and animal feed. (Hollis, Perry County, Arkansas)

Sweet Potato (*Ipomoea batatas*)

Japanese Leaf (2) A yellow-meat sweet potato with orange skin that has (what looks like) veins running along it. It has finger-like leaves and may be for this feature after the Japanese cut-leaf maple tree. The grower got this variety from neighbors who had been growing it ‘up on the mountain.’ It is not very easy to dig. (Mt. Vernon community, Johnson County, Arkansas)

A light orange sweet potato that is very productive in the local area. They are eaten fried, baked, boiled and peeled for breakfast, in sweet potato casserole, and with white gravy on them. (Deer, Newton County, Arkansas)

Tomatoes (*Lycopersicon esculentum*)

Big Orange A very big smooth-skinned tomato that the grower got from his great aunt.

(Durham, Washington County, Arkansas)

Black A black/purple tomato that the grower got a plant of from a friend named Billy who lives south of Jasper, AR. It is rumored to be a Native American variety. It is possible that it is a Cherokee Purple variant, but it looked smaller in size to me. (Osage, Carroll County, Arkansas)

Effie A big, rough-skinned tomato with a deep red color. They do not produce very many tomatoes but are very good tasting. The grower's mother got the seed from a woman named Effie (now deceased) many years ago in Marshall, AR. (Marshall, Searcy County, Arkansas)

German Johnson A large red and yellow striped tomato. It has been grown in the Ozark Co. area for about 20-30 years. The grower originally purchased plants of this variety in Mountain Home, AR and has been saving seed of it ever since. He has grown out other 'stripey' types of tomatoes including Hillybilly, Pineapple, and Mr. Stripey but finds this variety to be superior. It is a meaty and low-acid tomato that matures late in the season (approximately 80 days).

(Gainesville, Ozark County, Missouri)

Nettie's Juice Tomato This is an oval-shaped, pinkish red, "tommy toe" (cherry) type tomato. The grower original got the seed from his husbands' aunts' mother (Nettie Casey). It is a prolific producer that is used for fresh eating and to make juice. (Snowball, Searcy County, Arkansas)

Pink The grower originally got this seed from Buster (?) and recently found it among some seeds his wife had and they decided to try it out. (Osage, Carroll County, Arkansas)

Pink Ponderosa A large, low-acid, pink tomato with rough skin and a large, meaty core that the grower's sister has been saving seed from for many years. It is a well-known heirloom variety that has been localized in Ozark County (Gainesville, Ozark County, Missouri)

Pink Tomboy The seed of this tomato came from a plant that Catherine Nordin's cousin bought at a nursery near Russellville, AR. They liked the tomatoes but the nursery sold out to another nursery the following year that did not know where to order this variety. Catherine has been saving the seed since 1991. It is a good eating tomato that is low acid. The tomato fruit looks very ugly and knotty when it first starts to produce but then produces smoother fruits later in the season. Catherine thinks this is because it is unstable because it was originally a hybrid plant. (London community, Pope County, Arkansas)

Texas Pink A low-acid, sweet tomato that the grower got from her great Aunt Bonnie Phillips. Her aunt obtained it from her sister-in-law twenty-five years ago. It is very meaty, very big, and has very few seeds or juice. It has a big core and is used as a fresh eating tomato, the best the grower has ever tasted. (North Polo, Carroll County, Ozarks)

FRUIT

Apples (*Malus Sylvestris*)

Hensley/Cash A well-known local red apple variety that came from the Hensley and Cash families (some other people in the community call it a 'Cash' apple). It is thought to have originated in North Carolina or Tennessee and brought to Searcy County, AR by original settlers from the Hensley family. The Hensley's married into the Cash family and then the Cash's brought it into Stone County. It is a good eating and cooking apple and is very sweet when cooked without adding sugar. When it is canned it keeps a very light color. (Marshall, Searcy County, Arkansas)

The grower got seeds of this from Glen Griffin and he prefers to call it a Cash apple. Since he is growing it out from seed, the resulting trees will turn out to be new seedling varieties. (Canaan, Searcy County, Ozarks)

Granny Smith This is a popular old variety that originated in Australia in 1868 from a chance seedling propagated by Maria Ann Smith. (London community, Pope County, Arkansas)

Jonathan A good cooking apple with mealy flesh. (London community, Pope County, Arkansas)

Native A rusty red apple with spots on it that is good for cooking. The grower says that everybody used to have one or two of these around their houses when he was growing up. He puts manure around the base of the tree to make the fruits bigger. (Osage, Carroll County, Arkansas)

Yellow Seedling A smooth, yellow apple originating in the 1800s. The grower got a graft of this tree from a man whose grandfather had bought a bunch of apples from a man and used them

to feed his hogs. This seedling sprouted in the hog pen and was transplanted out and passed on.

It is a good fresh eating and pie apple that does not keep very well. (Clinton, Van Buren County, Arkansas)

Blackberry (*Rubus* spp.)

Blackberry An old-time blackberry that is good for fresh eating. It may have originated from bird droppings and is currently being tested by The University of Arkansas because it is believed to be a particularly old Ozark strain. (North Polo, Carroll County, Ozarks)

Blackhaw (*Viburnum prunifolium*)

Blackhaw A small deciduous tree eaten by kids to make their teeth black and for the sour flavor around the seed. It will make you go to the bathroom and ‘clean you out’ if you eat too many. (London community, Pope County, Arkansas)

Cherry (*Prunus avium*)

Cherokee Cherry The grower has been trying to germinate seed from this cherry from an abandoned tree, but so far with no success. It is very rare and rumored to have been grown by the Cherokee when they lived in Arkansas. (Hurricane Creek Wilderness Preserve, Johnson County, Arkansas)

Fig (*Ficus carica*)

Celeste A good fresh eating fig that the grower originally got from a lady in Russellville, AR. (Mt. Vernon community, Johnson County, Arkansas)

Brown Turkey A good fresh eating fig with brown skin. (Mt. Vernon community, Johnson County, Arkansas)

Grape (*Vitis* spp.)

Bronze Muscadine These bronze-colored muscadines produce well. You need three female to one male plant for proper pollination. They are good for fresh eating. (London community, Pope County, Arkansas)

Muscadine A muscadine variety good for fresh eating and making juice. (Mt. Vernon community, Johnson County, Arkansas)

Purple Muscadine These purple-colored muscadines produce well. You need three female to one male plant for proper pollination. They are good for fresh eating, jellies and pies. (London community, Pope County, Arkansas)

Purple Wine A grape with a very thick skin and meat that is not a concord. It is used to make grape jelly, grape juice, and for fresh eating. (North Polo, Carroll County, Ozarks)

Scuppernong A scuppernong variety good for fresh eating and making juice. (Mt. Vernon community, Johnson County, Arkansas)

White Muscadine A white-colored muscadine that is good for fresh eating, jellies and pies. (London community, Pope County, Arkansas)

Mulberry (*Morus* spp.)

Black A cultivated black mulberry variety that the grower planted forty years ago. It is eaten fresh and canned. (Mt. Vernon community, Johnson County, Arkansas)

Peach (*Prunus persica*)

Alberta An old commercial variety from Pope County, AR when there used to be a Gerber canning factory in the area. It is a 'free stone' (flesh does not cling to the seed). It is good fresh, canned and frozen. (London community, Pope County, Arkansas)

Cling Seedling A small 'cling' peach that is canned, dried, and eaten fresh. (Deer, Newton County, Arkansas)

Freestone Seedling A small peach used for canning, drying and fresh eating. (Deer, Newton County, Arkansas)

Gerber Seedling An old commercial variety from Pope County, AR when there used to be a Gerber canning factory in the area. It has a thick flesh and is a 'cling' (flesh sticks to the seed). It is only good for canning. (London community, Pope County, Arkansas)

Indian (2) A small, red meat peach that is a 'cling.' They are good for fresh eating and canning. The juice is red when they are canned. (London community, Pope County, Arkansas)

A small yellow/red peach that is good for fresh eating. (Canaan, Searcy County, Ozarks)

Mountain Gold This is a good canning peach with firm, thick flesh. It is a 'cling.' (London community, Pope County, Arkansas)

Old-time Small Red Peach A beet-red colored peach that is really small and grows on the old homestead where the grower lives. Since it does not have much meat, it is mainly used for preserves. (North Polo, Carroll County, Ozarks)

Piedmont The grower originally got this peach variety free from Hastings Seed Company, formally of Atlanta, Georgia, many years ago. It is a good canning peach with firm, thick flesh. It is a 'cling.' (London community, Pope County, Arkansas)

Red A red free-stone peach that the grower planted from the seed of a tree he saw on the side of the road. It is very big and a good fresh-eating peach. (Osage, Carroll County, Arkansas)

Red Haven An old commercial variety from Pope County, AR when there used to be a Gerber canning factory in the area. This is an early ripening variety that is good eaten fresh, frozen and spiced with cloves and cinnamon and made into cobbler. (London community, Pope County, Arkansas)

White Cling (2) A very big white peach that is great for canning and fresh eating. It used to be popular around the Clarksville, AR area. (Marshall, Searcy County, Arkansas)

A peach with white flesh with pink streaks running through it. It was grown from a seed that came from a tree on the side of the road and it grew true-to-type. It is a good fresh eating peach. (Osage, Carroll County, Arkansas)

Yellow The grower thought she was planting an 'Indian Peach' but what grew from the seed was this yellow variety. The grower thinks it is very similar to the 'Nashville Peach' from Nashville, AR. It is used for fresh eating and canning. (Marshall, Searcy County, Arkansas)

Yellow Seedling A 'cling' peach with yellow flesh that came up from seed on the grower's homestead and is used for fresh eating and canning. (Crabtree Community, Van Buren County, Arkansas)

Yellow/Rose Seedling A 'freestone' seedling peach with yellow skin that has a rosy blush to it. It is delicious for fresh eating. (Mt. Vernon community, Johnson County, Arkansas)

Pear (*Pyrus communis*)

Barlett (2) A good fresh eating pear that is not grainy. Despite being widely available at supermarkets, the Barlett pear is an heirloom pear that originated in England in 1765. (London community, Pope County, Arkansas)

A small Barlett-type pear that was growing on the farm that the grower grew up on (when it was purchased in 1938) and is still alive. (Mountain View, Stone County, Arkansas)

Big Pear A large pear that the grower grafted from his grandfather's pear tree. It is good for fresh eating and canning. (Mountain View, Stone County, Arkansas)

Hard Pear A green/brown/yellow pear with tough skin that is hard when it falls off the tree and then softens up after you let it sit awhile. It is good for fresh eating once it softens. (Snowball, Searcy County, Arkansas)

Old-time (2) A very old pear variety that is on the farm of the grower. (Canaan, Searcy County, Ozarks)

The grower planted the seed of this variety from a sixty foot tree of his neighbor's, so this will result in a new seedling variety. The parent tree is a good fresh-eating pear. (Osage, Carroll County, Arkansas)

Small Hard Pear A small hard pear that you cannot eat. They have always grown around the local community. (Deer, Newton County, Arkansas)

Plum (*Prunus* spp.)

Red (2) The grower got a graft of this red plum tree from an older couple who grew it ‘on Culpepper.’ It usually only bears a few plums because it gets set back by early frosts most years. (Clinton, Van Buren County, Arkansas)

A big sized plum that is good for fresh eating. (Hollis, Perry County, Arkansas)

Wild Plum This is a small, oval, yellow plum with a red blush. The blooms are white with a pink tinge, which are different than the purely white blooms of the wild plums that grow along the road near the grower’s house. She originally got grafts of these trees from her mother and has three growing in her yard. It is a good fresh eating plum (particularly loved by her grandkids) that makes excellent jelly. (Elkins, Washington County, Arkansas)

Strawberry (*Fragaria X ananassa*)

Cardinal An old commercial variety from around Van Buren, AR, which used to be a large strawberry producing area. It is not a hybrid variety. It is good for fresh eating and jam.

