
Catherine Marie Algeo
Louisiana State University and Agricultural & Mechanical College

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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

A Dissertation
Submitted to the Graduate Faculty of the
Louisiana State University and
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in partial fulfillment of the
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in
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by
Catherine Marie Algeo
B.S., Duke University, 1984
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Abstract

This study analyzes the transformation of burley tobacco farming underway in the late twentieth century in light of social, political, and economic forces that make tobacco a contested crop. It focuses on one county in southern Appalachia, Madison County, North Carolina, where tobacco has been a cash crop for over a hundred years. A synthesis of the theoretical and methodological approaches of cultural ecology and structuration is proposed as a means of exploring the components of agricultural change within Appalachia at a continuum of scales from the local to the national, while contextualizing farming within its environmental and social settings.

The study traces the development of Madison County’s farm system from the late eighteenth century to the close of the twentieth century, highlighting the development and transition between two distinct eras of commercial tobacco production. For the contemporary agricultural scene, it details the mix of production systems, including burley tobacco, beef cattle and hay, that farmers combine in flexible and frequently changing livelihood strategies. While tobacco is central to both the agricultural economy and to cultural identity, off-farm work and forest resources such as timber and ginseng are important components of the farm economy. Farmers routinely incorporate forest resources from private and public lands into their livelihood strategies. Processes of negotiation are analyzed through which individuals and community groups mediate the institutionalized mechanisms of resource allocation and control framed by the U.S. Forest Service.

Agricultural change arises from a complex interplay of technological change, farmer adaptation and innovation, institutional forces, and sociocultural trends that
reflect Appalachia's connections to distant places. The role of the federal tobacco program in structuring the local farm system is illustrated by the effects of changes in program formulation on land use and production practices. Farmers have responded to program uncertainty and a tight labor market in a variety of ways, including altering the traditional form of curing structures, adopting hydroponic seedling production, and hiring Mexican migrant laborers during harvest. The goal throughout the study is to contribute to a more fully articulated understanding of the contemporary Appalachian experience and the mechanisms of agricultural change.
1. Introduction

1.1 Problem statement

This study analyzes the transformation of burley tobacco farming underway in the late twentieth century in light of social, political, and economic forces that make tobacco a contested crop. It focuses on one county in southern Appalachia, Madison County, North Carolina, where tobacco has been a cash crop for over a hundred years, supplementing livelihoods obtained through traditional subsistence farming and, more recently, off-farm employment. Tobacco was one of few crops that could consistently be profitably grown for market in an area of small farms and steep mountain slopes. The federal tobacco program, instituted during the Depression as part of a wider program to preserve price parity among the nation's agricultural producers, largely insulated tobacco growers from market price fluctuations, making tobacco a stable source of income. That stability is now threatened by a variety of forces that include declining societal acceptance of smoking, the operation of multinational tobacco manufacturers seeking to structure global production and markets to their advantage, federal regulation of tobacco production and marketing, changes in the availability of farm labor, and rising rural land values. I trace the intersection of these and other structuring forces with the everyday lives of Madison County’s small-scale tobacco farmers.

By placing the small-scale burley tobacco farmer in the context of agricultural and social change at local, regional and national scales, I attempt a thorough exposition of one of the most important agricultural sectors of a region that has long been considered problematic. For all of the Appalachian literature focusing on the problems
of poverty and modernization's effects on Appalachian culture and social systems, the integration of contemporary Appalachian farm systems with the larger economy and polity has largely been neglected. Appalachian farmers merit attention because of economic underdevelopment that has historically plagued the region, recent farm trends that favor the growth of agribusiness over family farms, the sensitivity of the mountain environment, and the continuation of a traditional lifestyle that embodies, for many, a rural ideal. Moreover, tobacco occupies a place in the southern Appalachian farm system similar to those of cash crops in many developing countries. It is a single-purpose non-food crop grown for regional export in a highly regulated, oligopolistic market dominated by extra-regional capitalists. Thus, parallels with developing countries may be found in the experience of contemporary Appalachian tobacco farmers as they seek to maintain an economically viable and culturally meaningful way of life in the face of social, economic, and technological flux.

The study begins with an overview of the ways writers and scholars have approached Appalachia as a region, especially its relationship to the rest of the country and causal explanations for the development of Appalachian culture. Then I propose, as an alternative way of understanding contemporary Appalachia, a synthesis between cultural ecology and structuration theory. Chapter two traces the historical development of small-scale burley tobacco farming in Madison County. Chapter three turns to the contemporary agricultural scene, detailing the mix of production systems that farmers rely on in composing flexible and frequently changing livelihood strategies. Tobacco is central to the agricultural economy, but I demonstrate that it also plays a key role the formation of cultural identity. Forest resources are an important, but frequently
unacknowledged, component of the farm economy in the burley tobacco district of southern Appalachia. In chapter four I examine how farmers in communities adjacent to the Pisgah National Forest incorporate resources from federal lands into livelihood strategies and how the institutionalized mechanisms of resource allocation and control framed by the U.S. Forest Service are mediated by individuals and community groups through processes of negotiation and protest that draw on traditional norms of social interaction and nostalgic evocation of place. Continuing the theme of institutional structuring of local practices, chapter five analyzes the federal tobacco program to show how it both constrains and enables Madison County’s tobacco producers. Chapter six returns to a local scale and shows, through the detailed examination of two cases, changes in production methods for tobacco seedlings and in the organization of labor, how agricultural change arises from the complex interplay of technological change, farmer adaptation and innovation, institutional forces, and sociocultural trends that connect the region to distant places. My goal throughout is to contribute to a more fully articulated understanding of the contemporary Appalachian experience and the mechanisms of agricultural change.

1.2 Traditional Ways of Understanding Appalachia

A popularized image of Appalachia was first created through the region’s portrayal in short stories and travel sketches that appeared in the mass market magazines that proliferated after the Civil War (Shapiro 1978). Since then, a series of explanations for Appalachia’s distinctiveness as a region have been put forth. The early models were developed by outsiders — travel writers, missionaries, social workers, and scholars. Appalachian “otherness” was frequently perceived solely in the negatives of isolation,
poverty and ignorance, all of which were to be overcome by Appalachia’s integration with the rest of America. Starting in the 1960’s, new perspectives grew out of the work of native-born Appalachians. Earlier models were criticized for applying culturally specific standards, i.e. those of the urban-industrial core, to a distinctive, but no less valid, Appalachian culture. Other models were adapted from the burgeoning literature on colonialism and Third World underdevelopment. More recently, Appalachian studies have turned away from all-encompassing explanations and favored a re-evaluation of historically and geographically specific circumstances that acknowledges both the diversity of the Appalachian experience and similarities between Appalachia and other parts of the nation. In this section I briefly describe seven models of Appalachian regionalism that have been prominent over the past hundred years: the isolation thesis, the culture of poverty model, the regional development model, colonialism, underdevelopment, dependency, and internal periphery.

1.2.1 THE ISOLATION THESIS

The term “local color” was coined during the 1880s to describe the kind of writing produced by travel and short story writers for magazines such as Harper’s and Atlantic Monthly, writing that imbued its subject locales and their inhabitants with exoticism. Appalachia was certainly not the only region thus employed for literary novelty and financial gain, but the image of an isolated and timeless Appalachia created by the local colorists has been a remarkably enduring stereotype (Shapiro 1978). Appalachia and its inhabitants were characterized as “a strange land and a peculiar people” (Harney 1873), a phrase that has flowed through the pages of Appalachiana like a stream through a limestone plateau, sometimes visible, sometimes hidden, but sure to
reappear (e.g. Kephart 1913, 29; Batteau 1990, 6). The mountain region was depicted an inaccessible, rugged, untamed wilderness, and Appalachians as isolated by their environment in a changeless past, with a lifestyle more typical of the eighteenth century than the nineteenth.

This body of popular writing created a literary image of Appalachia that the general public incorporated into a sense of place about the region (Shapiro 1978, 3-31). Appalachia's distinctive "otherness", and especially its perceived backwardness, challenged the notion of America as a unified, modern place (Shapiro 1978, 3-31). A fixation on this contrast between Appalachia and modern America glossed over intraregional variation, leading to a common perception of Appalachia as internally homogenous — a place where everyone is poor and chews tobacco and where blood feuds are likely to erupt at the slightest provocation. Yet, the literary images were drawn from observations made by outsiders traveling quickly through the region. A geographical bias in favor of the remoter sections of eastern Kentucky has been observed in the itineraries of these magazine writers, as well as some of the early academics to write of the region (Moore 1991). Thus, the popular stereotype generalized to the entire Appalachian region conditions in perhaps the least accessible portion of it. The literary images further failed to capture Appalachian diversity by selectively focusing on cultural survivals (Moore 1991).

The model of an isolated Appalachia (and even the language of the local color writers) was adopted by early twentieth century scholars who studied the region. Forty years after Harney's article, his imagery was echoed by former Yale librarian Horace Kephart, who at age 41 abandoned an academic career (as well as wife and children) to
live in the Great Smoky Mountains and write about “a strange land and a people that had the charm of originality” (Kephart 1913, 29). One of Kephart’s stated aims was to dispel stereotypes of southern Appalachia and “to give a true picture of life among the southern mountaineers” with “not a line of fiction or exaggeration in it” (Kephart 1913, 6-7). Yet his descriptions of both place — a “terra incognita”, “where time still lingers a century belated” — and people — “creatures of environment, enmeshed in a labyrinth that has deflected and repelled the march of our nation for three hundred years” with “customs and ideas unaltered from the time of their forefathers” (Kephart 1913, 6-19) perpetuate the stereotypes of isolation and cultural inertia. His descriptions of the mountain inhabitants carried implications of filth and laziness that were integral to stereotypes perpetuated later by the Culture of Poverty model:

“Our typical mountaineer is lank, he is always unkempt, he is fond of toting a gun on his shoulder.” (Kephart 1913, 12)

“Almost any of our farmers could have had a pasture near home... but not one in ten would take the trouble.” (Kephart 1913, 43)

Despite these shortcomings (and we must remember that Kephart’s book was both a product of its times and a vivid portrayal of Appalachian life intended to engage public interest), Kephart’s work is important on several counts. He lived for three years among the people he wrote about in an area of scattered farmsteads in what is now the southwestern part of the Great Smokies National Park and for twenty-one years in Bryson City, some fifty miles southwest of Asheville. He filled notebooks with detailed observations of Appalachian life. A fascination with dialect led him to frequently record the exact words of informants. Those notebooks containing first-hand observations are now, unfortunately, lost, and only an index survives, housed in the
archives of Western Carolina University. Presumably, however, much of this material was incorporated into *Our Southern Highlanders*.

Ellen Churchill Semple was one of the earliest geographers to write about Appalachia. She forwarded the classic environmental determinist argument for the region’s lack of development: “A glance at the topographical map of the region show the country to be devoted by nature to isolation and poverty” (Semple 1901, 589). In her mildly florid style, Semple dwells on the geographically circumscribed lives of eastern Kentuckians. She writes of the “many men in these mountains who have never seen a town or even the poor village that constitutes their county-seat” and of women who “are almost as rooted as the trees” (Semple 1901, 591). The effects of this isolation was “a retarded civilization” whose people “show the degenerate symptoms of an arrested development” (Semple 1901, 593). Ignorance, feuds, intoxication, and lawlessness are some of the picturesque characteristics of the Appalachian life that Semple described, all stock images in the enduring stereotype of Appalachia. Here too, changelessness accompanies isolation: “the civilization is that of the eighteenth century” and the language “is that of the Elizabethan age” (Semple 1901, 588, 621).

Numerous researchers have challenged the idea that nineteenth century Appalachia was isolated and culturally stagnant. Stephenson (1984, 188) asserts that western North Carolina was less isolated than other parts of Appalachia because resort areas, such as Asheville and the planned development of Highlands, attracted Piedmont planters from the early 1800s. The Buncombe Turnpike, a graded road completed in 1828, but a route used for livestock transport as early as 1800, connected Knoxville, Tennessee with lowland South Carolina via the French Broad River valley (Dykeman
1955, 138). In addition to professional drovers who used the route until the completion of a railroad line down the valley in 1882 made it obsolete, some farmers drove their own and neighbors’ cattle, hogs, and turkeys to market (Dykeman 1955, 141), a practice that further undercuts the notion of Appalachian isolation. Far from existing in some kind of centuries-old homeostasis removed from outside influences, nineteenth century Appalachian farms were subject to a variety of forces for change, both internal and external. Arcury (1990), for instance, documents the decline between 1880 and 1910 of forest farming as the predominant farm system in eastern Kentucky. In chapter two, I provide another example, detailing the rise of a new system of cash cropping in Madison County in the late nineteenth century.

1.2.2 The Culture of Poverty Model

In the early decades of the twentieth century, several changes occurred in explanations for Appalachian regionalism. Appalachian people were now perceived as having a distinct culture rather than merely preserving an earlier form of frontier culture common to all of America (Shapiro 1978). This culture, moreover, was seen as partly to blame for creating Appalachian poverty, ignorance, and social isolation. Physical isolation was no longer believed the primary cause of Appalachian “backwardness.” Oscar Lewis (1961) originated the term “culture of poverty” in reference to Mexico’s underclass. The term was applied to Appalachia by Jack Weller (1965), a Protestant missionary in Appalachia during the 1950s, to describe a viewpoint that can be traced back to Kephart’s and Semple’s descriptions of Appalachia. But while Lewis told the story of a few specific individuals through their own words, Weller engages in psychological analysis at the societal scale, making sweeping generalizations that
designate all Appalachians as self-centered, fatalistic, and anxious, with a family life that is adult-centered, rears children permissively, and features few activities shared by family members or between families. In Weller's version of the culture of poverty model, as in the isolation thesis, the blame for Appalachian conditions lies within the region itself, although in Weller's case, the people themselves rather than the physical environment are seen as the primary cause. Despite an acknowledgment of diversity within Appalachia (Weller 1965, 5), Weller creates a derogatory stereotype by presenting a single version of Appalachian culture without discussing intraregional differences and by consistently framing Appalachian culture in negative terms, holding it up in opposition to an unexamined, idealized vision of middle class American culture.

The culture of poverty model has been roundly criticized on a number of grounds — for the normative evaluation of culture that led settlement social workers to accept and encourage some aspects of Appalachian culture as good (e.g. crafts and traditional ballads) and to discourage other aspects that offended their own culture-bound sensibilities (e.g. banjo playing, food ways, and the celebration of Old Christmas) (Whisnant 1983); for the "blame the victim" approach that functions to maintain the status quo between classes by ignoring structural components to inequity (Ryan 1971); and for its tendency to conflate cause and effect, description and explanation (Roach 1967).

1.2.3 The Regional Development Model

The regional development model, embodied by institutions such as the Tennessee Valley Authority, Appalachian Regional Commission, and VISTA, combines planning and development at national, regional, state, and local scales to implement a
wide variety of projects aimed at alleviating Appalachia’s problems. Although a range of viewpoints exists within these organizations and the dominant perspective has changed over time (Bradshaw 1992, 3-12), some general characteristics of the regional development paradigm may be identified. It operates in the scientific paradigm, adhering to a model of economic rationalism and a belief in progress through capital development. It locates the source of Appalachian “otherness” in a lack of development and seeks to systematically ameliorate this condition through economic and social programs that will make Appalachia more like the rest of the nation (Vance 1962, 7; AEIPPA 1965). Lack of development is seen as the historic outgrowth of economic and cultural isolation, and elimination of that isolation, particularly through development of transportation infrastructure, is the underlying goal of much regional planning (Obermiller 1994, 183). Although this model shares the basic tenet of the isolation thesis, it departs from earlier models with its present-oriented action-agenda for problem solving backed by billions of federal and state dollars. Funding between 1965 and 1990 for the Appalachian Regional Commission (ARC), for instance, amounted to more than 5.7 billion dollars, with over 60% of that going to road construction (Bradshaw 1992, 130). Other ARC projects during that period included water and sewage treatment facilities, health clinics, vocational education, low-cost housing, mining area restoration, timber development, and soil conservation.

The regional development model has been criticized for an emphasis on capital construction to the neglect of peoples’ basic needs, but its supporters maintain that physical facilities and transportation infrastructure are preconditions for the kind of diversified economic development that is needed to address the wider range of
Appalachian problems (Bradshaw 1992, 123). Road projects — paving, straightening, widening, and bridge construction — have brought tangible improvements in the quality of life in Madison County residents. Good paved roads connecting to highways that traverse the county have significantly decreased driving time to neighboring metropolitan areas, expanded the potential job market area, made marketing farm products faster and easier, and made a wider range of goods and services available. Transportation connectivity can also be instrumental in attracting industry, wholesaling, and business services operations (Bradshaw 1992, 124), and Madison county experienced moderate success in attracting small-scale textile and electronic manufacturers in the 1980's to offset declines in the timber industry.

Other ARC-funded projects in Madison County include the Marshall library, a senior citizen center, four day care centers, two health clinics, and a swimming pool (Bradshaw 1992, 85). Several of these illustrate the problem of viewing capital construction projects as a one-time investment, without providing for on-going maintenance. The swimming pool has been drained and abandoned for some years, and in the early 1990s, the county experienced a fiscal crisis in running its day care centers.

Other criticisms leveled at the regional development model include its undue emphasis of economic analysis to the neglect of social and political realities, a tendency to equate development with urbanization and industrialization, a hegemonic extension of the dominant culture whose claims to scientific objectivity limit who has access to the planning process and what issues are considered, and a “professional colonialism” that benefits program administrators and related personnel more than native Appalachians (Obermiller 1994; Walls 1976; Clavel 1979). The merits of these
critiques have been debated (Bradshaw 1992), but a substantive challenge to two long-standing assumptions about Appalachia — that it is isolated and undeveloped — led in the 1970s to a new way of thinking about the region’s integration with the rest of the world.

1.2.4 Colonialism, Underdevelopment, Dependency, and Internal Periphery Models

This set of related theoretical positions holds that Appalachia suffers not so much from a lack of development, but from a particular type of development, and far from being isolated, Appalachia has been rather too integrated with the capitalist enterprises of the urban/industrial core (Pudup 1987). As the “internal colony” of an industrialized nation, Appalachia has been subject to economic, political, and social exploitation of its people and resources by outside elites (Salstrom 1994; Pudup 1987).

In the nineteenth century, external capitalists bought up mineral and timber rights and vast tracts of land, usually at bargain prices thanks to Appalachians’ naiveté about the market value of these resources and buyers’ circumvention of legal niceties (Gaventa 1980). The process exacerbated class distinctions as a local elite of professionals and politicians from the region’s oldest families aided northeastern capitalists in resource accumulation, thereby solidifying their own position as members of the middle-class (Pudup 1987). Timber, coal, and other natural resources were extracted for use in developing the national core at the expense of local industrial development. Moreover, Appalachian subsistence practices subsidized underdevelopment by allowing Appalachians to accept lower wages than their urban counterparts, because many continued part-time farming or kitchen gardening as they entered the labor market.
Salstrom (1994). National fiscal and agricultural policies have exacerbated the region's economic dependency. Late nineteenth century fiscal policy restricted Appalachian access to currency and capital, fostering a dependence on outside capital for development (Salstrom 1994). Twentieth century agricultural policies, particularly the Agricultural Adjustment Act, were formulated in ways advantageous to large-scale farming at a time when Appalachia's population growth and practices of equal inheritance were shrinking the size of farms and the region was becoming less self-sufficient in food production (Salstrom 1994).

All of these approaches share the use of regional and national scales of analysis, with connections between Appalachia and outside regions a main topic of concern. Although they brought a new appreciation for class differences and social heterogeneity within Appalachia, they tended to subsume considerations of culture to those of economics, and lose sight of individuals and local activity. When place-specific characteristics are considered, these theories have more often been applied to central than southern Appalachia, although timber exploitation during the late nineteenth and early twentieth centuries might provide an analogous case for the application of these theories to southern Appalachia.

1.3 Synthesis: Cultural Ecology and Structuration

This study combines the theoretical and methodological approaches of cultural ecology and structuration as a means of exploring the components of agricultural change within Appalachia at a continuum of scales from the local to the national, while contextualizing the economic activity of farming within its environmental and social settings. Cultural ecology shares with structuration theory a view of people as
knowledgeable actors, active creators of culture and agroecosystems. Moreover, both recognize the recursive nature of agency and structure, in which existing structures constrain and enable individual action, but the totality of actions reproduces structure and sometimes alters it. Structuration contextualizes individual activity within societal and institutional frames, reflecting political economic concerns that typify some recent work in cultural ecology (e.g. Watts 1983; Blakie and Brookfield 1987). Cultural ecology is sensitive to relationships between society and nature, and is concerned both with the individual component of decision-making in resource management and land use and with the cultural traditions and social relations of the communities that are the settings for resource management (Butzer 1989; Stevens 1993). Thus, the melding of social theory and cultural ecology fosters a place-based and scale-sensitive analysis of processes that contribute to agricultural change.

1.3.1 CULTURAL ECOLOGY

Cultural ecology is concerned with complex relationships between people, culture, and environment, stressing themes of adaptation, environmental impacts, local knowledge, decision-making, and resource management (Stevens 1993, 4-8). Historically, the discipline has engaged in field-based studies of village-level agricultural systems in developing countries. Recent studies have broadened the scale of investigation to incorporate gender and household economy issues at the micro-scale (e.g. Peters 1986; Panter-Brick 1989; Fricke et al. 1990) and the contexts of market economies, national government policy and global trade systems at the macro-scale (e.g. Stevens 1993; Blakie and Brookfield 1987; Schmink and Wood 1987; Bassett 1988; Netting et al. 1989; Nietschmann 1973). The political ecology perspective highlights
the intersection of processes at different scales, focusing on the transformation of subsistence systems as they establish greater links with market economies (Bassett 1988, 453-4; Grossman 1984) and the politics of resource control, conservation, and environmental change (Stan Stevens, personal communication). Political ecology mediates between models of individual agency and those of actors constrained by larger structural forces by combining considerations of environment, social organization, economic structure, and government policy (Stevens 1993; Zimmerer 1991, 443).

Cultural ecologists use a broad range of approaches, but share a persistent concern with agricultural systems as the basis of community survival and the process of cultural adaptation by communities to their environment, a process that consequently helps shape that environment. Detailed analysis of the ecological basis of farming, the diversity of production systems employed, the roles of environmental perception and local knowledge in the formation of individuals’ conceptions of environment, and how these understandings of environment influence adaptive strategies are among the topics studied by cultural ecologists (Butzer 1989; Stevens 1993, 4-8).

I explore themes that highlight the influence of sociocultural processes on cultural and environmental adaptation within the farm system — the integration of farming and non-farming components of culture, behavioral patterns that are functionally adaptive within agricultural production systems, the evaluation and adoption of changing agricultural technology, and linkages between the local farm system and the structures of national agricultural institutions.
1.3.2 **STRUCTURATION**

In its most basic form, the theory of structuration holds that structure and agency are dual processes that are mutually and continually reproducing. Structure, the economic, social, and power relations that exist in a particular historic and spatial context, both enable and constrain human action. Agency, individual human activity with both intentional and unintentional outcomes, is a product of knowledgeable human actors who, although free to exercise their individual wills, make decisions in the context of value and belief systems and particular economic, social, and political circumstances (Smith 1983, 14). Structure arises from “a sedimentation” of cultural and economic practices and of power relations (Pred 1984). It is reproduced by the daily actions of individual agents and is a product of routinized practices. Rules, which encompass normative elements of social interaction and elements that communicate meaning, and resources, which are authoritative or allocative in nature, are structural components that lend stability to social systems (Giddens 1984, xxxi). Giddens uses this third construct, the social system, to refers to the routinized social practices of a particular group, the everyday lived experience of individuals as they interact with each other and with institutions.

Anthony Giddens (1976, 1979, 1983) developed structuration theory to bridge the oftentimes antipodal paradigms of functionalism and structuralism, at one pole, and humanism, at the other, producing a body of theory and methodology intended to inform empirical research while correcting the most grievous omissions of the former approaches. It balances the determinism that characterizes functionalism and structuralism with the voluntarism of humanism through the notion of the duality of
structure and agency, "the essential recursiveness of social life, as constituted in social practices" (Giddens 1979, 5). Neither agency nor structure is accorded primacy in the explanation of social systems, but the two are involved in an elaborate interplay that is mutually constructive. While functionalism and structuralism have typically been used in macro-scale explications of society, and humanism, especially symbolic interactionism and hermeneutics, in micro-scale examination of local, interpersonal relationships, structuration tries to recognize the constitution of the global by the accretion of local minutiae and contextualize local activity in regional, national, and global settings by wedding a theory of action with a theory of institutions.

The relationship between structure and agency is, to an extent, a matter of scale, temporally and spatially, for the closer specific structures are examined, the more apparent are their constituent human actions. Structuration denies a teleological or superorganic conceptualization of structure (Giddens 1979, 7; Pred 1984), therefore structure is nothing more than the cumulative effect of innumerable decisions and actions by a multitude of individuals that through accustomed usage and shared meanings acquire a historical momentum and stability that promote their continuation.

Although Giddens (1983, 75) declares his intention of producing a body of theory and methodology to inform empirical research, it has been left to others, e.g. Pred (1986) and Wilson and Huff (1994), to implement an empirical agenda. These researchers have combined the broad interpretive framework of structuration theory with other approaches to elicit a detailed understanding of the structure, social practices, and agency operative at specific times and places. Pred's (1986) seminal work synthesizes structuration and Hagerstand's time-geography to examine the daily life
paths of Swedish peasant farmers before and after a radical consolidation and redistribution of farm land that transformed village structure in southwestern Sweden.

In other work, Pred (1983, 1984) invokes sense-of-place approaches to develop his notion of place as a "historically contingent process" of continual "becoming." The sociologist Smith (1983) looks to symbolic interactionist modes of inquiry when expanding structuration theory to include a notion of "symbolically defined social contexts" in his examination of the pure-bred beef cattle industry.

Giddens would no doubt approve these theoretical syntheses, for he clarifies his perception of the role of structuration as follows:

"[Structuration] is not a magical key that unlocks the mysteries of empirical research, nor a research programme. The research programme which I envisage, at any rate, in relation to the theory of structuration cannot be simply inferred from the concepts deployed therein. It is concerned with a broad spectrum of historical and political theory."

(Giddens 1983, 77)

My own approach has been to forge a synthesis between structuration theory and the theoretical and methodological principles of cultural ecology in order to further the empirical structuration project and to continue current work in the development of a cultural ecology that links processes across multiple scales of analysis.

1.4 The Case Study

Given the ambitious scope of this project in tracing the interplay of institutional activity and individuals’ lives across multiple scales, it was necessary to constrain the study geographically. The county is a logical areal unit given that the farm programs
that are the subject of study, including the tobacco marketing and farm conservation programs, are administered at the county level and that many of the data sources used in this study tabulate information at the county level. Thus, this dissertation is a case study of agricultural change in Madison County, North Carolina, the county that has the most tobacco farmers in the largest tobacco-producing state. Madison County is not necessarily representative of Southern Appalachia or even western North Carolina, for some of the differences with the surrounding area highlighted topics for investigation — Madison County’s early and intense involvement with cash cropping within an otherwise subsistence-oriented system, the role of small-scale commodity production as one of a diverse set of mountain farm strategies, and the persistence of multiple livelihood strategies into the late twentieth century against prevailing agricultural trends of consolidation, mechanization, and incorporation. Madison County’s farm system, however, shares characteristics with a number of small-scale farming systems in both developed and developing countries, so this case study illustrates the broader phenomena of farmer reconfiguration of multiple livelihood strategies and selective application of agricultural technology as a means of adapting to changing national agricultural policy within the constraints of institutional structures. Qualitative research steeped in place is a rich source of theoretical innovation (Orum et al. 1991; Glaser and Strauss 1967). Case studies ground abstract constructs and generalizations about social interaction in particular physical environments and cultural milieus, providing an empirical proving ground for theory and allowing theory to be developed from real-world observations.
1.4.1 Methodology

The study triangulates methodologies (Waner 1991) by combining a variety of primary and secondary data sources, including participant observation, semi-structured interviews, census data, and published historical accounts. I lived in Madison County from May through October 1994 and from April through December 1995 and made a three week visit during the summer of 1996. Living for almost sixteen months in the community I was studying afforded ample opportunity for participant observation. I participated in most phases of tobacco production by volunteering my assistance to farmers. This form of field work provided a wealth of data by enlarging my understanding of the physical and cultural processes of tobacco production through first-hand experience and by allowing me to observe farmers engaged in their daily routines. Working side-by-side with farmers in the field proved to be an informal interview setting highly conducive to dialog, for talking is an oft-practiced means of lightening the burden of repetitive physical labor. Moreover, I was clearly cast in the role of novice field worker and the farmer in that of instructor, making my endless series of questions more acceptable in a community where an inquisitive outsider who is perceived as nosy is likely to receive minimal cooperation.

I participated in numerous community activities to gain a broader perspective on the social and cultural setting. I attended a range of agricultural events, including Tobacco Field Days held by the county extension service and the Waynesville Experiment station, community-organized celebrations of farm culture such as a wheat threshing and a plow day, and meetings of local branches of the Western North Carolina Tobacco Grower’s Association and the Cattlemen’s Association. At these events, I met
a broad spectrum of county farmers. I also participated in numerous social and cultural events, both formal and informal. I attended services at half a dozen of the county’s Baptist churches, several on a semi-regular basis, went to river baptisms and funerals for people in the communities that I worked closely with, participated in wagon train outings, went to a decoration day in a family cemetery, and joined work groups that culminated in supper and socializing on the porch. In short, I attempted to participate as much as possible in the social and cultural life of the community.

In addition to participant observation, I conducted semi-structured interviews with about fifty individuals, using a mixture of closed- and open-ended questions. I interviewed farmers, farm laborers, migrant workers, agricultural officials, warehouse owners, and a tobacco grader. My initial contacts in the community were made through introductions provided by the Cooperative Extension Service’s tobacco specialist, who kindly devoted several hours one afternoon to driving me from farm to farm, introducing me to a number of the farmers in the central part of the county. Another individual, a college-educated native who is greatly interested in local folklore and history, played a similar pivotal role in introducing me to a number of the farm families in the more closed Shelton Laurel community. These community leaders’ introductions were helpful in providing an entree to these communities. Subsequent contacts were made by asking interviewees to recommend other people to interview because they practiced a certain farm method or were knowledgeable about particular topics. Other contacts were made at meetings of farm organizations, at public social events, and through participating in farm work groups.
The agricultural census and published secondary sources form the third node of triangulation, lending a historical perspective that extends beyond informants' memories and explicating the institutional structures of U.S. agriculture. The three methodological components of triangulation complement each other in terms of scale and permit empirical cross-checking that increases the reliability of the study.

Participant observation was concentrated in two communities, and the amount of time spent with these households facilitated depth of understanding. Formal interviews were conducted over a wider area and promoted an appreciation of variation within the county. Archival research suggested linkages between Madison County, the region, and the nation. Trends observed in census data or that emerged from analysis of interviews were verified against the other data sources.

1.4.2 Madison County, North Carolina

Madison County lies in the Blue Ridge province of the southern Appalachian Mountains on the North Carolina-Tennessee border (Fig. 1.1). It is bisected by the French Broad River, which flows north to the Tennessee River and is not navigable along this part of its course. The rolling hills of the Asheville Basin occupy the southern and eastern parts of the county, and brown, friable Porter and Ashe series soils formed from gneiss and granite parent material have sufficient organic material for tobacco cultivation (Goldston et al. 1942, 12-13). Elevations become higher and the topography more rugged to the north and west, where peaks range between 3600 and 5500 feet. In the more mountainous part of the county, relatively infertile soils formed from shale, slate and quartzite parent materials cover the steep slopes (Goldston et al. 1942, 12-13). These loamy soils support mixed hardwood forests, grass or
rhododendron balds on some ridge tops, and Christmas tree farms on north-facing slopes. A third major soil type is found on the terraces and alluvial deposits of the French Broad River and its tributaries (Goldston et al. 1942, 12-13). Tobacco is cultivated on almost all of these sandy or silty bottomlands despite their narrowness and small size because their flatness minimizes erosion and makes tractor use possible.

Euro-American settlement occurred primarily in the wider valleys of the French Broad's tributaries. Today’s population is largely descended from settlers of English, German, Irish, and Scotch-Irish origin. African Americans comprise less than one percent of the county population, far below the state proportion of twenty-two percent (U.S. Census Bureau, 1991a; U.S. Census Bureau, 1992a).

The northwestern quarter of the county lies within the boundaries of the Pisgah National Forest. Although this region is less densely populated than the rest of the county, numerous private in-holdings exist. Population density for the entire county is 37.7 person/mi² (U.S. Census Bureau 1991a). County population has hovered around 17,000 since 1960, representing a decline from a peak of 20,644 in 1900. Suburban sprawl around Asheville, a city of 175,000 (U.S. Census Bureau 1992a, Table 1) only 15 miles to the south, has produced bedroom communities that are encroaching on farm land in the southernmost portion of the county.