(London community, Pope County, Arkansas)

Watermelon (*Citrullus lanatus*)

Charleston Gray/Green Watermelon A mix of Charleston Gray and a Green watermelon that the grower has been growing together for years. (Crabtree Community, Van Buren County, Arkansas)

Black Diamond (3) An old variety that is good for fresh eating. (London community, Pope County, Arkansas)

An old variety that is good for fresh eating. (Hollis, Perry County, Arkansas)

(London community, Pope County, Arkansas)

Moon and Stars A red-fleshed ‘Moon and Stars’ variety with dark green skin and yellow moon and stars shapes on it which makes it look like the night sky. The grower got the seed from his grandfather. (Durham, Washington County, Arkansas)

Red and Yellow Meated Moon and Stars This Moon and Stars type watermelon has a variable color to its flesh and was probably crossed in the past. The grower obtained the seeds from an old farmer selling watermelons out of the back of his pickup truck over twenty years ago. He saw it sitting on the farmer’s truck and he pulled in and asked for it specifically because his parents had grown Moon and Stars when he was a kid. The farmer did not want because he used it as a display ‘calling card’ to attract customers but he eventually parted with it. The grower won a red ribbon at the county fair for his 30-40 fruits, but in his opinion would have won the blue ribbon if the judge did not think that the yellow moon and stars pattern on the skin was a virus. (Marshall, Searcy County, Arkansas)

Yellow Meated (5) An old variety with yellow flesh that is good for fresh eating. (London community, Pope County, Arkansas)

A green striped watermelon with yellow flesh used for home consumption and selling at the market. (Crabtree Community, Van Buren County, Arkansas)

A good fresh-eating watermelon that the grower got from “J.D.,” who is the biggest farmer in their community. (Hollis, Perry County, Arkansas)

This yellow-meat watermelon has a light green rind that is very thin (and therefore the fruit has more meat, but it is too brittle to transport). The grower thinks it is better tasting than the yellow-meat watermelon with a dark rind and stripes that he has seen grown in Oklahoma. It is a good fresh eating melon that is not ‘soggy.’ (Osage, Carroll County, Arkansas)

(London community, Pope County, Arkansas)

NUTS

Pecan (*Carya illinoensis*)

Mayhan This is a long-shaped, thin shell pecan that is good for fresh eating. The grower got the tree seedling from a man down the road who ordered them in the 1960s. It is very prolific and one tree yielded fifty pounds of pecans in 2008. (London community, Pope County, Arkansas)

Mayhan Seedling This is a seedling pecan that grew from the seed off of a Mayhan variety. The tree is shorter than a regular Mayhan. (London community, Pope County, Arkansas)

Old-time Tennessee Pecan A good-tasting pecan that was thought to have been brought by the original settlers in Searcy County, Arkansas from Tennessee. (Canaan, Searcy County, Ozarks)

Stewart A short, round shaped pecan that is used for fresh eating. The grower got the tree seedling from a man down the road who ordered them in the 1960s. (London community, Pope County, Arkansas)

HERBS

Lemonbalm *Melissa officinalis* This is a passalong plant that the grower got from a neighbor and uses for its lemon-flavored, relaxing tea. (Dardanelle, Yell County, Arkansas)

FLOWERS

Autumn Clematis *Clematis* spp. A very old, white flower that is grown ornamentally. (North Polo, Carroll County, Ozarks)

Cockscomb (2) *Celosia* spp. A small plant with a red flower head that looks like a cock's comb (red growth on the top of the head of a male chicken). The grower maintains it as an ornamental plant and sells seed at Mellon's Country Store in Mountain View, Arkansas. (Mountain View, Stone County, Arkansas)

This is a magenta-red cockscomb variety that the grower got from a local Amish woman and grows ornamentally. (Dardanelle, Yell County, Arkansas)

Old-time Poinsettia *Euphorbia pulcherrima* This is a small poinsettia with a small, pink, variegated flower and spiny leaves. It is maintained ornamentally and was already planted on the homestead that the grower moved onto twenty years ago. (North Polo, Carroll County, Ozarks)

Rose Champion *Lychnis coronaria* A pink/fuchsia colored flower with silver-gray leaves that came from the grower's great grandmother's garden in Carrollton, AR. It is grown as an ornamental and because it is a heritage plant. (North Polo, Carroll County, Ozarks)

TOBACCO (*Nicotiana* spp.)

Old-time Tobacco (*Nicotiana rustica*) An old variety of tobacco that is used as “snuff” (a very small amount will cure worms and settle the stomach), to make medicinal remedies for animals, to smoke, and to leave as an offering when gathering medicinal plants. (Prairie Grove, Washington County, Arkansas)

APPENDIX D

CHEROKEE NATION OF OKLAHOMA VEGETABLE, FRUIT, NUT AND FLOWER FOLK CROP VARIETIES DOCUMENTED

VEGETABLES

Beans, Common (*Phaseolus vulgaris*)

Pole Beans

Black Turkey Gizzard A ‘Turkey’ type bean that has a black seed with a white blush. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Brown Turkey Gizzard A ‘Turkey’ type bean that has a brown seed with a white blush. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Cherokee October A mix of Cherokee October bean types (and some other seed types mixed in) of all shapes, sizes and colors. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Cherokee Trail of Tears A bean with a long shiny black seed. They were acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Crawdad A flat, white bean with black markings on the top of it that looks like a crawdad. The grower got it from a Cherokee family ‘over the hill’ at a community meeting. (Greasy, Adair County, Oklahoma, Cherokee Nation)

Kentucky Wonder A bean with a big, light brown seed. They are grown for their good taste and are served on cornbread. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Rattlesnake A pole bean with beige and brown seeds and large, long, purple and green pods that look vaguely like a rattlesnake. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Winter Mix A bean mix of large seeds that are multi-colored (white, black, purple with black streaks, beige with red streaks/mottles). Several of the seeds types are similar to October beans found among the Eastern Cherokee. They are very showy when flowering and have pink, lavender and white flowers. (Greasy, Adair County, Oklahoma, Cherokee Nation)

Corn (*Zea Mays*)

Flint

Indian Corn A flinty corn with a very small cob and kernels. It is multi-colored, containing yellow, red, dark red, and blue kernels. It eaten both fried and boiled. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Flour

Cherokee Multi-colored Flour Corn (2) This is a traditional Cherokee Flour corn that was intentionally bred by contemporary Cherokee growers for its vibrant colors. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Cherokee White Flour A white flour corn traditionally used by the Cherokee for many purposes. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Cherokee Yellow Flour A rare yellow flour corn traditionally used by the Cherokee for many purposes. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Red Indian Corn A red flour-type corn that grows very tall and has long ears. It can be eaten as green sweet corn in the roasting ears stage. (Greasy, Adair County, Oklahoma, Cherokee Nation)

Popcorn

Green A green popcorn that was acquired by Pat Gwin for the Cherokee Nation Seed Bank.

(Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Red A red popcorn that was acquired by Pat Gwin for the Cherokee Nation Seed Bank.

(Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Garlic (*Allium sativum*)

Old-time Garlic An old variety of garlic that is used to flavor foods, as medicine for colds, and to put around your neck to ward off skillies (a kind of spirit sent out by witch doctors, boogers and shapeshifters). (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Gourds (*Lagenaria siceraria*)

Basket A gourd acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Buffalo A gourd acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Dipper A long handled gourd that was traditionally used to gather water from springs and creeks. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

Greens

Kochani (*Cutleaf Coneflower, Rudbeckia laciniata*) These are a traditional favorite spring green of the Cherokee and are both harvested wild and cultivated in gardens. They are called *Sochan* by the Eastern Cherokee and Appalachian peoples. They are prepared by boiling in water and discarding the water several times. The grower has taken the seeds and spread them out at several residences when she has moved. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Okra (*Abelmoschus esculentus*)

Green A short, green-podded okra. It is fried, boiled with potatoes and pickled by the grower. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Onion (*Allium cepa*)

Winter Onion A perennial onion that is harvested year round as green onions. It is eaten raw and in salads, cooked in grease, and eaten in a biscuit like a sandwich. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Southern Pea (*Vigna unguiculata*)

Black-eyed A large black-eyed type with true dark black eyes. They have been in the growers family for many years and are served on cornbread and for good luck at New Years. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Pink-eyed Purple Hull A medium-sized white pea with pink eyes and purple hulls. They will vine and are planted in the corn for trellising by the grower. (Henderson/Flute Springs, Sequoyah County, Oklahoma, Cherokee Nation)

Squash/Pumpkin (*Cucurbita* spp.)

Georgia Candyroaster A ‘Candy Roaster’ type squash that was acquired by Pat Gwin for the Cherokee Nation Seed Bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

FRUIT

Apples (*Malus Sylvestris*)

Yellow Delicious Seedling Apple This is a young tree with yellow apples that the grower grafted from a friend. It is a good fresh eating apple. (Greasy, Adair County, Oklahoma, Cherokee Nation)

NUTS

Pecan (*Carya illinoensis*)

Small River Seedling A tree with a small pecan that the grower transplanted from the banks of a nearby river. The squirrels like to eat them and usually get to them before he can. (Greasy, Adair County, Oklahoma, Cherokee Nation)

TOBACCO (*Nicotiana spp.*)

Cherokee Ceremonial (*Nicotiana rustica*) An old-time Cherokee tobacco that was used for various ceremonial purposes. It was acquired by Pat Gwin for the Cherokee Nation Seed Bank from Tilly Lasky at the Science Museum of Minnesota seed bank. (Tahlequah, Cherokee County, Oklahoma, Cherokee Nation)

APPENDIX E

**RENEWING AMERICA'S FOOD TRADITIONS (RAFT) FOLK CROP TAXA LIST
FOR SOUTHERN/CENTRAL APPALACHIA**

Total Taxa N=1756

Type Category	Local Subtype Category	VARIETY_NAME
BLACKBERRY		Eclipse
BLACKBERRY		Morgantown
DEWBERRY		Pineland
DEWBERRY		Pocono plateau
GOOSEBERRY		Gooseberry
RASPBERRIES		Ashe County Red
RASPBERRIES		Ashe County Yellow
RASPBERRIES		Black
RASPBERRIES		Yellow
STRAWBERRY		Tennessee beauty
CASTOR BEAN		Mole Bean
DAHLIA		Big Purple Dahlia
DAHLIA		Big White Dahlia
DAHLIA		Little Pom-pom Dahlia
DAHLIA		Old-time Yellow Dahlia
DAHLIA		Orange/Red/Hot Pink Dahlia
DAHLIA		White Dinner Plate
DAHLIA		Yellow Dinner Plate Dahlia
MARIGOLD		Rust Colored Marigold
SUNFLOWER		Sunflower
		Hyacinth Bean
GRAPE		Bell
GRAPE		Granny's Pink
GRAPES		Paul Carpenter Red
GRAPES		Pink
GRAPES		Pond Mountain Grape
GRAPES		Purple
GRAPES		Roaring Fork Old Home
GRAPES		White Grape
APPLES		Abram
APPLES		Accordian

APPLES	Adam and Eve
APPLES	Alabama Beauty
APPLES	Alexander
APPLES	Alleghany Seedling
APPLES	Allison Stripe
APPLES	Allum
APPLES	Alpine
APPLES	Alton
APPLES	American Limbertwig
APPLES	American Summer Pearmain
APPLES	Andrew's Winter
APPLES	Ann
APPLES	Archibald
APPLES	Armintrout
APPLES	Armstrong
APPLES	Arnold
APPLES	Arthur
APPLES	Aspirin
APPLES	Asterus
APPLES	Atha
APPLES	August Strawberry
APPLES	Aunt Cora's Yard Apple
APPLES	Autumn Apple
APPLES	Autumn Strawberry
APPLES	Bank, large yellow
APPLES	Bald Mountain
APPLES	Baldwin
APPLES	Balsam
APPLES	Banana, medium yellow
APPLES	Banana Pippin
APPLES	Banana Rose
APPLES	Banana, small yellow
APPLES	Banana Sweet
APPLES	Banner Red
APPLES	Banner Yellow
APPLES	Barnsley
APPLES	Bart
APPLES	Batchelor
APPLES	Batingme
APPLES	Bank
APPLES	Barker's Liner
APPLES	Barn
APPLES	Bausel
APPLES	Bazz
APPLES	Beacher
APPLES	Beame
APPLES	Beauty of the World
APPLES	Bell Court

APPLES		Bellflower
APPLES		Bell's Seedling
APPLES		Banner's Best
APPLES		Ben Davis
APPLES		Benham
APPLES		Ben Hur
APPLES		Ben Tillman
APPLES		Bentley's Sweet
APPLES		Berkeley
APPLES		Berlin Green
APPLES		Berry Red
APPLES		Betsy Deaton
APPLES		Betty
APPLES		Bevan's Favorite
APPLES		Bible
APPLES		Big Horse
APPLES		Big Limb
APPLES		Big Rambo
APPLES		Big Red
APPLES		Bill Thin Skin
APPLES		Biscuit Green
APPLES		Biscuit Red
APPLES		Bishop
APPLES		Black
APPLES		Black Annie
APPLES		Black Banana
APPLES		Black Beauty
APPLES		Black Ben Davis
APPLES		Black Buff
APPLES		Black Gilliflower
APPLES		Black Jack
APPLES		Black Limbertwig
APPLES		Black Oxford
APPLES		Blacktwig
APPLES		Blood Red Small
APPLES		Blushing Gold
APPLES		Blush Pippin
APPLES		Boa Excelsior
APPLES		Bob
APPLES		Bolick Seedling
APPLES		Bostic Queen
APPLES		Boyd
APPLES		Brackett
APPLES		Bramley's Seedling
APPLES		Bridge
APPLES		Bryant's Mammoth
APPLES		Bryson's Seedling
APPLES		Brichel Sweet

APPLES		Brushy Mountain Limbertwig
APPLES		Buckeye
APPLES		Buckeye Beauty
APPLES		*Buckinham buff / Cherokee buff
APPLES		Bud Wolf
APPLES		Buff
APPLES		Buffalo
APPLES		Bug Horn
APPLES		Bullet
APPLES		Bull Face
APPLES		Bumblebee
APPLES		Bumblebee Sweetning
APPLES		Buncombe
APPLES		Burning Green
APPLES		Burnskin
APPLES		Burningtown Spice
APPLES		Burton Cathey
APPLES		Butter
APPLES		Buttermilk
APPLES		Buttermilk Green
APPLES		Candy Sweetning
APPLES		Calvin
APPLES		Camack
APPLES		Camack's Sweet
APPLES		Candy
APPLES		Candy Stripe
APPLES		Cane
APPLES		Cane Creek Sweet
APPLES		Caney Creek Sweet Limbertwig
APPLES		Caney Fork Limbertwig
APPLES		Cannon Pearmain
APPLES		Captain Moses
APPLES		Carnation
APPLES		Carolina Beauty
APPLES		Carolina Pippin
APPLES		Carolina Red June
APPLES		Catawba
APPLES		Carter's Blue
APPLES		Cathead
APPLES		Cathead Queen
APPLES		Cathey
APPLES		Catooga
APPLES		Celo
APPLES		Chattahoochie
APPLES		Cheery
APPLES		Cheese, small yellow
APPLES		Cheese, very large yellow
APPLES		Cheoee

APPLES	Cherokee Red
APPLES	Cherry
APPLES	Cherryville Black
APPLES	Chesapeake
APPLES	Chesney
APPLES	Chickasaw
APPLES	Chimney Apple
APPLES	Chocolate Coat
APPLES	Choking Sweet
APPLES	Church
APPLES	Clarke
APPLES	Clarke Seedling
APPLES	Clarke's Orange
APPLES	Clarke's Pearmain
APPLES	Clay Hole
APPLES	Clem Byrd
APPLES	Clominger
APPLES	Clotz
APPLES	Cochran
APPLES	Coffee Seedling
APPLES	Coleman
APPLES	Collimer/Twenty Ounce
APPLES	Colton
APPLES	Commerce
APPLES	Conn
APPLES	Connell Red
APPLES	Coolin Winter
APPLES	Cooper's Yellow
APPLES	Corn
APPLES	Cortland
APPLES	Cothren
APPLES	Cotton Sweet
APPLES	Council
APPLES	Cove
APPLES	Cow
APPLES	Cow's Snout
APPLES	Cox Orange
APPLES	Cripp's Pink
APPLES	Creasy Sweet
APPLES	Crows egg
APPLES	Cullasaga/Winter Horse
APPLES	Cunningham
APPLES	Curtis
APPLES	Curtis Cheese
APPLES	Cullawhee
APPLES	Daddy, large red blushed
APPLES	Daddy, medium red striped
APPLES	Daisy Sweet

APPLES	Darnell
APPLES	Darney
APPLES	Dave
APPLES	Deaderick/Ozark Pippin
APPLES	Deep Eye
APPLES	Defiance
APPLES	Demorest
APPLES	Devine
APPLES	Disharoon
APPLES	Dixie
APPLES	Dixie Sweet
APPLES	Doch
APPLES	Doctor Briggs
APPLES	Doctor Bush's Sweet Apple
APPLES	Doctor Matthews
APPLES	Doe
APPLES	Donahue
APPLES	Donely Sweet
APPLES	Donce
APPLES	Doss Blushing June
APPLES	Douse
APPLES	Dragg
APPLES	Dry Buff
APPLES	Dry Creek Pippin
APPLES	Duchess Of Oldenburg
APPLES	Duckett
APPLES	Ducky
APPLES	Duke
APPLES	Dula Beauty
APPLES	Dumpling
APPLES	Duncan
APPLES	Durham
APPLES	Dutch
APPLES	Earliblaze
APPLES	Early Bird Red
APPLES	Early Courtland
APPLES	Early Harvest
APPLES	Early Harvest/Transparent
APPLES	Early June, large red blushed
APPLES	Early June, medium red/green
APPLES	Early Macintosh
APPLES	Early Pickens
APPLES	Early Raspberry
APPLES	Early Strawberry/Tennessee Early Red
APPLES	Early Sweetning
APPLES	Early Transparent
APPLES	Early Yellow Transparent
APPLES	Elarkee

APPLES		Ellijay
APPLES		Etowah
APPLES		Evans Care Free
APPLES		Everheart
APPLES		Fall
APPLES		Fall Beauty
APPLES		Fall Jarrett
APPLES		Fall Jenetting
APPLES		Fall Limbertwig
APPLES		Fall Pippin/Pound Pippin
APPLES		Fall Queen
APPLES		Fall Rose
APPLES		Fall Russett
APPLES		Fall Orange
APPLES		Fall Sweet
APPLES		Fallowater/Mountain Pippin
APPLES		Farthing's No Bloom
APPLES		Father Abraham
APPLES		Fernina Pippin
APPLES		Fired Sweet
APPLES		Flanagan
APPLES		Flat
APPLES		Flat Fallowater
APPLES		Flat Top
APPLES		Flemming
APPLES		Franklin's Seedling
APPLES		Floyd
APPLES		Forest Streaked
APPLES		Forward
APPLES		Forward Sour
APPLES		Forward Streak
APPLES		Foster
APPLES		Foust/Faust's Winter
APPLES		Frog
APPLES		Frost Proof
APPLES		Fulkerson
APPLES		Fugate
APPLES		Garden
APPLES		Garden Green
APPLES		Garst
APPLES		Geneva
APPLES		Gentry Stripe
APPLES		Gibson
APPLES		*Gilpin
APPLES		Ginger Gold
APPLES		Gladstone
APPLES		Glass's Favorite Sweet
APPLES		Glen Alpine

APPLES	Glenloch
APPLES	Gloria
APPLES	Gloria Mundi
APPLES	Goin
APPLES	Goddard
APPLES	Golden Dixie
APPLES	Golden Pearmain
APPLES	Golden Pippin
APPLES	Golden Russet
APPLES	Golden Sweet
APPLES	Golden Sweetie
APPLES	Golden Twin
APPLES	Golden Yellow
APPLES	Goose Pasture
APPLES	Grand Pap
APPLES	Gragg
APPLES	Grand Mammy Sweet
APPLES	Grand Mother Cheese
APPLES	Granny
APPLES	Granny Christian
APPLES	Granny Rogers
APPLES	Granny Morgan
APPLES	Granny Sweet
APPLES	Grassy Mountain
APPLES	Grave
APPLES	Grave's Red
APPLES	Gray Hills
APPLES	Great Unknown
APPLES	Greasy
APPLES	Greasy Skin
APPLES	Green Bellflower
APPLES	Green Cheese
APPLES	Green Hill
APPLES	Green Horse
APPLES	Green June
APPLES	Green Limbertwig
APPLES	Green Pearmain
APPLES	Green Pippin
APPLES	Green Russet
APPLES	Green Skin Sweet
APPLES	Green Striped Winesap
APPLES	Green Witch
APPLES	Gregg
APPLES	Grickson
APPLES	Grindstone
APPLES	Grimes Golden
APPLES	Grissom
APPLES	Gross

APPLES	Guinea
APPLES	Guyandotte
APPLES	Guyanadotte Pippin
APPLES	Habersham Late
APPLES	Habersham Pearmain
APPLES	Hackworth
APPLES	Hall
APPLES	Half Acre
APPLES	Handy Apple Tree
APPLES	Hard Times
APPLES	Harden
APPLES	Harding
APPLES	Hargrove
APPLES	Harrah
APPLES	Harvest
APPLES	Hass
APPLES	Hayes Green
APPLES	Haywood
APPLES	Haywood June
APPLES	*Henry Clay
APPLES	Hewes Virginia Crab
APPLES	High Top
APPLES	Hillside
APPLES	Hincher Queen
APPLES	Hog
APPLES	Hog Pen
APPLES	Hog Sweet
APPLES	Hollow Log
APPLES	*Honey cider/Honey sweet
APPLES	Honeycomb
APPLES	Honeycomb Sweet
APPLES	Honey Sweet
APPLES	*Horse
APPLES	Horseshoe
APPLES	Horton
APPLES	Houch
APPLES	House
APPLES	Howard
APPLES	Huckleberry
APPLES	Huff
APPLES	Hume
APPLES	Hundred Dollar
APPLES	Hunge
APPLES	Husk Spice
APPLES	Hyder Sweet
APPLES	Husk Sweet
APPLES	Ice
APPLES	Iron Black

APPLES	Iron Wedge
APPLES	Ivanhoe
APPLES	Jack
APPLES	Jake's Seedling
APPLES	James Moore Apple Tree
APPLES	Jeff Cox
APPLES	Jelly
APPLES	Jellyflower
APPLES	Jenny Beauty
APPLES	Jesse
APPLES	Jewel Smoker
APPLES	Jimbo
APPLES	John
APPLES	John Connor
APPLES	John David Sweet
APPLES	John Hill
APPLES	Johnny Gold
APPLES	Johnny No Core
APPLES	*Johns (original York)
APPLES	Johnson Keeper
APPLES	Johnson Winter/York Imperial
APPLES	Johnson's Fine Winter
APPLES	Jonah
APPLES	Jonathan
APPLES	Josh
APPLES	Joshaway
APPLES	Juicy
APPLES	Juicy Fruit
APPLES	Juicy Sweet
APPLES	Juicy Queen
APPLES	July Striped
APPLES	July Tart
APPLES	Jumbo
APPLES	Jumbo Winesap
APPLES	Junaluska
APPLES	June
APPLES	June Sweeting/Red June Sweet
APPLES	Kaighn
APPLES	Kane
APPLES	Karn
APPLES	Keener Seedling
APPLES	Keicher
APPLES	Kennedy
APPLES	Kentucky Limbertwig
APPLES	Kentucky Red
APPLES	Kimball
APPLES	King Solomon
APPLES	Kinnaird's Choice

APPLES	Kirtley's Hang-on
APPLES	Kitchen
APPLES	Kittageskee
APPLES	Kodak or Kodiak
APPLES	Lacy
APPLES	Ladonium
APPLES	Lady
APPLES	Lady Blush
APPLES	Lady Skin
APPLES	Lady Washington
APPLES	Lady Watermelon
APPLES	Langdon
APPLES	Lansingburgen
APPLES	Larry
APPLES	Late Queen
APPLES	Late Sweet
APPLES	Leather Coat
APPLES	Leaving Limbertwig
APPLES	Letorey
APPLES	Lewis Green
APPLES	Lieby
APPLES	Light Yellow
APPLES	Link
APPLES	Little Brushy Spice
APPLES	Little Honeycomb
APPLES	Little Limbertwig
APPLES	Little Red
APPLES	Little Red June
APPLES	Little Red Pearmain
APPLES	Little Striped June
APPLES	Little Yellow
APPLES	Lock
APPLES	Lodi
APPLES	Lomand Limbertwig
APPLES	London Lady
APPLES	Lord Botetourt
APPLES	*Lowry
APPLES	Lowell/Greasy Pippin
APPLES	Lucy
APPLES	Lugar Red
APPLES	Lunsford
APPLES	Lupton
APPLES	Luster
APPLES	Lyons Seedling
APPLES	Mack
APPLES	Maiden's Blush
APPLES	*Magnum Bonum
APPLES	Maloney

APPLES	Mammy
APPLES	Manson Beauty
APPLES	March Sweet
APPLES	Marsh
APPLES	Martin Sweet
APPLES	Mary Bell
APPLES	Mary McKinney
APPLES	Mattamuskeet
APPLES	Matthews
APPLES	Mausby's Fine Winter
APPLES	Mayflower
APPLES	Mealy
APPLES	*McAfee
APPLES	McCroskey
APPLES	McGwire
APPLES	McKinley
APPLES	McMurrey's Favorite
APPLES	*Milam
APPLES	Milburn
APPLES	Miller Sour
APPLES	Mills
APPLES	Miss Celia
APPLES	Mississippi Pippin
APPLES	Mitchell
APPLES	Mollie
APPLES	Morgan
APPLES	Morgan's Christmas
APPLES	Morrison Limbertwig
APPLES	Moseley Sweet
APPLES	Mother
APPLES	Motherbud
APPLES	Mountain
APPLES	Mountain Beauty
APPLES	Mountain Belle
APPLES	Mountain Boomer
APPLES	Mountain June
APPLES	Mountain Limbertwig
APPLES	Mountain Red
APPLES	Mountain Rose
APPLES	Mountain Sprout
APPLES	Mountain Winesap
APPLES	Mrs. Bryan
APPLES	Mud Hole
APPLES	Mule Face
APPLES	Murfreesborough
APPLES	Murray
APPLES	Muskmelon Sweet
APPLES	Myer's Royal Limbertwig