The county retains a strongly rural character, and none of the three incorporated towns contains the minimum population of 2500 needed to qualify for the Census Bureau designation of “urban place.” Marshall, population 809 (U.S. Census Bureau 1992c), is the county seat. Once a thriving local center, Marshall lapsed into a tranquil sleepiness when businesses and government offices relocated to a state highway that
bypassed the town in the early 1980s. Mars Hill, spurred by the vitality of a small Baptist college of the same name and by easy access to Asheville, is the county's current growth pole, with a population of 1,611 (U.S. Census Bureau 1992c). Hot Springs, famous for its mineral baths, was a popular tourist destination for elite Southerners between 1840 and 1880. Today, tourists are more likely to be hikers on the Appalachian Trail, which runs down the main street of this town of 478 (U.S. Census Bureau 1992c). Most of the county’s 16,953 residents (U.S. Census Bureau, 1991a), occupy a low-density sprawl of houses and trailer homes. Unincorporated communities consisting of a cluster of houses, a church, and perhaps a country store lie scattered through coves and at crossroads. Sandymush, Sodom, Spring Creek, Grapevine... each has a distinct local character and history. Wolf Laurel, a gated resort community started during the 1970s, attracts retirees and wealthy second-home buyers with recreational amenities that include a ski slope and golf course. A project begun in 1996 to bring U.S. Highway 23 up to interstate standards will make that highway part of I-26, extending the Charleston to Asheville route and increasing the pace of development in Madison county. Already an interchange planned for Mars Hill promises to bring the county its first fast food restaurant and chain hotel.
2. The Rise of Tobacco as a Southern Appalachian Staple

Stereotypes about Appalachia and Appalachian farming persist in the popular American imagination (McNeil 1989). The region is often portrayed as static, homogenous, and essentially different from the rest of rural America, with a cultural isolation bred from physical isolation. This stereotype was propagated in the late nineteenth century by local-color writers (Moore 1991; Shapiro 1978) and in the early twentieth century by academics such as Ellen Churchill Semple, who described Appalachia as “a retarded civilization” whose people “show the degenerate symptoms of an arrested development” (Semple 1901, 593). The idea of a backward and unchanging Appalachia has itself shown great resistance to change, recurring in Jack Weller’s widely read depiction of an Appalachian “Culture of Poverty” and more recently in movies such as Deliverance and Nell.

Recent Appalachian scholarship has challenged these stereotypes, demonstrating that Appalachia’s isolation has been exaggerated, that settlement patterns, physiography, transportation networks, and regional economies resulted in complex and differentiated patterns of development (Pudup et al. 1995; Salstrom 1994; Pudup 1987), and that Appalachia’s agricultural system long evinced traces of agrarian capitalism (Dunaway 1996; Inscoe 1989, 39). Madison County has often been considered one of the most isolated and rural sections of western North Carolina. Although farmers here have retained traditional farming techniques, the farm system has been neither insular nor static. New crops and agricultural technology diffused into the region, markets for cash crops expanded and contracted, residents left the county and returned, and new
groups moved into the region, bringing with them different visions of the land and approaches to farming. Thus, the history of farming in Madison County reflects farmers' adjustment to regional and national patterns of manufacturing, commerce, and finance, partial accommodation of agricultural industrialization, and a blend of innovation, adaptation, and consciously maintained tradition.

This chapter traces the agricultural history of Madison County from European-American settlement to the present. It examines how tobacco came to occupy a central role in the farm system of this southern Appalachian county and why tobacco production continues to be a mainstay of the county economy even as other farming activities have declined in importance. I divide the county's agricultural history into six eras based on dominant land uses and farming activities: Cherokee occupation (pre-1780s), European-American frontier farming (1780 - 1820), the turnpike era (1820 - 1870), the flue-cured tobacco era (1870 - 1910), the burley tobacco era (1920 - present), and an emerging post-agrarian society (1950 - present). History is a continual movement punctuated by change episodically, but seldom completely. The division of history into periods is a convenient fiction that highlights particular characteristics for discussion and provides a framework for understanding. The boundaries of historic eras, like those of geographic regions, are frequently fuzzy. These last two periods overlap because each highlights a different trend within the county's farm system — the first a concentration on burley tobacco as a cash crop, the second a growing diversity of economic pursuits and a de-emphasis of farming.

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2.1 Settlement

2.1.1 Cherokee Occupation

Cherokee Indians made the southern Appalachian mountains their home for up to four thousand years before European-Americans appeared on the scene (Nealy 1984, 105). Wellman (1973, 12) suggests that the French Broad district was neutral territory between the Cherokee and Creek nations, an area of seasonal hunting and fishing camps, but no permanent villages. At the time of European-American arrival, the Cherokee population was concentrated on better agricultural land in clusters of villages -- the Overhill settlements of the lower Little Tennessee River, the Middle and Out settlements on the headwaters of the Little Tennessee, Tuckasegee, and Cheoah Rivers, the Valley River settlements, and the Lower settlements of northern Georgia and piedmont South Carolina (Neely 1991, 15; Corkran 1962, 3). Cherokee activity in Madison County is documented by archaeological surveys performed by the National Forest Service (McGrew 1996), by artifacts uncovered by farmers' plows, and by oral histories of descendants of the first families to settle the region.

The Cherokee presence in Madison County did not last long after European-American settlement. A Cherokee horse-raiding party in 1778 inadvertently led Tennessee settlers up the French Broad Valley to the hot springs that became the locus of the first settlement in Madison County, the town of Warm Springs, later renamed Hot Springs (Wellman 1973, 14). Cherokees were noted visiting the town as late as 1792 (Wellman 1973, 18), but they receive little mention in the county's recorded history. Descendants of the first European-American family to settle in the Shelton Laurel
district recall family tales of a Cherokee settlement still in use high on the mountain where their homestead was built. Most likely, the pressures of disease, colonial warfare, and European-American settlement that pushed Cherokee settlements into ever remoter mountain refuges disrupted patterns of seasonal land use in the French Broad Valley, causing Cherokees to abandon the Shelton Laurel and neighboring settlements. The forced removal to Oklahoma in 1838 greatly reduced the Cherokee presence throughout western North Carolina. Approximately one thousand Cherokees evaded removal by hiding in mountain refuges and later negotiating land purchases in Swain and Jackson Counties that became a reservation known as the Qualla Boundary (Neely 1991, 23). In 1990, only 29 residents of Madison County, all female, claimed Native American heritage (U.S. Census Bureau 1991b).

Although Cherokee contact with settlers in Madison County seems to have been limited, Cherokees influenced European-American settlement patterns and land use through prior landscape manipulation. When settlers first arrived in this mountain wilderness, they built cabins, not along stream bottoms, but higher on mountain slopes, where springs provided drinking water and where they were within easy reach of ridgetop and mountaintop "balds", long thought to be naturally-occurring meadows (Gersmehl 1970, 67; Brittain 1987, 5). Settlers used these ready-made pastures for herds of cattle, horses, and sheep, and their grazing not only maintained but also enlarged the balds. Numerous natural explanations have been proposed to account for the balds, but it is now generally accepted that the Native American practice of setting fires to clear forest underbrush and improve forage for game animals altered remnant
Northern vegetation ecotones, such as high elevation red spruce and Frazier fir forests, to create grass balds on numerous ridge tops scattered throughout the Southern Appalachians (Clay et al. 1975, 135; Wilson 1991, 32-44). With twentieth-century abandonment of grazing on balds, successional vegetation has slowly encroached, providing further proof of balds' anthropogenic origin. The National Forest Service now maintains selected meadow balds through periodic burning. Max Patch in Madison County, for instance, is burned once every few years to preserve the wildflower-filled meadow that delights hikers on the Appalachian trail and offers scenic vistas of the farms below.

2.1.2 EUROPEAN-AMERICAN APPROPRIATION

European-Americans gained control over the territory that now comprises Madison County during a period from the late 1770s through 1791 in which state and federal treaties with the Cherokees set conflicting boundaries, but did nothing to stop the tide of settlement. Land was acquired by squatters, many of whom were later granted purchase rights, soldiers with Revolutionary War land grants (Blackmun 1977, 127-8), and a land speculator who gained a mountain demesne and then lost it by failing to pay taxes.

Although Cherokee lands in western North Carolina were officially protected by the British decree of 1763 that closed the area west of the Blue Ridge mountains to settlement, frontier enforcement was non-existent. By the late 1760s, Scotch-Irish and German settlers had pushed into the Watauga River valley in northeastern Tennessee by way of Virginia and struck deals directly with Cherokees to rent or purchase land
A series of agreements either reserving land for Cherokees or wresting land concessions from them attempted to keep pace with immigrants, but squatters encroached upon each newly drawn boundary.

Land disputes were exacerbated by differences between state and federal policies towards settlement expansion and disagreement over which level of government had the right to make treaties with Native Americans (Dykeman 1955, 38-9). Thus, treaties with conflicting boundaries were independently negotiated, and the state had started granting land in Madison County by 1784, the date of the earliest recorded deed (Wellman 1973, 16). Not until 1791, did federal treaty acquire from the Cherokees the territory between Asheville, North Carolina, Knoxville, Tennessee, and Greeneville, Tennessee, then occupied by some 500 settler families (Dykeman 1955, 38-9). Similar legitimation of de-facto land tenure occurred when North Carolina and other Southern states granted squatters preemption rights, the right to buy land already cleared and occupied (Price 1995, 186).

The first recorded settlement in Madison County was in 1779 at the hot springs discovered the previous year (Wellman 1973, 14). These squatters may have been seeking the springs' curative powers, as Wellman (1973, 14) suggests, but they were likely also staking claim to potentially valuable real estate. The settlement grew quickly as a gateway to settlement of the surrounding area, benefiting from its location on a ford across the French Broad River and on what would become a major trade route between the trans-Appalachian region and the South. By 1790, an estimated one thousand people lived in the vicinity of the town (Wellman 1973, 16).
The largest land speculator in the region was a tobacco planter and shipping magnate from eastern North Carolina, John Gray Blount, who in 1796 purchased half a million acres in western North Carolina, including half of present-day Madison, Buncombe, and Yancey Counties. Such planter-capitalists used political and economic leverage to purchase extensive tracts of the best agricultural land in Appalachia, shaping settlement patterns and laying the foundation for class divisions that included a landed elite and a sizable landless tenant class (Dunaway 1995; Dunaway 1996). Blount's purchase excluded "lands already granted and occupied" (Wellman 1973, 19), indicating that small-scale settlement and squatting had already occurred. Blount intended to divide and resell his land to immigrants from the American Northeast and from Europe, but lost it two years later when it was sold for delinquent taxes (Dunaway 1995, 55; Wellman 1973, 19). James Strother, a friend of Blount's, purchased the land, took up residence in the area, and presumably played a role in subsequent land development (Wellman 1973, 19).

2.2 Frontier Farming

2.2.1 Ridge-Top Pastures and Forest Farming

Much of the land acquired by early settlers was covered with deciduous forest or laurel thickets that had to be cleared before fields could be planted. Settlers practiced a form of mixed agropastoralism known as "forest farming" in which livestock roamed unpenned and farmers fenced their gardens to exclude animals (Brittain 1987, 9; Arcury 1990, 107). Larger livestock -- cattle, horses, and sheep -- were pastured on grassy balds, where steep wooded hillsides and strategically placed saltlicks discouraged
animals from straying (Gersmehl 1970, 68). Pigs, the most numerous livestock, roamed the forest and orchards, fattening on chestnut mast and fallen fruit (Rogers 1929, 35). The practice of letting animals roam freely survived at least to the end of the nineteenth century (Carpenter 1892, 144).

Agriculture was land-extensive and employed a brush- or forest-fallow rotation that, in the latter case, extended across multiple generations (Hart 1977). Field rotation from place to place on the farm rather than crop rotation was the central characteristic of this system. Farmers girdled trees, then planted crops between the standing trunks after their leaves had fallen. The following year, they burned the trunks to admit more light and to provide natural fertilization. After several years of cropping, soil lost its fertility and fields were abandoned for new areas. Clearing of "new grounds" became an annual event so that farms typically had fields in each stage of production. This extensive field-forest system of agriculture is thought to be an amalgamation of the Scotch-Irish infield-outfield system and Native American slash-and-burn techniques (Hart 1977; Otto and Anderson 1982; Raitz and Ulack 1984, 125).

Farm households were highly self-sufficient, producing much of what they consumed, but most also produced an agricultural surplus that could be traded for goods such as coffee and salt that could not be produced on the farm (Blackmun 1977, 169-71; Dunaway 1996, 133). Households grew a diverse group of grains including corn, wheat, oats, barley, buckwheat, and rye (Wellman 1973, 109). Most farm families had a dairy cow and small herds of pigs and chickens, and butter, milk, and bacon were commonly traded at country stores (Rogers 1929, 35). Kitchen gardens supplied fresh
vegetables and orchard fruit. Unoccupied land formed a commons where berries and greens could be gathered and deer, rabbits, and squirrels hunted, and streams fished. Animal skins and ginseng were also common trade items (Kephart 1913, 33). Households manufactured many of the necessities of daily life, including farm implements, molasses, butter, and tobacco for chewing or smoking (Rogers 1929, 29).

Most farmers relied on household labor with reciprocal labor exchange between neighbors and kin to pool labor at times of peak demand. Better-off farmers hired seasonal or day laborers, some of whom were probably slaves. Appalachian slave holders usually found it more profitable to hire out slaves than to employ them directly in agriculture (Inscoe 1989, 76). Slavery penetrated southern Appalachia to a lesser degree than the rest of the South, and was less common in Madison County than any other part of western North Carolina except Watauga County. In 1860, 3.6 percent of the Madison County population were slaves, whereas in western North Carolina as a whole, 10 percent were slaves (Inscoe 1995, 86, 99). Slaves in Appalachia were owned largely by the middle class — merchants, lawyers, doctors and other professionals who had income from sources other than farming (Inscoe 1989, 69). Although all able hands were likely employed in the fields at times of peak labor demand, slaves also labored in manufacturing, mining, or in their owners’ businesses (Inscoe 1989, 70-72). In Madison County, slave labor was used in running stock stands along the Buncombe Turnpike. David Vance, father of the future Civil War general and North Carolina governor Zebulon Vance, brought slaves when he moved to Lapland (later renamed Marshall) in 1837 to open a stock stand (Wellman 1973, 44-5). At another stock stand,
"squads of black slaves waited on the guests, tended the stables and stock pens, [and] reaped grain over a vast tract of farm lands" (Wellman 1973, 54). Slaves were also likely employed at hotels in Hot Springs, where the resort trade flourished from the 1830s through the 1880s.

2.2.2 THE TURNPIKE ERA

In the nineteenth century, Madison County’s farm system was a crucial link in extra-regional trade, connecting livestock-producing regions west of the Appalachians with markets in the lowland South (Inscoe 1989, 52). Livestock droving up the French Broad Valley created a substantial demand for locally grown corn, the region’s first cash crop, and tied mountain farmers into a credit system financed by country stores that doubled as stock stands. The French Broad Valley, although extremely narrow at several gorges, forms one of the lowest passes though the Southern Appalachians. By the start of the nineteenth century, a rough trade route followed the river. Two Madison County men, one a ferry operator and another who operated a tavern and general store, petitioned the state legislature in 1802 for the right to make improvements to the road and collect tolls (Wellman 1973, 30). They oversaw much of the work of cutting new gaps and building bridges on side fords, and in 1824, the route was designated the Buncombe Turnpike.

Every fall, thousands of cattle, hogs, turkeys, horses, and mules made the journey, with the smaller animals traveling only 8 to 10 miles a day (Dykeman 1955, 138-43). Animals were corralled for the night at stock stands, of which there were about a dozen in Madison County. Most of these stock stand owners also ran general
stores and advanced supplies to farmers throughout the year in exchange for payment in corn at the time of the fall droves. Mountain farmers added their own cattle and pigs to the stream heading south, as well as a significant number of horses and mules raised for export (Dunaway 1996, 141). Thus, Madison County was integrated into a trans-regional trading network linking frontier regions to Southern coastal metropolises almost from the start of Euro-American settlement. The Buncombe Turnpike remained a major trade route until railroads penetrated the southern Appalachians in the 1880s.

2.3 Hooked on Tobacco

Following the turnpike era, farmers developed tobacco as a cash crop while continuing subsistence production for the household. Two distinct eras of commercial tobacco production in western North Carolina are distinguished by the type of tobacco grown and the method used to cure the leaf (Figure 2.1). The mountain counties have been famous for producing air-cured burley tobacco during most of this century, but their production of flue-cured bright leaf in the 19th century is less well known. This earlier tobacco era is significant because flue-curing technology and bright tobacco varieties were adopted in the mountains nearly simultaneously with their diffusion through the Piedmont and Coastal Plain, testifying to Appalachian awareness of agricultural innovations, adaptability to changing market conditions, and readiness to adopt non capital-intensive technologies. Madison County stands out within western North Carolina for the rapidity and degree to which its farmers embraced commercial tobacco production. At the onset of each era, farmers within Madison County expanded
Figure 2.1
Tobacco Eras in Western North Carolina
1869 - 1992

Note: 1869 acreage estimated from reported production and average yield of 500 lbs. per acre
Source: U.S. Census of Agriculture
acreage faster than farmers in other counties, and they persisted to a greater degree in cultivating tobacco during downturns in the tobacco economy.

2.3.1 THE FLUE-CURED ERA

Tobacco production on a small scale for family consumption and barter had been part of a diversified agropastoral farm strategy practiced by Appalachians since the start of Euro-American settlement. Until the late nineteenth century, however, the line between commercial and non-commercial production was blurred. Households grew tobacco for their own use but also bartered extra leaf at country stores. Starting in the 1870s, large numbers of farmers rapidly expanded production. Increased market access made it possible for farmers to undertake commercial tobacco production, while the adoption of flue-curing techniques and bright leaf varieties made doing so lucrative, and the decline of droving and demand for corn provided incentive. This burgeoning commercial production differed from the limited tobacco production for home consumption and barter that had long been part of a diversified agropastoral farm strategy in the Appalachians. Farmers increasingly marketed their own crops, and the role of the store owner in aggregating and marketing tobacco declined. The result was an infusion of cash to farmers at a time when cash was scarce in Appalachia:

Madison County is pre-eminent in the quality and quantity of its tobacco. That crop can be raised on a comparatively small area, and great values can be compressed into relatively small bulk. This has given increased value to lands. Mountain tops and ridges that seemed forever destined to wear their verdure and crown of forests have been brought into cultivation; and men who a few years ago were scarcely familiar with the name or sight of money have become prosperous and relatively rich. (Western North Carolina 1890, 68)
Tobacco also brought environmental degradation, however, as land use changed and fuel wood consumption soared, changes related to the unique demands of flue-cured bright tobacco. The mild, yellow leaf could be produced consistently only if grown on sandy soils and cured with charcoal-fired furnaces (Siegel 1987, 100-102). Farmers converted flat bottomlands with rich fluvial soils to tobacco, but also cleared new fields on precipitously steep slopes. Cutting fuelwood to keeping fires burning for a week during curing caused further deforestation. Forest clearing and hillside farming severely gullied the county’s heavy, clay soils (Goldston et al. 1942, 14; Sondley 1930, 733-734), and the damage took much of the next century to restore. In the late 20th century, decrepit tobacco barns in the midst of hardwood forests mark formerly cultivated mountainsides, but little visible evidence of earlier mass erosion remains.

Increased market access after the Civil War spurred tobacco production, and farmers who sold directly to manufacturers lost less of the proceeds of their labor to middlemen. Before the war, better-connected farmers and store owners who pooled tobacco could afford to engage the services of a Knoxville commission merchant who would arrange for tobacco to be shipped to New Orleans via the Mississippi (Dunaway 1996, 236). They could also ship hogsheads of tobacco by rail from Old Fort, east of Asheville, to one of the principal auction markets in Danville, Richmond, Lynchburg, or Petersburg, Virginia (Robert 1933, 178). Small-scale farmers had fewer options. They could barter tobacco at a country store or sell to a “drummer,” a roving tobacco company buyer who bought leaf in the barn or standing in the field (Robert 1933, 181). Prices paid in both instances were below market value, and the farmer paid high interest.
and a forty to seventy percent mark-up on store goods purchased on credit (Dunaway 1996, 241; Campbell 1993, 9). Considerable speculation occurred, and much tobacco changed hands several times before finally being sold to a manufacturer (Hanna 1934, 299).

Market access was facilitated by two developments — Reconstruction-era railroad building and the creation of a regional tobacco market in Asheville. In 1868, a railroad line between Wolf Creek, Tennessee, four miles west of the Madison County line, and Morristown, Tennessee, was completed. Tobacco acreage initially expanded in the northern part of the county, which, except for relatively narrow bottomlands, was generally unsuited for agriculture (Yoder 1949, 48). Expansion here, instead of on the rolling hills of the southern and eastern part of the county that produce most of today’s tobacco, suggests the importance of the rail link through Morristown to Knoxville and other markets. Despite the mountains, egress to the railhead at Wolf Creek was not as difficult as might be imagined. Most roads ran along creek beds or wider valley bottoms so that the dendritic drainage pattern of the watershed connected roads in side coves and tributary valleys to the Buncombe Turnpike (Holmes 1911, 50). In 1882, a railroad line was extended from Asheville to Wolf Creek, and six railroad stations in Madison County gave farmers access to distant markets on both sides of the Blue Ridge.

Markets gave farmers access to multiple potential buyers and greater knowledge of current prices so that they were less likely to accept a low valuation of their crop. Auction sales started in Asheville at the Pioneer Warehouse in 1879. The following year Asheville supported four sales warehouses and Madison County one (Sondley 40)
By 1889, Asheville was marketing eighty percent of the western North Carolina crop (Western North Carolina 1890, 62). In the greater anonymity of fast-paced auction sales, social capital, such as class and business connections, probably became less important as a determinant of price. One observer, however, suggests that the market was not a perfectly egalitarian institution: “The more humble farmers could afford to pay their better known neighbors two cents a pound to market their tobacco” (Hanna 1934, 301).

Farmers expanded production not with the air- or fire-cured dark tobaccos formerly grown, but with flue-cured bright leaf, a mild-tasting tobacco valued for plug wrappers and for cigarettes, a new form of tobacco consumption that was growing in popularity. Bright leaf production combined two innovations — use of relatively infertile, sandy soils believed to have little agricultural value and a new curing technique that forced hot air through a tobacco-filled barn. Flue-curing had been used in the Virginia piedmont as early as 1812 to produce “piebald” tobacco (U.S. Census Bureau 1902), but it took several decades of experimentation starting in the 1830s by a handful of farmers in Piedmont Virginia and North Carolina to establish a technique for consistently producing a leaf that was mild and yellow when cured (Siegal 1987, 100-102). Wide-spread diffusion of flue-curing for bright tobacco occurred only after the Civil War (Robert 1949, 61). Madison County farmers thus adopted flue-curing and bright tobacco during the same period in which these innovations transformed the North Carolina piedmont and coastal plain. Ironically, these events occurred during the very
period in which local-color writers were propagating stereotypes of the isolated and unchanging nature of Appalachian existence (Shapiro 1978).

How farmers became aware of these innovations is an interesting question, for little attention has been paid to the information flows that enabled the diffusion of agricultural innovations. Historian F. A. Sondley (1930, 728) identifies several influential figures in the development of Buncombe County’s commercial tobacco production that suggest leadership in innovation by in-migrants with prior experience in commercial tobacco production. He credits Virginia planters and brothers-in-law W. T. Dickerson and Robert V. Blackstock with initiating small-scale tobacco production in the Flat Creek section of northern Buncombe County in 1856. Samuel C. Shelton, another Virginia tobacco planter, migrated to Chunn’s Cove in Buncombe County in 1868. He not only continued his own cultivation of the crop, Sondley tells us, but also persuaded a neighbor to adopt it. Such well-to-do farmers would have had considerable control over which cash crops were grown by their tenants. One Madison County farmer, W.W. Rollins, employed sixty tenant farmers in the production of tobacco during the 1880s (Love n.d.).

The rapidity with which tobacco production expanded in the 1870s and 1880s suggests, however, that bright leaf was soon adopted by farmers of all classes. A variety of printed sources offering advice on bright leaf cultivation and curing provides a partial record of how this information disseminated. Farm journals and agricultural societies publicized flue-curing innovations (Siegal 1987, 102), and warehouse owners and manufacturers, who stood to gain from a steady supply of leaf, also actively
promoted flue-cured tobacco cultivation. The Hall family opened a flue-cured tobacco sales warehouse in Hickory, North Carolina in 1880 and soon after published a pamphlet extolling the advantages of tobacco and giving practical advice on its cultivation (Van Noppen and Van Noppen 1973, 276). *The Art of Curing Fancy Yellow Tobacco* (Love, n.d.), another pamphlet from the 1880s, carries the endorsements of two Asheville warehouses, J. M. Ray and Rhea, Chambers & Co.

Restructuring of tobacco manufacturing in the late 19th century and the national fiscal crisis of the 1890s ended the flue-cured era in western North Carolina. During the last two decades of the 19th century, the American Tobacco Company staged an aggressive consolidation of tobacco manufacturing ownership. By 1910, that company had established a near-monopoly, controlling eighty percent of U.S. tobacco manufacturing outside of the cigar sector (Robert 1949, 146). The manufacturing monopoly created a monopsony in tobacco sales warehouses that allowed buyers to dictate farm prices. Burley prices in 1880 on the Louisville and St. Louis markets ranged from three to twenty-five cents per pound, depending on grade, with an average of seven to eight cents per pound (Dodge 1881, 943-945). Prices on the Asheville market were similar to those of the western markets. In 1879, Madison County farmers received an average of eight to twenty cents per pound (Killebrew 1881, 119). At the height of the monopsony, tobacco prices fell to one half cent per pound, and many farmers abandoned tobacco production (Farmers Federation 1942).

Monopsonistic buying practices were compounded by the collapse of the Asheville flue-cured market. Credit for warehouse operators was severely constricted
following the national bank panic of 1893, and all the Asheville warehouses folded within four years (Sondley 1930, 732). Farmers then bore the added onus of railroad freight rates in order to market their tobacco. Family oral histories are rich in tales of grandparents who shipped their crop to market during this period only to receive a bill from the railroad company when the tobacco’s price failed to cover its shipping cost. Many farmers fell into debt when tobacco prices fell below the cost of production, and tenancy rates soared between 1880 and 1910 (Campbell 1993, 2, 9), suggesting that bankruptcy and farm loss were linked, but rather than emigrating, households remained on the land, farming it by agreement with the new land owners. Flue-cured tobacco production continued, but at much reduced levels. Because the decline was region-wide, Madison County remained the leading tobacco producer in western North Carolina from 1909 to 1924, producing between sixty-five and eighty percent of all western North Carolina tobacco.

2.3.2 THE BURLEY ERA

Commercial tobacco production in western North Carolina revived following the 1911 break-up of the American Tobacco Company. Although flue-cured production recovered briefly, farmers rapidly adopted a new type of tobacco that had been diffusing south- and eastward since its discovery in southern Ohio in 1864 (Axton 1975, 68). During the 1920s, this new air-cured tobacco almost completely replaced flue-cured tobacco in Madison County.

Burley, the youngest of the major tobacco types, originated as a genetic mutation in several dark tobacco plants on one southern Ohio farm (Axton 1975, 68). Production
expanded rapidly from this hearth because burley’s physical properties ideally suited it for the most popular tobacco products of the late 19th century, stimulating a demand that ensured consistently good prices in an otherwise volatile tobacco market. The leaf’s low natural sugar content and porous structure made it extremely absorptive, a quality valued by manufacturers of chewing tobacco. Plugs and twists of chewing tobacco were infused with flavorings and sweeteners both to make the tobacco more palatable and to differentiate among proliferating brands (Siegel 1987, 132-133). Burley could absorb four to six times more flavorings by weight than other varieties, and it became popular among chewers (Axton 1975, 71-72). During the late 19th century, chewing rivaled cigar-smoking as the most popular mode of tobacco consumption, and chewing tobacco led all other forms of consumption in pounds per capita from the turn of the century into the early 1920s (Robert 1949, 104, 225). Burley brought 10 to 11 cents per pound in Kentucky markets in 1880 when the average for all tobaccos was 7 to 8 cents per pound (Dodge 1881, 943-5). On the St. Louis market that same year, burley prices rose to as high as 25 cents per pound for the finest grades, whereas dark tobacco prices rarely exceeded 8.5 cents per pound (Dodge 1881, 943-5).

Burley diffusion initially followed the valleys of the Ohio River and its navigable tributaries because water transportation was critical for moving heavy barrels of tobacco (Axton 1975, 48-49). During the 1860s and 1870s burley replaced dark tobacco and hemp in the Ohio River valley and Bluegrass region of Kentucky (Dodge 1881, 881-950). Cincinnati became a marketing and distribution center, but manufacture was concentrated in New York, long a tobacco manufacturing center, and
in St. Louis's burgeoning plug industry (Dodge 1881, 943-945). In later decades, Louisville grew to prominence in both distribution and manufacture of burley. In the 1880s production spread up the Missouri River valley and into central and eastern Tennessee.

A few farmers in Madison and neighboring Buncombe County experimented with burley as early as 1898. In that year, Tennessean J.S. Bernard promised 20 area farmers a minimum of 5.25 cents per pound for up to an acre of burley each (Farmers Federation News 1949). Whether this was a marketing or tenancy arrangement is not clear, but the 9 cents per pound price that Bernard obtained for the farmers exceeded both the U.S. average (6.6 cents per pound) and the Tennessee average (5.2 cents per pound) for all types of tobacco (Farmers Federation News 1949; Campbell 1993, 19).

Widespread adoption of burley in Madison County did not occur until the mid-1920s (Sondley 1930, 734) when lime and chemical fertilizers that allowed farmers to amend the area's acidic soils became more widely available. A connection between lime and burley can be seen in the variety's diffusion during the 19th century, which was primarily into areas with limestone-rich soils. These early producers used neither fertilizer nor manure (Killebrew and Myrick 1903, 342-344). Tobacco is highly sensitive to soil type, and varietal characteristics can change in different soils (Killebrew 1903, 46). Thus, the potential of Madison County farmland for burley production awaited the adoption of soil amendments. Increased use of lime and fertilizer reflected a change that was occurring on farms across the country. Lime use tripled and use of nitrogen fertilizer doubled nation-wide between 1910 and 1920 (Cochrane 1979, 109).

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With the addition of lime and fertilizer, Madison County soils were better suited to burley than to bright leaf, which thrives on sandy soils. Burley also required less labor, and this characteristic may have underlain the varietal switch. Cultivation practices for the two varieties in the early decades of the century were largely similar up until harvest. In the early twentieth century, burley harvest and curing were less labor-intensive than those of bright leaf, although mechanization of bright leaf production since mid-century has reversed this equation. The practice of priming bright tobacco leaves required harvest workers to make multiple passes through the fields at intervals of several days. On any tobacco plant, leaf ripeness is related to stalk position, with lower leaves ripening first. Manufacturers’ demands for greater uniformity in bright leaf wrappers prompted flue-cured producers to prime their tobacco, harvesting individual leaves as they ripened (Robert 1949, 185). Leaves then had to be tied in bunches before they could be hung in the barn for curing. Burley producers used the older method of cutting the stalk close to the ground and hanging the entire stalk, suspended between tier poles, in the barn. Only after curing were leaves stripped from the stalk as they were sorted into grades.

Flue-curing required large quantities of cut wood for the nearly week-long curing process. Bright leaf tobacco was cured by means of a charcoal- or wood-fueled furnace outside the barn that heated air, which was then forced into the barn through a flue. Although wood cutting was normally a winter activity and did not interfere with the agricultural cycle, it competed for time with other winter activities. Deforestation occurred during Madison County’s flue-cured tobacco era and contributed to wide-
spread erosion. Fuelwood shortages stemming from deforestation are not mentioned in
the historic record, but may well have been a problem on smaller farms. Since burley is
an air-cured tobacco, farmers who switched to it eliminated the labor of cutting large
quantities of wood.

The creation of a burley tobacco market in Asheville and active promotion of
burley by those associated with the market contributed to the rapid expansion of burley
production in western North Carolina. Markets existed in Greeneville, Johnson City,
and Morristown, Tennessee, but Asheville was closer and more accessible to much of
the prime farmland in Madison County. Asheville's first burley auction warehouse
opened in 1930, financed jointly by the Farmers Federation, a regional agricultural
cooperative, and the Asheville Chamber of Commerce (Farmers Federation 1946, 13).
The chamber businessmen anticipated, in addition to a return on their investment,
increased trade from farmers flush with tobacco checks. The Farmers Federation, under
the leadership of James McClure, had worked since its inception in 1920 to improve
farm practices and raise farm income in western North Carolina. It sponsored
cooperative purchase of supplies, established markets for farm produce, and created
storage and processing facilities.

James McClure started promoting burley as a cash crop for the mountains in
1926 (Ager 1991, 269). He had extensive connections with the Asheville elite and
national business leaders and may have convinced tobacco manufacturers to send buyers
to Asheville. Tobacco company buyers made the market, for without them there could
be no auction. Once Asheville was on their circuit, however, other warehouses were
easily added to the daily auction schedule. Financiers moved to take advantage of the presence of buyers and other economies of agglomeration, such as stemming and redrying facilities, and the market grew to eleven sales warehouses by 1950. McClure was instrumental in bringing a second set of buyers to the expanded Asheville market in the 1950s (Ager 1991, 446). Warehouse owners also promoted burley cultivation to increase their sales volume. Victor Shelbourne of the New Banner Warehouse, for instance, held meetings in country schoolhouses to instruct farmers in cultivation techniques (Farmers Federation 1933).