APPLES	Nantz
APPLES	Nash
APPLES	Nashville Mammoth
APPLES	Nelson Rock
APPLES	Nequassa
APPLES	New River Boat Apple
APPLES	Nickajack
APPLES	Nim
APPLES	Nix Green
APPLES	No Bloom
APPLES	No Name
APPLES	Nolen
APPLES	None Better Seek-No-Further
APPLES	Nonsuch
APPLES	North Carolina Beauty
APPLES	North Carolina Keeper
APPLES	North Georgia Cranberry
APPLES	Northern Spy
APPLES	Northwest Greening
APPLES	Norton
APPLES	Notley P. No. 1
APPLES	Nuba
APPLES	Nursery
APPLES	Oat
APPLES	Oat Stack
APPLES	Ode
APPLES	Okolona
APPLES	Old-fashioned Limbertwig
APPLES	Old-fashionioned Stamen
APPLES	Old Field
APPLES	Old Man
APPLES	Old-time Red Delicious
APPLES	Old-timey June
APPLES	Old-timey Red June
APPLES	Old-timey Spice
APPLES	Old-timey Starks Red Delicious
APPLES	Old-timey Sweet
APPLES	Ooltewah
APPLES	Oostanaula
APPLES	One Pounder
APPLES	Palmer
APPLES	Park's pippin
APPLES	Parmer
APPLES	Paragon
APPLES	Patrick Red
APPLES	Payne Green
APPLES	Payne Red Striped
APPLES	Pawpaw Sweet

APPLES		Peach Ridge
APPLES		Pear
APPLES		*Pearmain, Cannon
APPLES		Peebles
APPLES		Peek
APPLES		Pennsylvania Black
APPLES		Perkins of North Carolina
APPLES		Pie
APPLES		Piedmont Pippin
APPLES		Pig Nose
APPLES		Pike
APPLES		Pinkerton
APPLES		*Pilot
APPLES		Pineapple
APPLES		Pinnacle
APPLES		Piper's Fall Beauty
APPLES		Pippin
APPLES		Plum
APPLES		Plymouth
APPLES		Pokey Seedling
APPLES		Polly Sweet
APPLES		Ponyik
APPLES		Poorhouse
APPLES		Portland Seedling
APPLES		Pott's/Brushy Apple
APPLES		Pound
APPLES		Pound Pippin
APPLES		Pound Russett
APPLES		Prairie Spy
APPLES		Preacher
APPLES		Pride of Summer
APPLES		Prissy Gum
APPLES		Puff
APPLES		Pumpkin, Large
APPLES		Pumpkin, Pippin
APPLES		Queen, large red striped
APPLES		Queen, medium red striped
APPLES		Queen of the South
APPLES		Queen Beauty
APPLES		Quince
APPLES		Quincy
APPLES		Rabbit
APPLES		Rabbit Sweet
APPLES		Rabun
APPLES		Radical
APPLES		Ragan's Yellow
APPLES		Railroad
APPLES		*Rainbow

APPLES	Ralph
APPLES	Ray
APPLES	Ray's Early
APPLES	Rambo
APPLES	Rattle Core
APPLES	Red and Green
APPLES	Red Bird Winter
APPLES	Red Buff
APPLES	Red Cheese
APPLES	Red Clayton
APPLES	Red Coat
APPLES	Red Detroit
APPLES	Red Harvest
APPLES	Red Horse
APPLES	Red Indian
APPLES	Red Jordan
APPLES	Red June
APPLES	Red Kane
APPLES	Red Limbertwig/Mountain Limbertwig
APPLES	Red Rambo
APPLES	Red Royal Limbertwig
APPLES	Red Sweet
APPLES	Red Sweet June
APPLES	Red Torque
APPLES	Red Winesap
APPLES	Red Winter Sweet
APPLES	Reese
APPLES	Republican Pippin
APPLES	Rhea
APPLES	Roberts
APPLES	Roberts Red
APPLES	Robertson's White
APPLES	Robinson
APPLES	Rogers
APPLES	Rose Limbertwig
APPLES	Rose (Roe) Sweet
APPLES	Roxbury Russet
APPLES	Royal Lemon
APPLES	Royal Limbertwig
APPLES	Royal Pearmain
APPLES	Rubez
APPLES	Rubin Queen
APPLES	Ruby Limbertwig
APPLES	Ruby Red
APPLES	Rustic
APPLES	Rusticoat Milam
APPLES	Rusty Coat Limbertwig
APPLES	Rusty Coat Sheepnose

APPLES	Rusty Coat Sour
APPLES	Rusty Coat Sweet
APPLES	Rusty Golden
APPLES	Rusty Pippin
APPLES	Sal
APPLES	Sally yellow
APPLES	Sam
APPLES	Sam Steele
APPLES	Sam Whitson
APPLES	Saunderson
APPLES	Sauta
APPLES	Sarah-Coot
APPLES	Sevier
APPLES	Sewell's Favorite
APPLES	Schell
APPLES	Scott
APPLES	Sheddan
APPLES	Shenk
APPLES	Shuler
APPLES	Seedling Horse
APPLES	Seedling Limbertwig
APPLES	Senator
APPLES	Sequatchie Limbertwig
APPLES	Sheep
APPLES	Sheepnose
APPLES	Sheepnose Bellflower
APPLES	Sheepnose/London Lady
APPLES	Sheepnose Sweet
APPLES	Shenandoah
APPLES	Shining Pippin
APPLES	Shock
APPLES	*Shockley
APPLES	Short Core
APPLES	Sidelin
APPLES	Slope
APPLES	Smith Seedling
APPLES	Smith's Seedling of Alabama
APPLES	Smoky Mountain Red Limbertwig
APPLES	Smutty
APPLES	Snow
APPLES	Snuff
APPLES	Soda
APPLES	Sol
APPLES	Sour June
APPLES	Sour Russett
APPLES	Sour Rustycoat
APPLES	Sour Sweetning
APPLES	South Garden

APPLES	Spake
APPLES	Spann
APPLES	Sparger
APPLES	Speckled Gem
APPLES	Speckled Red
APPLES	Spice
APPLES	Spitzburgen
APPLES	Spotted Pippin
APPLES	Stamen
APPLES	Stayman/Winesap
APPLES	Stewart
APPLES	Strawberry
APPLES	Striped Early Harvest
APPLES	Striped July
APPLES	Stripes
APPLES	Striped Sweet
APPLES	Striped Transparent
APPLES	Striped Winesap
APPLES	Stuart's Golden
APPLES	Stump
APPLES	Stump the World
APPLES	Sugar Ball
APPLES	Sugar Loaf
APPLES	Sugar Loaf Pippin
APPLES	*Summer banana
APPLES	Summer Buff
APPLES	Summer Cheese
APPLES	Summer Extra
APPLES	Summer Golden Pippin
APPLES	Summer King
APPLES	Summer Ladyfinger
APPLES	Summer Limbertwig
APPLES	Summer Rambo
APPLES	Summer Row
APPLES	Summer Strawberry
APPLES	Summer Treat
APPLES	Summer Yellow Limbertwig
APPLES	Summer Winesap
APPLES	Sun Glow
APPLES	Sunday Sweet
APPLES	Sunshine
APPLES	Swadley
APPLES	Sweeny
APPLES	Sweet
APPLES	Sweet Abram
APPLES	Sweet Alice
APPLES	Sweet Bough
APPLES	Sweet Buff

APPLES	Sweet Dixon
APPLES	Sweet Horse
APPLES	Sweet Neverfail
APPLES	Sweet Potato
APPLES	Sweet Pound
APPLES	Sweet Russett
APPLES	Sweet Rustycoat
APPLES	Sweet Limbertwig
APPLES	Sweet Scent
APPLES	Swiss Limbertwig
APPLES	Tanyard seedling
APPLES	Tar Button
APPLES	Taylor's No. 1
APPLES	Taylor Sweet
APPLES	Tenderskin
APPLES	Tennessee Greening
APPLES	Terry winter
APPLES	Thinskin
APPLES	Tillaqua
APPLES	Tobacco Sweet
APPLES	Toccoa
APPLES	Tom
APPLES	Tough Hide
APPLES	Transcendent Crab
APPLES	Trout
APPLES	Troy
APPLES	Trull
APPLES	Tyler's Rennet
APPLES	Upton
APPLES	Uncle Marion
APPLES	Van Buren
APPLES	Vance
APPLES	Victoria Limbertwig/Sweet Limbertwig
APPLES	Victory Sweet
APPLES	*Vine
APPLES	Virginia Beauty
APPLES	Virginia Beauty Gold
APPLES	*Virginia crab
APPLES	Virginia Gold
APPLES	*Virginia greening
APPLES	Virginia Limbertwig
APPLES	Virginia Queen
APPLES	*Virginia Winesap
APPLES	Volunteer
APPLES	Walker's pippin
APPLES	Walker No-Name
APPLES	Wallace sweet
APPLES	War Woman

APPLES	Watauga
APPLES	Water Core Green
APPLES	Water Core Red
APPLES	Water Spout
APPLES	Watermelon
APPLES	Watermelon Sweet
APPLES	Waugh's Crab
APPLES	Wax
APPLES	Wellington
APPLES	West
APPLES	Westmoreland
APPLES	Wetmore
APPLES	White
APPLES	White Bausel
APPLES	White Bellflower
APPLES	White Buckingham
APPLES	White Fall Pippin
APPLES	White Pound
APPLES	White Limbertwig
APPLES	White Milam
APPLES	White Pipka
APPLES	White Pound
APPLES	White Rome
APPLES	White Sheepnose
APPLES	White Sweet
APPLES	White Top
APPLES	Will
APPLES	William's Red
APPLES	Williamston
APPLES	Willson Golden
APPLES	Wilson's Red June
APPLES	Winesap
APPLES	Winter Banana
APPLES	Winter Black
APPLES	Winter Cragg
APPLES	Winter Crow Egg
APPLES	Winter Greening
APPLES	Winter Horse
APPLES	Winter John
APPLES	Winter John White
APPLES	Winter Neverfail
APPLES	Winter Pear
APPLES	Winter Queen
APPLES	Winter Sheepnose
APPLES	Winter Spice
APPLES	Winter Sweet
APPLES	Winter Sweet Russett
APPLES	Wolf River

APPLES		Wolf River Gold
APPLES		Womack Choice
APPLES		Wood's Favorite
APPLES		Wood's Golden Russet
APPLES		Wood's Winter Sweet
APPLES		Woody
APPLES		World's Wonder
APPLES		Yankee Sweet
APPLES		Yahoola
APPLES		Yancey's Prize
APPLES		Yellow Annet
APPLES		Yellow Bank
APPLES		Yellow Beauty
APPLES		Yellow Buff
APPLES		Yellow Flat
APPLES		Yellow Hard
APPLES		Yellow Limbertwig
APPLES		Yellow Meat
APPLES		Yellow Millers
APPLES		Yellow Newtown Pippin
APPLES		Yellow Potts
APPLES		Yellow Queen
APPLES		Yellow Sour June
APPLES		Yellow Spitzenburg
APPLES		Yellow Sweet June
APPLES		Yellow Transparent
APPLES		Yellow Winesap
APPLES		York Pippin
APPLES		Yorkshire
APPLES		Zane
APPLES		Zell
APPLES		Zesty Z.
APPLES		Zill
CHERRY		Redheart
CHERRY		Starks Cherry
CHERRY		Sweet Cherry
CHERRY		Sweetheart
CHERRY		Wild Cherry
JUJUBE		*Edhegard
PAWPAW		Mango
PEACH		Little White Peach
PEACH		Purple Indian Peach
PEACH		White Clear Seed Peach
PEACH		White Indian Peach
PEAR		Bartlett
PEAR		Burford
PEAR		*June sugar
PLUM		Big Blue

PLUM		Blue Damson
PLUM		Blue Danville
PLUM		Greenie
PLUM		Wild Plum
POMEGRANATE		North Carolina seedling
POMEGRANATE		Plantation sweet
		Birdhouse-type Gourd
		Caveman
		Dipper
		Flattened Canteen Gourd
		Long Handled Dipper Gourd
		Luffa Sponge Gourd
		Short Handled Dipper
		Snake Gourd or New Guinea Bean
		Snake Gourd/New Guinea Bean
		Spinning Gourd
CORN		Carolina gourdseed dent
CORN		Cherokee blue and white dent
CORN	Dent	Cherokee Multi-colored Flour Corn
CORN	Dent	Cherokee Trail of Tears
CORN	Dent	Cherokee white eagle
CORN		Cherokee white flour
CORN	Dent	Cherokee White and Yellow Flour Mix
CORN	Dent	Cherokee Yellow Flour
CORN	Dent	Coates Mixed Bread Corn
CORN		Coon Corn
CORN	Dent	Coxx Special
CORN	Dent	Edwards Field Corn One
CORN	Dent	Edwards Field Corn Two
CORN	Dent	Field Corn
CORN		Golden Hickory King Dent Corn
CORN		Hastings White Corn
CORN		Haywood County Field Corn
CORN		Hickory Cane
CORN	Dent	Hickory king yellow
CORN	Dent	Indian Corn
CORN	Dent	Indian Flour Corn
CORN		Jarvis Prolific Field Corn
CORN		Jellicorse Southern Dent
CORN		John Haulk yellow dent
CORN	Dent	Lavender White Field Corn
CORN		Luther Hill sweet
CORN	Flour	Morgan County KY White Corn
CORN		Neal's Paymaster Southern White Dent Corn
CORN	Dent	Prolific
CORN	Dent	Puddin Pile
CORN	Dent	Red Field Corn
CORN	Dent	River Shoepeg