2.3.3 A NEW DEAL FOR TOBACCO

The federal tobacco program, instituted in 1933, secured burley's place in the economy of Madison County even as other forms of agriculture declined in importance and rural industry developed. The federal tobacco program was part of a wider commodity program intended to restore farm income to pre-Depression levels. By largely insulating growers from market price fluctuations, it made tobacco a stable source of income (Johnson 1984, 52-55) and a fixture in Madison County's farm economy. The program guaranteed farmers a minimum price for tobacco in exchange for limiting the amount they produced and has been a powerful force in maintaining the status quo of burley production. Although the tobacco program has been criticized as a "government-sponsored cartel" that protects entrenched tobacco production rights and creates barriers to entry into production (Moyer and Josling 1990, 142, 162), the program had a salutary effect on small-scale farming in Madison County. The combination of a readily accessible market and stable price made tobacco an attractive
cash crop, and most farms grew some tobacco (Figure 2.2), although few relied solely on it. Typically, tobacco supplemented income from other sources, farm and non-farm. The number of farms growing tobacco peaked in 1944, and although the absolute number of tobacco farms fell after that, the proportion of farms growing tobacco continued to climb, reaching a high of ninety percent in 1978. While agriculture, in general, declined in economic importance to the county, tobacco production increasingly dominated farm activity.
2.4 Post-Agrarian Rural Society

2.4.1 Land Use Change

During the past 50 years, Madison County has been undergoing a transformation to a post-agrarian rural society, marked by decline in the importance of agriculture and the spread of new forms of rural landuse. As children of farm families grew up and took on "public work," jobs in the city or in rural light manufacturing, households needed less farmland, and excess was sold to newcomers willing to pay high prices. Between 1967 and 1977, twenty-five percent of county land was purchased by people from out-of-state (Plaut 1978, 359). Many in-migrants were year-round residents who came to work in Asheville's booming economy. Widening and straightening of U.S. 25-70 and U.S. 23 have significantly shortened the commute, and the bedroom communities of northern Buncombe County have crept into Madison County. Other in-migrants following the back-to-the-land movement bought more remote farmsteads and practiced various forms of ecologically conscious farming or formed "intentional communities." A handful started successful farms producing organic vegetables, hydroponic lettuce, herbs, or wool, but all have struggled to establish markets for their specialty crops. Other would-be farmers encountered the same problems as natives in making a living from the land and ultimately moved away or took jobs in Asheville, one of the county townships, or in construction. More affluent in-migrants, known locally as "Florida people," are seasonal residents or retirees drawn by the scenic beauty, cool summer climate, recreational opportunities, or the cachet of a vacation- or second-home in the mountains. In-migration has raised land values and taxes and, by increasing the
fixed costs of farming and the incentive to sell out, has ironically contributed to the decline of the agrarian landscape that many had originally sought.

Much of the county's farmland has been replaced by a low-density sprawl of houses and trailer homes. At the close of World War II, the county was three-quarters farmland, and most of the remainder was former timber company land purchased in the 1920s and 1930s for the Pisgah National Forest. Farmland was rapidly converted to other uses during the 1960s, and in 1974, Madison County finally fell below the U.S. average proportion of land in farms (Figure 2.3). By 1992, farmland had fallen to less than one-third of the county area, and the decline shows no sign of abating.

![Figure 2.3: Land in Farms as Percent of Total Area, Madison County and the United States, 1919 - 1992](image)

Changes in the nature of farming in Madison County are reflected by changes in land use on farms as well as the reduction of land in farms. Since the 1930s, the proportion of farmland devoted to crops has steadily shrunk, and the proportions in
pasture, woodland pasture, and unpastured woodland have all increased slightly (Figure 2.4). Harvested cropland shrank from a high of 19 percent of all farmland in 1934 to 8 percent in 1992. Most of this former cropland is steeply sloping land that was abandoned as the diversified farm economy gave way to specialized beef and tobacco production. Many of these hillsides have now grown up in secondary forest. Natural succession, in conjunction with a reduced demand for fuel wood and abandonment of forest- and brush-fallow rotation systems, have resulted in marked reforestation of once erosion-prone lands. Reforested land is not necessarily unused, but serves as pasturage or standing timber reserves.

Figure 2.4
Agricultural Land Uses as Percent of County Area
Madison County, 1924 - 1992
2.4.2 DECLINING DIVERSITY

Coupled with county-wide declines in farmland and cropland has been a dramatic decrease in the diversity of farm production systems (Figure 2.5). The decline stems both from waning production for household consumption and the disappearance of specialized market production systems. At the close of World War I, family farms produced a variety of grains, hay, vegetables, and livestock. Most farms had a flock of chickens running around the garden to pick insects off vegetables and to supply the Sunday dinner, a milk cow to fill the family's dairy needs, and a few hogs. Eighty percent of farms grew corn to feed livestock and people, and ten to twenty percent still grew small grains (Figure 2.5). As cash income increased and public work left less time for farm work, households shifted away from diversified livestock and grain production and concentrated increasingly on tobacco and beef cattle, complementary farm products that have remained profitable on a small scale.

In contrast to steep declines in other field crops, tobacco acreage remained relatively constant (Figure 2.6). Tobacco is labor-intensive and occupies small plots, generally on flat bottomland close to the house where it is easily accessible for the multiple operations that must be performed throughout the growing season. Beef cattle production complements tobacco in its use of land and labor. Cattle may forage on steep hillside or woodland pastures most of the year. During the winter, they are brought closer to the house so they can graze on the tobacco plot's cover crop. Herds are small, averaging 22 animals in 1992 (U.S. Census Bureau, 1992b), and most herd owners produce calves destined for Midwestern feed lots.

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Figure 2.5
Prevalence of Production Systems
Madison County - 1924, 1949, 1992

Source: Derived from the U.S. Census of Agriculture
Other types of commercial farming disappeared, unable to keep pace with agricultural industrialization (Figure 2.7 and Figure 2.8). Madison County had 30
poultry farms in 1954, but they could not compete with feed companies that organized vertically integrated farm-to-factory operations and ratcheted up capitalization costs and the profitable scale of production. Decrepit cinder-block chicken houses now form a relic landscape along the highways and back roads of Madison County. The 60 dairy farms that existed in 1950, many supplying raw milk to Asheville's Biltmore Dairies, have also disappeared. Technological changes in the dairy industry made obsolete the system by which a large number of farms supplied small quantities of raw milk to commercial dairies. Horses and mules have declined in numbers by eighty percent and ninety-five percent, respectively, since mid-century, and the remaining animals are used as workstock and for recreation. The big Belgians and half-Belgians favored as plow
horses are also hitched to wagons for wagon-training over mountain trails, a popular group activity.

The county remains in a state of transition in the 1990s. Farming is a sizable portion of the economy, but the nature of farming is changing in ways that will be explored in the remainder of this dissertation. Pressures from land development and immigration will surely continue, bringing people who are unlikely to assimilate to the local culture, furthering regional diversity. Madison remains well-connected to the region and the nation, as it has been in the past. The implications of these connections on the lives and landscape of Madison County farmers will be explored in subsequent chapters.
3. The Mountain Agricultural Economy

Madison County farmers have melded traditional farm culture with industrial agriculture in ways that successfully, but selectively, incorporate the materials and methods of industrialization, yet retain farm ways that are a source of cultural pride and that are functionally adapted to their scale of farming and to the regional environment. This amalgamation of old and new has produced a farm system in which independent family farms have survived, and even prospered, into the late twentieth century.

The continuation of traditional practices is functionally adaptive in many cases, but also contributes to farmers' identification with the region and their sense of identity as tobacco farmers. Tradition is apparent in certain production practices, farm implements, and ways of organizing labor, in folk solutions to disease, and in the heirloom varieties of tobacco that are grown for home consumption. As descendants of eighteenth- and nineteenth-century settlers, most of the area’s burley tobacco growers are inheritors of a farming tradition that is rich in local knowledge of the mountain environment. Most tobacco farmers are second or third generation producers who started helping their families grow tobacco as children. For these growers, tobacco assumes an importance that exceeds economics, for it is a way of life as well as a livelihood.

Yet Madison County is no living museum. Over the course of the twentieth century agricultural industrialization has profoundly changed the way tobacco is grown and marketed, as well as the tobacco plant, itself. Inputs manufactured off-farm — commercial fertilizers, pesticides, herbicides, hybrid seeds and hydroponically grown tobacco seedlings — are routinely used. Research in plant breeding and genetics...
conducted by state universities and agricultural experiment stations in North Carolina, Tennessee, and Kentucky has produced higher yielding, disease resistant varieties that have supplanted, for commercial purposes, the older burleys with evocative names such as Judy's Pride and Bull Face. Each element of industrialization has impacted older traditions, obviating some, inducing changes in others. This chapter and the next detail the interplay between tradition and modernization that has occurred as farmers have accommodated industrialization while seeking to preserve the vitality of their farm community.

3.1 Mountain Smallholders

Farmers in Madison County are smallholders operating on the periphery of an industrial agricultural system. Their status as smallholders and their less than full integration with the agricultural establishment are definitive aspects of the farm system's cultural context. Both factors also contribute to farmers' vision of themselves as independent farmers, despite their position as price-takers in the tobacco market and despite the other structuring mechanisms of the tobacco program that often circumscribe their choices. Smallholders are farmers who combine subsistence and market production but generally engage in additional income-generating activities, such as off-farm employment or cottage craft production (Netting 1993, 2). Diversity and flexibility — of production systems and of livelihood pursuits — are hallmarks of smallholding and are the key to economic survival by those farming on the margin. Although the term smallholder is most often applied to farmers in developing countries, Netting's analysis of village-based dairy farmers in the Swiss Alps demonstrates the usefulness of extending this concept to appropriate Western settings. In the U.S.
context, the characterization of Madison County farmers as smallholders juxtaposes them to mainstream industrial agriculture and highlights the role that traditional culture plays in the maintenance of Madison County's agricultural system and the extent to which the community is a necessary and functioning part of the system.

Madison County farms are small by U.S. standards. Half have fewer than fifty acres, and fully three-quarters are smaller than a hundred acres (Table 3.1). Farms

Table 3.1
Farms by Size
Madison County, 1992

<table>
<thead>
<tr>
<th>Acreage</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>180</td>
<td>15.3</td>
</tr>
<tr>
<td>10 - 49</td>
<td>422</td>
<td>35.8</td>
</tr>
<tr>
<td>50 - 99</td>
<td>287</td>
<td>24.4</td>
</tr>
<tr>
<td>100 - 179</td>
<td>162</td>
<td>13.8</td>
</tr>
<tr>
<td>180 - 499</td>
<td>116</td>
<td>9.8</td>
</tr>
<tr>
<td>500 - 999</td>
<td>9</td>
<td>0.8</td>
</tr>
<tr>
<td>1000 - 1999</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1178</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau 1996

typically have small areas of cropland that are intensively worked and more extensive areas of pasture and forest. Madison County farms have, on average, half the acreage of the typical North Carolina farm. Consequently, one might expect these smaller farms to make fuller use of their limited acreage, yet the proportion of Madison County farmland planted in crops trails the state figure significantly (Table 3.2). The bulk of farm income is derived from an even smaller area. Two-thirds of farm sales by value come from burley tobacco, which averages a mere 2.9 acres per farm (U.S. Census Bureau 1994). In an era when land-extensive, capital-intensive agriculture is the norm, the cultivated portions of these farms are highly labor-intensive. Burley’s labor
requirements derive from the degree of hand cultivation entailed by production processes peculiar to burley tobacco as well as the still partial penetration of mechanized methods of production. The substantial portions of farmland in pasture and forest reflect farmers' reliance on multiple livelihood strategies including agropastoralism, forest resources, and off-farm employment, an abundance of land in relation to labor, and the region's challenging physical environment.

<table>
<thead>
<tr>
<th></th>
<th>Average Farm Size</th>
<th>Average Cropland Harvested</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acres</td>
<td>Acres</td>
</tr>
<tr>
<td>Madison County</td>
<td>79</td>
<td>7</td>
</tr>
<tr>
<td>North Carolina</td>
<td>172</td>
<td>95</td>
</tr>
</tbody>
</table>

Source: U. S. Census Bureau 1994

Most Madison County farms are family farms. Absentee ownership, corporate management, and vertical integration of production and processing, all hallmarks of industrial agriculture, are absent. These farms provide, or at least supplement, livelihoods for the individual families that work them, and family members provide much or all of the farm labor. Thus, ownership, management, and labor on Madison County farms overlap to a large degree. According to the agricultural census, tenancy rates have hovered between five and ten percent since 1969, reflecting a substantial improvement in ownership levels since the turn of the century when over half of county farms were tenant-occupied. Although the number of farms in the county peaked in the mid-1930s, the number of farm owners continued to rise through the mid-1940s. Thus, a real transition from tenancy to ownership seems to have been possible, and the drop in
tenancy rates is not attributable solely to abandonment of tenant farms. The rise in farm ownership is one reflection, I contend, of the benefits that the tobacco economy brought to Madison County, enabling many farm families to move into the middle class.

Commercial agriculture has long been just one component of a set of flexible household strategies practiced by Madison County farmers. While burley is the single largest source of farm income, many farmers hold seasonal or part-time off-farm jobs. Job opportunities for men include construction and seasonal tobacco-related work -- hauling others' tobacco to market, working in an auction warehouses or in a tobacco company's processing plant. Women commute to one of the nearby cities or find employment in a variety of factories, including textiles and microelectronics, that have located in the area in recent decades to take advantage of the rural labor force. Farming as a primary occupation is on the wane, and full-time employment for one or both spouses is increasingly common. Fewer than half of farmers now list farming as their primary occupation, while almost as many hold full-time off-farm jobs (Table 3.3). Because full-time farmers may hold seasonal or part-time jobs and wives are not generally considered farm operators, the contribution of off-farm work to household economies is larger than suggested by Table 3.3. In many farm households the wife's off-farm job provides a reliable income that subsidizes farm operations when necessary.

Farm production for home consumption is an equally important household strategy, because relative self-sufficiency enables families to limit cash outlays. Large vegetable gardens are the norm, and many women (and a few men) can or freeze produce for use throughout the year. Those farmers with small herds of beef cattle, raised primarily for sale as feeder calves, occasionally slaughter an animal for home
Table 3.3
Change in Farming as Primary Livelihood
Madison County, 1978 - 1992

<table>
<thead>
<tr>
<th></th>
<th>Farm Operators Working &gt;200 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Off-Farm (% of farm operators)</td>
</tr>
<tr>
<td>1978</td>
<td>53%</td>
</tr>
<tr>
<td>1992</td>
<td>44%</td>
</tr>
</tbody>
</table>

Source: USA Counties 1996

consumption, freezing the meat or sharing it with extended family. Woodland is
important to farmers' self-sufficiency, providing significant quantities of fuelwood and
building materials. Of secondary economic importance, but with great cultural
significance, is woodland's role as habitat for game and medicinal plants, both of which
contribute to self-sufficiency at levels that vary widely between households. The
prevalence of barter (in both farm products and specialized labor skills) can be taken as
an index of community-wide self-sufficiency.

The role of cottage craft production in the livelihood strategies of Madison
County smallholders today does not compare to its importance during the 1930s at the
height of the hooked rug industry, but local artists are among the contemporary southern
Appalachian woodworkers, weavers, potters, and quilters whose work is widely sought.
During the earlier period of craft production many women and teens, often working in
small groups, assembled rugs in their homes from materials and patterns supplied by
rug buyers. The industry was one of the few sources of cash income for these
demographic groups. The Madison Rug Shop, a locally owned venture that operated
from the early 1930s through 1942, played an important role in marketing the rugs to
department stores in New York City and Washington D.C. (Cheek 1993). Changing
tastes, the passage of child labor laws, and the production of cheaper rugs overseas contributed to the decline of this now defunct industry, but as many as two hundred Madison County families made rugs through the late 1940s (Cheek 1993). Surviving cottage industries, including woodworking, pottery, and quilting, are much reduced in scale and are marked by less formal organization than the hooked rug industry. As these enterprises are also pursued by the artistic portion of the in-migrant community, it is difficult (and perhaps needless given the cultural borrowing that has gone both ways) to distinguish between continuations of native Appalachian traditions, re-invented traditions promulgated by places such as the Joseph B. Campbell Folk School, and imported craft traditions. Contemporary crafters find outlets for their products in the Asheville Farmers Market, the Southern Highland Handicraft Guild's Folk Art Center, and smaller studios and a few roadside produce stands.

Networks of kinship and social relations are vital to the functioning of Madison County's farm system, and these aspects of community are part of the traditional culture of the region. Such networks are built through informal interactions between kin, neighbors, and friends and are reinforced by community institutions such as schools, churches, and farm organizations. They form the basis of labor exchange and barter-and-borrow practices that help the community meet labor needs at times of peak demand, redistribute excess farm produce and ensure the sharing of individual expertise and scarce machinery. They are a mechanism for collectively meeting the community's needs and form a safety net when individuals experience disaster. These networks of relations merge the economic and social realms and, by linking the welfare of numerous farm households, help create a strong sense of community.
The combination of market-oriented and self-sufficient activities, the prevalence of off-farm jobs among farmers, and the persistence (although at a diminished level) of home-based crafting mark Madison County farmers as smallholders. The variety and integrated nature of their small-scale production systems point to a talent among smallholders for synergistically dovetailing farm activities so that each accomplishes multiple purposes -- generating small amounts of cash, fulfilling a subsistence need, or producing an input needed by another production system. Madison County smallholders are highly flexible in their use of production systems, moving into and out of particular systems in response to markets, their position in the life cycle, or to satisfy their own inclination to experiment or innovate. Flexibility and competence in a range of farm pursuits are key livelihood strategies in a peripheral farm system.

3.2 The Peripheral Core

Madison County is in the paradoxical position of being central to burley tobacco production, yet peripheral to the agricultural establishment. Geographically, the county is part of the core of the smaller of two burley tobacco regions in this country (Figure 3.1). The larger region, in the Bluegrass of central Kentucky, occupies the limestone uplands of burley's agricultural hearth. The smaller core area, centered on the Tennessee-Virginia border, includes Madison County at its southern extreme. The county annually leads the state in burley production and in 1983 was ranked 39th nationally out of 343 burley-producing counties. That the county produces as much as it does despite the small scale of production and a lack of mechanization is testimony to the primacy of tobacco in the region.
Figure 3.1
Burley Tobacco Production, 1993
The county’s peripheral status vis-à-vis tobacco, then, is not so much geographic as structural. Although tobacco often means big money, the county’s small-scale farmers do not individually carry much economic or political clout, and many feel that burley tobacco legislation favors the interests of larger-scale Kentucky growers. Agricultural research and development conducted by the trinity of agroindustries, land grant colleges, and the agricultural extension service promotes agricultural industrialization and favors methods suitable for capital-intensive, large-scale production. The most severe critics of federal involvement with the agricultural establishment (e.g. Hightower 1978) have identified a pervasive ideology of efficiency that favors agribusiness over family farms and subsidizes industrialization while ignoring technology appropriate for small-scale farming. This blanket criticism must be balanced by noting that individual extension agents who have served Madison County for extended periods have an excellent understanding of their constituency and have promoted a variety of low-cost technologies, distributing plans for building balers and hydroponic seed beds and arranging for cooperative sharing of fumigation equipment. The larger trend within the tobacco sector, however, has been industrialization. Although Madison County farmers have not substantially mechanized, they have been full participants in the biological and chemical revolutions in agriculture that have increased productivity, but also the costs of production.

Within the tobacco economy as a whole, the burley sector tends to follow the lead of the flue-cured tobacco sector in advances in production methods, regulation, and marketing. Production innovations, particularly capital-intensive ones, appear first in flue-cured tobacco and later filter into burley production. Similarly, changes to the
federal flue-cured tobacco program are often adopted after a lag of five or six years by the separately administered burley tobacco program. The burley tobacco market opens in November, when the flue-cured markets to the east are winding down, and burley farmers look to flue-cured prices for an indication of what their own leaf will bring.

Burley’s peripheral status within the tobacco sector cannot be explained by chronology alone, for bright leaf had a mere three decade lead over burley as a distinct variety. Rather, mechanization of flue-cured production in the 1960s and 1970s introduced a host of changes that foreshadow those now occurring in the burley sector. Mechanization spurred research and investment and promoted the consolidation of production units. Once started on the path of mechanization, flue-cured growers found they had to mechanize all stages of production to avoid bottlenecks that would prevent them from realizing the benefits of earlier investments (Hart and Chestang 1978). Thus, an innovation in one phase of the production cycle encouraged developments in other phases. Farm program changes were introduced to permit consolidation of tobacco allotments, since mechanized production was profitable only on an estimated 40 or more acres of tobacco (Hart and Chestang 1978, 451). Not all farms mechanized, however, and this period saw a stratification of flue-cured farms by size and production methods. Smaller farms continued traditional, labor-intensive methods and medium-sized farms adopted only lower cost technologies, such as tying machines to prepare leaves for curing in conventional flue-curing barns (Hoff et al. 1977, 6).

The burley sector is now in a phase of development similar to that of the flue-cured sector during the 1960s and 1970s. Mechanization has proceeded in a piecemeal fashion for decades, but has favored low-cost technologies and multi-purpose tools.
Tractors became widely used after World War II, speeding field preparation and transplanting. Low cost technologies, such as backpack sprayers and air-jack bailers, make steps of the production process easier, but still require considerable manual labor. Harvest is the production phase that has proved most resistant to mechanization because of the difficulty of designing a harvester to handle the entire tobacco stalk. Burley leaves are left on the stalk until cured, unlike flue-cured leaves, which are removed from the stalk during harvest. Lack of harvest mechanization is a bottleneck for farmers who would expand production. While stalk-cutting harvesters exist and are in the early stages of production use on the larger burley farms of central Kentucky, the scale of production in Madison County again places the area on the periphery in terms of benefiting from agricultural research. The largest burley farm in the county (and the only one of this size) harvests the bare minimum of forty acres estimated to make the harvester remunerative.

Instead of mechanizing, Madison County farmers have ameliorated harvesting bottlenecks by importing seasonal labor and by modifying curing structures to require fewer workers. These solutions reflect a tendency among farmers to minimize new capital investment in burley production, a trend further exemplified by farmers' reluctance to purchase quota or replace dilapidated barns, all of which speak to an undercurrent of uncertainty about the future of tobacco production. The lack of harvest mechanization seems to involve at least a component of farmer agency, then, rather than being purely structural. Some larger farms are diversifying, investing in agribusiness enterprises. Other farmers believe that getting bigger is the way to survive and are positioning themselves to do just that, gaining experience in managing more, scattered
production units even if they are renting a substantial portion of their fields and quota. These efforts to expand production and overcome production bottlenecks have effectively stratified the area’s small- and medium-scale farmers with regard to labor practices and entrepreneurial orientation.

Madison County farmers' peripheral relationship to the agricultural establishment forces them to develop a broad set of skills. Farmers perform for themselves a wide variety of tasks that fall outside the conventional notion of agriculture, such as cutting and milling the timber for a tobacco barn. The self-reliance that is a product both of distance from the agricultural establishment and a certain disengagement from the monetary economy fosters a sense of independence that is one side of a peculiarly dichotomous view of their position vis-à-vis structuring forces of government and agricultural institutions. Farmers see themselves simultaneously as independent decision-makers who exercise free will and as hapless pawns of market and government forces over which they exercise no influence.

3.3 Production Systems

Most farms employ a variety of production systems, but tobacco is the mainstay of the farm economy and beef cattle the most important secondary production system. Tobacco is grown on slightly more than one-third of all cropland harvested in the county, and the bulk of the remaining cropland produces hay that is fed to cattle and workstock. As cattle are complementary to tobacco in use of land and labor, many farms combine the two. Cattle-raising is land-extensive, but not particularly labor intensive, and hillsides that are not forested are likely to be devoted to grazing.
In addition to these two most common production systems, a variety of vegetables, specialty crops, and small livestock are tended on a limited scale by small numbers of farms. The most notable of these alternative production systems are tomatoes and Christmas trees. Both represent only partially successful attempts to develop a secondary cash crop. Tomato production peaked during the 1960s and early 1970s when several packing sheds operated in the county. Competition from growers in Florida and California and the unpredictability of the market induced most farmers to abandon tomato production. A few made the crop-specific investments needed to specialize in tomato production, such as installing drip irrigation systems. The cash crop hope of the 1980s and early 1990s was Christmas trees. Some farmers established successful marketing and distribution channels for their trees and have made tree farming a profitable sideline. Where markets were not successfully established and trees exceeded marketable size, hillsides have essentially been reforested with firs.

Small numbers of farmers operate commercial truck gardens, grow vegetables under contract for canning corporations, or grow specialty crops such as herbs and nursery plants. Secondary livestock production systems include breeding the big Belgian horses and half-Belgian mules used as workstock, sheep, goats, dairy cattle, and an experimental ostrich farm. For farms of all types, the kitchen garden is an important adjunct to the household economy.

3.3.1 Tobacco Cultivation, Culture, and Identity

Tobacco is the staple crop of Madison County and occupies a central place in local farm economy and culture through sheer ubiquity. Tobacco acreages are generally small (Table 3.4), and although few households rely solely on tobacco, the crop is a
Table 3.4
Tobacco Farms by Acreage
Madison County, 1992

<table>
<thead>
<tr>
<th>Tobacco Acreage</th>
<th>Number of Farms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 - 2.9</td>
<td>612</td>
<td>65.1</td>
</tr>
<tr>
<td>3.0 - 9.9</td>
<td>285</td>
<td>30.3</td>
</tr>
<tr>
<td>10.0 - 24.9</td>
<td>39</td>
<td>4.2</td>
</tr>
<tr>
<td>25.0 - 49.9</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>940*</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau 1994

critical source of income for many individual farm households and for the community as a whole. Eighty percent of county farms grow tobacco, and two-thirds of the county’s agricultural income comes from tobacco (U.S. Census Bureau 1994). The tobacco economy also extends off-farm. A variety of local businesses, including farm suppliers, banks, tiny crossroads stores and a small shopping center located on Marshall's Highway 25-70 bypass feel the multiplier effect of farmers’ disposable income. A number of farmers interviewed in the course of my research summarized the importance of tobacco income to their household by stating that it financed their children's college education. It has also allowed them to participate in the material and recreational norms of middle-class America -- multiple automobile households, sundry consumer electronics, and regular vacations -- but it is interesting that farmers should

1 The number of farms growing tobacco enumerated by the agricultural census is less than the 1,529 marketing cards issued in 1992 by the county ASCS office to county residents selling tobacco. Certain cases, such as multiple farm tenants or a child being given individual responsibility for a tobacco plot, result in higher numbers of marketing cards than farms. However, the ASCS maintains that the census figure is an undercount of the number of tobacco farms in Madison County (Zink 1994).
gauge their economic success by their investment in the economic and social futures of
the next generation rather than their own assimilation to the larger American culture.

Tobacco is culture as well as economy, though. Tobacco binds the community
by virtue of the seasonal production cycle and shared traditions. Farmers perform the
same tasks at similar times, providing a base of shared experience and common concern.
Many community members grew up on tobacco farms and have an intimate appreciation
of the production process even if they do not farm themselves. Many of these non-
farmers assist relatives and friends during the critical labor-intensive harvest period.
Tobacco provides continuity with the past and is a locus of cultural pride. The most
widely practiced elements of traditional farm culture are those connected with tobacco.
Agricultural technology that was the norm prior to agricultural industrialization, such as
horse-drawn turning plows, manual tobacco setters and pegs, retain their uses in specific
environmental settings. The vernacular tradition of farmer-designed and constructed
curing structures continues, although barn form and materials have been adapted to new
social realities of labor. Farmers commonly point to elements of material culture when
expressing cultural pride, but non-visible traditions are also strong and remain essential
to the functioning of the farm system. Informal labor exchanges, for example, are
organized for setting, hoeing and harvesting. Such work groups have meaning beyond
the completion of farm tasks. The socializing that occurs through them builds ties
between specific groups of people and contribute to farmers’ sense of community.

Despite real differences in wealth, educational background, and entrepreneurial
orientation that exist among farmers, certain mechanisms promote a shared identity.
Lack of mechanization means that production methods are broadly similar whether a
farmer grows two-tenths of an acre or ten acres, creating a commonality of experience that transcends differences in scale of farming. Several of the larger-scale tobacco growers that I interviewed regularly hire harvest crews, but stressed the importance of working in the field with the crew, both to demonstrate proper handling of the tobacco and to build a good working relationship with hired laborers. Thus, even larger farm owners remain intimately involved in production processes.

Several venues promote communication across the continuum of tobacco farmers, contributing to an identity grounded in the crop and shared problems rather than divisions along class lines. Crossroads stores are places of business and socializing that bring a cross-section of the farm community together. For the communities stretching along the adjacent valleys, these stores are the closest place to get gas, a loaf of bread, or a few nails. Examination of the country store has focused largely on economic functions (e.g. Atherton 1949) and its role in integrating Appalachia with the national economy (e.g. Dunaway 1996, 196-246) rather than on the setting's role in identity formation and group cohesion. Half a dozen country stores remain in the county. When the pace of production slackens in mid-summer as tobacco plants grow tall but require little immediate attention, small groups of farmers congregate at certain times of the day. Stores encourage these informal gatherings by placing a few benches for seating along a wall. Group composition changes as farmers pass in and out of the store on errands, pausing to chat for a few minutes, but a cross-section of the farming community can generally be found conversing with each other. News is related, and stories are swapped, exercising the region's famed oral tradition. This dialog between farmers of varying means contributes to a sense of community that surmounts class
differences (although not gender barriers — women also patronize the stores, but those who linger to chat are almost exclusively male).

Two farm organizations hold events that also bring together a cross-section of the farm community. The agricultural extension service sponsors a burley tobacco field day each year that consists of a tour of farms conducting field tests as part of the extension agents' research. Attendees caravan between farms in their own vehicles, then congregate at the test plot for an explanation of the experiment, followed by an informal question and answer session. This event is well-attended by both medium- and small-scale farmers. Significantly, growers visit farms outside their normal social network. The information exchanged in these sessions mitigates class-based production advantages, and informal conversations between farmers who might otherwise have little contact solidifies group identity.

The Western North Carolina Burley Tobacco Growers Association is an industry-sponsored group that holds bi-monthly meetings. Formal presentations by tobacco industry or agricultural speakers are preceded by a free dinner that is attended by entire families, contributing to a social atmosphere. In contrast to the field days, which are devoted to dissemination of technical information, the Burley Association serves a largely political purpose, informing attendees of policy developments and international tobacco trends and soliciting their participation in letter-writing campaigns and petition drives. Small-scale and part-time farmers are less likely to attend these meetings than the burley field days.

Tobacco farmers' shared identity has been reinforced by the recent focus of public attention on tobacco-related health problems. The growing sense of
embattlement fosters an "us versus them" attitude that unites all tobacco growers, big and small. The irreconcilable paradox that these farmers face is how a crop that has done so much good for their region and their families, that is intimately bound up with their culture and their sense of self, can be routinely vilified in the national debate on tobacco. It is understandable, then, that their conversations with me, an outsider, on the topic of tobacco display a certain reflexive defensiveness. What I found interesting was the extent to which many farmers' defense of tobacco echoed the "party line" of tobacco manufacturers, arguments that routinely appear in newspaper accounts of tobacco industry positions. Frequently, my conversations with farmers on the topics of tobacco regulation and the future of tobacco were highly predictable, almost as if they had been scripted. As I learned from a Burley Association meeting during which wallet-sized cards inscribed with pro-tobacco positions were passed out, these conversations were scripted to some degree. The cards were distributed with the explicit suggestion that their messages be used when engaging others in tobacco-related discussions.

In private conversations, a few farmers expressed doubts about their role in producing tobacco that undercut the solidarity of farmers and tobacco manufacturers, yet reinforce an identity based in the historical circumstances of the region's development. Several echoed sentiments similar those of the farmer who stated, "I guess they've been saying it [that smoking causes cancer] long enough that it's probably true," but went on to describe the economic dilemma in which he finds himself. With no practical alternatives for remunerative small-scale crop production, if he wants to earn a living and keep his farm, he has to grow tobacco. This farmer struggles with the
moral implications inherent in his perception of the situation, but feels powerless to
deflect the historical momentum that perpetuates the system of tobacco production.

3.3.1.1 Spatial Distribution of Tobacco

Tobacco is grown throughout the county, but is found in the greatest
centrations on the hills of the Asheville Basin in the southern part of the county and
in most of the county’s wider valleys — in exactly those areas where farm density is
greatest. The northern section of the county is largely forested, and much of this land is
owned by the National Forest Service.

Tobacco fields occupy distinct niches in the county’s two main physiographic
regions. In the Asheville Basin, where slopes are gentler and hills lower than in the
mountains to the north, tobacco is common on hillsides and ridgetop fields, as well as in
bowl-like depressions. North of the Asheville Basin, a jumbled series of mountain
ranges is dissected by swift-moving rivers that alternately are constrained between
steep-sided mountains and open up into extensive bottomlands. Tobacco is highly
concentrated on the bottoms along Walnut Creek, Bull Creek, Ivy Creek, and the
Sandymush and Shelton Laurel Rivers (Figure 3.2). Hay is grown in a few fields, but
the bottoms are largely given over to tobacco production. Tobacco is also common on
the smaller bottoms along the tributaries of these major creeks and on lower mountain
slopes in the tributary valleys. Most upper slopes in the mountain sections are forested,
and ridgetops, if cleared, are more likely to be in pasture than tobacco.