CORN	Dent	Roasting Ear
CORN	Dent	Rutherford County White Field Corn
CORN		Tait's white dent
CORN		Tennessee red cob dent
CORN		Virginia gourdseed dent
CORN	Dent	White Bread
CORN		White Cornfield
CORN	Dent	White Dent
CORN	Dent	White Hard Field Corn
CORN	Dent	White Hickory King
CORN	Dent	White Mosby Dent Corn
CORN	Dent	Wild Goose Corn
CORN	Dent	White Pearl Hominy
CORN	Dent	Yellow Pearl Hominy
CORN	Popcorn	Yellow Popcorn
JOBS TEARS		Cherokee Corn Bead
SORGHUM		Ashe County Cane
SORGHUM		McDowell County Cane
CHESTNUT		*American
ASPARAGUS		Beech Mountain Asparagus
BEAN	Bush	A Peck to Each Hill Bush
BEAN	Pole	Addie Tifton's Early Cornfield
BEAN		Alberta's Favorite
BEAN	Pole	Alice White's Pole Bean
BEAN		Alice White's Red Pole
BEAN	Greasy Pole	Ambergie Greasy Pole
BEAN		Amish Knuttle
BEAN	Pole	Anasazi
BEAN		Anna Robe-Terry Bean
BEAN		Aunt Bertie Best
BEAN		Aunt Lizzie
BEAN	Cornfield	Aunt Nan's Greasy Cornfield
BEAN		Baby Face Fall Bean
BEAN		Bacon
BEAN		Bacon Self Bean
BEAN	Pole	Baker Pole
BEAN	Butter (Runner)	Banner Butterbean
BEAN		Barnes mountain cornfield
BEAN	Pole	Barrier Girls Pole
BEAN		Basin Mountain
BEAN		Bates Red Stick Bean
BEAN	Pole	Beige and Black Striped October
BEAN	Butterbean	Beige with Brown Stripes Cherokee Butterbean
BEAN		Bell Family Bean
BEAN	Greasy	Ben Douglas Greasy
BEAN		Bertie Best greasy
BEAN		Bess Beans
BEAN	Pole	Betty Bean
BEAN	Pole	Betty Jane Bertram Pole
BEAN	Cornfield	Beulah Henderson Miller Cornfield Bean II

BEAN	Lima	Big Frosty Lima
BEAN	Pole	Big Greasy Bean
BEAN	Pole	Big Greasy Snowball
BEAN	Pole	Big John
BEAN	Greasy	Big Knuckle Early Greasy
BEAN	Pole	Big Knuckle Pole
BEAN	Pole	Big Laurel Cornfield
BEAN	Pole	Big October Soup Bean
BEAN	Pole	Big Red
BEAN	Pole	Big Snowball
BEAN	Pole	Big Speckled Greasy
BEAN	Butterbean/Lazywife	Big Washington/Melt-in-your-mouth
BEAN	Half-Runner	Big White Half-runner
BEAN	Butterbean	Bill Leach Butterbean
BEAN	October	Bill Leach Fall Bean
BEAN		Billy Cooper Black
BEAN		Billy Cooper White
BEAN		Black Bean
BEAN	Butter	Black Butterbeans
BEAN	Butter	Black Cherokee Butterbean
BEAN	Bush	Black Coco Bush Bean
BEAN	Greasy	Black Greasy
BEAN	Pole	Black October
BEAN	Pole	Black Pole
BEAN		Black Seeded KY Wonder
BEAN		Black Stick Beans
BEAN	Pole	Black Turkey Gizzard
BEAN	Pole	Blue Goose Bean
BEAN	Pole	Blue Pole Bean
BEAN		Blue Ribbon Stick
BEAN	Pole	Blue Tip Beans
BEAN	Half-Runner	Blue-tip Half-Runner
BEAN	Cornfield	Brannock Triplett Cornfield
BEAN	Creaseback	Breathitt County Red Creaseback
BEAN	Bunch (Bush)	Brown Bunch Bean
BEAN	Butter	Brown Cherokee Butterbean
BEAN	Cornfield	Brown Cornfield
BEAN	Pole	Brown/Gray Big Flat Pole Bean
BEAN	Pole	Brown Greasy
BEAN	Cornfield	Brown Mottled Cornfield
BEAN	Bunch (Bush)	Brown Pink Tip
BEAN	Pole	Brown Pinto
BEAN	Pole	Brown Pole Beans
BEAN		Brown Speckled Goose Beans
BEAN		Brown Tobacco Worm
BEAN	Butter	Brown with Beige Stripes Cherokee Butterbean
BEAN	Pole	Buck Eye
BEAN		Burke
BEAN	Greasy	Busted Back Colored Greasy
BEAN		Butcher Knife

BEAN	Butterbean	Butterbean
BEAN	Bush	Calypso Bush
BEAN	Butter	Carolina Red Butterbean
BEAN	Pole	Carolina Red Pole
BEAN		Case Knife Bean
BEAN	Cutshort	Cenie Rodgers Cutshort
BEAN	Cornfield	Checked Cornfield
BEAN		Cherokee cornfield
BEAN		Cherokee greasy
BEAN	Half-Runner	Cherokee Lima
BEAN	Greasy	Cherokee Long Greasy
BEAN	Pole	Cherokee October Bean
BEAN	Bush	Cherokee October Bush Bean
BEAN	Pole	Cherokee Pole Bean
BEAN	Pole	Cherokee Pole Bean #2
BEAN	Butter (Runner)	Cherokee Speckled Butterbeans
BEAN	Pole	Cherokee Trail of Tears Bean
BEAN		Cherokee Turkey
BEAN		Cherokee White October Pole Beans/Indian Beans
BEAN	Pole	Cherry Bean
BEAN	Pole	Cherry Fall Beans
BEAN		Christmas Large Speckled Pole Lima
BEAN	Pole Lima	Civil War Pole Lima
BEAN	Pole Lima	Clinton County Partridge
BEAN	Bunch	Clora Collins Bunch
BEAN	Cornfield	Clora Collins Cornfield
BEAN		Clora Collins Fall Bean
BEAN		Coffee Bean
BEAN		Cole's Favorite
BEAN		Collins Bean
BEAN	Butter	Colored Willowleaf Butterbean
BEAN	Pole	Cookeville Tennessee Unknown Bean
BEAN	Greasy Cornfield	Cora's Speckled Greasy Cornfield
BEAN	Pole	Cora Wilson Little Greasy
BEAN		Clarke Range
BEAN	Pole	Cornfield
BEAN	Bunch (Bush)	Cornfield
BEAN	Bush	Cornfield Bush
BEAN	Pole	Cranberry
BEAN		Cranberry Fall Beans
BEAN	Bunch	Cream Colored Fall Bunch
BEAN	Bunch	Creamy Bunch Bean
BEAN	Creaseback	Creasebacks
BEAN	Pole	Cutshort
BEAN	Pole	Cutshort Greasybacks
BEAN	Greasy Cutshort	Cutshort Greasy Bean
BEAN		Cynthia Garner Bean
BEAN		Dack Bean
BEAN	Cornfield	Dade Bean

BEAN	Half-Runner	Dan Todd White Half-Runner
BEAN	Pole	Dark Greasy
BEAN	Pole	Davis Black Beans
BEAN	Greasy	Delle Hausford White Greasy
BEAN		Delmas Evans Settlement
BEAN		Delon's Carpenter Bean
BEAN	Pole	Don Foxx Family Bean
BEAN	Pole	Dorey Smith Cutshort Bean
BEAN	Pole	Doscia Graham Cutshort Greasy Bean
BEAN	Pole	Doubleback Beans
BEAN		Doyce Chambers greasy cutshort
BEAN	Bush	Dragon Tongue Bush Bean
BEAN		Duck Bean
BEAN	Pole	Earl Dan's Red Pole
BEAN	Greasy	Earl Thompson Brown Speckled Greasy
BEAN	Greasy Cutshort	Early Little Greasy Cutshort
BEAN	Bunch	Early 6-week Bunch
BEAN	Greasy Cutshort	Early Striped Greasy Cutshort
BEAN	Greasy	Ed Meece Striped Hull Greasy
BEAN	Cornfield	Edwards cornfield
BEAN		Etastoe Hill Fall Bean
BEAN	Cornfield	Etowah Cornfield Bean
BEAN	Cornfield	Evelyn Wheeler's Cornfield
BEAN	Pole	Fall Bean
BEAN		Fall Bean (Red)
BEAN	Bush	Fall Bush Bean
BEAN	Pole	Fall Corn Pole
BEAN	Bunch	Fall Shelly
BEAN	Cornfield	Fat Man Cornfield Bean
BEAN	Cornfield	Faulkner's Cornfield
BEAN		Fishhook
BEAN	Pole	Flat Greasy
BEAN	Pole	Flossie Powell Butterbean
BEAN		Floyd County Fall Bean
BEAN	Greasy	Fox Family Greasy
BEAN	Cutshort	Frank Barnett Cutshort
BEAN	Pole	Franklin County Bean
BEAN		Fred Bowling's Father's Bean
BEAN	Half-Runner	Fred Bowling's Half-Runner
BEAN	Cornfield	Fred Wagner Cornfield
BEAN	Pole	Frost Bean
BEAN	Pole	Genuine Cornfield
BEAN	Bunch	Georgia Bunch Beans
BEAN	Half-Runner	Georgia Half Runner
BEAN	Pole	Georgia Rattlesnake
BEAN		Gigler Bean
BEAN		Gimmer Beans
BEAN		Gin Day
BEAN	Greasy	Glenn Hurley Little Greasy
BEAN	Half-Runner	Goode Half-Runner

BEAN		Goodwin Shell
BEAN	Pole	Goose Bean
BEAN		Goose Variant
BEAN		Gooseneck
BEAN		Grady Baily Cutshort
BEAN		Grady Baily greasy
BEAN	Cornfield	Grandma Barnett Cornfield
BEAN	Bunch	Grandma Bean
BEAN	Cornfield	Grandma Miller
BEAN	Pole	Grandma Roberts White Pole
BEAN		Grandma's White Beans
BEAN		Grandpap Bean
BEAN	Pole	Greasy Beans
BEAN	Cornfield	Greasy Cornfield
BEAN		Greasy Cut Longs
BEAN	Pole	Greasy Cutshort
BEAN	Greasy	Greasy Grit
BEAN	Pole	Greasy Stone Bean
BEAN	Pole	Greasyback Beans
BEAN	Pole	Greasyback Cornfield
BEAN		Grey Rattlesnake
BEAN	Half-Runner	Gwyn Campbell White Half-Runner
BEAN	Half-Runner	Half-Runner
BEAN		Hanely Stringless
BEAN	Bunch (Bush)	Harris Bean
BEAN	Cornfield	Hastings Cornfield Bean
BEAN	Creaseback Bush	Heirloom Creaseback Bush Bean
BEAN	Pole	Heirloom Old-time Half-runners
BEAN	Pole	Herb Gouge Big Soup Bean
BEAN		Hickler Stick
BEAN	Cornfield	Hickory King Hastings Corn Mixed Bean
BEAN		Hickory Stick Beans
BEAN		Hill Family Bean
BEAN	Bunch	Humble Family Bunch Bean
BEAN	Pole	Humphrey Cutshort Bean
BEAN	Pole	Hundred Year Bean
BEAN	Bunch	Ida Bunch
BEAN	Lima	Illinois Giant
BEAN		Ina Adkins Bean
BEAN		Indian Tickseed
BEAN	Pole	Irish Nelson
BEAN	Cutshort	Iva Lee Hayes Cutshort
BEAN	Cornfield	J.B. Mullins Mixed Cornfield
BEAN		J Bean
BEAN	Greasy	Jack Banner White and Brown Greasy
BEAN	Butter	Jack Kelly butter
BEAN		Jack Manley Family Bean
BEAN	Greasy	Jackson County Greasy
BEAN		Jacob's Cattle Bean
BEAN		Jame Browning Fall Bean