The valley of Spring Creek is a notable exception to the use of bottomlands for
tobacco production. Spring Creek, which runs from Hebo Mountain in the southwestern
corner of Madison County almost due north, past the town of Hot Springs, where it
Figure 3.2
Rivers and Major Creeks
Madison County, North Carolina

- Madison River
- Middle Fork
- Ivy Creek
- Bull Creek
- Little Pine Creek
- Sandmush Creek
- Big Pine Creek
- Big Laurel Creek
- Sawmill Creek
- French Broad River
- Spring Creek
- Meadow Fork
- Stilt-In
- East Fork
- Carolina Creek
joins the French Broad River, widens out halfway along this course to form the broadest valley in the county. Farmland here is devoted to cattle ranching rather than tobacco. Most of the valley's broad, flat floor is pasture, and the largest tracts of feed corn in the county are grown here.

Two exogenous factors have influenced the distribution of tobacco production and its concentration on stream bottoms -- national forest creation and recent agricultural legislation targeting highly erodable lands. By reserving much of the northern third of the county for forest conservation and watershed protection, Pisgah National Forest permanently eliminated agriculture from large sections of the most rugged portions of the county. Some of this upland area was farmed or grazed before its purchase by the National Forest Service, although the majority, purchased from timber companies, was cutover or standing timber. The national forest is not contiguous, however, and much of the land along the larger streams, e.g. Meadow Fork, Spring Creek, Shelton Laurel, and the lower portions of Upper Shut-In Creek and Big Creek, remains in private ownership. Middle and upper slopes are largely depopulated, with a few houses occupying scattered clearings in this otherwise reforested region. In contrast, small farms contiguously line valley bottoms. Other than designated wilderness areas, national forests do not attempt to create or preserve uninhabited landscapes, and private in-holdings are not seen as inherently in conflict with the national forest mission. Acquisitions have slowed greatly since the bulk of Pisgah Forest lands were purchased in the 1930s and 1940s. Current funding levels are sufficient to acquire only the most critical watersheds and recreational areas and even these are frequently leveraged through land swaps. Since the inception of Pisgah
Forest, however, federal land acquisition has been a powerful force in limiting agriculture to valley bottoms in the northern section of the county. Removal of mountain slopes from production and their reversion to secondary forest has greatly ameliorated the disastrous erosion precipitated by the logging era.

The second exogenous factor influencing the distribution of tobacco production affects the choice of land used for tobacco on farms in the southern portion of the county. The 1985 Farm Bill included provisions mandating erosion control on highly-erodable land and where soil-depleting crops, such as tobacco, are grown. This legislation has prompted a shift in the location of tobacco fields on a number of farms from lower hill slopes to bottoms. Soil conservation officers responsible for helping farmers draw up the farm plans required by the farm bill have encouraged the change. By moving tobacco to a farm’s flattest land and keeping it there permanently, tobacco is not rotated onto steeper, more erosion-prone slopes. As farm plans were implemented in the early 1990s, farmers in the Grapevine community switched their valley’s large bottoms almost entirely from hay to tobacco (Blevins 1994). Similar, but less dramatic shifts occurred in the Shelton Laurel, California Creek, and Middle Fork valleys. The displacement of hay from bottoms has decreased these farms’ self-sufficiency as farmers must purchase hay to replace what they formerly grew themselves. Many of the slopes where tobacco was formerly grown with manual methods are too steep for mowing hay.

Most tobacco fields range in size from several tenths of an acre to an acre, but in the widest valleys are as large as three or four acres. Farmers typically have several tobacco fields in scattered locations on their farmstead. Rented fields are usually in the
immediate vicinity of the farm — in the same or an adjacent valley. While minimizing
tavel time is certainly one consideration when renting fields, a farmer's closest ties of
kinship and community, factors in reaching rental agreements, are generally close to
home. Exceptions to this pattern do exist. At the extreme of farm fragmentation, one
farmer rents numerous small fields totaling forty acres in three counties.

3.3.1.2 Production Economies

How important is tobacco to individual farm households? This is a critical
question for the farm economy because several of the permutations of federal tobacco
legislation currently under consideration include FDA regulation of nicotine and steps
intended to decrease youth smoking, which would ultimately decrease the adult
smoking population and, hence, domestic demand for tobacco. Given price differentials
between U.S.-grown and foreign-grown tobacco, it is unlikely that continued expansion
of U.S. cigarette manufacturers into foreign markets will be done with domestic
tobacco. The potential dislocation for communities dependent on tobacco production
underscores the need to identify the magnitude of the effects under various scenarios
and to find ways to help farmers transition to other production systems.

Data from the 1992 agricultural census and from the Madison County office of
the ASCS can be used to estimate tobacco receipts for the typical farm household.

Using typical yields of 1300-2200 pounds per acre\(^2\) (Turner 1985, 17) and the average

\(^2\) Yield estimates from different sources vary considerably. Computed from acreage and
production figures reported by the agricultural census for 1992, average yield in
Madison County was 1670 pounds per acre. The ASCS reports greater county
production for that same year. As this office administers marketing cards that are
tightly tied to support price payments and it therefore tracks all sales by county farmers,
price received by Madison County farmers in 1992, $1.77 per pound, a reasonable estimate is that farmers grossed between $2301 and $3894 for each acre of tobacco. Thus, the farmer growing the county average of 2.9 acres likely received between $6673 and $11293 from tobacco. These figures do not, of course, include production expenses, which the North Carolina Cooperative Extension Service estimates at $1068 per acre, exclusive of labor (Brown 1993, 5). Production practices in Madison County differ from those listed in ways that make production slightly less capital-intensive. For instance, few farmers use fumigation ($37 per acre), and before crop insurance was mandated by legislation, many did not purchase crop coverage ($135 per acre). If production expenses are estimated conservatively at $950 per acre, the average net return per farm from tobacco lies between $3918 and $8538, a modest income by middle-class American standards and one that suggests the part-time nature of tobacco farming for most of this area's farmers.

Comparing typical tobacco receipts with total farm sales reveals the extent of farmers' dependence on tobacco. Almost eighty-eight percent of farms produced less than $20,000 worth of farm produce (Table 3.5). County-wide, tobacco receipts...
Table 3.5
All Farms by Farm Sales
Madison County, 1992

<table>
<thead>
<tr>
<th>Farm Sales ($)</th>
<th>Number of Farms</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,500 - 4,999</td>
<td>320</td>
<td>36.2</td>
</tr>
<tr>
<td>5,000 - 9,999</td>
<td>279</td>
<td>31.6</td>
</tr>
<tr>
<td>10,000 - 19,999</td>
<td>176</td>
<td>19.9</td>
</tr>
<tr>
<td>20,000 - 39,999</td>
<td>82</td>
<td>9.3</td>
</tr>
<tr>
<td>40,000 - 99,999</td>
<td>19</td>
<td>2.2</td>
</tr>
<tr>
<td>100,000 - 249,000</td>
<td>7</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>883</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau 1994

accounted for sixty-seven percent of agricultural sales (U.S. Census Bureau 1994). Loss of this farm income would have serious consequences for numerous individual farms, many of which struggle to operate at a profit as it is. In 1992, twenty-four percent of county farms experienced a net loss, with the loss averaging $2,733 (U.S. Census Bureau 1994). Among profitable farms, net gains that year averaged $5,334 (U.S. Census Bureau 1994).

The amount of labor required to produce this modest income is daunting, an estimated 233 hours to bring each acre of tobacco to market (Johnson 1984, 75).

Advances in production techniques, such as chemical sucker agents which eliminate repeated removal of suckers, have cut labor requirements in half since 1952 (Johnson 1984, 75). However, much of the work in burley production remains arduous and manual. An indication that Madison County residents find tobacco's returns to labor insufficient is the small number of young people who are taking up tobacco farming. Tobacco farmers are aging, as a group, and as older farmers cease production and sell
farmland, the community is experiencing increasing in-migration by non-farmers seeking the amenity landscape of the Appalachian mountains.

3.3.1.3 Production Cycle

One sign of tobacco's reduced labor demands is that the nickname the "thirteen month crop" no longer accurately describes tobacco's production cycle. Under the Appalachian slash-and-burn system of rotational agriculture (Hart 1977), the annual clearing of "new grounds" and seed bed preparation overlapped the curing of the previous year's crop. This kind of long-fallow rotational agriculture is remembered by older farmers, but has not been practiced in a long time. Commercial fertilizers eliminated the need for moving to a new plot every few years, and labor-intensive land clearing was abandoned. Institutionalization of tobacco sales at regulated warehouses limited the marketing period to three months, November through January. Thus, the production cycle has been shortened at both ends.

Table 3.6 outlines a basic burley agricultural calendar. Variations in the dates for each activity result from varietal differences between fast-maturing and slow-maturing burleys and differences in farmer practices. The season traditionally begins in late February or March with the preparation and planting of a seedbed. The seedbed site has already been chosen and crop residue turned under. When the temperature is above 50° F, the bed can be fumigated for weed and pest control, during which it is covered with plastic to retain the heavier-than-air fumigant. The bed is covered for ten to fourteen days and the cover removed for several days before seeding to air out residual fumigant that might otherwise stunt tobacco seedlings. Farmers achieve more even
broadcasting by mixing the tiny tobacco seeds with ashes or sand. Between two and two-and-a-half months later, the seedlings are ready to be transplanted to the field.

Table 3.6
Burley Tobacco Production Cycle

<table>
<thead>
<tr>
<th>Production Phase</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed bed preparation and planting</td>
<td>March</td>
</tr>
<tr>
<td>Field preparation</td>
<td>Fall or Spring</td>
</tr>
<tr>
<td>Transplanting</td>
<td>May - early June</td>
</tr>
<tr>
<td>Weed and pest control</td>
<td>On going</td>
</tr>
<tr>
<td>Topping and suckering</td>
<td>Late July - August</td>
</tr>
<tr>
<td>Harvest</td>
<td>Mid-August - September</td>
</tr>
<tr>
<td>Curing</td>
<td>September - October</td>
</tr>
<tr>
<td>Market preparation</td>
<td>November</td>
</tr>
<tr>
<td>Auction</td>
<td>Late November - January</td>
</tr>
</tbody>
</table>

While the seedlings are growing, cover crops are turned under (except certain cover crops which are turned under in the fall), and the fields are fertilized and perhaps treated with an herbicide. Seedlings are transplanted when eight to ten inches tall, an operation done with a tractor-drawn setter on most fields, but still performed by hand on steeper fields or by a few older farmers who prefer the manual method for a variety of reasons, including the ability to accomplish the task themselves without hiring labor. "Setting", as transplanting is known locally, is typically a very busy time as farmers push to get seedlings in the field so plants can have a full growing season and still be harvested and cured before a freeze disrupts either process.

Setting is followed by a lull in activity. Farmers may re-set portions of a field where transplants died, fields are cultivated two or three times over the next few weeks to remove weeds, and fields are monitored for disease and pest problems. Blue mold, now a significant problem in most tobacco-growing portions of the country, reached epidemic proportions in western North Carolina in the 1990s. If not checked, blue mold
can wipe out entire fields, as it did in 1995 when county production was approximately halved. Extension agents recommend preventative spraying with Ridomil, advice not uniformly followed because of the expense of this chemical compared to a well-known, but non-systemic (and therefore less effective), folk treatment using a bleach solution.

Labor demands pick up again during topping and suckering. Topping removes the plant's bloom, a cluster of light pink, trumpet-shaped flowers that sprouts from the top of the head-high tobacco plant, and the small upper leaves, thus concentrating the plant's growing energies on the remaining leaves. Removing the bloom also stimulates root growth, which helps prevent windfall, reduces insect populations attracted to the flowers, and "stimulates the production of secondary plant products" that give burley desirable smoking qualities, i.e. nicotine (Yelverton 1993, 83). Suckers are secondary flower stalks that start to sprout from leaf nodes after topping. Suckers can be inhibited by spraying the plants with a sucker control soon after topping. If the farmer waits too long, however, or rain washes the agent away before it has a chance to act, suckers must be removed manually and the spray re-applied. Topping and suckering must be done in a timely manner because of their influence on the final development and character of burley leaves, meaning that farmers often work long hours to get this task done.

Harvest, which occurs two to five weeks after topping, is the most labor-intensive part of the entire cycle. It is entirely a manual operation in Madison County. Harvesting is usually done in pairs. One person bends down and cuts a stalk three to four inches above the ground with a single swing of the tobacco knife, a tool that resembles a light-weight hatchet more than a conventional knife. The stalk is handed to the second person, who impales it over a small metal cone or "spud" positioned on the
top of a tobacco stake. Five or six tobacco stalks are thus strung on a stake, which is left propped in the field so the tobacco has a chance to "wilt down" or lose water weight before being hung in the barn. An untimely rain shower will wet the tobacco, decreasing the chances of optimal curing, and splashing mud on the leaves, lowering their quality. Thus, decisions about when to start harvesting and how much to cut at one time involve weighing a host of factors — when the plants are at peak maturity, weather expectations, worker availability — and because of their effects on leaf quality, are perhaps the most critical decisions the tobacco farmer makes.

After wilting down for a day or two, burley is hauled to the barn — usually in a flatbed truck, but horse-drawn sleds are used on steep hills. The truck or sled is driven directly into the barn, which is generally located on the downslope side of a field and next to a road. The stakes are unloaded and passed up to the top of the barn hand-to-hand by a human chain standing on the tier poles between which the stakes are then hung.

The tobacco air cures in the barn for one to two months, depending on temperature and humidity conditions. Tobacco gives off considerable heat and continues to lose water as it cures. Barn doors or ventilation louvers are opened and shut as the farmer monitors the curing process, trying to maintain humidity and temperature inside the barn at optimum levels as outside conditions change during the diurnal cycle and the tobacco itself alters inside conditions. Leaves can suffer houseburn if packed too closely to allow sufficient air circulation, a situation in which high humidity encourages the spread of fungi. Occasionally a farmer must readjust the spacing between stakes, a time-consuming process, to prevent such damage.
When leaves are judged to have reached an appropriate stage of curing, pre-market processing, another labor intensive process, can begin. This work is often done in a special "casing room" located in a basement or dug into a hillside so that the room will be cool and damp. Leaves are brought into "case" by allowing them to absorb enough moisture so that they won't shatter when handled and are then stripped from their stalks. Once removed from the stalk, leaves are placed flat, tips aligned, in a baling box. When the box is full, a simple press of a lever operates a hydraulic air press to compresses the leaves into a tightly packed bale weighing about ninety pounds.

As they fill the baling boxes, many farmers sort leaves by stalk position and leaf quality. Since bales are graded by the lowest quality leaf they contain, farmers have some incentive to separate the different kinds of leaves to form uniform bales. However, farmer practices and opinions on the profitability of sorting by grade vary widely. Some of the variation reflects differential adjustment to changes in the number of standard grades recognized at the market. When standard marketing practice was to tie tobacco into "hands", bundles of five or six leaves, farmers sorted their leaf into as many as seven or eight grades. With the initial introduction of baling, the industry went through a period in which buyers did not offer price premiums for sorted tobacco, and farmers dropped the practice. In the mid-1990s, when graded tobacco received $0.15 to $0.20 per pound more than mixed tobacco, two-thirds of farmers interviewed reported sorting leaves into an average of three grades. Farmers who don't sort report having receiving mixed grades for sorted tobacco in the past, meaning that they don't receive the price premium for their work, or having receiving a non-mixed grade for bales that they did not sort, encouragement to skip this step. The most common explanations
farmers offer for these disparities are the speed of the grading process and the use of the
same set of graders in the larger flue-cured district and their consequent greater
familiarity with the appearance and feel of flue-cured leaf.

Market preparation can proceed late into the night after other jobs and school are
finished for the day as a family pushes to get the tobacco ready for sale. Hands and
clothing become sticky with leaf residue that produces a nicotine buzz as it is absorbed
through the skin. The work is steady, repetitious, yet lightened by socializing. Well-
worn family stories, jokes, news, plans for the future, and the occasional song are
exchanged in the light-hearted banter that accompanies the work.

The final step is to transport the baled tobacco to one of the auction warehouses
in Asheville or Johnson City. Most farmers do this themselves, although very small-
scale growers and elderly farmers might get a neighbor to haul their crop. Some
warehouses employ haulers to drum up business and carry bales for a commission, but
the advent of baling, which eliminated the awkwardness of heavy baskets of handed
tobacco that required upwards of three men to move, greatly simplified the hauling task
for individuals.

Once at the warehouse, the routine of the marketing system takes over, leaving
the farmer with little control of the tobacco and only one important decision. Tobacco
bales are moved from the farmer’s truck onto pallets, with up to seven bales sharing a
pallet. Although all bales sharing a pallet should be identical in terms of grade, the
farmer can select the "show bale", the bale placed on top of the stack that is examined
during the grading process. The farmer’s pallet is moved into a long line with everyone
else’s tobacco, and at a prescribed time, the grading crew walks the long lines of pallets,
assigning a grade to each pile of tobacco. Some farmers maintain that careful attention to the arrangement of leaves in the show bale can give the tobacco a pleasing appearance that will earn it a slightly better grade. The grade determines the base support price that all tobacco on the pallet will receive. As tobacco buyers' bids are often only a few cents above support price, the grade becomes critical in determining the price the farmer will earn for the season's work.

When grading is complete, the auction starts. The auctioneer, trailed by a cadre of four to six tobacco company buyers, moves down the lines of tobacco, his sing-song cadence eliciting hand signals from the buyers. The group moves quickly, pausing only for seconds at each pile of tobacco, and proceeds without pause. The auctioneer's chant is continuous, highly stylized, and incomprehensible to the casual listener and even some experienced farmers. The reduction of the farmer's role to that of spectator, the speed with which his year's work is assessed, and the impenetrability of the auctioneer's code distance the farmer from the selling process. This distance and the forced assumption of a passive role likely contribute to farmers' perceptions of buyer collusion in times of low prices.

3.3.2 BEEF CATTLE

While tobacco is the most important production system in terms of both revenue and number of farms, beef cattle are an integral component of the flexible and frequently changing configuration of multiple livelihood strategies pursued by Madison County's small-scale farmers. Beef cattle are second only to tobacco in number of farms using the production system and in income produced. In 1992, forty-three percent of all farms had beef cattle (U.S. Census Bureau 1994). Herds are small,
however, and cattle are almost always an adjunct to other types of farming. In 1992, eighty-three percent of herds were smaller than twenty animals and over fifty percent were smaller than ten (Table 3.7).

Cattle are important to the local economy — they are second only to tobacco in revenue generated by agricultural products. In 1992, sales of cattle and calves brought almost $1.7 million dollars to county farmers, about sixteen percent of the value of all farm produce (U.S. Census Bureau 1994). Yet, the reasons farmers keep small herds of cattle are varied and include cultural as well as economic considerations. For some, cattle are part of a deliberate strategy of diversification, a hedge against low tobacco prices and a means of lessening dependency on a single crop. For others, however, cattle are a means of cultivating the gentleman farmer’s image, a hobby that reflects a personal affinity for the animals, or a way to keep fields open.

Table 3.7
Farms with Beef Cattle by Herd Size
Madison County, 1992

<table>
<thead>
<tr>
<th>Herd Size</th>
<th>Number of Farms</th>
<th>Percent of Beef Cattle Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 9</td>
<td>256</td>
<td>51 %</td>
</tr>
<tr>
<td>10 to 19</td>
<td>164</td>
<td>32 %</td>
</tr>
<tr>
<td>20 to 49</td>
<td>75</td>
<td>15 %</td>
</tr>
<tr>
<td>50 to 99</td>
<td>10</td>
<td>2 %</td>
</tr>
<tr>
<td>100 to 199</td>
<td></td>
<td>&lt; 1 %</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau 1994

From the Masai of eastern Africa to Sonoran ranchers, cattle have been status symbols in the cattle cultures that have flourished around the world. In these societies, cattle are symbolic capital (Bourdieu 1993, 75) conferring rank upon their owners in addition to being reservoirs of economic capital. European settlement of the Americas...
introduced not only the animal, but also the attitude of cattle as the aristocracy of food-producing livestock (Rifkin 1992). Even at the close of the twentieth century when a tiny fraction of the population is engaged in farming of any kind, cowboy culture is romanticized in film, television, advertising, country music, and rodeos in a way that the life of the shepherd or pig farmer has never been. While Appalachia bears less of the stamp of this "boviphilia" than the Western U.S., raising cattle carries a certain cachet that "dirt-farming" lacks.

Recognized breeds and registered animals confer the most status on their owners. Madison County cattle are a mix of crossbreeds and purebred stock, especially simmentals and black angus. In the milieu of cattle breeders, papers detailing an animal's lineage confer a recognition of quality, a social stamp of approval that is symbolically transferred to the animal's owner (Smith 1983). An agriculture official rounded out a description of one of the county's largest tobacco farmers with "[he] has a few red purebred cattle... because it's an honorable profession." Purebred cattle are seen as a fitting and natural adjunct to the operations of this successful farmer who is at the top of his social class, college-educated, well-respected, influential on agricultural committees, and from a politically connected family.

Cattle are also a means of preserving a desired landscape aesthetic, the pastoral patterning of neatly cropped grass against darker patches of forest. Open fields reveal the underlying form of the mountains, the subtle curves and swells of the earth, to a greater extent than the partially obscuring forest canopy. Cattle play a primary role in preserving this landscape through their grazing. Farmers place great value on keeping a farm "cleaned off," keeping pastures open and free of brush. A clean farm is normative,
the way a farm ought to look, and therefore reflects favorably on a farmer's management skills and willingness to work hard. But a clean farm is also a strongly felt link to the past, an inheritance that farmers want to preserve: "It's tradition that my granddaddy cleared it, my dad kept it clear, and, I'll be danged, I'm gonna keep it cleared." While cattle do not eat all plant species that volunteer in pastures, they greatly retard secondary growth on fields that would reforest in their absence, as so many abandoned farms have done. Goats are kept for this same reason. Given their less discriminating browsing habits, they are used for the more challenging task of reclaiming overgrown pastures and clearing woodlands of multiflora rose and other woody undergrowth. Fenced in a limited area, they will shortly produce a park-like forest devoid of undergrowth.

Landscape can assume an importance that outweighs economics, as when cattle are kept even though they generate no income and may entail considerable expense. A farmer explains: "I've kept three to four cows my entire life as a hobby. I just like cattle. They keep the place cleaned off." In addition to the cost of winter fodder, fences must be maintained, and animals sometimes require veterinary care. Some farmers attempt their own animal care to mitigate vet bills. The owner of a twenty-head herd, who calls her animals "family pets" and can detail the personality of each, described how her brother and a male cousin watch the vet closely on each visit so they'll be able to do the task themselves the next time. Yet the satisfactions and savings of this kind of self-sufficiency are balanced by the emotional weight of responsibility and loss. The cousin described his first delivery, in which a breach-born calf died, and commented in an understated tone that conveyed as much as his words, that he hoped this delivery was his last.
Herd sizes fluctuate with annual births, sales of calves, and as farmers change emphasis among production systems. Many farmers have gotten into and out of cattle production several times as they experimented, followed market trends, and generally sought remunerative production strategies. Farmers tend to decrease their tobacco acreage as they age and the demands of field work become too onerous. Some increase their beef cattle herds at this stage of life to offset reduced tobacco income. For those farmers seeking to diversify or hedge against an uncertain future for tobacco, cattle have the virtue of familiarity. Cattle are a production system that has been successfully used in this area for a long time, a system supported by a local reservoir of knowledge about cattle, a well-established market in Asheville, and a local branch of a national cattle organization, the Cattleman's Association, which strives to increase herd profitability by rationalizing cattle production. This infrastructure serves to make cattle a relatively safe choice that requires little specialized equipment or capital investment to get started other than the animals themselves. In contrast, those farmers who attempt to raise exotics, such as angora goats or ostriches, face a period of trial and error in which they learn to raise the animals and must create their own markets.

Cattle and tobacco are complementary production systems in use of land and demands on labor. Pasture allows productive use of land that is not cultivated because of a steep slope's erosion potential or because of distance from the farmstead. Most of the year cattle graze on upland pasture, with two or three acres allowed per head. In winter, cattle are brought back to the homestead, where they graze on the tobacco plot's cover crop or are fed silage and hay and allowed to shelter in the barn.
Cattle’s winter fodder requirements cause some competition between the two production systems, however, for the best tobacco land is also the best land for producing hay and silage corn. Cattle will eat about half a fifty pound bale of hay per day, and farmers can count on needing a hundred bales per head for the winter. Madison County is far from self-sufficient in hay production, and by one estimate, half of farmers with cattle have to purchase hay (Young 1993). A farmer explained his decision to forgo cattle production and concentrate on horses as follows: “You've got to have a place to raise a lot of hay and corn for [cattle]. We've not got enough flat land to raise the hay to feed the cattle. We do real good in the summer time, because we've got the best pasture of anywhere. Our pasture's cool. [But] we've got a long winter... most of our feed goes to horses.” Farmers, therefore, make choices among production systems based partly on competing land requirements.

Intraregional connections between Appalachia and the rest of the nation are starkly illustrated by singular events outside Appalachia, such as the Mississippi River flood of 1993, that influence the choices Madison County farmers make about production systems. Media coverage of the disaster focused largely on flood damage to houses and the dislocation of entire communities, yet agricultural damage was also widespread. The region's hay crop was significantly reduced, and Madison County farmers who routinely purchase hay had trouble finding it that year. Rather than buy feed and lose money on the cattle over the winter, a number of cattle farmers sold their herds. With cattle selling cheaply, an investment opportunity arose for a few farmers who were positioned to take advantage of it. One farmer, who produces hay as a cash crop but does not normally keep cattle, purchased six animals with the intent of
reselling them shortly. He was not interested in getting into cattle production, but saw
an opportunity to make money with a short-term investment. His was an unusual
situation, however, as his larger-than-average farm has a large tract of bottomland,
much of which is kept in hay. Few farmers benefited from low cattle prices, and for a
number of them, the Mississippi disaster terminated their experimentation with cattle as
an adjunct to tobacco.

Other transregional trends have a more gradual effect, but ultimately restrict
farmers' options. Land sales to outsiders and residential development have encroached
upon upland pastures, which offer scenic vistas and ready building sites in otherwise
unbroken expanses of mixed hardwood forest. Prices for such land are on an
inflationary spiral that farmers find hard to refuse. The experience of one tobacco
farmer is typical. He purchased an eighty-two acre mountaintop farm in 1979 for $4000
and grazed his small cattle herd at this convenient location just up the road from his
home in the valley bottom. When offered $15,000 for the farm five years later, he sold,
even though it meant selling the herd for lack of pasture. The farm later sold again for
$60,000 and was split into several lots for vacation homes. Although the farmer
received a good return on his investment, the largest profits were made by the
residential real estate developer. Moreover, the removal of prime pastureland from the
farm system limits future possibilities for agricultural development and diversification.

3.3.3 Hay

Hay is grown as winter fodder by farmers who keep horses, mules, or cattle and
as a cash crop by a small number of farmers who have more bottomland than their
tobacco allotment allows them to plant. About one-third of county farms grew hay in
1992 and these farms averaged thirteen acres apiece (U.S. Census Bureau 1994). Farmers often grow hay in rotation with tobacco, with a typical sequence being two years of tobacco, followed by two years of hay. Only about half of farmers with livestock are able to grow enough hay for their animals (Blevins 1994). The others purchase some or all of their hay from local growers, from Tennessee, or even farther afield. For producers who have no livestock themselves, growing hay is a way of using land that would otherwise revert to secondary forest. The hay generates a modest income, and mowing keeps the land clear, preserving future agricultural options.

Hay acreage across the county is at its lowest point this century. The decline is the combined product of a lack of scale economies for producers with haying equipment, the gradual decline of community mechanisms for sharing equipment, and a side-effect of structural changes in the tobacco program. Hay production is, at best, marginally remunerative. A county extension agent explains, "Hay can be double cropped, but a farmer loses it one out of three times on average, because of rain or whatever. Given that loss and the cost of maintaining haying equipment, it ends up being cheaper to buy the hay" (Ealey 1994). Traditionally, farmers growing a few acres of hay could get a neighbor to mow it on the halves, an arrangement in which the mower accepted half the baled hay in payment for his labor and the use of his equipment. As farmers expand their tobacco acreage, the demands on their labor increase, and they sometimes have to weigh the cost in time for continuing this traditional neighboring practice. One farmer who only recently stopped mowing his neighbors' hay cited another problem: "People around here don't keep their meadows up or hay fields. They say, 'We're just getting half of it, so it doesn't pay to reseed it or
fertilize it.' You go in to mow six to eight acres and you get a hundred bales of hay and it costs as much to do it. I just quit."

Recent agricultural legislation regulating crop practices on highly erodable land had the unintended side effect of making farmers less self-sufficient in hay production. Although the legislation targeted the production practices of tobacco growers, its effect on hay illustrates the interconnectedness of production systems. Legislation passed in 1985 required tobacco farmers with fields of greater than eight degrees slope to rotate crops in order to retain their tobacco program benefits. Before the new regulation took effect, farmers in several areas had typically grown hay on easily mown bottoms and tobacco on lower mountain slopes. County extension agents encouraged farmers to move their tobacco to the flattest land on the farm, whether bottomland or lower mountain slopes and in some cases granted exemptions to the rotation requirements to avoid exposing steeper slopes to erosion. Tobacco rapidly displaced hay on bottomlands in Grapevine, Middle Fork, California Creek, and to a lesser extent, Shelton Laurel. The slopes where tobacco was formerly grown are not easily mown, so many farmers simply reduced or eliminated hay production. Thus, a change to the structures governing the production of one crop inadvertently affects production of another crop, contributing to declining diversity of production systems and self-sufficiency among small-scale farmers.

3.3.4 OTHER LIVESTOCK

While beef cattle have been a stable or increasingly important part of the farm economy during the twentieth century, other types of livestock have declined to almost insignificant numbers. Pigs, dairy cattle, chickens, and sheep have virtually disappeared
since the 1940s, reflecting both changes in methods of household food and fiber procurement and the disappearance of specialized production systems, especially small-scale commercial dairying and broiler production. While many farm households have large kitchen gardens, far fewer raise livestock for household consumption. Pigs, the perennial Southern staple, have all but disappeared in recent decades. From over seven thousand animals at the close of World War I, the county's pig population fell to a mere fifty-seven in 1992. Sheep experienced a similar decline, from over five thousand in 1929 to a low of twenty-seven in the 1970s. Once almost every farm had a dairy cow to supply to the family's milk needs. By 1992, only forty-three farms still had dairy cattle. These numbers also reflect a marked decrease since mid-century in production system diversity and self-sufficiency on the typical farm.

3.3.5 Experimental Production Systems

A small number of farmers are experimenting with new specialized production systems, including angora goats, ostriches, organic vegetables, and hydroponically grown lettuce. Most such innovators are in-migrants rather than locals steeped in the tobacco farming tradition. What they have in common is the energy and initiative that they put into researching production techniques and creating niche markets for their products. It can take years to establish a market for an exotic product and turn it into a profitable enterprise. Shelley Turner\(^3\) exemplifies this new breed of specialty farmer. Turner started raising angora goats in the late 1980s and has built her herd to 120

\(^3\) The names of all individuals identified in this study have been changed to preserve their privacy.
animals. To create a market for their wool, she advertised in weaving and spinning magazines and made cold calls to craft suppliers. Through much persistence she built up a customer base that now awaits each shearing. By selling through specialty outlets, she receives a better price than prevails for mohair and cashmere on the Texas market. While building up her business, Turner adopted some of the subsistence barter-and-borrow practices of her more traditional neighbors. She barters raw goat milk locally and sells the skins of culled animals. She has even bartered goat meat in exchange for labor. A Hispanic worker slaughtered and skinned several animals, keeping the meat, while Turner retained the skins. The experiences of Turner and other innovators points to the need of Madison County farmers for practical guidance in establishing markets for alternative crops substantially before drastic changes are made to the tobacco program.

3.3.6 KITCHEN AND MARKET GARDENING

Vegetable gardening in Madison County includes subsistence and commercial production. Large kitchen gardens supply households with a variety of fresh produce, including peas, beans, squash, cucumbers, corn, potatoes, and tomatoes. Some of this supply is canned to preserve it through the winter and spring, and canning is often a group activity in which socializing lightens the task of food preparation. Households that have ceased all other forms of farming usually retain kitchen gardens.

Exchanges of labor and garden produce help maintain social networks between nuclear households of an extended family and between neighbors. Mutual assistance has a function beyond simple food production. Routine exchanges are inextricably bound up in the production of family and neighborly ties. For example, when an adult
woman helps her elderly mother set out a garden and later helps can the produce in the
mother’s kitchen, the regular visits, ostensibly to tend the garden, do double duty as
erler care. Keeping the locus of production at the widowed mother’s household
contributes to the older woman’s sense of competence and makes her house the central
node of the family network as she receives assistance from several adult children.

The distinction between kitchen and market gardening is not always sharp.
Produce that does not sell at market is brought home and canned for future household
use. Exchanges and informal sales of produce further blur the line between kitchen and
market gardening. Exchanges often take the form of a series of reciprocal gifts between
households as one vegetable or another enters peak production. Gifts may be extended
to family, neighbors, and even visitors of recent acquaintance who are adopted into the
social network. Informal sales occur on-farm, occasionally to passing tourists, but more
often to other local residents who are acquainted with the farm’s production systems.
An illustration of the first sort of informal sale was related to me by a farm couple who
grow ornamental gourds and display them on their porch as decoration. They were
amused to be approached by tourists who wanted to buy some of the gourds. The
couple obliged, but the value of the exchange to them was clearly more in the
acquisition of an amusing anecdote about the odd ways of tourists than in the few
dollars generated by the sale.

More often, informal sales happen when someone knows that a farmer grows a
particular fruit or vegetable and approaches them with a request to buy, as when a
young couple paid the owner of an apple orchard a small fee to collect fruit that had
fallen to the ground, fruit which they would use to make cider. A few people anticipate
such demand, as did a man who planted a quarter acre of highbush blueberries and welcomes those who come to pick-their-own. The operation is unadvertised, with not even a sign marking the farm gate, so word-of-mouth is the only means of discovering it. The only indication of the quasi-commercial nature of the venture is a coffee can that sits on the front porch and bears a sign requesting payment of $5 per gallon. As is typical of many dual purpose production systems, the blueberries both supply the household and generate a small amount of cash income. Informal sales are also a convenient means for households to obtain locally and relatively inexpensively kinds of produce that they do not grow themselves.

Market gardening is undertaken by a variety of farmers, including older farmers who have retired from the heavy work of tobacco production, active tobacco growers for whom vegetables are a secondary production system, younger organic farmers who have never grown tobacco and, at least one former migrant who has become a tenant farmer. Several retired tobacco farmers stressed the pleasure they derived from the purposeful activity and the social interaction of the Asheville Farmers' market or the smaller weekly tailgate market held in the parking lot of a north Asheville shopping center. These two markets are the chief venues for selling produce. Asheville's Western North Carolina Farmers' Market has been a boon to small-scale and part-time vegetable growers. Since its inception in 1977 with funding from the Appalachian Regional Commission, it has grown to be a major distribution node for fresh produce and nursery plants, with sales to wholesalers and the consumer public. Its location at the intersection of two interstate highways, I-40 and I-26, puts it within a day's drive of major eastern population centers. The number of farmers selling at the market and the
variety of produce they bring makes it feasible for independent truckers to assemble a load, drive overnight, and dispose of the produce the next morning. Farmers can rent a stall for a monthly fee that varies from $75 to $125, pay a $4 gate fee and then sell from the back of their truck, or for a commission, they can sell through one of the market's small dealers.

Farmers are buyers as well as sellers at the farmers' market. Bulk produce prices are less than grocery store prices and farmers take advantage of being at the market to purchase items for household consumption that they don't produce themselves. A bushel of peaches from South Carolina, for instance, may be bought for canning. Thus, the farmers' market expands the household's network of social contacts and is a means of reducing cash outlays, as well as being a reliable market for garden produce.

3.3.7 TOMATOES

One garden production system deserves more detailed treatment because, for a short period during the 1960s, it held the promise of being a viable secondary cash crop. Numerous tobacco farmers branched out into tomatoes after processing facilities were developed locally. The meteoric rise of tomato production during that decade (Figure 3.3) illustrates the speed with which farmers responded to a promising new market. The gradual decline in production during the succeeding three decades reflects a gradual attrition among small-scale producers as local markets disappeared and attests to the difficulty that Appalachian farmers have in competing with those in California and Florida, areas with significant competitive advantages.

Tomatoes had been grown commercially in the mountains for local and regional markets at least since the early twentieth century. The Asheville-based farm
cooperative, Farmers’ Federation, recognized the importance of expanding markets for mountain farm produce when it built a tomato canning plant in Henderson County in 1928. Located south of Asheville, the plant was too distant to help Madison County farmers. The Henderson facility does, however, show an early interest among rural development workers in extending the mountain tomato market.

Madison County’s tomato era was inaugurated by the Mato packing plant, which began operations in Marshall in 1964. Mato was the brainchild of Harry Silver, then the director of the Madison County Cooperative Extension Service, who financed the enterprise by selling stock to area residents (Duvall 1994). Both farmers and non-farmers participated in the venture. Mato served as a grading, packing, and shipping node, initially for vine-ripened tomatoes and later for green tomatoes that were
chemically ripened at their destination. The example and initial success of this packing shed encouraged the development of two others in the county, one in Spring Creek and another in Hot Springs, so that most tomato growers soon had a reasonably close outlet for their produce (Duvall 1994).

As with the establishment of the tobacco market earlier in the century, Madison County farmers responded quickly to the creation of an accessible market for farm produce. Despite the initial investment in materials and labor needed to construct trellises for the tall tomato varieties then grown for vine-ripened fruit, a large number of farmers added tomatoes to the mix of production systems on their farm. Early adopters benefited from the abnormally wet growing season that California experienced in 1966, decimating that state's tomato production and ensuring high prices for growers in other regions (Duvall 1994). The serendipitous, but unusual, market encouraged others to attempt the new cash crop.

By 1970, however, it was apparent that tomatoes were not going to be Madison County's proverbial cash cow. Mato closed that year, for reasons that are not entirely clear. Perhaps the other packing sheds proved to be too much competition or perhaps Mato's troubles had more to do with operating in a national market. Certainly competitive advantage was all on the side of Florida and California producers, who had a longer growing season, used low-cost migrant labor, had better roads, and were better connected to the burgeoning interstate trucking system. With a later and shorter growing season in the mountains, by the time Madison County tomatoes started producing, the market was glutted with Florida and California fruit. Several farmers interviewed in the course of this research, however, expressed growing dissatisfaction
with Mato’s management practices, particularly in regard to culling substandard produce. While it is difficult to justly weight or contextualize such complaints at this remove in time, they suggest that purely local contentions may have hastened the plant’s closing.

Farmers found tomato profits to be intermittent, yet the work unrelenting. Trellises required maintenance. Spraying was needed two or three times per week to prevent blight and more often when it rained, which was often in this high rainfall region. During the harvest season, the cycle of picking, washing, and packing tomatoes seemed continuous. Fruit was picked daily or every other day from mid-July to early October, a harvest that was intensified by its overlap with the tobacco harvest.

Some growers mitigated the labor demands through cooperative production. A group of four families who grew tomatoes together for sixteen years in the 1960s and 1970s picked and delivered fruit seven days a week during the harvest season. One participant described the many late nights he spent harvesting tomatoes, sometimes not going to bed at all because the fruit had to be delivered early the next morning in Asheville. Despite the difficult schedule, the group continued for so many years because they had a sure market and a strong personal relationship with their Asheville buyer. The operation ceased only when the two principles in the business relationship, the Asheville warehouse owner and my informant’s father, both retired.

Farmers’ memories of what it was like to grow tomatoes highlight the hard work and variable remuneration:

“[Tomatoes] worked you to death. I’d take a second job before I’d grow tomatoes [again].”
“I won't wish that work on any one.”

“I've never been fond of welfare, but I'd go on welfare before I'd grow tomatoes. Tobacco's hard work, but it's been sure.”

"When we made them, we did good with them. The only thing aggravating was -- right when we got into the good picking, they always dropped the price."

“I grew tomatoes for twenty-seven years, and only one year out of seven do you make more than a living.”

These comments capture the frustrations of farmers engaged in labor intensive production for a seasonally glutted and volatile market. Only one farmer interviewed indicated that he enjoyed growing tomatoes. For most farmers, growing tomatoes during the 1960s was a short-lived experiment. Why did the farmers quoted above, then, continue tomato production for much longer -- for fifteen, sixteen, twenty, or twenty-seven years? Answers provided by two of the men are revealing:

“I did it because it seemed like something one had to do.”

“We had to do something to eat.”

Behind the seeming fatalism of these rationales lies the farmers' struggle to find marketable crops in a region of limited alternatives. Where and how to market what they grow seems to be the crux of the problem for farmers in the mountain agricultural economy. As the local market for tomatoes disappeared, farmers had to travel farther and spend more time selling their produce. The experiences of a tobacco farmer who has also grown four to five acres of tomatoes since 1965 illustrates this expanding sphere of market activity. Initially, he sold his tomatoes to Mato, which was located only a few miles from his farm. After it closed, he took his produce to the packing shed on Spring Creek, about a twenty mile drive each way over winding mountain roads.
After that shed closed in 1985, he sold tomatoes wholesale at the Asheville farmers' market to independent truckers who “would buy five to six hundred boxes of tomatoes at a time.” As he moved into a seasonal job in the tobacco industry, he had less time for farm work and marketing. He first employed several migrant Mexican workers to help with the tomato harvest in 1985 and since the early 1990s has turned over the harvesting and marketing of the fruit to one family who pay him a dollar per plant, then pick, grade, and field-pack the tomatoes for sale in the farmers' market.

By the 1990s, fewer than a dozen farmers were still growing tomatoes commercially (Duvall 1994). Those who stayed with the crop have been successful at it by expanding their acreage and adopting the techniques of industrial agriculture used elsewhere in tomato production, including drip irrigation, mechanized fumigation, and field-packing by migrant workers. By adjusting their production methods they have built successful niches for themselves, while small-scale producers relying on more traditional production methods and household labor have abandoned commercial tomato production.

3.4 Summary

At the close of the twentieth century, Madison County is part of the core U.S. tobacco-growing region. Small-scale family farms abound, but with increasing frequency tobacco production is an adjunct to off-farm jobs. Most farmers use several production systems and combine market and household production to some degree. Tobacco dominates the agricultural economy, and beef cattle are a common complementary production system, but a variety of specialized crops and livestock are raised by smaller numbers of farmers.
Although farmers welcome many of the changes brought by industrialization, particularly those that eased the grueling labor of tobacco production, there is also a sense among older community members that they are on the cusp of losing something valuable and locally unique as their traditional culture is increasingly subject to the homogenizing influences of the larger American culture. Unlike groups such as the Amish, who have maintained community integrity by rejecting larger American society and most of the trappings of modernity, the farm community of Madison County is neither closed nor adverse to technology. Urban migration and return, the mushrooming of television satellite dishes on mountain slopes, vacations taken outside the mountain region, and in-migrants who establish businesses, farms, or vacation homes open the community to diverse influences and lessen the difference between national culture and the local articulation of Appalachian culture.
4. **Forest and Rural Economy**

Farmers and other residents of Madison County incorporate a range of forest resources into subsistence and commercial livelihood strategies. Chief among forest products used are timber, fuelwood, game, fish, and edible, herbal, and ornamental plants. Woodlands are less intensively managed and used than agricultural production systems, and individuals vary considerably in the amount and type of use that they make of forest resources. Nevertheless, these resources are a critical component of the farm system, and farmers’ access to them ensure a low-cost supply of building materials, especially important in construction of tobacco barns, and offer opportunities for seasonal income derived from forest-related employment and the sale of forest products such as ginseng.

Forest products are routinely extracted both from privately owned woodland and the Pisgah National Forest. While individuals have greater control over private woodland resources, the diversity and quantity of resources available in the national forest cannot be matched on privately held land. By expanding the resource base available to individuals, public lands play an important, but unacknowledged role in supporting the local farm system.

National forest resources are managed for sustainability through permits, fees, and use limits set by the U.S. Forest Service. As examples in this chapter will illustrate, however, this regulatory framework is negotiable at individual and institutional scales. Through the day-to-day performance of their duties, forest rangers interact with resource-requesting individuals and mediate their access to resources. When local
residents' notions of customary use or appropriate resource management conflict with Forest Service practices, regulations may be variously ignored or contested.

4.1 Forest Extent

Madison County is a well-wooded region. The best available estimate of county forest cover was produced by the Forest Service as part of its periodic survey of U.S. forest resources undertaken every six to ten years. The 1990 survey estimates that seventy-three percent of Madison County is forested (Johnson 1991, 14). The survey's author warns that survey data is derived from a statistical sampling of aerial photographs and that "individual county estimates have limited and variable accuracy" (Johnson 1991, 14). Fieldwork in the area renders this figure believable, however, and confirms that woodland resources are not only abundant, but an important component of the rural economy. Extant forest represents a significant "regreening" since the early decades of the twentieth century, when clear cutting by timber companies had denuded mountain slopes, especially in the northern half of the county, and when crop land was at its greatest spatial extent. Estimates of county forest cover during the 1930s range from forty percent to fifty-six percent (Wellman 1973, 178-9; Goldston et al. 1942, 4). Forest resources are currently as abundant they have ever been during the twentieth century.

Both on-farm changes and the inclusion of much of Madison County in the Pisgah National Forest have contributed to reforestation. Through its purchase and management of tens of thousands of acres of former timber company land, the U.S. Forest Service was the major agent of landscape change in the county's northern tier. Cutover areas were either reseeded or allowed to run the course of natural succession.
with the result that mature secondary forest now covers much of this area. The minimal
acreage held by timber companies, estimated at less than five hundred acres (Johnson
1991, 15), illustrates how thoroughly the logging industry has declined in this area.
Because the forest service manages the national forest for timber production, however,
recent clear cuts and patches of younger successional forest may be found in scattered
patches throughout the mature forest.

Declining farm numbers and an expansion of woodland on remaining farms have
contributed to reforestation on private lands throughout the county. According to the
agricultural census, since the mid-1930s, the average woodland acreage per farm almost
doubled, rising from twenty to thirty-nine acres. Since farm size also grew during this
period, though, a perhaps more reliable indicator of forest regeneration on farms is the
percentage of all county farmland that is forested. In 1934, thirty-nine percent of all
farmland was forested. By 1992, that figure had risen to fifty percent, and seventy-one
percent of farms had some woodland. Farmers confirmed that a moderate level of farm
reforestation has occurred during the last fifty years, particularly on lower mountain
slopes that were once cultivated.

Farm reforestation is the combined product of cropland abandonment, declining
fuelwood needs, changes in burning regimes, and farmland conversion to residential
and recreational landuses. Since the 1930s, land-extensive grain crops have been
largely forsaken, and steeper slopes have converted to pasture or reforested. Farm
woodlots grew unchecked as propane and electricity replaced wood as the primary
heating and cooking fuel and tobacco farmers stopped burning seedbeds. Loss of
timberland to fires set as farmers cleared fields diminished with the use of proscribed
burning. Much former farmland has passed into the hands of non-farmers and is now occupied by rural commuters and seasonal residents. Since many who have chosen to live in the mountain setting prefer wooded homesites, the reforestation that accompanies the cessation of farming is as much a conscious choice as a byproduct of inaction. Between such homeowners and owners of undeveloped woodland, an estimated twenty-eight percent of the county's forest is now privately owned by non-farming individuals (Johnson 1991, 15).

4.2 Forest Composition

Madison County forests are typical of the southern Appalachians, where species-rich mixed hardwood forests predominate. Distinct plant associations occupy ecological niches created by combinations of elevation, soil, aspect, and precipitation. Oak-hickory forests, with their common associates poplar, elm, maple, and black walnut, comprise the bulk the area's forest, flourishing at middle elevations, between 2500 and 4000 feet (Johnson 1991, 16). At lower elevations, such as in the French Broad Valley, loblolly and shortleaf pines replace hickory in the mix. Associations of maple, beech, and birch or white pine and hemlock favor higher elevations between 4000 and 6000 feet.

Human activity has altered the composition as well as the extent of forests. Extensive logging and forest clearing for agriculture eliminated old growth forests. Replanting by the Forest Service increased the prevalence of white pine, a straight, fast-growing tree ideal for timber production. Tree farms have introduced blue spruce, a species that naturally favors elevations slightly higher than those in Madison County.
The most dramatic change in forest composition, however, is characterized by what is not there, namely chestnuts. An early twentieth century survey lists chestnut as the most common species in western North Carolina, with chestnuts comprising thirty to seventy-five percent of mid-elevation chestnut forests (Holmes 1911, 15). The wood, valued for its strength and rot-resistance, was used for houses, fences, and tobacco stakes, the bark was the basis of an Appalachian tanning industry, and the nuts were a rich source of forage for people, free-ranging livestock, and wildlife. The loss of these trees during the 1930s to the Asian chestnut blight did not immediately halt the use of the valuable wood, for chestnut snags and fallen trees continued to be harvested for several decades. Several farmers interviewed described hauling some of the last big trunks out of the forest with a team of horses or mules and listed the loss of the chestnuts among the biggest changes in the county that they had observed during their lifetime.

4.3 Use of Timber Resources

Building timber and fuelwood for heating and cooking are the most commonly used forest products. The former assumes a special importance in a farm economy where most tobacco farmers build their own barns from local materials. Timber for barns usually comes from the farmer's own property, but if trees of the desired species and size are lacking, individual trees or a small stand are purchased from a neighbor or

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1 The blight was introduced to New York around the turn of the century and spread rapidly across the country (Walker 1990, 151-58). Chestnuts did not disappear entirely. Root sprouts grow from the trunks of long-dead progenitors, but their life span is limited to a few years before they, too, succumb to blight. Researchers are working to cross the smaller, but blight-resistant Asian variety with the American chestnut and thus recover the stately native tree. In support of this effort, the Forest Service has planted test plots in Madison's Pisgah Forest.
the national forest. When trees from the national forest are cut, a ranger must approve and mark each tree, and the fee charged is based on the ranger's assessment of the quantity and grade of lumber in the trees. It used to be common for farmers to purchase small stands from the national forest when building a barn or house. However, stricter regulations surrounding timber sales, such as the surveys now required to scout for endangered species and archaeological sites, have made these small sales more difficult to complete (McGrew 1995).

Many farmers have the skills to fell trees and turn the wood into useable timbers and planks. Logging is part of the regional culture, a legacy of traditional agricultural practices of land rotation and of the timber industry whose operations peaked in the 1930s but continues on a reduced scale. For the oldest generation of farmers, clearing new fields from secondary forest was a regular part of the agricultural cycle, and many passed timber cutting skills to their sons in the course of life on the farm. A number of farmers acquired or honed their logging skills through temporary jobs with one of the logging companies that operate in western North Carolina and eastern Tennessee. Two of the farmers interviewed own their own small sawmills which they use on an ad hoc basis to produce lumber for farm structures and contract sawing. One of these men has built two log homes, one for himself and one under contract, from trees he felled and milled. Thus logging skills contribute to farmers' ability to move flexibly between self-sufficiency, wage labor, and entrepreneurship.

The hallmark of self-sufficiency for the tobacco farmer is construction of a curing barn. Burley tobacco barns fall within a vernacular tradition, designed and built by individual farmers using principles that have been worked out over generations.
Most barns in use today are variants of a pole barn, consisting of a framework of unmilled tree trunks or sawn lumber that is covered with siding made of sawn boards and roofed with tin. Boards in the siding are spaced about an inch apart to facilitate air circulation and may be arranged horizontally, vertically, or diagonally, with advantages cited for each orientation. Horizontal siding is held to be the easiest building method, but vertical boards shed rain better, and diagonal boards provide greater structural integrity. All are common, and the choice seems to be a matter of individual preference. Tiers of horizontal poles start just above head height and stretch to the roof, filling the barn's interior. Sticks of speared tobacco are hung between these tier poles for curing.

The vertical timbers that form the barn's structural supports must be made of a strong wood such as locust or yellow pine. Old telephone poles or materials recycled from old barns are sometimes used in combination with newly cut timber. Tier poles are made from a lighter wood such as poplar or jack pine both to reduce the load on the supports and to ease the task of raising the poles into position. The bark may or may not be removed from the various timbers, and the decision to do so seems to rest on the tree species rather than the function or position of the timber within the barn. A farmer explained that poplar would split if debarked, but that jack pine had to be "peeled" to "keep the bugs out of it."

Fuelwood is another commonly used forest resource. Although propane heaters and electric stoves are nearly ubiquitous, some rural residents prefer to rely on wood stoves for heating and cooking. This group includes both old-time farmers who have never updated their appliances and in-migrants whose preference for fuelwood as a
renewable resource reflects social concerns. Most individuals get their fuelwood from their own property, but some use a forest service "dead-and-down" permit to cut fallen trees in Pisgah National Forest. These permits allow any non-commercial use of the wood, but most timber removed under their provisions becomes fuelwood (McGrew 1995). The office of the French Broad Ranger District in Hot Springs issued eighty-six dead-and-down permits in 1994. Wood collectors pay a fee of two dollars per cord and are allowed to take five cords each year. My interviews with rural residents suggest that those living near the national forest who traverse the trails frequently are most likely to know when a tree of a desired species has fallen in an easily accessible location. This is one example of how forest uses dovetail, with the pursuit of one activity, such as ginseng collecting or hunting, building an individual's knowledge about the location and availability of other forest resources.

The importance of women's role in tobacco production has been recognized (e.g. Phillips 1990). Women have been and continue to be critical to ancillary methods of forest use by which households generate income, especially the collection of medicinal plants. Cutting timber provides seasonal income for some tobacco farmers who log during the winter, when farm work is slack, and sell the pulp wood to a paper mill in eastern Tennessee or western North Carolina. In Madison County, at least during the immediate post-World War II years, women's work sometimes extended to logging. A farm woman described cutting timber with her husband in the late 1940s:

We've done a little bit of everything over our life times. And working together. We cut cord wood in the first years we were married... Most of the time we were out around Mars Hill, where you had jack pine and the like. We paid so much a cord -- you go in and buy a boundary... [We] cut trees down, cut it into five foot sticks, and hauled it in to Champion Paper. Loaded it on a truck and hauled it to Canton. And I could drive the truck.
loaded, run the chain saw, and sometimes I helped him log it, if it was level. We did it all together.

While this woman's role in logging was not the norm, even at that time, her account illustrates one method by which farm households pieced together livelihoods with the help of off-farm activities and suggests that women's labor may have been more critical to the success of these enterprises than is typically acknowledged.

4.4 Ginseng and Other Non-Timber Resources

Rural residents collect, use, and sell a variety of non-timber forest resources, including medicinal herbs, ornamental plants, berries, mushrooms, and floral greenery. The level of use of most of these items is difficult to gauge. Except for ginseng, which is widely collected, most are probably collected sporadically by small numbers of people. Blueberries, blackberries, mushrooms, and ramps (pungent bulbs that fall somewhere between garlic and onion in flavor) are collected in small quantities for household consumption. Mountain laurel and rhododendron are sold as landscaping shrubbery. Galax is collected for its shiny heart-shaped leaves, which are used in floral arrangements.

Some idea of the level of use of these botanicals can be gleaned from the number of "special forest product" permits that the Forest Service issues for their collection in Pisgah National Forest. In the 1990s, the Hot Springs ranger office issued three to five permits annually for galax and for the medicinal herbs doghobble and mayapple. Only one family still requests permits for collecting goatsbeard, bloodroot, and cohash, other medicinal herbs (McGrew 1995). While these statistics do not capture the level of collection that occurs on privately owned land, interviews I conducted with rural residents did not reveal significant collection or use of plants other than ginseng.
The number of ginseng permits issued, fifty-two in 1994, indicate substantially more interest in this medicinal herb. Moreover, rangers and ginseng collectors agree that permit numbers grossly underestimate the amount of ginseng collection that occurs in the national forest. The hefty permit fee of forty dollars per pound and a collection limit of two pounds encourage scofflaws to dispense with permits. One ranger who asserted, “I go out of my way to bust [permit violators],” catches five to ten each year. As the roots are easily concealed, however, the price of two hundred to three hundred dollars per pound that the collector will receive from a dealer continues to make illegal collection tempting. One informant, a man in his mid-twenties, admitted to collecting ginseng from the national forest without a permit and was of the opinion that few of his contemporaries bother with them. Although ginseng collection is difficult to quantify, both the number of practitioners that I found and their wide age range indicate that not only does the tradition persist, but that it is being transmitted to new generations.

The Appalachian ginseng tradition is a survival of beliefs that were widespread in colonial America. Medicinal use of the root likely derives from traditional Chinese medicine, for North American ginseng collection was founded on the economics of trade with China rather than an indigenous culture of ginseng use. The ginseng trade stemmed from the efforts of a French Jesuit priest who sought economically valuable botanicals while stationed in Quebec. This priest, Father Lafitau, was aware of the Chinese market for Asian ginseng, *Panax ginseng*, and in 1716 identified North American ginseng, *Panax quinquefolium*, as a related species (Lafitau 1718). French-Canadian traders developed a lucrative export market to China by bartering with Native
Americans who collected ginseng as a seasonal complement to trapping (Hardacre 1968, 27).

Ginseng collection accompanied the spread of the Euro-American frontier. By 1751, ginseng had been identified in the Berkshires of western Massachusetts and elsewhere in New England (Speer 1877, in Kimmens 1975, 193). During his travels, explorer and botanist Andre Michaux noted the abundance of ginseng in the Alleghenies and Kentucky (Kimmens 1975, 189). The plant's natural range extended across the eastern half of North America from lower Canada to mid-Georgia (Persons 1986, 11). The dried root was a low-weight, high-value commodity that was free for the taking and could be collected at leisure or as a by-product of land clearing or surveying (Price 1960, 15; Hardacre 1968, 52). It generated income in a cash-poor society and was avidly incorporated into frontier economic strategies.

The process by which ginseng ceased to be solely an economic concern and entered the North American folk tradition as medicine is poorly understood. Ginseng has been part of the Chinese pharmacopoeia for thousands of years. The dried root is prescribed for a variety of specific symptoms, including intestinal pain, morning sickness, inflammation, and headache, but is most commonly taken regularly in small amounts as a "normalizing" agent that balances and harmonizes the body, alleviates stress and fatigue, and counteracts the ills of aging (Hou 1978, 53, 157). Similarities between North American and Asian beliefs about ginseng combined with known trade contact strongly suggest the diffusion of Asian beliefs. The root's economic value may well have reinforced belief in its medicinal worth, an attitude voiced by one of the first Americans to make a scientific study of ginseng cultivation: "There must be some
medicinal value about it of great power or the Chinese could not pay the price for it” (Harding 1908, 163).

Ginseng continues to be used both as palliative and preventive. In my interviews with Madison County residents, numerous adults of all ages reported occasionally chewing a piece of root for an energy boost when tired, and one nursing mother drank ginseng tea to augment her milk. Others, in belief of the cumulative long-term benefits of ginseng consumption, eat the root or drink ginseng tea on a regular basis. Both natives and in-migrants are represented among ginseng users. In-migrant use of ginseng reflects its growing popularity within larger American society, reflecting baby boomer’s focus on healthy lifestyles and the revival of interest in natural remedies and alternative therapies associated with the New Age movement. Well-educated, middle-class, ex-urbanites would seem unlikely candidates for sharing a cultural tradition commonly associated with poverty and lack of modern medical care. Yet the traditional has become trendy, and drug and health food manufacturers are scrambling to bring ginseng into the mainstream with brandname products that contain ginseng.

While some of the ginseng collected in Madison County is consumed locally, the bulk is exported to Asia, via a network of dealers who aggregate shipments in export centers such as New York and Vancouver. State-wide, ginseng collection is a multimillion dollar enterprise in which thousands of people participate. In 1993, for instance, almost ten thousand pounds of wild ginseng were collected in North Carolina alone (Crawford 1995). At the price prevailing in western North Carolina, this figure represents a two to three million dollar forest product extraction industry.
Success at ginseng hunting increases as the collector becomes familiar with the plant's form and habitat and acquires knowledge of localized ginseng populations. Ginseng is a difficult plant for the casual collector to identify. It grows scattered among a diverse groundcover in closed-canopy hardwood or pine forests. The cluster of toothed palmate leaves at the end of an eight to ten inch stalk give ginseng an appearance strikingly similar to the ubiquitous, but worthless, Virginia Creeper. Ginseng is easily distinguishable only in the fall when a cluster of small red berries forms under the leaves of each mature stem. The top of the plant dies off in the late fall and sprouts anew in the spring, so the roots are impossible to locate during the winter. As a portion of the ginseng plants in a local population do not sprout in a given year, even the removal of all visible plants from a patch likely misses some dormant roots. Thus, accumulated knowledge of past finds gives the experienced ginseng hunter an advantage in locating plants.

Ginseng's contribution to household economies varies enormously with the skill, knowledge, and persistence of the collector. Ginseng sales comprise a large proportion of income for a few individuals. A preacher at one of the county's small independent Baptist churches, whose church position is unsalaried, supports himself with a few acres of tobacco and by hunting ginseng, which he reports brings almost as much as the tobacco. Several informants claimed to know someone who paid off a truck loan or mortgage with ginseng earnings, but none claimed such a windfall for themselves. For most households that collect it, ginseng is a small, but nonetheless important, source of income, one of a number of cash-generating strategies used at different times and with varying emphases.
Ginseng hunting is easily done in concert with other forest activities. While hunting, fishing, or simply strolling through the woods, many rural residents watch for the signature halo of the ginseng plant's red berries. Storyteller and Madison County native Sheila Kay Adams describes how her grandmother looked for ginseng while gathering buckeyes:

“Granny’s digging stick swung gracefully from the leather string around her neck... She never went into the woods without her digging stick, the handle worn smooth from years of use digging out ‘sang root.” (Adams, 1995, 1)

Although Adams’ stories come from childhood memories of Madison County life in the 1950s, the practice of hunting ginseng while in the woods for other purposes persists. However, it is possible that ginseng hunting has become a more exclusively male activity than formerly as forest resources traditionally gathered by women, such as bloodroot, black cohosh, mayapple, and other medicinal herbs, have declined in importance. Boys are still introduced to ginseng hunting by older male relatives in much the same way that they are taught game hunting and fishing. Women, tied to household duties and childcare when not working off-farm jobs, simply don't have time for woods foraging.

Given the persistence of ginseng collection as a subsidiary livelihood strategy and the growing popularity of the root among U.S. consumers, sustainability of collection practices is a continuing concern. Although wild ginseng was once common in eastern North America, overcollection and removal of associated forest cover greatly reduced the plant's range. As early as the eighteenth century, high prices encouraged indiscriminate collection. Collectors took all plants, regardless of season or plant age, for fear that someone else would dig them, enacting a classic tragedy of the commons (Hardin 1968). The plant was "seriously depleted" by the late 1700's, and by 1900, had
vanished from substantial portions of its natural range (Silver cited in Salstrom 1994, 143; Persons 1986, 22). The threat that overcollection poses to the species was officially recognized in 1978 when CITES, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, afforded ginseng some protection by requiring states to monitor exports and limit the collecting season. Dealers must keep detailed records of ginseng purchases, including seller, quantity, and date. Collection is banned between April 1 and August 31, effectively limiting the collecting season to the fall because of the difficulty of identifying the plants in their dormant winter phase.

In light of CITES regulations, both ethicists and opportunists can be said to exist among Madison County ginseng collectors. A number of informants expressed concern for the scarcity of ginseng and voiced a code of ethics that goes beyond the CITES proscription of spring collection in ensuring sustainable collection practices. These ginseng hunters dig only plants of seed-bearing age, so that each plant taken has had a chance to replace itself. Ginseng's predictable growth cycle makes plant age easy to identify. In its first year, ginseng produces a single stem with three to five leaves. The second year, it produces a two-pronged stem, and the third year, a three-pronged stem with seed-carrying berries. Passing over young plants maximizes long term yield, as roots adds bulk most rapidly during these first three years. Ginseng hunters actively aid plant propagation by planting the berries of any plant that is dug. Some berries are planted in the immediate vicinity of the plant taken, while others may be planted closer to the collector's house in a form of semi-cultivation that attempts to replicate the plant's natural growing conditions.
Evidence of opportunistic or patently illegal ginseng collection may also be found. The commons mentality that led to early depletion of wild ginseng persists among those collectors who dig ginseng without regard to property ownership. In North Carolina, it is illegal to dig ginseng on someone else's land without the land owner's written permission, and it is a felony to remove ginseng from a fenced area. Yet several informants reported raids on small plots of ginseng that they were attempting to cultivate. One tobacco farmer who had his soil tested for its suitability to grow ginseng ultimately opted not to attempt the new crop because of the likelihood of raids. Noting that the shaded plot he'd selected was within shotgun range of the house, he explained "I'm a good Christian and I'd hate to have to shoot somebody."

Little effort has been made in this region to apply conventional farming methods to ginseng. The county office of the Agricultural Extension Service sells stratified ginseng seed suitable for planting, and a few farmers have experimented with small plots grown under shade covering improvised with slats or vine-covered chicken wire. The plant is highly susceptible to fungal diseases when grown in high densities, however, and the region's high rainfall and periods of high humidity tend to mitigate against the health of compact stands. No one, to my knowledge, has attempted the kind of large-scale monocropping under shade cloth perfected in Marathon County, Wisconsin that has given that area a near monopoly on cultivated ginseng production in the United States. Small quantities of ginseng have been successfully grown by sowing seed or transplanting seedbed-raised plants sparsely in open deciduous woods, conditions that resemble the plant's natural habitat. For the most part, however, the local ginseng tradition revolves around collection of wild root, an activity that continues.
to generate income for households, fill a local demand for the medicinal herb, and tie the region into the global economy.

4.5 Forest Places

Forests, of course, are not simply collections of resources to be exploited. They are also places. Residents ascribe multiple meanings to forests through their use of those places, including resource collection, recreation, quite retreat from the workaday world, and hiding activities that transgress law or social norm. Forests may simultaneously hold multiple meanings, as evidenced by the enjoyment that people engaged in fishing or ginseng hunting derive from the woodland setting and the experience of being in nature. In conversations about ginseng hunting, collectors conveyed a love of the activity itself. This affinity is not so much explicitly acknowledged as revealed through the wealth of stories that people tell about ginseng hunting and the eagerness with which they approach the topic. Some stories are humorous, punning anecdotes with a folkloric quality, such as the thirty-foot high ginseng plant, which by anecdote's end is revealed to be a plant growing in the crotch of a tree. In others, the ginseng hunt is the setting for intriguing woodland events, such as a mother rabbit observed defending her nest of young from a hungry black snake. These personal stories of encounters with forest minutiae most clearly reveal the importance of forest as place for ginseng hunters in which the quest for the recondite ginseng adds zest to an outing that is enjoyed for reasons unrelated to the economic value of the root.