BEAN		Jane Browning Bean
BEAN		Jane Harold Bean
BEAN		Jean's Bean
BEAN		Jeff Ingram Fall Bean
BEAN	Greasy Cutshort	John Allen Greasy Cutshort
BEAN	Butter	John Coykendall Butterbean
BEAN	Cornfield	John Hars Cornfield
BEAN	Pole	John Hovis Cornfield
BEAN	Butter	Johnnie's Red Butterbean
BEAN		Johnson Beans/Tick Beans
BEAN		Johnson County Short
BEAN		Johnson Stick Beans
BEAN	Pole	Juanita Smith Pole Bean
BEAN	Pole	Kate Bean
BEAN	Half-Runner	Kendrick Half-Runner
BEAN		Kentucky Red Bean
BEAN	Pole	Kilgore Black Pole Shelling Bean
BEAN		Kingsport
BEAN	Pole Lima	KY Butterpea Pole Lima
BEAN	Cornfield	Large Cornfield
BEAN	Pole	Late Long Greasy
BEAN	Pole	Lavender/Purple October
BEAN	Butter	Lavender/Purple Cherokee Butterbean
BEAN		Lazy Daisy
BEAN	Pole	Lazy Wife
BEAN	Pole	Leather Britches Pole Bean
BEAN		Lee Beans
BEAN	Butter	Light Brown/Red Butterbean
BEAN	Pole	Light Red and Black Striped October
BEAN	Bunch	Lilah
BEAN	Pole	Little Black and Brown Cornfield
BEAN	Pole	Little Greasy Cornfield Beans
BEAN	Pole	Little Greasy Cutshort
BEAN	Pole	Little Pole
BEAN	Bunch	Little Red Bunch
BEAN	Bunch	Little White Bunch
BEAN		Little White Creaseback
BEAN		Logan Giant Bean
BEAN		Logan Giant #2
BEAN	Greasy	Long Brown Speckled Greasy
BEAN	Greasy Cornfield	Long Cornfield Greasy
BEAN	Pole	Long Greasy
BEAN	Greasy Cutshort	Long Greasy Cutshort
BEAN		Lost Acres Bean
BEAN	Pole	Louise Bean
BEAN	Half-Runner	Loveday Half-Runner
BEAN	Pole	Lucy's Beans
BEAN	Butter	Lynch Butterbean
BEAN		Lyons Bean
BEAN		M. Stanley Indian Bean

BEAN	Bunch (Bush)	Mama Byrd Shelly
BEAN	Half-runner	Manning Half-runner
BEAN		Marifax Bean
BEAN		Margaret Best greasy
BEAN	Pole	Maroon and Appaloosa October Bean
BEAN	Pole	Maroon October3
BEAN		Martha Bean
BEAN		Mary Moore greasy
BEAN		Mary Seo's Black
BEAN	Bunch	Mary's Little White Bunch
BEAN		Mary's Ten Minute Bean
BEAN	Pole	Mattie Bean
BEAN	Bush	Mavis Hull Bell Co. Bush
BEAN	Bunch (Bush)	May Jourden Early Bunch Beans
BEAN		McKinney
BEAN	Greasy	McMaine Family Greasy
BEAN	Pole	Medium Greasy
BEAN	Butterbean	Mills Butterbean
BEAN		Missouri Wonder
BEAN		Molly Ward
BEAN	Pole	Mick Cole Cornfield
BEAN	Pole	Moody Greasy Cutshort
BEAN	Pole	Molly Greer
BEAN	Pole	Molly Ward
BEAN	Pole	Moretz Heirloom Half-runner
BEAN		Mountain Climbers
BEAN	Half-Runner	Mountain Half-runner
BEAN	Pole	Mountain Pale Pole
BEAN	Half-Runner	Mountain White Half-runner
BEAN		Mrs. Gwyn Campbell Pink Tip
BEAN		Mrs. Mack's Beans
BEAN	Pole	Mrs. Martin's
BEAN		Mrs. McAmis's Beans
BEAN	Butter	Multi-colored Butterbean
BEAN	Pole	Multi-colored Cherokee October Bean
BEAN	Pole	Multi-colored Kidney
BEAN		Mutt/Dan's Bean
BEAN		Myers Bean
BEAN		Myer's Family Striped
BEAN		Nancey West Bean
BEAN	Pole	Nanny Beans
BEAN	Greasy	Nanny Coulton Greasy
BEAN	Half-Runner	Nantahala Bean
BEAN	Greasy Cornfield	NC Greasy Cornfield
BEAN	Greasy	NC Late Greasy
BEAN	Cutshort	NC Market Cutshort
BEAN		Nickel Bean
BEAN	Half-runner	Nickell half-runner
BEAN	Half-Runner	No.2 Half-Runner
BEAN		Noble Bean

BEAN	Half-Runner	Non-select Half-Runners
BEAN	Pole	North Carolina Speckled Long Greasy Cutshort
BEAN	Pole	North Carolina Market Greasy
BEAN	Half-Runner	NT Half-Runner
BEAN	Pole	Ocanaluftee October Bean
BEAN		October
BEAN	Pole	October Stringless Cornfield Beans
BEAN	Pole	Old Betty Bean
BEAN	Pole	Old Corn Bean
BEAN	Cornfield	Old Fashioned Cornfield
BEAN	Cornfield	Old Fashioned Cornfield Coffee
BEAN		Old Joe Clark
BEAN	Butter (Runner)	Old Time Butterbean
BEAN	Pole	Old-timey Cornfield Bean
BEAN	Butter	Old-timey Fence Butterbean
BEAN	Pole	Old time German Smokey Mountain TN Pole
BEAN	Pole	Old Time Golden Stick Bean
BEAN		Old-time Green Beans
BEAN	Half-Runner	Old-time White Half-runner
BEAN	Half-Runner	Old-timey Half-Runner Bean
BEAN	Bunch (Bush)	Old Timey White Bunch Bean
BEAN	Bunch (Bush)	Old Time German Pole
BEAN	Cutshort Pole	Olga's Cutshort Pole
BEAN		Ora's speckled pole
BEAN	Greasy Cutshort	Ora's Speckled Small Greasy Cutshort
BEAN	Runner	Original White Runner
BEAN		Overton Bean
BEAN	Pole	Pa Fish Valentine
BEAN		Parson's Bentley Bean
BEAN		Parson's Delight
BEAN	Cornfield	Paterge Head Bean
BEAN	Pole	Peanut Bean
BEAN	Pole	Peddler's Pole Bean
BEAN		Peggy Lewis Bean
BEAN	Pole	Penland Pole Bean
BEAN	Half-Runner	Phyllis Thornberry Half-Runner
BEAN		Pill Box
BEAN	Half-Runner	Pink Half-Runner
BEAN	Bunch (Bush)	Pink Tip
BEAN	Pole	Pink Tip
BEAN		Pink tip greasy
BEAN	Pole	Pink Tips Pole
BEAN	Pole	Pink Tip Shelly
BEAN	Pole	Pole
BEAN	Pole	Pole Bean, Red Seed
BEAN	Pole	Potter Bean
BEAN		Preacher Bean
BEAN	Pole	Presley Bean
BEAN	Greasy	Prince Stephens Favorite Greasy
BEAN		Purple Hull Beans

BEAN	Pole	Purple Pole
BEAN	Pole	Purple Tip Pole
BEAN		Quail Beans
BEAN		Ram's Horn
BEAN	Pole	Rattlesnake Cornfield
BEAN	Butter	Red Calico Butterbean
BEAN		Red Fall Variant
BEAN	Pole	Red Kidney Pole
BEAN		Red Ribbon
BEAN		Red Speckled Fall Bean
BEAN		Red Stick Beans
BEAN	Greasy	Red Striped Hull Greasy
BEAN	Cornfield	Red Top Bottle Cornfield
BEAN	Pole	Red Turkey Gizzard
BEAN	Pole	Red Valentine
BEAN	Pole	Rev. Arnt Greer Pink Tips
BEAN	Pole	Reverend Taylor Butterbean Mix
BEAN	Pole	Rindy
BEAN		River Bean Mutant
BEAN		Robe Mountain cornfield
BEAN		Roger Newsom Fall Bean
BEAN		Rose Bean
BEAN	Cornfield	Rose Cornfield
BEAN	Cornfield	Rose Family Speckled Cutshort
BEAN	Cutshort	Rosemary's Red Fall
BEAN		Ruth Bible
BEAN		Sam Baker Bean
BEAN	Bush	Sam Baker Fall Bush
BEAN	Greasy	Sam Baker Greasy
BEAN	Bunch	Sappy Soup Bunch
BEAN		Seay cutshort
BEAN	Pole	Shantyboat Pole
BEAN		Shoal Creeks Beans
BEAN	Pole	Short Little Greasy
BEAN	Pole	Singleback/Cornfield Bean
BEAN	Bunch (Bush)	Six Week Bean
BEAN	Greasy Cutshort	Small Greasy Cutshort
BEAN	Pole	Small Lazywife Greasy
BEAN	Pole Lima	Small Speckled Pole Lima
BEAN	Pole	Snowball Bean
BEAN	Pole	Snowball Greasy
BEAN	Pole	Snowball Big Greasy Mix
BEAN	Pole	South Carolina Red Stick Pole Bean
BEAN		Spangler Bean
BEAN		Speckled Cutshort
BEAN	Greasy	Speckled Brown Greasy
BEAN	Greasy	Speckled Greasy #1
BEAN	Greasy	Speckled Greasy #2
BEAN	Cornfield	Speckled Greasy Cornfield
BEAN	Butter	Speckled Pale Butterbeans

BEAN		Spring Beans
BEAN	Pole	Squirrel Bean
BEAN		Steel Blue Cross
BEAN		Steele's Mix
BEAN	Cornfield	Striped Cornfield Beans
BEAN		Striped Creaseback
BEAN	Half-Runner	Striped Half-Runner
BEAN	Creaseback Pole	Striped Creaseback Pole
BEAN	Pole	Striped Creaseback Tender Cornfield Bean
BEAN		Striped hull greasy cutshort
BEAN	Bunch	Sulfur
BEAN		Summer Fall Bean
BEAN	Greasy	Swan Greasy
BEAN	Pole	Sylvia Bean
BEAN	Pole	Tan and Brown Pole
BEAN	Pole	Ten Bushel Bean
BEAN	Pole	Tender Frost Beans
BEAN		Tender Hull Fall Bean
BEAN	Pole	Tender October
BEAN		Tennessee cornfield pole
BEAN	Runner	Tennessee Long Runner
BEAN		Tennessee White Greasyback
BEAN		Thousand to One
BEAN		Tobacco worm
BEAN	Pole	Tom Speckled Pole
BEAN		Troy Dunn Beans
BEAN	Bunch	Turkey Craw Bunch
BEAN	Pole	Turkey craw cornfield
BEAN		Turkey Eye Bean
BEAN		Turner Beans
BEAN	Pole	Twenty Foot Cornfield Beans
BEAN		Unknown Fall Red Speckled
BEAN	Greasy	Unknown Speckled Greasy
BEAN		Van Hook
BEAN	Pole	Walt Qualtebaum Bean
BEAN	Pole	Warner Red Pole
BEAN		Watt Tackett's Red October
BEAN	Greasy	West VA Greasy
BEAN	Pole	White and Brown Greasy Cutshort
BEAN	Pole	White and Green Hull Beans
BEAN	Bunch	White Bunch
BEAN	Butter	White Christmas Butterbean
BEAN	Pole	White Cornfield
BEAN	Pole	White Creaseback Bean
BEAN	Cornfield	White Double Hall Cornfield
BEAN		White Early Harvest Cornfield
BEAN		White Fall Beans
BEAN	Pole	White Greasy Bean
BEAN	Pole	White Greasy Cutshort
BEAN	Greasy Pole	White Greasy Pole

BEAN	Half-runner	White Half-runner
BEAN	Bunch	White Hull Bunch
BEAN	Pole	White Hull Pole
BEAN	Cornfield	White Kentucky Cornfield
BEAN	Cornfield	White Lazywife Cornfield
BEAN	Pole	White Pole Bean
BEAN	Bunch	White Potato Bean
BEAN	Pole	White October
BEAN	Pole	White/Red October
BEAN	Bunch (Bush)	White Shelly Bean
BEAN	Cornfield	White TN Cornfield
BEAN	Cornfield	Whitey Swanger Randell Cornfield
BEAN	Half-runner	Whitt Half-runner
BEAN	Pole	William's River Pole
BEAN		Witza Bean
BEAN		Wolf Bean
BEAN		World War II
BEAN	Cornfield	Yellow Pod Cornfield
BEAN		Yellow Top
BEAN		Zelma Zester Bean
BEAN		Zona Upchurch Goose Bean

BRASSICACEAE	Collards	Carolina
BRASSICACEAE	Turnip	Cherokee Turnip
BRASSICACEAE		Creasy Greens
BRASSICACEAE	Mustard Green	Curly Mustard
BRASSICACEAE	Mustard Green	Old-time Cherokee Mustard
BRASSICACEAE	Mustard Green	Old-time Round Leaf Mustard
BRASSICACEAE	Mustard Green	Old-time Winter Mustard
BRASSICACEAE	Mustard Green	Old-timey Oakleaf Mustard
BRASSICACEAE	Rutabaga	Old-timey Orange Rutabaga
BRASSICACEAE		Rape
BRASSICACEAE	Mustard Green	Slick Leaved Mustard
BRASSICACEAE	Mustard Green	Sugar Grove Mustard
BRASSICACEAE		Watercress
BRASSICACEAE	Turnip	Winter Turnip
COWPEAS / CROWDERS / BLACK-EYES		Angie Hollis
COWPEAS / CROWDERS / BLACK-EYES		Big Beige Crowder
COWPEAS / CROWDERS / BLACK-EYES		Big Boy Pea
COWPEAS / CROWDERS / BLACK-EYES		Cate's Washday
COWPEAS / CROWDERS / BLACK-EYES		Clay
COWPEAS / CROWDERS / BLACK-EYES		Cookeville Whipporwill
COWPEAS / CROWDERS / BLACK-EYES		Cream and Tan Field Peas
COWPEAS / CROWDERS / BLACK-EYES		Dexter Randolph Crowder

COWPEAS / CROWDERS / BLACK-EYES		Field Crowder Peas
COWPEAS / CROWDERS / BLACK-EYES		Gray Palapye Pea
COWPEAS / CROWDERS / BLACK-EYES		Hercules Pea
COWPEAS / CROWDERS / BLACK-EYES		Knuckle Hull Crowder Pea
COWPEAS / CROWDERS / BLACK-EYES		Kreutzer
COWPEAS / CROWDERS / BLACK-EYES		Little Red Field Pea
COWPEAS / CROWDERS / BLACK-EYES		October Pea
COWPEAS / CROWDERS / BLACK-EYES		Old-fashioned Stockpea
COWPEAS / CROWDERS / BLACK-EYES		Pinkeye Pea
COWPEAS / CROWDERS / BLACK-EYES		Pinkeye Purplehull Pea
COWPEAS / CROWDERS / BLACK-EYES		Polecat Peas
COWPEAS / CROWDERS / BLACK-EYES		Rattlesnake Pea
COWPEAS / CROWDERS / BLACK-EYES		Red Ripper Pea
COWPEAS / CROWDERS / BLACK-EYES		Silvers Crowder Pea
COWPEAS / CROWDERS / BLACK-EYES		Small Beige Crowder
COWPEAS / CROWDERS / BLACK-EYES		Tennessee White Crowder Pea
COWPEAS / CROWDERS / BLACK-EYES		*Washday
COWPEAS / CROWDERS / BLACK-EYES		West 6 Weeks Pea
COWPEAS / CROWDERS / BLACK-EYES		Whipporwill Crowder Pea
COWPEAS / CROWDERS / BLACK-EYES		Whipporwill Pea
COWPEAS / CROWDERS / BLACK-EYES		White Crowder
COWPEAS / CROWDERS / BLACK-EYES		White Field Pea
COWPEAS / CROWDERS / BLACK-EYES		Wild Goose Pea
COWPEAS / CROWDERS / BLACK-EYES		Wild Turkey Pea
COWPEAS / CROWDERS / BLACK-EYES		Wonder Pea
COWPEAS / CROWDERS / BLACK-EYES		Zipper cream

CUCUMBER		Little Green
CUCUMBER		Little White
CUCUMBER		Long Green
CUCUMBER		Pickling
CUCUMBER		White Cucumber
GARLIC		Alabama Elephant Garlic
GARLIC		Old Time Garlic
GOURD		Vining Okra (Luffa)
GROUND CHERRY		Yellow Ground Cherry
JERUSALEM ARTICHOKE		Jack's Copperclad
JERUSALEM ARTICHOKE		Jerusalem Artichoke
LETTUCE		Green Leaf Lettuce
MELON		Heirloom Cantaloupe
MELON		Little Cantaloupe
MELON		Plumgranny
MELON		Robbin's Melon
MELON		Winter Valencia & Maltz
OKRA		Choppee
OKRA		Fife Creek Cowhorn Okra
OKRA		Green
OKRA		Jimmy T Okra
OKRA		Long Podded
OKRA		Old-timey Okra
OKRA		Red
OKRA		Short Green Pod
OKRA		White Pod
ONIONS		Tater
ONIONS		Walking
ONIONS		Winter
PARSNIP		Bradford Parsnip
PEA		Heirloom Golden Sweet Pale Yellow Snow Pea
PEANUT		Black Pindor
PEANUT		Georgia Red Peanut
PEPPER	Pimento	Ashe County Heirloom Pimento
PEPPER		*Bull nose bell
PEPPER		Cowhorn
PEPPER		Doorknob
PEPPER		Pencil
PEPPER		Pizza
PEPPER		Randolph Small Red
PEPPER		Randolph Small Yellow
PEPPER		Sweet Pickling Peppers
POTATO		Early Rose
POTATO		Fingerling
POTATO		Green Mountain
POTATO		Irish Cobbler
POTATO		New York Pide
POTATO		Yampa (Gairdner's yampah)
RHUBARB		Rhubarb
SQUASH/PUMPKIN	Pumpkin	Big Orange Pumpkin

SQUASH/PUMPKIN	Candyroaster	Blue Candyroaster
SQUASH / PUMPKIN	Candyroaster	Candyroaster
SQUASH / PUMPKIN	Coushaw	Coushaw
SQUASH / PUMPKIN	Pumpkin	Field Pumpkin
SQUASH/PUMPKIN	Candyroaster	Green Candyroaster
SQUASH/PUMPKIN	Candyroaster	Green and White Striped Candyroaster
SQUASH/PUMPKIN		Grey Winter Squash
SQUASH / PUMPKIN		Healing Squash
SQUASH/PUMPKIN	Zucchini	Jenkin's Creek Bumblebee White Zucchini
SQUASH / PUMPKIN		Little Cherokee Roaster
SQUASH / PUMPKIN	Pumpkin	Little Sweet Pumpkin
SQUASH / PUMPKIN	Candyroaster	North Georgia candy roaster
SQUASH/PUMPKIN	Pumpkin	Old-time Pie Pumpkin
SQUASH / PUMPKIN	Pumpkin	Old-timey Pumpkin
SQUASH/PUMPKIN	Candyroaster	Orange Candyroaster
SQUASH/PUMPKIN	Candyroaster	Pale Candyroaster
SQUASH/PUMPKIN		Pink Winter Squash
SQUASH / PUMPKIN	Candyroaster	Roughbark Candyroaster
SQUASH/PUMPKIN	Pumpkin	Snyder Family Pumpkin
SQUASH/PUMPKIN	Pumpkin	Strunk Pumpkin
SQUASH/PUMPKIN	Pumpkin	Sugar Pumpkin
SQUASH / PUMPKIN	Pumpkin	Sugar and Spice Pumpkin
SQUASH/PUMPKIN	Pumpkin	Sweet Potato Pumpkin
SQUASH/PUMPKIN	Pattypan	White Marebag Squash
SQUASH / PUMPKIN	Pumpkin	White pumpkin
SQUASH/PUMPKIN		White Winter Squash
SQUASH / PUMPKIN		Yellow Crookneck
SQUASH/PUMPKIN		Yellow Straightneck Squash
SQUASH/PUMPKIN	Candyroaster	Yellow Striped Orange Candyroaster
SWEET POTATO		Early Triumph/Poplar Root
SWEET POTATO		African-American Red Sweet Potato
SWEET POTATO		Kentucky White
SWEET POTATO		Mahon
SWEET POTATO		Nansemond
SWEET POTATO		Red
SWEET POTATO		Red and White
SWEET POTATO		Spanish Red
SWEET POTATO		Sweet Gum
SWEET POTATO		White
SWEET POTATO		Yellow
TOMATO		Akers West Virginia Tomato
TOMATO		Amish Oxheart
TOMATO		Arkansas Traveler
TOMATO		Ashe County Orange
TOMATO		Barnes Mountain Yellow
TOMATO		Beefheart
TOMATO		Big Orange
TOMATO		Big Yellow
TOMATO		Big Yellow Pear
TOMATO		Black

TOMATO		Pepper
TOMATO		Persimmon
TOMATO		Pineapple
TOMATO		Pink Brimmers/German Pink
TOMATO		Pink German
TOMATO		Pink Oxheart
TOMATO	Pear	Pink Pear Tomato
TOMATO		Plum Tomato
TOMATO		Power's heirloom
TOMATO		Purple Beefheart
TOMATO		Purple Dog Creek
TOMATO		Rebecca Sebastian's Bull Sac
TOMATO		Red Cherry
TOMATO		Red Oxheart
TOMATO		Red Pear
TOMATO		Red Roma
TOMATO	Tommytoe	Red Tommytoe
TOMATO		Red Yellow
TOMATO		Rose Beauty
TOMATO		Ruby's German Green
TOMATO		Ruby Orr
TOMATO		Stripe
TOMATO		Striped German
TOMATO		Striper
TOMATO		Stripey
TOMATO		Super Choice
TOMATO		T.C. Jones
TOMATO		Uncle Mark Bagby
TOMATO		Vaughn's Old-fashioned Orange
TOMATO		Vinson Watts
TOMATO		Viva
TOMATO		Walter Johnson
TOMATO		White
TOMATO		William's Striped
TOMATO		Yellow
TOMATO		Yellow German Johnson
TOMATO	Pear	Yellow Pear
TOMATO		Yellow Roma
TOMATO		Yellow Stuffer
TOMATO	Tommytoe	Yellow Tommytoe
TOMATO		Yoder's German Yellow
WATERMELON		Georgia rattlesnake (Garrison)
WATERMELON		Yellow Watermelon
MAMMALS		Carolina northern flying squirrel
MAMMALS		Virginia northern flying squirrel
PLANT		Indian Cucumber
PLANT		Ramps

APPENDIX F

LOST VARIETIES FROM WESTERN NORTH CAROLINA

LOST VARIETIES FROM WESTERN NORTH CAROLINA

51 Varieties, 12 species

Beans (*Phaseolus vulgaris*)

Bunch (Bush)

Bird Eye An old variety originally from West Virginia that didn't survive well when the Mexican bean beetle came into the Ashe County area. It had a big white seed with a multi-colored eye and a good flavor. The seedsaver's father tried to save the variety by planting it separately from other varieties away from the Mexican bean beetles, but eventually gave up over time. (Lansing, Ashe County)

Little Red Bunch A bunch bean with red striped seeds. (Boundary Tree, Swain County, EBCI)

Half-runners

Spartan/Ground Squirrel A brown striped bean with a good taste. A half-runner that produced well. (Lansing, Ashe County)

Pole

Big White Cornfield A cornfield bean with big white seeds that was used for making leather britches. (Little Snowbird, Graham County, EBCI)

Cherokee Field Bean A bean with long pods and a seed that is white with a tan circle near the top of the seed. (Big Cove, Swain County, EBCI)

Eight Bushel A 12-15 foot running pole bean with very large pods. It had a white seed and a green pod. It was an excellent producer with a very good taste. The seedsaver has asked around everywhere but has been unable to find it. (Micaville, Yancey County)

Purple Hull A bean with a purple hull and purple-striped seeds. (Wolf Town, Jackson County, EBCI)

Solid Brown/Brown Striped October An October bean with both solid brown and brown striped seeds. (Wolf Town, Jackson County, EBCI)

Wren Eggs A bean with a round, white seed that has pinkish speckles/mottles. (Big Cove, Swain County, EBCI)

Yellowish Bean A bean with yellowish seeds. (Wolf Town, Jackson County, EBCI)

Yellow-eyed Bean A bean with a yellow “eye” on top of the seed that was used for dried beans. (Wolf Town, Jackson County, EBCI)

Brassicas (*Brassica spp.*)

Old-time Seven Top Turnip (*Brassica rapa*) An old variety that can be grown through the winter. It is a long and yellow turnip that tastes different from the purple top. The greens are different. The grower couldn't tell the difference of this variety that he lost three years ago from seeds of the same variety he got at the seed store. His grandpa had grown them and they had been in his family for at least eighty years. (Rutherford County)

Corn (*Zea mays*)

Dent (Bread, Hominy, Ornamental, Sweet)

Abernathy White Bread A “bread” corn that originally came from Noah Abernathy of Marble, NC. It was traditionally used for cornbread. (Vengeance Creek, Cherokee County, EBCI)

Big Yellow Produced very large yellow ears. (Big Creek, Yancey County)

Boone County A field corn that was good for cornmeal and animal feed. (Bull Creek, Mars Hill, Madison County)

Hawkins Prolific (2) A white corn that was good for cornbread. (Carson Branch, Willits, Jackson County)

A white field corn that was good for cornmeal and animal feed. (Bull Creek, Mars Hill, Madison County)

Lovins Corn A hard, white corn that was good for cornbread. Named after the Lovins family. A white corn that was good for cornbread. (Carson Branch, Willits, Jackson County)

Multi-colored Hard Field Indian Corn A multi-colored dent corn that was used for cornmeal. (Big Cove, Swain County, EBCI)

Old White Field This white-seeded field (dent) corn was milled for flour, eaten in the “roastin ears” stage, and fed to hogs. This variety was also boiled with sugar to sweeten it. (Fork Mountain, Mitchell County)

Red Cob and Long White Grain A white-seeded corn with a red cob that the grower remembers as being the best variety for making cornmeal. (Vengeance Creek, Cherokee County, EBCI)

Red Sweet A fresh eating red seeded sweet corn with small ears. When this variety was boiled it turned the water pink and the seed shriveled up when dried. People on the Eastern Cherokee Reservation stopped growing this variety when they began to have access to Silver Queen sweet corn. (Wolf Town, Jackson County, EBCI)

Speckled Corn A corn with red and beige speckles in each kernel that was good for cornbread. A white corn that was good for cornbread. (Carson Branch, Willits, Jackson County)

Wilkes Corn A white corn that was good for cornbread that was named after the Wilkes family. (Carson Branch, Willits, Jackson County)

Yellow Feed A yellow dent corn that was used for animal feed and cornmeal. (Wolf Town, Jackson County, EBCI)

Flint

Cherokee Flint A flint corn with very hard, sandy/tan colored seeds. It had very small and spindly ears. It was traditionally used for cornmeal. (Bird Town, Swain County, EBCI)

Flour

Big Grain Cherokee White Flour A sub-variety of Cherokee White Flour that had bigger grains than the currently available variety. (Big Cove, Swain County, EBCI)

Parsnips (*Pastinaca sativa*)

Old-time Parsnip An old variety of parsnip that the grower lost when it would no longer germinate. (Fork Mountain, Mitchell County)

Potatoes (*Solanum tuberosum*)

Green Mountain (Big Cove, Swain County, EBCI)

Old Indian Purple An old “Indian Potato” that had white, tough skin and purple flesh. (Big Cove, Swain County, EBCI)

Red Irish (Big Cove, Swain County, EBCI)

Sequoyah A potato that had a hollow middle. (Big Cove, Swain County, EBCI)

Sorghum (*Sorghum bicolor*)

Sugar Drip (Big Creek, Yancey County)

Squash/Pumpkin (*Cucurbita* spp.)