Shared forest recreation contributes to the accretion of friendly interactions that cement rural social networks. A back-to-the-land farmer attributed his family’s ease in
joining local networks of work exchange to their habit of joining their rural neighbors for a Sunday afternoon trail ride on horseback along the Appalachian Trail. Hunting and fishing expeditions by male members of different households are well-worn bonding rituals, as are the drinking parties formed by youths from this dry county who retreat to places such as Painted Rock in Pisgah Forest or to a scenic overlook along the Appalachian Trail for a taste of forbidden revelry. The seclusion of remoter forest places hides other illicit activities. Madison County had its share of Appalachia's legendary moonshining (Dykeman 1955, 242-247). Whiskey distillation continues at much reduced levels in the 1990s, but the forest has become a haven for producing another illegal intoxicant — marijuana. It is generally acknowledged that a fair amount of marijuana is grown in Madison County's forests, on both private land and in the national forest. Public lands provide growers an element of safety because the impossibility of attributing ownership of plants grown on public property unless the grower is caught at the site. The county sheriff and his deputies uncover and destroy marijuana caches several times a year, but I am unaware of any attempt to gauge the extent of marijuana production in this part of the country.

4.6 The Structuration of Forest Resource Use

The preceding sections have set forth ways that forest resources are incorporated into livelihood strategies in the rural economy. This section focuses on issues of access to national forest resources. It uses structuration theory as a framework to examine the interplay between institutional regulation and individual action that results in resource use patterns. Government ownership and control of a large proportion of woodland in a
region where forest resources are important to numerous households makes a close reading of the components and process of regulation desirable.

Resources from the Pisgah National Forest are acquired and used within a regulatory context framed by the U.S. Forest Service. Forest Service rules govern the type, quantity, location, and season of collection of a variety of resources, including standing timber, "dead and down" timber, and herbaceous or ornamental plants. Actual resource use is not always strictly constrained by these rules, however, as rules are variously ignored, contested, and negotiated. Regulation is, therefore, something that is enacted and negotiable rather than written and immutable. I examine here two cases of mutual construction of resource regulation by would-be resource users and regulators. In the first example, sharp boundaries of the regulatory structure become blurred when the actions of individual rangers whose routinized activity comprises the structure of regulation are examined. Regulation becomes a negotiated process between resource seeker and ranger in which the nature of resources are open to interpretation and the idea of hazard is critical to the definition of a useable resource. In the second example, participants in a salvage timber protest successfully negotiated the competing demands of personalizing their opposition, necessary to generate broad local support, and institutionalizing their opposition, necessary to bring a highly resistant Forest Service to the negotiating table to reconsider the proposed clear cut. Regulation of forest resources is thus the cumulative result of actions of individuals requesting resources and those in which decision-making power is vested and is a process that operates across multiple levels of organization.
4.6.1 Forest as Institution

As the owner of 54,396 acres of Madison County (Mulholen 1993), nearly a fifth of the county, the U.S. Forest Service and its land management policies affect rural household economies through control of a significant portion of the county’s land base and the resources on it. The forest service is a branch of the federal government mandated to balance competing interests in management of national forests for the benefit of nation as a whole. Critics have likened it to a colonizing power, one that controls Appalachian timber and recreational resources primarily for the benefit of industries and urban residents outside Appalachia (Kahn 1978), a force for "rationaliz[ing] the appropriation of Nature into... the national economy" (Batteau 1990, 92). Yet in the 1990s, Pisgah National Forest and the Forest Service enjoy, with the short-term exception of the logging protest mentioned above, a positive image among local residents.

Federal ownership removes land from the farm system and from local tax rolls, yet most land in Madison County's section of Pisgah National Forest was alienated from local control prior to its purchase by the forest service. Since the bulk of the national forest was formed from cutover timber land in the northern and western parts of the county, far from eliminating local access to resources, forest service management increased forest coverage and the availability of forest resources. Moreover, the Forest Service ameliorated much of the environmental damage caused by commercial logging. Replanting, for example, reduced erosion-induced sedimentation and stream aggradation that made bottomland fields swampy and increased flood hazards.

Although national forest lands have their share of regulations, they are available for use
by everyone and have, in this sense, continued the tradition of the forest commons. In contrast, county natives complain about in-migrants who buy land and then post it in an attempt to halt customary usages. Rural residents benefit from recreational facilities of the national forest, such as campgrounds and trails that are used for horseback riding, wagon training and accessing hunting and fishing grounds. The Madison County portion of the Pisgah National Forest is part of the French Broad Ranger district and is administered from an office situated on the short stretch of the Appalachian Trail that runs down Hot Spring's Main Street.

Local attitudes towards the national forest are moderated by that fact that Madison County does not experience the extreme of public and reservation land ownership that some western North Carolina counties do, such as Swain County where over eighty percent of its land is occupied by national park, national forest, the Qualla Cherokee reservation, or the TVA-created Fontana Lake. Nor did the county experience the legal condemnation that was used to exercise the government's right of eminent domain in Cades Cove to clear the Great Smoky Mountains National Park of inhabitants (Durwood 1988). Forest Service goals do not conflict with continued habitation of small in-holdings, so many privately owned parcels dot Madison's segment of Pisgah National Forest. The Pisgah Purchase Unit, the area from which the Forest Service is authorized to buy land, encompasses the entire northern third of the county, yet lands owned by the forest service comprise only nineteen percent of the county (Carol Milholen 1995). Much of the privately owned land remaining in the purchase unit, including the entire town of Hot Springs and numerous farms along stream bottoms, have never been objects of Forest Service acquisition.
Alienation of forest lands from local control began when northern logging companies moved to exploit Southern forests as the timber reserves of New England and the Great Lake States were logged out. Appalachian forests were in the second wave of logging expansion, since timber companies concentrated first on the relatively more accessible forests of the Gulf and Atlantic coasts (Williams 1989, 238-244). Between 1890 and 1930 timber companies acquired vast tracts of Appalachian forest, often at bargain prices, through direct purchases by land agents and by buying out smaller logging operations (Van Noppen and Van Noppen 1973, 296). At least two timber companies, Unaka and the Scottish Carolina Timber and Land Company, had purchased large tracts in Madison County by 1890 (Eller 1982, 101). The New York-based Laurel River Logging Company bought 40,000 acres in 1911 and constructed two sawmills and a rail line along the eponymous river to facilitate timber extraction (Eller 1982, 106-7).

The rapid pace of forest clearing in timber regions across the country and the environmental devastation that often accompanied logging generated concern for forest preservation, resulting in the passage of the Weeks Act in 1911 that established Pisgah and other forests in the eastern U.S. that were to ensure a national timber supply and protect sensitive watersheds. Administrative units changed several times, so the area within Madison County was part of the Unaka and Cherokee National Forests before being added in 1936 to several noncontiguous sections of the Pisgah National Forest scattered through western North Carolina. Records in the Hot Springs district ranger office detailing land purchases indicate that the bulk of Madison County lands added to the national forest were bought from timber corporations. One of the first big additions...
to the national forest was 13,468 acres on Shelton Laurel purchased in 1922 from Missouri-based Grove Land and Timber, a tract that accounts for a quarter of all national forest acquisitions in Madison County to date. Other companies named in the records include the Laurel River Logging Company, Unaka Timber Company, and Haywood Land and Timber Company. In most cases, the land was clear-cut before the Forest Service acquired control. Since replanting and long term forest management were not part of the early twentieth century logging plan, timber companies were only too happy to sell land that the extraction of all merchantable timber had turned into a tax liability. The purchase of cutover tracts continued into the mid-1950s. Relatively few tracts were purchased from individuals during the 1920s. Moreover, the relatively large sizes of the tracts that were purchased, 1400 to 2300 acres, and their early offer for sale suggest that they were speculative land holdings rather than farmsteads.

Acquisitions from individuals increased markedly with the onset of the Great Depression, which hit the farm economy a few years before the stock market crash of 1929. The paucity of detail recorded about these transactions is barely sufficient to induce the reader to imagine the human tragedy behind the sale of distressed family farms. Only the small size of most tracts, ranging from half an acre to a few dozen acres, hints at piecemeal disposal of already marginal farms as farmers struggled to continue a while longer or at the outright sale of family homesteads. In some areas of southern Appalachia, the forest service's practice of purchasing foreclosed farms for low costs at auction generated suspicion of government conspiracy (Eller 1982, 120). Later generations saw the value of land adjacent to the national forest rise as proximity to the
national forest become a selling point in real estate ads, and resentment simmered with the memory that their family land had gone to creating the national forest.

Strong ties to particular places survived the transfer of ownership and were passed down through stories, family histories, and continued resource use to subsequent generations who never lived on the land. A retired Air Force mechanic now living in Buncombe County has fond memories of harvesting apples and pears from trees at the site of his grandparents’ former homestead on Upper Shut-In Creek. His grandparents sold the mountainside farm to the forest service in 1929 and moved to a farm lower in the valley, but continued to make the trek up the mountain and harvest the fruit every fall. In 1943, when he was six, his nuclear family moved to Asheville. They maintained their connection to the valley community through frequent visits, returning to his grandparents’ farm most weekends and summer vacations. With three generations harvesting the trees at the old home site, the journey up the mountain became a journey into the past, an opportunity to recall details of family history set in the place where they occurred. The trees themselves assumed a place of importance in family oral history, for the mechanic could recount where the trees came from, their prices, and their mode of delivery, all details of a transaction that took place ten years before he was born. As this example shows, families moved off the land to make way for the national forest, but their ties to those places were not severed.

Disputes over land sales were surprisingly few, but could be protracted. One gleaned from records in the Hot Springs ranger office illustrates how such disputes arose from lapses in the cadastral record and provides an early example of negotiated interpretation of the regulatory context. When the Forest service purchased a 2000-acre
tract of land in 1921, the adjacent landowner claimed several acres on the tract that he had under cultivation. The deed that he had inherited from his mother did not precisely specify the boundary of his land, and in any event, the deed had not been recorded in the county courthouse, not an unusual occurrence for the time. Although the forest service had paid four dollars per acre for the large tract, the disputant requested a hundred dollars for the few contested acres. The dispute dragged on for a dozen years and multiple exchanges of letters until, in 1934, the forest service offered the disputant a special use permit at a cost of one dollar per year that would allow him to continue cultivating the land. In exchange for usufruct rights to the land, the farmer would acknowledge forest service ownership. The benign nature of this dispute, one that threatened neither residence nor livelihood, stands in marked contrast to disputes in other areas in Appalachia where federal land acquisitions displaced families or entire communities.

National forest acquisitions after 1940 targeted areas with high recreation value whereas earlier purchases had focused on timber conservation and watershed protection (Mastran and Lowere 1983, 95). As federal funds for land acquisition shrank and prices of land adjacent to existing national forest increased, the forest service turned to land and timber swaps as a means of gaining desired acreage. In 1980, for instance, the forest service acquired 1320 acres at the head of Big Creek, a popular wilderness area, from Duke Power Company in exchange for other forest service land of equal value. Since the early 1980s, a few hundred acres have been added to the national forest each year. One recent acquisition from an absentee owner, for instance, facilitated the relocation of the Appalachian Trail at Sam's Gap where the existing route was displaced.
by construction for Interstate 26. In short, the history of land acquisition by the Forest Service in Madison County was largely uncontentious because the bulk of land was purchased from corporations rather than individual farm families. As will be posited in section 4.6.3, however, it was precisely the attachment to place felt by descendants of those small farm tracts purchased during the Depression that allowed the logging protest movement to make its case with local residents.

4.6.2 NEGOTIATING RESOURCE USE

The Forest Service structures resource use within Pisgah Forest with regulations on the kinds of resources that may be used, when they may be taken, in what quantities, and from which parts of the national forest. Yet actual resource use is determined by rural residents' compliance with regulations and by interactions between resource requesters and rangers who make decisions regarding resource use. Rangers charged with implementing Forest Service regulations seek to maintain good community relations in the course of discharging their duties. Doing so, they believe, makes their job easier by ensuring greater compliance with regulations. One method of relationship building is to observe strictly the limits of the Forest Service's regulatory mandate, i.e. to enforce those regulations they have been charged with and to ignore other legal infractions. Put more simply, rangers don't snitch. As one long-time ranger commented, "If a ranger found a still while doing his work, he wouldn't turn it in. We went round and round with Alcohol, Firearms and Tobacco about this."

Good relations are also built through the accommodation, where possible, of individuals' requests for resources, and rangers have a good deal of autonomy in this regard. A case in point is their ability to write contracts for cutting standing timber that
poses a hazard to private property without going through the sometimes lengthy permitting process that requires surveys for endangered species and archeological sites. Contextualizing a situation as hazard thus becomes a way to accommodate a request for timber resources. Through the give-and-take of negotiated interpretation, ranger and would-be resource user arrive at a definition of resource as hazard, making the trees available at minimal cost to the resource user.

The interaction detailed below took place between a seventy-two year old tobacco farmer whose farm borders the national forest and a ranger who allowed me to accompany him on his rounds while we discussed locals' use of forest resources. The farmer had called the forest service office with a request to cut some trees that posed a windfall danger to his house, and the ranger was going out to inspect them. The house sat in a clearing adjacent to the national forest boundary. The trees that he wanted to cut were at the forest edge — five poplars and a crooked cherry that had been hit by lightning some time in the past. The farmer pointed out how the top had already blown out of one tree and how the others might hit the house if they fell. The examination of the trees was a leisurely proceeding and, as is customary in Appalachian discourse, the talk ranged over a number of topics, periodically coming back to the trees. The ranger agreed that, yes, the poplars were tall enough to hit the house if they fell. Other trees along the forest edge that were similarly situated went unmentioned. Only the hazard posed by the poplars was at issue. As a group, we mulled over the condition of the farmer's tobacco crop, visible on the far side of the house. No, he hadn't seen any sign of blue mold yet this year. As the wind gusted, the farmer pointed out its direction, over the forest toward his house. The top of another tree could easily blow out and hit the
house. He was proud of having built this log cabin himself, and now he was going to add a deck to the back. It was agreed that the poplars did pose a danger to the house and that the damaged cherry was leaning and might as well come down now as later on its own. The ranger then estimated how many board-feet of lumber were in each tree, and a conversation on the grade of the trees ensued. The cherry had a crooked trunk and, because of that defect, would not get a wood grade. Most of the poplars, it was decided, were good only for firewood and would be graded accordingly. As the ranger and I prepared to leave, the farmer mentioned a fallen chestnut-oak he had seen lying across a gated forest service road that he named and requested a dead-and-down permit to remove it. Although these permits normally do not allow access to gated areas, the context of hazard, this time to vehicles on the road, was once again used to justify a resource request, and the ranger agreed to leave a gate key for the farmer at the district office that he could pick up when completing the paperwork for the standing timber.

The unacknowledged but probable use for the poplar was to build the deck. Classifying a small number of trees as a hazard to private property made them available for cutting immediately and avoided the possibly protracted regulatory process that accompanies the sale of a timber boundary. Assigning the lowest possible grade to most of the trees reduced their cost to the farmer. Thus, the meaning of resources is not only variable, but negotiable. The trees' proximity to the house and the farmer's ability to cut them himself (he'd worked for a logging company for years) minimized the capital cost of the new deck. In this way, resources from the national forest supplement those available on farmsteads, giving farmers access to a wider range of resources than they would otherwise have, and, as they are available at lower cost than equivalent
commercial products, national forest resources help farmers operate in a reduced-cash economy.

4.6.3 CONTESTING RESOURCE USE

In 1995 the Forest Service proposed a salvage timber sale in northwestern Madison County in the wake of storm activity generated by Hurricane Opal that downed trees throughout western North Carolina. The original proposal to log 490 acres of Bluff Mountain consisted largely of healthy, roadless forest that had never been logged with industrial logging equipment. Several county residents with prior experience in direct action protest against logging in western North Carolina organized an opposition movement that was ultimately successful in negotiating modifications to the plan, including reducing the area to be logged to 86 acres and eliminating the construction of permanent logging roads, which would have nearly assured future logging operations on the mountain. During a press conference held in June of 1997 to announce the negotiated settlement, both sides hailed the agreement as an exemplar of reasoned compromise by groups with diverse aims (Koontz 1997). For members of the Madison Environmental Alliance, the group that spearheaded protest activity, even bringing the Forest Service to the bargaining table was a notable achievement. The dismissal of initial appeals demonstrated, in the view of organizers, an entrenched pro-logging bias within the Forest Service administration.

Protest organizers needed to generate a broad base of local support, especially among the large, generally conservative body of the population that does not typically embrace activist causes and is probably ambivalent about organized environmentalism. They achieved this goal through an appeal to place, grounding their arguments in the
characteristics that make Bluff Mountain unique and that engage the sympathy of particular segments of the local population. Bluff is one of the highest peaks in the Hot Springs area, is crossed by the Appalachian Trail, contains several areas designated by the Forest Service as environmentally sensitive, and is a popular place for hiking, hunting, and fishing among locals as well as tourists. One of the protest organizers, a Hot Springs businessman, often invoked the specter of diminished tourism and cited viewshed analysis indicating that the clear cut would be visible from town and from a local attraction, Lover’s Leap. Many of the hikers along the Appalachian Trail, which runs down the town’s main street after crossing Bluff Mountain, patronize the town’s campgrounds, B&Bs, and restaurants, but they might be put off by the visible assault on nature of a clear-cut that would come within several hundred feet of the trail. Hunters were engaged by the inevitable loss of wildlife habitat and fishermen by the danger to native brook trout populations posed by new logging roads that would make dozens of stream crossings, muddying crystal clear mountain streams with the passing of each laden truck.

The sympathetic editor of the county weekly, an avowed fishing fanatic whose weekly editorial touches on no other theme so often as fishing, kept these and other environmental aspects of the logging plan in the public eye throughout the protracted appeals process. In editorials inveighing against the logging, in published letters to the editor, and in assiduous reporting of the progress of the appeal, the newspaper did much to coalesce public sentiment against the plan.

Area residents perceive logging in the national forest as providing little benefit to the local community. Of independent loggers who operate locally, only two or three
bid for stands within the national forest. Most, discouraged by the paperwork and the difficulty of following environmental regulations, find it easier to operate on private land (McGrew 1995).

Protest activities included the typical tactics of letter writing campaigns, petitions, lodging formal complaints, and speaking at public forums. Since the protest was framed around the uniqueness of place, however, it was important to make the physical place matter in the campaign. This was done by situating educational and pro-preservationist activities on or within sight of the mountain and by forging links between the protest movement and the local culture. A series of guided interpretive hikes on Bluff Mountain trails combined educational and political missions. Trained naturalists introduced participants to the ecology of the region and the assembly point at the district ranger's office in Hot Springs served to display participants' support for preserving Bluff to Forest Service administrators.

A music festival named for the mountain and held at a Hot Springs campground was another rallying point for public display of support for preservation, but perhaps more importantly, allowed protest organizers to tap into local sentiment attached to former family homesteads on Bluff Mountain. Many local musicians and storytellers were invited to perform, bringing some of the opinion leaders of the traditional community into the preservationist camp. A photo contest held in conjunction with the festival, though, was most effective in evoking memories of farms that parents, grandparents, great-aunts or great-uncles sold during the Depression. The winning photograph, for example, showed an overall-clad farmer, hunting dog at his feet, looking not at the camera but to the group of six children assembled at his side. The
image is of the Woody family and was taken in 1927 at their Bluff Mountain farm. With the porch of a mountain cabin faintly visible in the background beneath a canopy of trees and the long handle of a tool, perhaps a hay fork, projecting into the scene from the side, the photograph evokes a nostalgia tinged with a sense of loss for a culture inexorably changing. Many without direct ties to Bluff mountain farms can identify with such images because of similar backgrounds. Protest organizers' ability to evoke a strongly felt sense of place among members of the traditional community was the key to generating broad-based local support that made it impossible for their concerns to be dismissed as the agitations of an in-migrant minority.

The other key to the protest movement's success was its ability to tap into a host of environmental organizations to make Bluff Mountain a regional cause. Among the institutions represented at the negotiated settlement were hunting groups (the local chapter of the Ruffed Grouse Society and the Spring Creek Bearhunters), groups concerned with landuse along the Appalachian Trail (Appalachian Long Distance Hiker's Association), and local and regional environmental groups (North Carolina Department of Environment, Health, and Natural Resources; the Southern Environmental Law Center; the Southern Appalachian Multiple Use Council; Western North Carolina Alliance; the Southern Appalachian Forest Coalition; and the Southern Appalachian Biodiversity Project).

The protesters' success in overcoming the Forest Service's initial denials of lodged complaints, eventually negotiating an eighty-two percent reduction in the area to be logged and preserving the wilderness areas most valued by county residents, illustrates, at a different scale from the previous example, that resource regulation is a
negotiated process. The interplay between structure and agency, in this example, becomes more complex as the number of people and organizations involved increases. Protest organizers advanced their cause through knowledgeable manipulation of the structures of local culture, such as by obtaining the support of community opinion leaders and evoking individuals' nostalgic sense of place.
5. **Institution and Structuration: The Federal Tobacco Program**

The federal tobacco program is the largest and most obvious institutional component in the structuration of tobacco production. It has been a powerful force over the past sixty years in sustaining burley production, constraining who grows tobacco, how much they grow, and the price they receive. By providing a readily accessible market, stable price, and small-producer protections, the program has enabled many small-scale and part-time farmers who might have succumbed to the exigencies of a free market to remain in production. Thus, the tobacco program is implicated in the reproduction of conditions for burley production. The tobacco program is, in turn, supported, continued, and, in essence, reproduced by the individuals and corporations engaged in tobacco production and manufacture. Program operation is funded by fees levied at tobacco sales warehouses on buyers and sellers of tobacco, and program changes are subject to the collective agreement of burley producers, who vote on program continuation every three years. In short, the tobacco program both constrains and enables burley production, and is "both the medium and the outcome of the situated practices that make up the system" (Dear and Moos 1994, 6).

The tobacco program exists as a set of rules and resources, e.g. production quotas and the regulations governing them, that farmers draw on in routinized activity. Farmers make production decisions within the context of program-mandated production limits and guaranteed prices, both of which are adjusted annually to reflect past production by the collectivity of burley growers, tobacco stocks held by the burley tobacco cooperatives, and manufacturers' anticipated demand. Thus tobacco production and tobacco program form a mutually constructive feedback loop that has functioned...
effectively, although not without crisis, to maintain a status quo in the burley sector of U.S. agriculture.

5.1 Program Origin

The federal tobacco program was instituted during the Depression as part of a wider program to preserve price parity among the nation's agricultural producers. Its origins lie in the Agricultural Adjustment Act (AAA) of 1933, a New Deal response to a farm crisis in which farmers saw prices drop over fifty percent between 1929 and 1932 (Blanpied 1984, 7). The AAA attempted to stem the tide of resulting farm foreclosures by restoring farm income to pre-Depression levels, a goal that was to be achieved through the control of supply and price of six basic farm commodities -- wheat, corn, cotton, rice, peanuts, and tobacco. The Department of Agriculture established a system of price supports for each commodity based on "parity", the ratio of the commodity’s market price to farm inputs. For tobacco, a period of favorable prices from August 1919 to July 1929 was used to establish the parity measure.

Initial legislation contained provisions for each of the major tobacco types -- burley, flue-cured bright leaf, Maryland, dark air-cured, fire-cured, and cigar leaf. Growers of each type vote separately on the provisions governing their tobacco, and the programs have diverged to an extent as the interests of various tobacco districts changed. Unless otherwise noted, all references to the tobacco program in this chapter refer specifically to the provisions of the burley tobacco program.

A combination of public and private institutions implement the tobacco program. The Secretary of Agriculture sets national production limits and apportions total production among tobacco-producing states based on their history of production
during the previous five years. State committees, appointed by the Secretary of Agriculture, and county committees, elected by tobacco growers, hierarchically apportion their shares of production. County committees make the assignments to individual farms based on acreage allotments and production history, with some flexibility to adjust for production levels suppressed by natural disaster. The USDA’s Agriculture Stabilization and Conservation Service (ASCS) keeps records on farm production limits and marketing eligibility. The Soil Conservation Service tracks farmer compliance with conservation measures required for program eligibility, such as use of cover crops and the filing of farm plans. Price supports are implemented in the auction sales warehouse, where tobacco is inspected and graded and the grade determines the minimum sale price for a bale of tobacco. Bidding starts at one cent above the support price, and if a bale is not bought by one of the tobacco industry buyers, the Burley Stabilization Corporation pays the farmer the support price, and the tobacco enters "the pool". The Stabilization Corporation is a burley producers' cooperative that covers farmers in North Carolina, Tennessee, and Virginia. A similar organization, the Burley Tobacco Growers Cooperative Association covers farmers in Kentucky, Ohio, Indiana, Missouri, and West Virginia. Ideally, these cooperatives finance their activities by sorting, redrying, and storing the tobacco until prices rise. Tobacco is not perishable if kept in a humidity-controlled environment, and manufacturers typically age barn-cured tobacco three or more years before processing it. Thus, the cooperative has a few years to dispose of its tobacco and, in theory, can wait out market downturns. In practice, operating funds managed on this basis proved either too variable or insufficient to cover the expense of redrying and storing tobacco, and the
cooperative requires external funding, provided through loans from the Commodity Credit Corporation. Loans are repaid through the sale of stabilization stocks, but as these are generally insufficient to repay principle and interest, the federal government absorbed losses from CCC loans for many years. Public outcry against this tobacco subsidy led in 1982 to the implementation of the “no-net cost” tobacco program, which levies fees on both buyers and sellers of tobacco at auction warehouses to cover loan costs.

Details of the burley program have changed numerous times since its inception (Figure 5.1) as program administrators sought to balance aggregate production, support price and tobacco stocks. The program has variously allocated production rights to farmers in the form of acreage allotments and poundage quotas, and current U.S. law allows the Secretary of Agriculture to move between the forms of regulation when the program comes up for renewal every three years, as it did most recently in 1988. The intersection of program structure on farmers' everyday lives can be seen in the way that the formulation of production rights influences production practices. Production rights, an intangible resource existing only by virtue of the tobacco program, have been commodified, taking on value through farmers' expectation that the tobacco program will continue to exist and will continue to structure tobacco prices. Structure not only constrains, but also enables. In the case of the tobacco program, price supports and small producer protections have stabilized tobacco income, while the dependence of production rights on past production and spatial limits on the transfer of production rights enable small-scale, unmechanized producers to remain in the burley market by retarding a geographic restructuring of tobacco production.
1933 Agricultural Adjustment Act regulates production through acreage allotments and guarantees farmers a minimum price based on “parity” with the years 1919-1929.

1934 Compliance encouraged through a 33.3% penalty on producers for excess tobacco sold.

1936 Producer penalty repealed. Farmers are paid 5¢ per pound not to grow tobacco.

1938 Second Agricultural Adjustment Act introduces marketing quotas and a 50% penalty on excess tobacco sold.

1939 Farmers reject quotas and production soars. Tobacco markets close as conditions of war cause foreign buyers cease purchases. The Commodity Credit Corporation steps in to buy unsold tobacco.

1940 Farmers accept acreage allotments again.

1941 Burley Tobacco Growers Association takes over the burley price support program.

1944 Minimum allotments are instituted and set at one acre.

1949 Support price is reduced to 90% of parity.

1953 Minimum allotments are reduced to 0.7 acre.

1955 Minimum allotments are reduced to 0.5 acre.

1960 Support price is computed based on the Parity Index, a moving average of the previous three years.

1971 Marketing quotas are introduced in addition to acreage allotments. Effective quota is introduced to allow carry-over of quota between years. Farmers may lease up to 15,000 pounds of quota from another farm in their county and grow the tobacco on their own farm (lease-and-transfer).

1982 The no-net-cost program is initiated to end federal financing of the tobacco program. Support price is reduced to 65% of parity. Sale of allotment is allowed within a county.

1991 Lease-and-transfer limit raised to 30,000 pounds. Sale of quota is allowed between farms in the same county. Leasing of quota across county lines is allowed in Tennessee.

1993 Budget Reconciliation Act stipulates that all cigarettes manufactured in the U.S. must contain a minimum of 75% U.S. grown tobacco.

1994 Quota not planted or "considered planted" in two out of three years is lost by the quota holder.

Figure 5.1
Highlights of the Burley Tobacco Program
5.2 Constraining Producers

The tobacco program is based on a fundamental principle of Keynesian economics, that restricting supply while demand remains constant will increase price, and on a system of price supports to compensate for market imperfections that cause deviations from ideal Keynesian behavior. The program constrains tobacco growers in two ways — by stipulating who may participate in the price support program and by regulating how much tobacco each participant may sell at the support price.

Under the program's current formulation, production is constrained by marketing quotas that limit the amount of tobacco that a farmer may sell and still be eligible for price supports. Each farmer has a "basic quota", the number of pounds of tobacco allotted to his or her farm, and an "effective quota", which is the basic quota adjusted for under- or over-production in the previous year. If a farmer produces less than his basic quota, the extra poundage may be carried over for one year and is added to his effective quota. The effective quota is the actual number of pounds of tobacco that are eligible for price support in any given year. Farmers may market without penalty up to three percent more tobacco than their basic quota, with the excess subtracted from the effective quota for the following year. Thus, effective quota introduces flexibility into production planning so that farmers do not overproduce just to be sure of making full use of their quota. A seventy-five percent producer price penalty for marketing tobacco without quota or for exceeding effective quota is generally sufficient to discourage overproduction. Should a farmer produce more than can be sold with the farm's effective quota, the extra is simply plowed under. Farmers are not supposed to "carry over" or
store for sale the next year tobacco that exceeds their effective quota, but detection of small amounts of carry over would be difficult.

Farmers' production limits are a bit more uncertain than the preceding discussion indicates. A farm's basic marketing quota is computed from three variables: 1) an acreage allotment that is attached to the farm and is scaled proportionately along with all other farm allotments according to the Secretary of Agriculture's calculations of supply and demand; 2) the farm's average yield for its best three of the past five years; and 3) a national yield goal that is based on the national average yield derived from variable number two for all farms. The Agriculture Secretary's calculations take into account stabilization stocks, exports and imports, and manufacturers' stated demand (of which they must purchase at least 90% or be subject to penalties), among other variables. In short, farmers have little idea whether their production limits are going to go up or down until new marketing quotas are announced in January. The uncertainty makes the next year's quota adjustment a source of rumor and speculation during the summer and fall, and farmers can be surprised by the direction of the adjustment. In the past twenty-three years, quotas have increased as much as 20% and decreased as much as 10% in a single year¹. Thus, even though prices have remained fairly constant during this period, farmers faced uncertainty in predicting gross income even before factoring in problems of disease and weather. A hypothetical farmer who started with a 1,000 pound quota in 1971 would have seen his or her quota allocation fluctuate annually, ranging from a low of 840 pounds to a high of 1315 pounds (Figure 5.2). While quota

¹ Ten percent is the maximum by which quotas may be cut, according to program rules.
allocations were fairly stable or increasing during the first half of this period, they have become more volatile since the early 1980s, contributing to farmer anxiety about the tobacco program.

![Graph of cumulative adjustments to a thousand pound quota under tobacco program provisions, 1971-1997.](image)

Source: Madison County ASCS Office

Figure 5.2

5.3 Adaptation to Structural Constraints

The ability of the tobacco program to structure farm life can be seen in the way farmers have adapted their production practices in response to changes in the way production limits are specified.

Tension exists between the need for burley farmers to collectively limit production and individuals' desire to maximize income. Burley farmers, having experienced first- and second-hand the advantages of the tobacco program, value its role in stabilizing farm income and accept that constraining their own production is a necessary part of the program. They have heard tales of hard times that parents and
grandparents went through prior to the program, when tobacco prices cycled unpredictably and have observed the improvements in living conditions that have occurred during their own lifetime. None of the farmers interviewed disagreed with the concept of limiting production to raise prices. To the contrary, some voiced concern about the effect on tobacco prices of a quota increase proposed for 1996. In short, government intervention to stabilize the market is taken as gospel in Madison County. Individual household economies, however, revolve around the amount of tobacco produced. Despite farmers' acceptance of production limits in the abstract, farmers are motivated to produce as much as possible within the limits imposed by the tobacco program, and the way those limits are structured affects production practices.

The program has used two methods of production control, singly and in combination. One method limited how much tobacco farmers grew, the other how much they sold. From the start of the program in 1933 through 1971, production was constrained by acreage allotments. Farms were initially assigned a tobacco acreage based on the extent of their cropland, and farmers could sell without penalty all tobacco grown on the allotted acreage. In 1971, marketing quotas were introduced which limited the poundage of tobacco that a farmer could sell, while the acreage constraints were also maintained. In any three year program cycle, the Secretary of Agriculture has

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2 With the exception of 1938 and 1939. Marketing quotas were introduced in 1938, but proved unpopular, and farmers voted not to continue them the following year (Johnson 1984, 34). Thus, no production constraints were in place during 1939 and production soared, precipitating a crisis when Great Britain, the largest foreign buyer, halted purchases to conserve foreign exchange during war-time. Farmers reinstated acreage allotments in 1940.
the choice of specifying acreage-poundage quotas or acreage allotments, but the plan is subject to the approval by referendum of two-thirds of burley growers.