Big Blue Candyroaster (*Cucurbita maxima*) A large, blue, Candyroaster-type winter squash.

(Big Cove, Swain County, EBCI)

Black Winter Squash A variation of the Grey Winter Squash, it is sweet and great baking squash that keeps through the winter into April/May. Has an extremely hard, black skin.

(Lansing, Ashe County)

Cornfield Pumpkin A very large orange pumpkin that was formerly grown in cornfields in McDowell County. (Crooked Creek Community, McDowell County)

Dark Green Coughaw (*Cucurbita argyrosperma*) A dark green Coughaw variety winter squash that was eaten as a baked squash. (Wolf Town, Jackson County, EBCI)

Light Green Candyroaster (*Cucurbita maxima*) A light green Candyroaster-type winter squash that was shaped like a Coughaw (crook-necked). Some people called it a Coughaw, but the grower maintains it was a Candyroaster. (Wolf Town, Jackson County, EBCI)

Long, Flat Pin Cushion Pumpkin A pale orange “Cinderella” type pumpkin that was used in pumpkin pies and dried over the fire place for winter storage and eating. (Big Cove, Swain County, EBCI)

Multi-colored Round Squash A multi-colored round squash that was eaten in stews and also dried and made into rattles. (Big Cove, Swain County, EBCI)

Simbling A small, white squash that the grower thinks is a cross between a patty pan squash and a gourd. It was left out in the field for winter time storage. (Big Cove, Swain County, EBCI)

Tan Field Pumpkin A tan field pumpkin with meat that was much thicker than larger sized field pumpkins. (Wolf Town, Jackson County, EBCI)

Warty Pumpkin Looks like a regular orange jack-o'-lantern pumpkin type but with a lot of warts on it. It is a good eating and pie pumpkin. The seedsaver lost the variety because he wasn't able to keep it from crossing with other pumpkin varieties and it eventually lost its warty tendency. (Lansing, Ashe County)

White Coughaw (*Cucurbita argyrosperma*) A white Coughaw variety winter squash that was eaten as a baked squash. (Wolf Town, Jackson County, EBCI)

Yellow Pumpkin A small, light yellow pumpkin about the size of a basketball. It was used to make pies in the winter time. (Wolf Town, Jackson County, EBCI)

Sweet Potato (*Ipomoea batatas*)

Puerto Rico A good yielding old-time sweet potato. The former grower mentioned that its drawback was its taste—it tasted too much like a Red River pumpkin. (Buncombe County)

Short White A short, white variety of sweet potato. (Big Cove, Swain County, EBCI)

Texas White (Buncombe County)

FRUIT

Apples (*Malus X domestica*)

Black Hoover An almost-black variety of apple the grower remembers from his father's orchard when he was young. It was a good keeper and would store until January under proper conditions (Wolf Town, Jackson County, EBCI)

Duckett This apple was last heard of in Yancey County and hasn't been located by apple hunters of the region. (Lansing, Ashe County)

FLOWERS

Night Blooming Cereus A flower with long cactus-like leaves that bloomed at night. (Wolf Town, Jackson County, EBCI)

Old Poppy This variety of poppy had waxy flowers. The grower ate a pod when he was a kid and was knocked unconscious for five hours, so it is likely that this was an opium poppy variety (*Papaver somniferum*). (Wolf Town, Jackson County, EBCI)

APPENDIX G
LOST VARIETIES FROM THE OZARKS

LOST VARIETIES FROM THE OZARKS

30 varieties, 17 species

Beans (*Phaseolus vulgaris*)

Bunch (Bush)

Aunt Clarissa A bunch bean with a broad pod. The grower also said some people called it a “Case Knife” bean. (Gainesville, Ozark County, Missouri)

Black Bunch A black-seeded bunch bean that produced early. (Gainesville, Ozark County, Missouri)

Pole

Bird Egg A large, spotted bean that was good for eating as shelly beans and for drying. (Marshall, Searcy County Arkansas; Mountain View, Stone County, Arkansas)

Case Knife (Henderson/Flute Springs, Sequoyah County, Oklahoma, CN)

Butterbeans/Lima Beans (Phaseolus lunatus)

Speckled Butterbean A white seeded butterbean with red and dark brown speckles. (Choctaw, Van Buren County, Ozarks)

Brassicas (*Brassica* spp.)

Tender Green Turnip (*Brassica rapa*) An old variety of turnip that only produced leaves for eating. (London, Pope County, Arkansas)

White Lady Turnip (*Brassica rapa*) An old variety of white turnip. (Prairie Grove, Pope County, Arkansas)

Cantaloupe (*Cucumis melo*)

Rocky Ford An old-time pale green variety of cantaloupe. (Washington County, Arkansas)

Corn (*Zea mays*)

Dent (Bread, Hominy, Ornamental, Sweet)

Adam's Early Field A field corn that did not grow tall. It was eaten for "roastin ears" but did not have a very sweet taste. (Searcy, White County, Arkansas)

Early Golden Glow An old variety of sweet corn. (Prairie Grove, Pope County, Arkansas)

White Cap A field corn with a yellow seed that has a white cap on each grain. It was used for animal feed, hominy, and to eat as "roastin ears." (Washington County, Arkansas)

White Field An old variety of white seeded field corn that had long ears. (Greasy, Adair County, Oklahoma, CN)

Yellow Field A drought tolerant variety of field corn with yellow seeds that was used for animal feed and fresh "roastin ears." (London, Pope County, Arkansas)

Popcorn

Yellow A yellow grain popcorn that was also ground up for cornmeal. (Canaan, Searcy County, Arkansas)

Lettuce (*Lactusa sativa*)

Winter An old lettuce variety that could survive freezes. (Mount Vernon Community, Johnson County, Arkansas)

Peanut (*Arachis hypogaea*)

Black An old variety of black peanut. (Bear Creek, Searcy County, Arkansas)

Plumgranny/Pocket Melon/Vine Pomegranate (*Cucumis melo*)

Plumgranny A small melon that was used for its good aroma and also eaten. (Marshall, Searcy County, Arkansas; Mountain View, Stone County, Arkansas)

Sorghum (*Sorghum bicolor*)

Georgia Poor Land An old sorghum variety that grew well on poor soils. (Choctaw, Van Buren County, Arkansas)

Sweet Potato (*Ipomoea batatas*)

All Gold A sweet potato that was very well adapted to Ozark soils. (Melvin Bankhead, Mount Vernon Community, Johnson County, Arkansas)

Nancy Hall A large, yellow sweet potato. (Washington County; Mountain View, Stone County, Arkansas)

Orange An old-time variety of orange flesh sweet potato. (Prairie Grove, Pope County, Arkansas)

FRUIT

Apple (*Malus X domestica*)

Lodi An acidic apple that made good apple cobbler. (Prairie Grove, Pope County, Arkansas)

Cherry (*Prunus avium*)

Black Heart An old black cherry variety. (Durham, Washington County, Arkansas)

Peach (*Prunus persica*)

Bella Georgia A white, soft-meat, free-stone peach. (London, Pope County, Arkansas)

Pear (*Pyrus communis*)

Magnus An old variety of pear that the informant used to grow and thinks might possibly exist around her community, but not to her present knowledge. (Prairie Grove, Pope County, Arkansas)

Strawberry (*Fragaria X ananassa*)

Blakemore An old variety that went out of production because it fruited very close to the ground, which caused the strawberries to rot. (Prairie Grove, Pope County, Arkansas)

Watermelon (*Citrullus lanatus*)

Cleckley Sweet An old, sweet variety of watermelon. (Mountain View, Stone County, Arkansas)

Stone Mountain A big, round watermelon. Introduced by Hastings Seed Company in 1923 and a popular commercial variety in the 1940s and 1950s, it is now very rare to find. (Mountain View, Stone County, Arkansas)

Tom Watson A long, solid green watermelon. The grower remembers his uncle, grandfather, and great grandfather growing them. He tried ordering a Tom Watson variety from an heirloom seed catalogue, but it was not the same as the one that he grew up with in the Ozarks. (Mountain View, Stone County, Arkansas)

Fiber

Cotton (*Gossypium* spp.)

Big Boll Wrowden (Prairie Grove, Pope County, Arkansas)

APPENDIX H
CHEROKEE NATION SEED BANK INVENTORY



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CHEROKEE NATION™
P.O. Box 948 • Tahlequah, OK 74465-0948 • (918) 453-5000

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Chad "Comtassel" Smith
Principal Chief

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Joe Grayson, Jr.
Deputy Principal Chief

Cherokee Nation Seed Bank Inventory

- **Corn**
 - Cherokee White Eagle
 - Cherokee White Flour
 - Cherokee Yellow Flour
 - Cherokee Colored Flour
 - Green Popcorn
 - Red Popcorn
 - Oneida Flour
- **Beans**
 - Rattlesnake
 - October
 - Trail of Tears
 - Turkey Gizzard (black)
 - Turkey Gizzard (brown)
- **Squash**
 - Georgia Candy Roaster
- **Gourds**
 - Buffalo
 - Dipper
 - Basket
- **Native Tobacco**
- **Persimmon**
- **Black Walnut**

Note: Items in red subject to special restrictions

APPENDIX I
INTERVIEW QUESTIONS

Semi-structured Interview Questions:

- 1) Please list off the old-timey heirloom vegetable varieties that you are still growing.

- 2) Please list off any heirloom old-timey vegetable varieties that were grown in the past by you or your family and are now lost or no longer grown.

- 3) Please list off any heirloom old-timey fruit or berry varieties that you are currently growing.

- 4) Please list off any heirloom old-timey fruit varieties that were grown in the past by you or your family and are now lost or no longer grown.

- 5) For each variety that was listed (go down the free list):
 - a. Please describe each variety including how it originated
 - b. What makes this a variety that you like to grow?

APPENDIX J
INTERVIEW SURVEY

Please fill out the following survey to the best of your ability. You can leave any question unanswered that you do not feel comfortable with or are not able to answer.

1. Name: (leave blank if you want your survey to remain confidential):

2. Age:

3. Current Occupation or Occupations (if you have multiple jobs or income sources please list them—for example: part-time farmer, carpenter, logger, plumber, retired, odd jobs)

4. Highest Level of Education (for example: 6th grade, high school, associate's degree, bachelors degree, masters degree, PhD)

5. County and Community that you currently live in:

6. Place of Birth (community, county, and state):

7. Gender (please circle one): male female

8. Religion or Spiritual Practice:

9. Ethnic Heritage (You can circle more than one): a. English b. Scottish c. Scots-Irish
d. Irish e. German f. Cherokee g. Melungeon h. African-American (Black) i.
Hispanic j. Other (please list here): _____

10. Approximate earned income for last year (please circle one):

a. less than \$10,000 b. \$10,000-20,000 c. \$20,000-30,000 d. \$30,000-40,000

e. \$40,000-50,000 f. \$50,000-60,000 g. \$60,000-70,000 h. \$70,000-80,000

i. \$80,000-90,000 j. \$90,000-100,000 k. \$100,000-150,000 l. \$150,000-200,000

m. more than \$200,000

11. How many acres do you currently have in vegetable production? (can also be $\frac{1}{4}$, $\frac{1}{2}$ acre, etc.)