Acreage allotments proved ineffective in constraining production for two reasons. First, enforcement was labor intensive and easily circumvented. The practice of shifting fields every three to four years made determination of acreage an ongoing task. Unscrupulous farmers were rumored to maintain hidden tobacco fields in the mountains in addition to officially sanctioned acreage. Second, as the benefits of the chemical and biological revolutions in agriculture reached Madison County, the amount of tobacco that a farmer could grow on a fixed acreage greatly expanded. As all tobacco grown on the allotted acreage could be sold without penalty, farmers had enormous incentive to increase yield. Farmers did so through closer plant spacing, use of newly developed hybrid varieties that were taller and had heavier leaves, and increased fertilizer application (Mann 1975, 58). The result of these improvements was an impressive 300% increase in yield per acre from the program’s inception in 1933 to 1969 (Figure 5.3).

Because yield increases started in 1909, two decades prior to implementation of the tobacco program, the structuring mechanisms of the tobacco program is not the sole motivator behind productivity increases. Farmers applied commercial fertilizers as they become available even in the absence of acreage limits. Yet the connection between the formulation of production limits and yield is clear from what happened after the 1971 introduction of marketing quotas. By constraining how much tobacco farmers sold in addition to how much they grew, the tobacco program placed a firmer ceiling on national tobacco supply (Mann 1975, 58). Under the dual system, marketing quotas
rather than acreage allotments were usually the limiting factor in how much tobacco a farmer sold (Johnson 1984, 49). Farmers returned to wider plant spacings, which made the tobacco easier to cultivate and allowed greater air circulation between plants, a factor in retarding blue mold. From an industry standpoint, the drive for increased yield had hurt tobacco quality, and manufacturers supported the introduction of marketing quotas (Mann 1975, 58).

The tradeoff between yield and quality is still played out in various ways through differences in topping practices used by Madison County farmers. Some farmers top high, removing only the few topmost leaves along with the plant's terminal bud. For them, to remove any more represents a careless waste of marketable leaf.
Other farmers top low, removing the uppermost six to eight leaves that would be graded as "tips". They reason that this concentrates the growth of the plant in the remaining lower leaves, making a heavier and higher quality leaf. It also simplifies grading and gives their tobacco a more uniform appearance if they decide not to grade, an important consideration given the speed with which tobacco is assessed at the market. There is no consensus about the best topping method, and farmers freely criticize the profligacy or ignorance of other farmers' methods.

5.4 Commodification of Production Rights

Allotments and quota take on value by conferring a right to produce tobacco on a farm owner. Structures of domination and legitimation are evident in the tobacco program's allocation of this abstract resource through its attribution of economic power backed by the force of U.S. legal code. Initially, an allotment's value was indirect, realized only through its association with a particular farm, and the linking of production rights to the land froze the geography of tobacco production. Program changes since 1971 have commodified tobacco production rights independently of farm land, allowing them to be sold and leased off-farm. Some consolidation of production has resulted, but spatial redistribution has been retarded by geographic restrictions on quota transfers that tend to perpetuate the long-standing regionalization of burley production. Program changes that came into effect in 1994 indirectly allow the transfer of production rights between regions and may, in time, affect a redistribution to areas with larger farms and more mechanized production methods than those of Madison County.
Until 1971, the tobacco program tied burley allotments to specific farms, and tobacco marketed under an allotment had to be grown on the farm to which it was assigned. Allotments could not be sold, leased, or transferred separately from the land, and when land was sold or leased, the allotment was transferred with it. Farm land with an allotment was more valuable than land without one because of the opportunity the allotment provided to participate in tobacco production. Therefore, allotments had implicit value, but because they could not be bought and sold separately, they were not fully commodified.

Tying allotments to the land fixed the geography of tobacco production, preventing spatial restructuring in response to agricultural innovations. When bright leaf tobacco allotments were apportioned in the 1940s, production of that type of tobacco was in the process of shifting from the Piedmont to the Coastal Plain, where larger fields and flatter land were more amenable to the mechanized production methods that were being developed (Ellis 1970, 5). If production had not been spatially fixed by the bright leaf tobacco program, the shift may well have continued in succeeding decades. Similarly, burley production was diffusing into the southern Appalachians when the tobacco program started and may have penetrated the mountains more thoroughly if the program's structural constraints had not halted the diffusion.

Tobacco production rights became explicitly commodified when program changes in 1971 instituted what is known as the lease-and-transfer provision. This provision lets a farmer lease quota from a quota holder within the same county and transfer the production to his or her own farm. Thus, quota acquired a measurable value separate from the value of farm land. In the mid-1990s, a two-tier lease rate prevailed
in Madison County, with the prevailing rate depending on the relationship of lessor and lessee within the traditional social system. On the open market, quota typically leased for twenty-five cents per pound. At this lease rate, which was fourteen percent of the average price received by farmers for tobacco in 1994, the cost of the right to produce an acre of tobacco of average yield can be calculated at roughly $550. This was the rate commonly advertised in newspapers and notices posted on the bulletin board at the ASCS office and was the prevailing rate for leases that were viewed primarily as business transactions between parties not closely connected within the social system.

Many farmers, however, have long-standing agreements with neighbors or kin to lease quota at lower rates, typically ten cents per pound. The lower rate prevails when the transaction is not an independent business transaction, but part of a series of interactions between lessor, lessee and their families. As a commodity, quota experiences cycles of demand that raise or lower its price, so the lower lease rate is representative of rates that prevailed in the past. The reluctance of people who are closely connected within the traditional social network to bring the lease rate up to its current market value signifies the importance placed on customary exchanges. To raise the rate would mark a quota holder as greedy, generate resentment, and endanger future interactions on which a farm's functioning partially depends. Use of a below-market lease rate embeds structures of signification ('we are part of the same social network and depend upon each other for economic survival and meaningful social interaction') and legitimation ('good neighbors/kin act with regard for the economic functioning of the group rather than to obtain short-term profits) within the overt allocative function of quota.
One indication of the commodified nature of quota is the separation of ownership and production. Quota leases continue to be a source of income for quota holders who have stopped farming and is a significant addition to pensions and Social Security payments for retired farmers. A variety of lease arrangements are used, some of which perpetuate old tenancy practices. When "farming on the halves," the lessor supplies land, quota, and some inputs, such as seed and fertilizer. The lessee supplies labor and a tractor or draft animal, and tobacco proceeds are split evenly between lessor and lessee. In "farming on the thirds," the lessor supplies only land and quota and receives a third of the tobacco receipts. The lease-and-transfer provision introduced a new arrangement in which the lessor leases quota for a fixed return, and lessee assumes all risk.

The possession of production rights by non-producers goes against the original intent of the tobacco program, and several program changes were introduced during the 1990s to rectify the situation. Sale and permanent transfer of allotment between farms in a county was allowed starting in 1991. The change has not, in Madison County, contributed substantially to consolidation of production, for most farmers prefer to continue leasing quota. Quota is an abstract resource that has value only as long as the tobacco program continues. The elimination of price supports during the 1990s for a number of agricultural commodities and the uncertain course of negotiations between tobacco manufacturers, the FDA, and various parties to lawsuits brings the future of the tobacco program into question. In this climate of uncertainty, few farmers are willing to invest capital in an intangible resource that could precipitously lose all value. Moreover, annual quota adjustments render the resource unstable. The volatility of
quota poundage since the early 1980s had made farmers wary of future devaluation of their investment. Why, they reason, should they purchase 10,000 pounds of quota that might be reduced to 9000 pounds the following year when they could lease 10,000 pounds both years?

By the mid-1990s a portion of Madison County quota was not being used at all. Some was held by people who grew tobacco sporadically when prices were high and windfall profits could be expected. Some had passed into the hands of non-farming family members or was tied up in estates with multiple heirs. Much was attached to former farm land recently developed for residences and vacation homes. Local reaction to a regulation that took effect in 1994 and was designed to return quota to active producers revealed deeply conflicting attitudes towards tobacco production held by different segments of the community. According to the new rule, any quota for which tobacco was not planted or “considered planted” in two out of every three years would be forfeited by the quota holder (the previous requirement was one out of five years). Forfeited quota was returned to a pool that would be divided proportionally among burley-producing states. Because Kentucky and Tennessee produce more burley than North Carolina, farmers in these states would gain the bulk of any quota forfeited in Madison County, and the county would surely experience a net loss of production rights under the new regulation.

3 This term has a complex legal definition. Basically, quota is “considered planted” if it is leased to someone else who plants it or if it is planted but wiped out by disease or natural disaster.
A permanent reduction in the county's quota base was viewed as the loss of a valuable resource by farmers and farm leaders. Since quota cannot be leased across county lines, the loss of inactive quota represents a loss of potential expansion by county tobacco farmers. Wiley Duval, a retired county extension agent, spearheaded a campaign to inform county residents about the effects of the new regulation and to convince quota holders to either use or lease their quota. He wrote newspaper editorials, spoke at meetings of the Burley Tobacco Growers Association, and personally contacted inactive quota holders. He argued that quota holders might as well lease their quota and aid the local farm community, because forfeited quota would simply be transferred out of state and grown elsewhere. The appeal was one to pragmatism and community orientation.

A number of quota holders, primarily in-migrants and absentee landholders, chose to let their quota rights lapse in a passive protest against tobacco, citing moral objections to any connection with tobacco production. Not wanting to benefit from quota lease income, this segment of the community made a non-economically rational decision to opt out of the system. Their choice reflects idealism rather than pragmatism and, through placing personal values above community values, an individual rather than a community orientation. This difference in orientation and, specifically, the difference in response to the new quota regulation has contributed to the accretion of differences felt between insiders and outsiders, which are manifested, for instance, in locals' stereotyping of "Florida people."

In the years following the rule's implementation, many inactive quota holders did forfeit production rights, 355 in the first year the rule took effect, and over five
hundred in three years (Figure 5.4). The local implications are greatest for part-time farmers who do not always "get around to planting" their tobacco, but the change may ultimately have greater regional implications, shifting burley production to larger Tennessee and Kentucky farms where harvest mechanization is under way.

![Diagram showing change in number of farms with burley quota from 1979 to 1996. The x-axis represents years from 1979 to 1996, and the y-axis represents change in number of farms. The diagram shows a decline in the number of farms with burley quota over the years, with a significant decrease in 1994 and 1996.]

Source: Madison County ASCS Office

Figure 5.4
Change in Number of Farms with Burley Quota
Madison County, 1979 - 1996

The tobacco program has been characterized as a “government-sponsored cartel” that protects entrenched tobacco production rights, creating a dynasty of tobacco producers and barriers to entry into burley production. (Moyer and Josling 1990, 142, 162). Indeed most of Madison County's burley growers come from multi-generation tobacco-producing families and have inherited their allotments along with their land.
However, the county committee that oversees the local implementation of the tobacco program has a small pool of quota every year that may be assigned to new or small tobacco farms, and figure 5.4 shows that most years during the 1980s saw the creation of ten to thirty new tobacco-producing farms. Prospective quota holders must have three years of experience growing burley, and must derive at least half their income from tobacco production. The latter requirement is difficult for part-time laborers in tobacco to meet because of the seasonal nature of tobacco work and for part-time farmers under traditional tenancy arrangements because of the necessity of holding an off-farm job. Yet several former migrants who worked year-round on the county's larger farms have obtained their own allotments under these provisions.

5.5 Enabling Producers

The tobacco program has also been characterized as one of the “more successful New Deal farm programs because it has helped many small farmers” (Green 1987, 232). Positive effects of the tobacco program that enabled small farmers to stay in production include price and income stability, small-producer protections, and resistance to aggregation of production units that typifies the drive for economies of scale that accompanies the industrialization of agriculture.

The tobacco program was intended to stabilize, rather than maximize, farm income by smoothing cyclic price fluctuations. This goal was largely achieved, as a review of both burley and bright leaf markets between 1934 and 1980 suggests (Johnson 1984, 52-55). The average burley price received by Madison County farmers between 1971 and 1995 shows similar stability (Figure 5.5). Farm income from tobacco has
been more variable because of annual quota adjustments. Figure 5.6 shows the fluctuation in the gross income of a hypothetical Madison County farmer who started with a 1,000 pound quota in 1971, taking into account both quota adjustments and variations in average price.

During the early 1940s, when successive reductions in allotted acreage triggered by steadily increasing yields threatened to squeeze small-scale tobacco farmers out of production, the tobacco program instituted small producer protections. Initial allotments had been based on the amount of cropland on each farm. Madison county farms were small and had correspondingly small allotments (Table 5.1), which successive reductions threatened to turn into non-viable production units. In 1944, a floor placed on allotment size, set at the smaller of one acre or one-quarter of a farm's cropland, actually increased the allotments of many small farms.

Source: Price data from the Madison County ASCS Office was adjusted by the Bureau of Labor Statistic's producer price index for leaf tobacco.

Figure 5.5
Average Producer Price for Burley Tobacco
Madison County, 1971 - 1995
Although minimum allotments were a boon to small family farms, the policy probably would not have been implemented had it not been for a war-time tobacco shortage occasioned by rising cigarette consumption and scarce farm labor. Minimum
allotments were envisioned as a way of increasing the burley supply without impacting food production (Mann 1975, 55). Small-scale producers, it was reasoned, could each grow a bit more tobacco with available household labor, and during the war, women and teens often stepped in to assume primary production responsibility. As soldiers returned to being farmers after the war and yields continued to increase, the burley shortage disappeared, and minimum allotments were reduced — to 0.7 acre in 1953 and again in 1955 to 0.5 acre. The minimum allotment promoted a certain democracy of production by flattening the distribution of allotment sizes. Years of successive allotment reductions, put many farms at the minimum. Before the 1955 reduction of the minimum allotment to a half acre, 64% of allotments throughout the Burley District were at the previous minimum of 0.7 acres (Mann 1975, 56).

The tobacco program also protected small producers by discouraging the aggregation of allotments, first by tying allotments to specific farms and later by limiting lease and sale to the same county. Madison County farmers have benefited from the protections as it has probably prevented the production rights of small-scale farmers from being bought out by better capitalized ventures. The geographic arbitrariness of using the county as a bound, however, frustrates a few farmers with scattered holdings in several counties.
6. Tobacco in Transition: Tradition, Adaptation, and Innovation

Farmers have altered or adjusted many of their production practices, the material culture of tobacco production, and their labor organization in response to the complex and changing political economy of tobacco production outlined in the previous chapter. They have also retained some traditional practices, practices that would be considered outdated on most American farms, because they know these practices work well in the physical, economic, and social environments in which they operate. This chapter takes a detailed look at the mechanics of burley tobacco production and shows that retention of older practices and changes in production methods during the past quarter century are the outgrowth of individuals acting within multiple intersecting milieus, including those of the physical environment, cultural norms, tobacco markets, the federal tobacco program, and economic forces of globalization.

Much of the conceptual framework of structuration formalizes the integration of social systems across a continuum of spatial scales, from highly particularized and local events to processes spanning the nation or the globe. Giddens' "duality" reconciles time-space routinization, the embedding of social systems within historically and geographically specific settings, with time-space distanciation, the globalization of local social networks so that "the local fabric of everyday life is everywhere shot through with the implications of distant events" (Gregory 1994, 121). This chapter identifies some of the critical junctures of the local social system and broader societal structures that are behind recent changes in production practices of Madison County's burley tobacco farmers. By particularizing the mix of innovation, adaptation, and tradition that farmers apply in the course of mundane activity, I hope to elucidate the process of
agricultural change within a tradition-oriented small-scale farming community and illustrate how the interaction of agency and structure are transformative as well as mutually reproductive.

6.1 Tradition and Local Knowledge

6.1.1 By Horse and Hand

Tractors became common in Madison County after World War II, but even today, not all farms own one. Although tractors can be borrowed and rented, plowing with horses and mules and setting tobacco seedlings by hand are practices that remain common throughout the county. Some farmers combine mechanical and non-mechanical methods of plowing and setting, tailoring their use to field conditions, while others rely solely on traditional or on mechanical methods. Field slope and moisture content of the soil are the primary factors that a farmer uses in deciding whether to use tractor or horse. Tractors are used both to plow and set almost all bottomland fields. Farmers who cultivate hillsides with slopes up to 45 degrees, where tractor use entails a risk of overturning, usually elect to use a horse- or mule-drawn turning plow. Some farmers eschew tractors on principle because, they maintain, tractors compact the soil more than horses do. Climatic conditions at the time of field preparation and setting also influence the decision to use tractors or horses. Farmers don't like to take their tractors into wet fields, so in a wet season, more farmers set by hand.

The simplest method of hand setting employs a wooden "peg", a pointed stick four to six inches in length with a handle carved from a branch containing a natural bend. The peg is pressed into the ground, forming a hole into which a seedling is placed. A more elaborate hand setter consists of an inverted metal cone with a central
partition. A seedling is placed in one half; the other half is a water reservoir. The small end of the cone is plunged into the earth and a handle at the top squeezed, opening the cone to allow the seedling to drop into the earth and deliver a dose of water at the same time.

Tractor-pulled setters move slowly and are not necessarily faster than hand methods, but they are less tiring to operate and, therefore, more practical for larger acreages. It typically takes four people to operate the tractor-drawn setter -- a driver, two people feeding seedlings to the setter, and one person walking behind it to reset any plants that hit rocks. Therefore, manual setting is also preferred by small-scale farmers who work alone. Because the tractor has to turn at the end of each row, farmers who are experienced at manual setting can accomplish the task faster and with less wasted field space.

6.1.2 Weeding

Weeds compete with tobacco plants for soil nutrients, increase the incidence of tobacco diseases, and complicate harvest. Weed control is usually achieved by a combination of chemical and manual methods. Herbicides used include Command, Devrinol, Paarlan, Prowl, and Tilliam. Any of these may be incorporated into the soil before transplanting, a standard practice where grassy weeds are prevalent. Devrinol may be applied with a sprayer after transplanting and is used to control ragweed.

Herbicides available for use with tobacco work by affecting seed germination, so have no effect on weeds that have already grown (Worsham et al. 1993, 40). Because herbicides do not control all weeds, a certain amount of manual weed control is necessary. Manual weed control is achieved by a combination of plow cultivation and
manual hoeing. Soil cultivation encourages root growth by aerating the soil and eliminating weeds between tobacco rows. Hoeing is necessary to eliminate weeds between plants in the rows. The Extension Service recommends a maximum of two cultivations during the season (Worsham et al. 1993, 40), but farmers have traditionally cultivated on a weekly basis to control weeds. As herbicides have become more available, many farmers have adopted the recommended practice, having accepted that excessive cultivation encourages erosion and cultivation late in the season spreads mosaic virus and damages root systems (Worsham et al. 1993, 42).

Farmers vary considerably in their desire to keep fields weed free, caution in pesticide use, and time and willingness to hoe. Expected returns for labor and inputs are a major factor in the assiduousness with which farmers attempt to control weeds. Weed control might be entirely neglected on tobacco damaged early in the summer by hail, because torn leaves will not make a high grade. For some farmers, a clean field is a source of great pride, a sign of being a good farmer, and they will spend much time hoeing.

Farmers usually have detailed knowledge of the crop histories of their fields, including rented ones. This knowledge helps them decide which fields are likely to be weedy and require herbicide treatment any given year. Farmers try to minimize herbicide and pesticide use to reduce input costs, but also because many recognize the dangers of chemical contamination in field runoff to streams where livestock drink.

6.1.3 PLANTING BY THE SIGNS

The scheduling of farm tasks was traditionally done with reference to the “signs,” a system of auspicious and inauspicious days for different kinds of farm tasks.
based on the phases of the moon and the zodiac. Each zodiac sign is associated with a part of the body, e.g. head, arm, leg, foot, that can have morphological implications along the lines of the medieval Doctrine of Signatures. So, for instance, one should avoid planting potatoes in the sign of the foot or the potatoes will form nubby toe-like appendages. Planting by the signs was widely practiced in southern Appalachia and has been described in detail in the first of the Foxfire series of books (Wigginton 1972). The signs were used to regulate the timing of a number of farm activities, such as burning, planting seed and root crops, building fences, and harvesting, and some home-oriented activities, such as canning. The aphorisms most commonly cited by informants regulate the cutting of wood and building of fences:

"You can put a fence stake in on a new moon and it will fall over. In an old moon, it'll stay put."

"Logs will last longer if they're cut in the full of the moon."

Plowing and planting were next in frequency. Typical comments include:

"If you plow on an old moon, the ground is as hard as the road. On a new moon, it will stay soft."

"I look for the sign of the arm or the breast for planting potatoes."

"Sorghum will grow tall if planted in the new moon."

"If you plant tobacco during the bowels or the heart, it will rot."

All farmers interviewed were familiar with planting by the signs and many cited, unprompted, several of the system's tenets to illustrate it. Adherence to the system, however, is much less widespread than knowledge about it. Older farmers are more likely to put its tenets into practice than younger farmers, but other generalizations are difficult to make given the diversity of opinions that can exist even within a family.

One pair of cousins, who are close in age and often swap work, for instance, expressed
widely divergent views, with one cousin adamantly asserting that posts put in the
ground during the full moon phase lasted longer and the other cousin dismissing the
signs as being akin to "witchery." Bowman Funeral Home, located on Marshall's Main
Street, distributes a promotional calendar that some farmers consult when scheduling
farm tasks. It shows the phases of the moon, the dominant zodiac sign for each day,
planting days for each month according to moon signs, and special days, such as ember
days\textsuperscript{1}. Those farmers who use the signs do so in an unexamined manner, without
questioning why (according to their belief) the signs work. The signs are "just
according to what's in the Bible," an explanation that alludes to a passage in
Ecclesiastes, "For everything there is a season." While the Bible is not literally the
source of the system of signs, this common attribution is an appeal to the highest
authority recognized by church-goers who favor a literal interpretation of the Bible.

6.2 Earth, Fire, Air, and Water: Elements of Change in Seedling Production

A number of institutions in addition to the federal tobacco program participate in
the structuring of tobacco production, including seed and agricultural supply companies,
organizations researching improved production methods, and environmental
organizations. This section takes a detailed look at one stage of tobacco farming,
seedling production, to show how changes in prevailing production methods are the

\textsuperscript{1} Ember days are a standard part of the Roman Catholic liturgical calendar, occurring in
sets of two or three at the changes of seasons, four times a year. They likely have
origins in pre-Christian harvest, mid-winter, and spring-time festivals, as suggested by
the etymology of "ember", which derives from the Old English for "circuit" or
"anniversary" (Merriam-Webster 1985). The dates for ember days are printed on
astrological calendars used in Madison County, along with dates for holidays from a
variety of other religious and secular traditions. How ember days came to have
significance in Appalachian folk culture is unclear.
result of a complex interplay of choices that farmers make in response to restrictions and opportunities that arise from these structuring forces.

6.2.1 **SEEDS OF CHANGE**

The start of the production chain, the tobacco seed itself, has changed considerably as scientific breeding and genetic engineering created higher-yielding varieties with better disease resistance. Old burley varieties with evocative names such as Cracker Jack, Judy’s Pride, and Bullface have been replaced by hybrids whose names, e.g. Clay 402 or Tennessee 90, reveal their seed company or university provenance. An extension agent who collects seed to give away estimates that about three hundred farmers in the county produce the old non-hybrids which can be grown from seed saved from untopped plants (Ealy 1995). Much, if not most, of this tobacco is consumed at home. Bullface, for instance, is relished as a chewing tobacco and is formed into twists.

Commercial production, however, relies on the newer hybrids that have leaf properties sought by tobacco buyers and that have been bred for resistance to tobacco diseases such as black shank, mosaic virus, wildfire, black root rot and fusarium wilt. As hybrids, however, they don't breed true to type, and farmers must purchase new seed each year. The development of these varieties reflects organizational connections between public sector research institutions and private businesses. North Carolina State University, the University of Tennessee, and the University of Kentucky, the land grant institutes in the three big burley-producing states, all have agriculture departments that conduct burley tobacco research. Research results are disseminated through publications of the Cooperative Extension Service that are free to farmers. Pamphlets
report the results of varietal trials, for instance, or contain plans for constructing curing structures and hauling wagons. Certain research outcomes, though, are licensed to private firms that make a profit on sales to farmers. Licensing agreements that return a portion of the proceeds to the university to support further research mean that burley farmers indirectly support university research and development efforts every time they purchase a licensed product. The majority of burley seed planted in Madison County falls into this category, as does a burley harvester developed at the University of Kentucky and now sold by a central Tennessee agricultural implements dealer.

6.2.2 Scorch Eart h

Changes in the seeds themselves were accompanied by changes in farmers' methods of growing them. Farmers have traditionally grown their own tobacco seedlings in specially tended seedbeds. Seedbed production allows intensive cultivation of young plants, maximizing the benefits of manure, chemical fertilizers and irrigation. The close spacing of seedlings reduces soil area exposed to erosion and moisture loss while leaf area is small. Farmers select the hardiest specimens for transplanting to the field, thus improving the overall crop stand.

The creek-side locations preferred for seedbeds have both ecological benefits and risks, but individual and community mechanisms have been developed to mitigate those risks. Seedbeds are located at one edge or corner of a field. A creek-side location is chosen, if possible, to make pumping or hauling water to the seedbed easier, and because these alluvial soils are among the area's most fertile. However, many creeks in narrow valley bottoms are subject to flooding, so putting a seedbed near a creek entails some risk of seedbed loss. Creating seedbeds slightly larger than required for the
intended tobacco acreage is an individual and community strategy for coping with flood hazards. Rain storms and flash flooding are highly localized in this region of deep valleys and numerous coves. If a rising stream washes away or stunts seedlings in a portion of a bed, the larger seedbed may provide enough healthy plants for setting.

If no flooding occurs, leftover seedlings can be distributed to less fortunate farmers. The recipient of donated seedlings loses some choice of timing, for the donor's fields must be set first. Excess seedlings are given free of charge, as an expression of the ideals of Christian charity and efficient utilization of resources. An eighty-year old woman who had sown three 100-foot tobacco beds but then had to cut back on planting because of eye surgery gave away the excess seedlings because, "I hate to see anything go to waste." When she couldn't find a neighbor who needed the plants, she contacted the county extension agent, who facilitated the transfer. Although the plants were freely given, a social obligation to acknowledge the gift went with them, an obligation which in this case was violated. The plant bed owner expressed puzzlement and hurt when the man who came to pull the plants left without coming up to the house and saying something to her. Such seemingly insignificant social interactions are the foundation of social networks, and the extent to which a farmer maintains ties within a social network influences the number of households that can be called upon for assistance.

An early example of agroindustry's influence on farm practices and landscape can be seen in the standardization of seedbed width. Canvas seedbed covers were introduced in the 1870s to protect seedlings from flea beetles, a pest that routinely devastated tobacco beds at that time (Herndon 1969, 431). The covers, now of cotton, nylon, or polyester, are sold in ten foot wide rolls that make the long, narrow rectangles
of seedbeds a distinctive visual motif of the tobacco landscape. Seedbed covers have advantages in addition to protection from flea beetles that have assured their widespread adoption and continued use. They speed germination by raising the soil temperature and protect plants from late frost and heavy rain. Prior to the use of covers, Colonial farmers spread a layer of brush on the seedbed to perform these same functions (Breen 1985, 47). Some Madison County farmers continue a similar practice, spreading a layer of straw on the seedbed before covering it. This practice is explained as providing room for seedlings to grow, but may be a retention of the earlier practice, as it is not mentioned in Extension Service publications detailing recommended production methods.

Before chemical pesticides were widely available, seedbed preparation included burning, which served the dual purpose of depositing a layer of fertilizing ash on the soil and heating the soil to kill weed seeds and insects. Both seedbeds and the practice of burning them had been a standard part of North American tobacco production since Colonial times (Gray 1933, 774)). Burning was accomplished methodically with logs burned in one location for a while and then rolled to a new one or more haphazardly by piling brush, corn stalks, or other rubbish on the seedbed. The effectiveness of burning in eliminating weeds and pests depended on the temperature reached by the soil. Slow burning logs produced the best results, but brush and saplings were often used because they were available as a byproduct of land clearing under the system of land rotation that survived till mid-century. The log burning method was more difficult because it depended on the availability of suitable trees, preferably long-burning oak or locust, and because it could be dangerous. Five or six logs of one to two feet in diameter were
typically used to burn a bed. To make the logs roll easier, they were laid across poles running the length of the seedbed. If the bed was on a slope, stakes were driven into the ground to hold the logs in position. The logs were then ignited by piling kindling between and around them. Old tires were sometimes used to start the fires, but these left debris to clean up afterwards and made a horrible stench while burning. The logs were left longest in their initial position because it took a while for the them to fully ignite. After about three hours, the stakes were removed and the logs rolled, one by one, with the aid of a long-handled hook, to a new set of stakes farther down the slope. This was the dangerous part of the operation, as it at times required the farmer to stand between burning logs. Informants cited instances of farmers suffering blistered faces or worse as the smoldering underside of a log burst into flames upon sudden exposure to oxygen. Burning a typical hundred foot long bed would take “all day and into the night,” with the logs being left to burn themselves out at the end of the bed.

6.2.3 CANNED GAS IS BAD FOR OZONE

Seed bed burning is typical of smallholder practices in that it served multiple purposes and required minimum capital input. It used materials available on the farm and was a convenient means of disposing of household refuse and the debris from clearing fields. However, it was a laborious and sometimes dangerous process with irregular results. Thus, when chemical fumigants became widely available in the 1950s, burley farmers rapidly adopted them. Their ease of use and apparent safety compensated for the added cost. Methyl bromide became the most widely used fumigant, although dasomet is also used, and both chemicals are commonly called seed bed gas.
Methyl bromide is a broad spectrum fumigant, used not only in tobacco production, but in production of a large number of fruits and vegetables, including tomatoes, strawberries, peppers, and grapes. Fumigation of tobacco seedbeds accounts for about three percent of pre-plant methyl bromide use (EPA 1997). It is also used to disinfect crop storage facilities and for post-harvest fumigation of some crops, including nuts, grapes, and apples. This last use has been required for import of foreign fruit by countries trying to prevent the introduction of organisms with the potential to damage domestic crop production.

Fumigation was universally adopted by burley farmers because it produced better and more uniform weed and pest control than burning and it reduced both labor requirements and the farmer's physical risk. Fumigation is done either in the fall, after harvest, or in late winter, just prior to seeding. Since the soil temperature must be 50° F or warmer for the fumigant to work, microclimatic conditions such as slope and aspect partially condition the timing of fumigation. South-facing slopes, for instance, warm up sooner than others. After the seedbed has been plowed and lime or fertilizer incorporated, fumigant is injected into the soil and a cover placed over the bed to trap the gas. The cover is removed a week prior to sowing to let residual gas dissipate so that it does not affect tobacco seed.

The use of methyl bromide is one of a host of changes, including chemical fertilizers, sucker control agents, and hybrid seed, that dramatically changed the nature of burley farming during the second half of the twentieth century. Their adoption reflects the intersecting circles of social systems and institutions by which the fruits of research and development carried out in partnership by agroindustries and land grant
universities are licensed to commercial vendors and promulgated through extension service education programs. Thus, tobacco farmers' reliance on methyl bromide reflects both horizontal links between regional and national institutions and vertical links between farm practices, suppliers of farm inputs and the two domestic producers of methyl bromide.

The scope of institutional integration became global after methyl bromide was recognized by a consortium of leading atmospheric scientists as a powerful ozone-destroying agent, and an international treaty and new U.S. legislation forced a re-evaluation of its widespread use in U.S. agriculture. Although seedbed burning generated atmospheric pollution (and of a particularly noxious kind when tires were burned), the effects were purely local. With fumigation, most of the methyl bromide used on seedbeds eventually dissipates into the atmosphere, either through the permeable material of the seedbed cover or upon removal of the cover, where its effect on the ozone layer is global.

Both an international treaty and U.S. legislation have targeted the elimination of methyl bromide for the first decade of the twenty-first century. The 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, ratified by over 160 countries, specifies stepped reductions in methyl bromide production, with production by developed countries slated to halt in 2005 and by developing counties in 2010. U.S. regulations are stricter. Under the 1990 amendments to the Clean Air Act, domestic production of methyl bromide and its importation to the U.S. will be banned by January 1, 2001. Both pieces of legislation address production and trade of methyl bromide only, not use, so farmers would be able to continue using existing stocks. In the
summer of 1996, Madison County farmers had no trouble obtaining it. However, the impending restrictions were well known, and farmers anticipated future shortages. Certain knowledge that methyl bromide would disappear in the near future created an opportunity for several local farmers to start hydroponic seedling nurseries. These businesses flourished, as will be detailed in the next section, for a combination of reasons related not only to global environmental concerns but also to changes in the local economy that have restructured the use of labor.

6.2.4 Hydroponics

The application of hydroponics to seedling production involved three interrelated changes with implications for burley production practices — 1) the diffusion of a more capital intensive method of seedling production than had hitherto been used; 2) the movement of much seedling production off-farm so that seedlings became a production input; and 3) the development of a local seedling nursery industry. The shift from conventional seedbeds to hydroponic seedling production occurred in both the burley and flue-cured tobacco sectors during the first half of the 1990s. Fifty-four percent of all tobacco growers in North Carolina planted greenhouse-grown seedlings in 1994, triple the eighteen percent who used non-conventional production methods in 1990 (Peedin cited in EPA n.d.). In Kentucky, a state dominated by burley production, approximately seventy percent of seedlings are hydroponically grown (Nesmith cited in EPA n.d.). In Madison County, an estimated forty percent of tobacco acreage was planted with greenhouse-grown seedlings in 1994 (Ealy 1994). Thus, Madison County has lagged slightly behind both the rest of the state and the larger core burley producing
region in making the technological shift. Nevertheless, the technology has been accepted with remarkable rapidity.

The use of sterilized soil in greenhouses eliminates the need for on-farm seedbed fumigation, yet the widespread adoption of hydroponics was driven not by a shortage of methyl bromide, but by the labor savings and scheduling advantages that farmers could realize when purchasing seedlings. The establishment of commercial nurseries in Madison County by a few enterprising early adopters aided the process by ensuring a local supply of seedlings. Farmers planting larger acreages who had trouble producing enough seedlings from their own beds had been accustomed to ordering seedlings from nurseries around Tifton, Georgia, whose south Georgia location gives conventional seed beds a head start on the growing season. A few had also ordered seedlings from a company in Plant City, Florida that specializes in hydroponically-grown seedlings. The establishment in the early 1990s of three commercial seedling nurseries in Madison County, one using indoor conventional beds and two using hydroponics, facilitated the shift to purchased seedlings by smaller-scale farmers.

Both indoor beds and hydroponic systems have advantages over conventional outdoor beds. Grown in a protected environment, either a conventional greenhouse or a home-built mini-greenhouse, the seedlings are ready for transplanting earlier in the season than those from outdoor seedbeds. Farmers hiring setting crews benefit from early transplant availability because labor is more readily available early in the season.

The capital costs of establishing a commercial nursery are considerable, and in Madison County only medium-scale diversified farmers have attempted to do so. These men are perhaps best described as farmer-entrepreneurs. They have the capital,
education, and contacts within the larger tobacco economy to undertake such ventures. They tend to lead the community in farm innovations, such as the adoption of technology and the employment of migrant laborers.

Hydroponic seedlings or “float plants” are produced by several methods, of which direct-seeding is the most common. All methods, though, use styrofoam trays that are divided into several hundred cells, each holding a plug of peat and vermiculite in which a single seedling is grown. The trays are floated on a bed of water, which is also the fertilizer transport medium. Temperature control is automated with bed heaters, space heaters, and ventilation systems.

A few farmers have constructed mini-greenhouses containing small home-built hydroponic beds for producing their own float plants. The extension service provides plans for low-cost systems constructed of a treated lumber frame lined with black plastic and covered with a seed bed cover. These systems are much simpler than nursery greenhouses, lacking automatic temperature regulation and, in some cases, even water bed heaters. The costs of seedling production with these systems are roughly equivalent to that of conventional seedling production. Costs are estimated at $34 per thousand plants with a seed bed, compared to $28 per thousand for direct-seeded float production and $39 per thousand for the plug-and-transfer method (Fowlkes n.d., 9). In the Spring of 1995, a greenhouse in Angier, North Carolina, located about twenty miles south of Raleigh, advertised hydroponically-grown burley seedlings, delivered to Asheville, for $30 per thousand. In addition to their reasonable cost, float plants have the advantage of eliminating two forms of environmental hazard associated with seedbeds -- failure from dry weather and flooding.
Float plants eliminate the time-consuming step of pulling seedlings from a conventional seedbed, which takes as long, if not longer, than actually setting the plants. Plugs pop easily out of their trays, a step that can be performed by the worker feeding the setter. Thus, farm households providing their own labor save time using float plants, and for farmers hiring a setting crew, the time savings translates to wage savings. Moreover, if float plants are not to be used immediately, trays can simply be re-floted to preserve them. Once conventional plants are pulled, they need to be transplanted in timely fashion, either immediately or, if pulled in the evening, the following morning.

In Madison County, the change in seedling production methods has been accompanied by a shift in the locus of production as increasing numbers of farmers are choosing to purchase seedlings from the new commercial nurseries rather than grow their own. Abandonment of seedling production is one more step in the industrialization of burley production, moving the first stage of the production process off-farm and decreasing farmer self-sufficiency. The trend reflects the need to reduce labor inputs by two groups of farmers — part-time farmers with full-time off-farm jobs and larger scale farmers running their operations with seasonal workers.

Jane and Dave are typical of part-time farmers who have switched to buying seedlings from a local nursery. Both have full-time off farm jobs and juggle the demands of raising a young family with those of growing tobacco, silage corn, and beef cattle. Jane comments, “We’d make more money if we worked overtime on our jobs, but farming is something we do as a family.” They value the time spent together in pursuit of a common goal and being able to give their children an appreciation of their
heritage. They enjoy farming and participate in farm-oriented community events, such as the annual plow day that celebrates the use of draft horses. They admit, though, that without float plants, they would have given up growing tobacco, as the demands of raising three pre-teens in a dual-job household leave little time for conventional farm work. For them, the opportunity cost of their time is the deciding factor in use of nursery-bought seedlings.

For larger scale farmers, purchasing seedlings affords greater flexibility in scheduling setting and allows setting to be accomplished in a shorter period of time, providing savings in labor costs and a more uniform stand of tobacco. Because of the variable growth rates of plants within the a conventional bed, farmers with larger acreages report that they have trouble getting enough plants from their own beds to keep pace with setting. Purchasing seedlings ensures that sufficient plants are available when a setting crew is assembled. Some farmers will not buy seedlings from out-of-state nurseries to the south for fear of importing blue mold from an area where the disease overwinters. The development of a local tobacco seedling industry allays their fears about using purchased seedlings. Blue mold has been a recurrent problem during the twentieth century, but outbreaks in the early 1990s were particularly severe. The spores are thought not to survive southern Appalachian winters, but are easily carried by wind from places they do overwinter, such as Mexico and Florida. Cases of blue mold linked to seedlings imported from out-of-state have made many area farmers leery of buying from Florida and Georgia nurseries, and the local nurseries have benefited correspondingly.
The development of a tobacco seedling industry is part of a restructuring the local tobacco economy that is increasing class distinctions among tobacco farmers. A small group of farmer-entrepreneurs, already among the largest tobacco producers in the county, have started commercial nurseries that further diversify their agricultural income. For small-scale part-time farmers, the ability to purchase seedlings has enabled many to continue to participate in tobacco production, although by adding a new category of farm input, float plants have reduced self-sufficiency and the skilled production of tobacco that reproduces knowledge about tobacco farming. For the larger scale farmer, purchased seedlings help with the scheduling of hired crews, and makes management of the larger production unit easier by assuring a supply of seedlings when needed. In both cases, however, adoption is driven by the need to manage labor inputs to tobacco production. As of 1994, sixty percent of Madison County tobacco acreage was still planted with seedlings grown in conventional on-farm beds. That figure will decrease if off-farm jobs continue to grow in importance and the as-yet modest consolidation of tobacco acreage increases.

6.3 (Re-) Structuring Labor

The traditional social organization of labor in Madison County arose out of and reproduced situated cultural practices. Reliance on household labor and reciprocal work groups was economically expedient in this cash-poor region, but also reflected cultural values of self-reliance and close connections to family and community. In turn, labor practices reinforced cultural values, so that the daily round of farm activities not only maintained the household physically, but also reproduced the knowledge and skills required for self-reliance and the emotional and social ties that knit kin and neighbors.
The cyclic reproduction of culture and labor has been attenuated by the changing role of wage labor in traditional multiple livelihood strategies. Increased involvement in off-farm wage labor by members of farm households and the in-migration of a new, highly mobile class of farm laborers have restructured the uses of household and hired labor, changing burley production practices and the material culture of burley curing.

6.3.1 TRADITIONAL LABOR ORGANIZATION

The agrarian myth, which has permeated American society at least since Jefferson expounded on the virtues of the yeoman farmer, is a powerful cultural structure legitimizing the toil of farmers. The family farmer is idealized as the embodiment of independence, virtue, the Protestant work ethic, and the Emersonian ideal of living and working in harmony with nature (Browne et al. 1992, 6-11). If farming is an honorable occupation, by extension, farm work is good, honest labor, not physically demanding, tedious, poorly remunerated work. This part of the American mythos persists in Madison County, as in many other rural areas where agriculture remains a vital part of the economy. Traditionally, all able-bodied household members contributed to labor on Madison County farms. Wives worked alongside husbands, and children and the elderly performed tasks in keeping with their strength and experience. Those who did not work were considered lazy or “worthless.” A work ethic, which may have been born of economic necessity, drew from the agrarian mythos permeating the larger society and inscribed cultural norms and expectations for participation in farm labor that were inclusive of gender and age groups.

Children were critical to the economic functioning of the farm household, but their participation in farm work was also one of the situated social practices by which
the traditional system of labor was reproduced. Farm labor was believed to instill values of hard work, self-reliance, and family. Children acquired not only the practical knowledge to be successful farmers, but also an understanding of the interdependency of household and extended family that fostered an appreciation of each member’s contribution. Thus, children’s labor had a normative as well as an economic function.

The acculturation to community norms achieved through inclusion of young children in farm labor is important enough for households to follow sub-optimal burley production practices in order to accommodate children’s lower skill levels. Jane and Dave’s three children, who range in age between seven and ten, help raise the family’s tobacco. Their parents feel that their participation in farm chores is good for the children, providing them a strong sense of family and a greater understanding of their heritage. Because of the children’s inexperience in discerning differences in cured tobacco leaves, it isn’t feasible for the family to grade their leaf. Therefore, they’ll “put it all in one grade”, i.e. market ungraded tobacco, even though prices for the three standard grades, leaf, tips, and lugs, are substantially higher (Table 6.1). Taking ungraded tobacco to market does not necessarily mean that it will be assigned a mixed grade, however, so this family’s decision not to grade may not entail the financial loss suggested by table 6.1. Farmers reported receiving with fair frequency one of the standard grades rather than the "mixed" designation for bales of ungraded tobacco. Some farmers have abandoned grading because their experience indicates they will get the higher grade regardless of effort expended in actual grading. Farmers attribute this market inconsistency to the speed with which market graders assess tobacco bales and
the fact that most graders on the Asheville market are trained in the Flue-Cured Tobacco Belt and are not as experienced in judging burley.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Price Per Pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>$0.96 to $1.37</td>
</tr>
<tr>
<td>Leaf</td>
<td>$1.43 to $1.87</td>
</tr>
<tr>
<td>Tips</td>
<td>$1.33 to $1.80</td>
</tr>
<tr>
<td>Lugs</td>
<td>$1.33 to $1.86</td>
</tr>
</tbody>
</table>

Source: Burley Stabilization Corporation 1993

Households are integral parts of larger family and community units that allow flexibility in labor organization. Reciprocal labor exchange, known in the vernacular as "swapping work," is a common method for assembling larger groups of people to accomplish time-critical or labor-intensive tasks such as transplanting seedlings or harvesting tobacco. Such work groups are social outlets for joking, gossiping and exchanging information. Work groups are also formed when a household faces a sudden crisis, such as a death in the family, both to lighten the burden of everyday chores and to ensure that the family is not alone during their time of grief. By creating labor obligations that have to be repaid later and by reinforcing family and social ties, the practice of swapping work fosters the continuation of the system of shared labor. Thus, the social structures of labor, the norms of participation and group orientation, were inextricably bound up with their cultural context, and the two were mutually reproducing.

The rural Baptist church reinforces community norms regarding labor practices with a moral authority derived from the highest possible source. Although it decreases flexibility in task scheduling somewhat with its proscription of working on Sunday and
customary Wednesday evening services, the church is a central node in the social networks that are vital to the functioning of cooperative labor practices. Church activities, such as morning and evening Sunday services, Wednesday prayer meetings, benefit suppers, week-long revivals, and children’s summer bible camp form a large part of rural social life, and thus are intimately bound up in the formation of rural social networks. Other than extended family, households are most likely to swap work with other households belonging to the same church.

The churches that serve the valley communities are a mixture of Primitive Baptist and Freewill Baptist congregations that are independent of the hierarchy of the Southern Baptist Church. Congregations are small and derive almost exclusively from the immediately surrounding settlement. Services are emotionally intense and include a high degree of congregational participation, such as singing, publicly testifying (i.e. reciting the circumstances of one’s salvation), and voicing prayers for special needs. It is not unusual for a congregant to be so moved during the singing of a hymn as to rise and dance in the church aisle, and foot washing and the laying on of hands are occasionally practiced. Although not its explicit intent, the church service is a forum for both ritualized and informal communication about the status or special needs of members of the social network. After the sermon, a portion of the service is allotted for prayers voiced by individuals. Usually a few moments of silence fall, which are soon broken by someone describing a problem they are wrestling with or the ailment of a family member or neighbor. This kind of prayer or an informal announcement by the preacher at the conclusion of the service is generally sufficient to ensure that several church members drop by to check on the individual in question. Such indirect
communication spares individuals the indignity of directly soliciting help. The socializing that occurs directly before and after the service also provides opportunities to spread the word about a hoeing party or other informally arranged group work event.

6.3.2 Changing Structures of Labor

Traditional modes of labor organization are changing as economic development has shrunk the pool of locally available farm labor and challenged cultural structures that previously reinforced the traditional system. Farmers in Madison County have long integrated farm and off-farm work in flexible and frequently changing configurations. Farmers’ multiple livelihood strategies combine subsistence and cash crop components of agrarian production with wage labor. Diversity of livelihood strategies reduces dependence on any one undertaking, and farmers adjust their level of commitment to the various sectors in response to farm prices, job opportunities and their need for cash. Most tobacco farmers hold a series of wage labor jobs over the course of their lives, some seasonal, some part-time, and some that take them out of the region for a period of years.

The balance between on-farm and off-farm work has gradually shifted in the favor of wage labor in the secondary and tertiary sectors as highway improvements placed Madison County in the commuting zone of nearby cities and as rural industry developed. Much of the improved transportation infrastructure is a legacy of the Appalachian Regional Commission, which in the mid-1960s initiated an ambitious regional development plan on the premise that good roads, water and sewer systems would attract a diversified manufacturing base. Despite fears that, rather than bringing industry, highways would simply make it easier for Appalachians to emigrate, good
highways enabled many Madison County residents to work in the city, yet retain their rural residences and the subsistence gardening, hunting, and fishing components of their country lifestyle. Road paving, widening and straightening have greatly reduced commute times during the past three decades, and about half of the county’s workforce of 7,000 now commutes to jobs outside the county.

Infrastructure development did bring new rural industries (Figure 6.1). Although the number of companies operating in Madison County in 1992 has grown only marginally since mid-century and is actually below the number that existed in 1919, the industrial base has diversified and the new companies hire more employees.

Prior to 1960, the bulk of rural industry consisted of sawmills and timber-related businesses that had fewer than twenty employees each. Many of them went out of business in the 1960s. The industrial growth that occurred during the 1970s included an influx of textile and garment manufacturers, industries that have historically sought out areas of cheap, non-unionized labor. Most of these mid-sized plants employ between twenty and a hundred workers, providing more jobs than the timber industry had. In the early 1990s, Honeywell opened a plant assembling electronic components, and with a workforce of five hundred, became the county’s largest manufacturing employer. Both the textile and electronic assembly industries have typically employed large numbers of women, and in Madison County the expansion of job opportunities close to home has expanded women’s participation in wage labor. The broadening of the county’s industrial base promises greater economic stability than its former single-industry manufacturing economy. In 1992, nine census manufacturing sectors were represented.
by county businesses, whereas manufacturing censuses prior to 1977 tallied between three and six sectors.

![Graph showing number of companies over time](source: Census of Manufacturers)

**Figure 6.1**
*Rural Industry*
*Madison County, 1919 - 1992*

Women’s off-farm employment has altered traditional gender roles in some farm households. It is not uncommon for the wife of a farm household to have a full-time off-farm job, providing a steady income, and for the husband to farm full-time or work part-time and seasonal jobs, maintaining the desired independent lifestyle, but with a more variable income. In bad years for tobacco, the wife’s job sustains the household and possibly subsidizes the farm. With an off-farm job the wife’s contribution of labor to tobacco production decreases, but remains important at times of peak labor demand.

Increased participation in non-farm wage labor by both women and men is altering cultural structures that reproduced the traditional labor system. Swapping work...
was a common practice through the mid-1980s, but has become much less so as a commodified view of labor relations assumed precedence over community-centered labor organization. The change cuts across generations. A fifty-four year old farmer who used to swap work with his neighbors stopped, he asserted, because he would bring three people to his neighbor's farm and the neighbor would later bring only one to his. He would still swap work if "it could be done by keeping track of the hours and paying for the difference." Labor commodification acknowledges the economic value of swapping work, but ignores the role the traditional labor arrangement plays in maintaining networks of family and community relations, which have traditionally been the basis of the rural safety net that aids households in times of crisis.

Children's role in tobacco production has also declined. Since children are less likely than previously to take up farming as an occupation, some parents let their children decide whether or not to help with the crop. A 45-year old father of two teenage sons explained that when his boys were a bit younger they helped with the tobacco, but now that they're teenagers, they want to do other things. Since he doesn't think either of the boys will go into farming, he plants less tobacco to give them time for other activities. In many families, however, children are still routinely expected to help with the tobacco, which they do with varying degrees of enthusiasm. A twelve year old boy who has already decided to become a farmer helps his father with many phases of production, but especially likes driving the tractor. For him, farm work provides an entrée into the adult world, allowing him to use machinery and assume responsibilities that the larger society places outside the purview of a twelve year old.
Two teenage girls in another family, in contrast, resent having to work tobacco when their friends congregate at the Asheville mall.

Decreased participation in tobacco production by younger generations is manifested in a shrinking and aging pool of local hourly workers. When older farmers speak of hiring “boys,” they are often talking of men in their fifties, only a few years younger than themselves. This older generation of farm laborers, which includes both men and women, is still available for hire because they come out of the multiple livelihood tradition and are accustomed to piecing together seasonal and part-time jobs to get by. Increased mobility allows many teens who want to work to take service industry jobs on the “strip” in Weaverville or in Asheville. Farmers who would like to hire local teens as they did in decades past complain that not only are today’s teens unwilling to undertake the strenuous work of tobacco farming, but that they lack skill in handling tobacco and frequently damage the leaves. It would appear that a link in the cultural reproduction of knowledge about tobacco farming has been broken. Some members of the younger generations routinely help with tobacco, but those that do so are typically part of extended families of tobacco farmers and their work in uncles’ or cousins’ fields is undertaken out of family obligation more than for wages, and they may or may not be paid for their work.

Farmers not well connected in social networks sometimes have to take unusual measures to find laborers. An older farmer supervising two pairs of young men as they cut and spud tobacco explained one of his strategies for finding harvest workers. He will not hire Hispanics, so to find local Anglos willing to work, he sometimes goes to one of the bars just over the county line (Madison is a dry county) and looks for young
men short on money. A loan for a couple of drinks is made, with the understanding that the debt will be worked off the next day. In this case, the farmer voluntarily restricts through his ethnic prejudice an already tight labor pool. His labor recruitment strategy relies on his knowledge that the county line bars are a gathering place for underemployed young men.

The easing of the expectation that most people in the community will participate in tobacco production, whether as a farm householders or as hired workers, is one sign of the breakdown of labor’s traditional structures of legitimation. When the area last experienced a marked labor shortage, during World War II as men joined the armed services or migrated to work in war-time industries, the shortage was met within the bounds of traditional labor structures by expanding the roles of women and teens, many of whom assumed primary responsibility for tobacco production. Although the men were away, the household still provided most of the required farm labor. Shifting roles within the household precipitated greater, although still limited, public recognition of women’s long-standing contributions. The cover story of the December 1942 issue of Farmers Federation News announced with unintended irony, “Women Helped Harvest the Tobacco Crop,” a headline that was hardly news to residents of Madison County. As the next section will show, in contrast to the way this earlier labor shortage was met within the traditional labor structures, the shortage at the close of the twentieth century is being addressed by non-traditional methods, by use of migrant workers, by altering the traditional forms of curing structures, and by capital-labor tradeoffs.

Cultural values ascribing an honorable status to farming are also changing, a further sign that structures of legitimation surrounding labor practices are weakening.
A full-time farmer whose son intends to follow him in this pursuit complained that the local schools "teach kids that farming is what you do if you're too dumb to do anything else." The county's new consolidated high school emphasizes vocational training and preparing students to enter the labor force, and indeed, few young people I talked with plan to be farmers.

Farmers' increased participation in wage labor impacts the timing of farm tasks, as most off-farm jobs have minimally flexible schedules. Farmers work their tobacco on weekends, evening, and, when tasks cannot be postponed, late into the night. A couple who both hold off-farm jobs reported working until 1:00 or 2:00 AM several nights a week spraying their tobacco to ward off blue mold. Security lights at the church next to their field allowed them to work after dark. The assiduous effort paid off as their tobacco "made good," while the neighboring farm lost about half its crop to the fungal disease. Long hours in the field after a full day at another job are the rule rather than the exception among Madison County's part-time farmers.

Schedules have also changed for full-time farmers who are dependent on the harvest labor of family members with off-farm jobs. Families accustomed to cutting and hanging tobacco on the same day altered their work schedule when grown children when children could not help during the week. In one such household, the elderly parents now cut tobacco during the week, with the wife cutting and the husband spudding, and the children help them hang it on the weekend. The tobacco is left to wilt down in the intervening time, which makes it easier to hang because of lost water weight, but risks exposure to rain.
Restricted flexibility in off-farm work schedules generates the potential for conflicts for farmers wishing to adhere to the astrological signs. While most farmers with limited schedule flexibility will do what has to be done on their own farm when it’s needed, the prevalence of work groups creates possibilities for conflicts between individuals with different practices regarding the signs. One informant, for instance, expressed frustration when his father put off the tobacco harvest one Saturday because the astrological calendar showed it to be an ember day. Cutting tobacco on ember days, according to local belief, will make it cure green. The informant’s frustration stemmed from the fact that Saturday was his only free day to help his father with the harvest, as he worked weekdays in Asheville and Sunday was reserved for church. Patriarchal authority remains strong, however, and the informant accepted his father’s decision even though he disagreed with it.

6.3.3 **RECENT ADAPTATIONS TO LABOR SHORTAGE**

Ways in which individual farmers anticipated or responded to the labor shortage illustrate how farmers play an active, although sometimes unconscious, role in the constitution of social structures. Farmers do not merely react to exogenous forces, but contribute through initiatives and key decisions to alterations in the social context in which labor relations are enacted. At the most basic level, there are only two possible methods to ameliorate a shortage, to reduce demand or to increase supply. Madison County farmers have used both strategies to deal with a slowly tightening labor market.

6.3.3.1 **The Form and Function of Curing Structures**

Harvest labor reduction occurred not through mechanization, but through altering the form of the structure that held burley while it air-cured. Initial changes
retained the basic form of the traditional curing barn, altering its height and tier spacing, while more recent changes introduced a non-traditional curing structure, the plastic-covered field frame. This latter change was conditioned not only by a need to reduce the number of hands needed for harvest because of a tight labor supply, but also by changes in the climate for capital investment in burley production infrastructure.

Changes in barn height and tier spacing have occurred gradually since mid-century as old barns were replaced or farmers entering tobacco production constructed barns. Changes in barn form are linked to customary practices for hanging tobacco. Typically, tobacco is hung with one person standing on each tier pole, handing sticks to the person above until the tobacco can be placed on the top tier. Older style barns with five or six tiers and a fairly small, square footprint required five or six people to hang tobacco efficiently. Newer barns with only two or three tiers, but a longer, rectangular footprint required only two or three people to fill. In addition, tier spacing was increased to accommodate the new taller tobacco varieties without overlap.

During the 1990s, a non-traditional curing structure, the field frame, diffused into Madison County. By mid-decade, it was used in all parts of the county, although on a minority of farms. Indications are good, however, that it will continue to rapidly gain acceptance. The chief advantages of the field frame for curing over a traditional burley barn are low cost and ease of hanging. The structure consists of a line of heavy posts sunk into the ground that support a course of two closely spaced rails. Tobacco sticks are cantilevered from the frame by sliding one end of a stick between the rails. The structure may be hung from the ground as easily by one person as by two. When full, the frame is covered with a tarp to protect the tobacco from wind and rain.
Variations on the form exist, such as a portable A-frame system designed by at the University of Tennessee (Mundy 1995), and a box-like framework that is intended to be moved while loaded into a traditional barn, but the central-post system was the only one I observed in Madison County. Scientists with the Agricultural Research Service experimented with plastic-covered curing structures as early as 1970 (Yoder and Henson cited in Isaacs 1993), but Madison County farmers did not start building them until the early 1990s. Compared to the traditional burley barn, fields scaffolds are low-cost and easily erected. Construction costs per acre of tobacco to be cured are estimated at $307 to $795, depending on the stick spacing a farmer uses and whether the frame is built to be filled from the ground or from the back of a truck or wagon (Isaacs 1993).

Initial diffusion probably occurred by a combination of formal and informal means. The extension service makes available plans for constructing field frames, industry magazines such as the Burley Tobacco Farmer carry articles about them, and the portable system was displayed at an open house of Mountain Agricultural Research Station in Waynesville. One early adopter in the Shelton Laurel area reported copying a scaffold that he observed while traveling in Tennessee. Because he owned a sawmill that allowed him to produce his own lumber, this farmer minimized his investment in testing the innovation. He was active in their subsequent diffusion in the county by milling lumber for several relatives and helping them construct similar scaffolds.

Contraction of the labor pool that farmers can call on within kinship and neighborhood networks has hastened acceptance of the field frame. A few of the farmers I interviewed sometimes hang tobacco in conventional barns by themselves, a lengthy process that requires handling each stick multiple times as the farmer works the
tobacco progressively higher in the barn. This is not a preferred mode of working, but is resorted to when family members or people with whom they customarily swap work are not available. Bachelor farmers, farmers whose adult children have left the region, and male farmers with wives working off-farm are occasionally likely to find themselves working this way. Farmers who often find themselves working alone have come to appreciate the field frame’s labor efficiency.

Uncertainty about whether the tobacco program will continue has discouraged investment in tobacco infrastructure, and farmers are disinclined to replace dilapidated barns or build new ones to house expanded acreage. The source of the uncertainty is the on-going industry-wide litigation of tobacco manufacturers by a consortium of states. Some versions of proposed settlements have included the elimination of production constraints and the price support program for tobacco, with the proviso that quota holders would receive one-time payments to buy out their interest in the tobacco program. Under such a scenario, burley prices would likely drop as production expanded throughout the Burley Belt. While this would put U.S. burley in a more competitive position vis-à-vis foreign tobacco and exports would probably expand, small-scale farmers with limited potential for expansion because of land, labor, and capital constraints would see profit margins and real income shrink. Many of Madison County’s small scale farmers harbor doubts about their ability to produce tobacco profitably in an unregulated system, and the uncertainty about the outcome of tobacco litigation has led them to hedge their investments by using field scaffolding as an interim measure. The frequency with which scaffolds can be seen next to barns with
gaping holes in roofs or walls is a landscape indicator of the replacement of aging barn stock with the new curing structure.

The traditional burley barn fills purposes that a curing frame cannot, such as housing farm equipment and livestock, yet consolidation of tobacco production into larger units, a trend that has begun in modest proportions, will favor adoption of field frames. Farmers tending multiple scattered fields, some of which are probably leased, do not need barns at each of the fields, only at the main farmstead. Using field frames for tobacco from outlying fields is one way to lower production costs allowing resources to be concentrated on other expenses associated with expanding production.

6.3.3.2 Migrant Workers

In the mid-1980s, a few medium scale farmers attempted to solve the local farm labor shortage by importing migrant Mexican labor, previously unknown in the county. Who first initiated this practice is unclear, but among the first were farmers with contacts in the flue-cured tobacco belt, where use of migrant harvest labor began in the 1970s (Johnson 1984, 93). Initially, a few farmers arranged to bring in crews for two labor intensive tasks — the tobacco harvest and setting frazier fir seedlings on Christmas tree farms. Over the next ten years, Madison County became part of the regular migration circuit for a small number of agricultural workers and a briefer host to a larger number of peripatetic laborers.

Early migrants to the area played key roles in the development of subsequent migration patterns, returning year after year themselves and bringing relatives and neighbors from their home villages as work crews. They used their bilingual skills to interpret for non-Spanish speaking employers and non-English speaking crew members,
scheduling jobs and translating instructions. A classic pattern of chain migration
developed, with the majority of migrant workers in Madison County coming from
villages in two central Mexican states, Morelos and San Luis Potosí.

A handful of the early migrants who became crew leaders also became year-
round residents, typically developing a close working relationship with one farmer who
has acted something like a *patrón*. Medium-scale farmers with diverse farm operations
need one or two year-round employees to perform a variety of tasks in addition to
tobacco production, such as trimming Christmas trees, working tomatoes, or working in
ancillary tobacco businesses including seedling nurseries and auction warehouses.
Farmers value their crew leader's willingness to work hard and his ability to command a
larger labor force at critical times. Farmers have incorporated key employees into their
extended social networks, sometimes sharing meals and taking pains to find out
something about their lives in Mexico. In one farm household that employs two
brothers year-round and more migrants on a seasonal basis, a young adult son started
taking Spanish classes so he could communicate better with farm employees. The
decision reflects an understanding and accommodation of the changing social reality of
farm labor.

The patronage relationship appears to be mutually beneficial. Year-round
employees are provided on-farm housing, often in a trailer. One crew leader has
purchased his own trailer and placed it on his employer's farm. Several men have
brought their wives and children from Mexico to live with them. A few have become
renters, a form of tenancy where land and tobacco allotment is rented for a fixed rate,
and the producer has complete control of the crop proceeds. At least one now holds
quota in his own right. Accepting the patronage of a Madison County farmer has relieved these workers of the need to migrate, provided year-round employment, allowed them to be reunited with their families, and started them up the agricultural ladder as producers rather than merely laborers on someone else's crop.

The experience of one former migrant, Hernando, is typical. He first came to Madison County in 1989 as part of a crew. Hernando met his future employer when the crew rented an empty farm house whose surrounding land was being rented by a local tobacco farmer. Farm consolidation through leasing has left a number of such abandoned houses scattered throughout the county. Since 1989, Hernando has returned each year to work on this farm, arriving in March and staying through December. He spends the other two months in Mexico or traveling around the U.S., working odd jobs. Hernando helps with all phases of tobacco production on his employer's farm, where he is the only year-round employee. In late August, he assembles a crew of about seven workers for the harvest, and once the tobacco is hung, the group goes to work at an auction warehouse owned by the same farmer, where auction season lasts through early January. In 1993, Hernando became a renter on his employer's farm, growing an acre and a half of his own tobacco in addition to continuing his wage employment.

Former migrants such as Hernando are recreating patterns of tenancy that have been on the decline for most of the century. Although their numbers are small as of mid-1990, with probably no more than a dozen former migrants now residing permanently in the county, growing use of migrant labor will bring increased number of Mexican agricultural workers to the area and more will undoubtedly settle here. These new tenants fill gaps in the farm economy created as the local populace has turned
increasingly away from agricultural pursuits, meeting a demand for agricultural labor and finding housing in abandoned homesteads on farms now rented for their prime bottomland.

A larger number of migrants work in the area for a portion of the year, following well-established migration routes the rest of the year. Texas and the southeastern states (especially Florida, North Carolina, and Tennessee) were most frequently mentioned as other places migrants had worked, although one man had followed the harvest route up the Atlantic seaboard as far as New Jersey, and others had spent time in California and Washington state. The majority usually worked in agriculture, although several had done construction and yard work in Texas and one worked in a California car wash. According to the estimate of a crew leader who has resided in the county for ten years, twenty-five to thirty Mexicans work a substantial portion of the summer in Madison County. Others pass through just for a few weeks in late August and early September.

When asked why they came to Madison County, migrants' most common response was that wages were slightly better than in other parts of the U.S. and that the work was steadier. Other reasons included being able to live near friends from the same village and the "divertido" dances held by the Hispanic community. A mischievous twenty-year old volunteered that he didn't like the work, but the beer and marijuana were very good. The only migrant I interviewed who spoke with the accent of the educated classes had been to veterinary school in Mexico and was now working to save money to open his own clinic. He was also purchasing the needed equipment while in the U.S. where, he asserted, it is more readily available and usually cheaper than in his own county.
Farmers who regularly employ migrants praise the Mexican crews highly. “Their hands move so quick. White people don't work like that. They're lazy — too much welfare.” “Nothing will beat these Mexican boys.” A two-tiered system of payment exists for hired workers, with migrants generally working piece rates and local laborers being paid by the hour. When farmers are ready to cut, they generally want to get their tobacco into the barn quickly. They appreciate migrants' willingness to work for piece rates and complete the task quicker than hourly workers would. During the 1995 harvest season, typical piece rates were ten cents per stalk for cutting tobacco or fifteen cents per stalk for both cutting and hanging it. Hourly rates for all tobacco work were remarkably uniform throughout the county. In 1994, $5.00 per hour was the standard wage rate. A bit higher than the minimum wage of $4.25 per hour at this time, it reflects the tightness of the local labor pool. Piece rate workers have no trouble maintaining a pace that earns them more than the hourly wage. At the lower piece rate for cutting only, a worker would have to cut 50 stalks per hour or one stalk every 72 seconds to equal the standard hourly wage. For experienced tobacco harvesters, this is not a demanding pace.

Locals' attitude towards Mexican workers range from benevolent paternalism to blatant racism and fear. Farmers who employ Hispanic workers year-round have a positive image of them. Because of the small number of workers on each farm, considerable personal interaction occurs between employer and employees, and workers are adopted into farmers' social networks and treated much like extended family members for whom the farmer has an obligation to look out for. Paternalism arises from a genuine desire to help employees, but is exacerbated by American-Mexican
cultural differences. One farmer, after describing how an employee regularly returned broke in the spring, once after not having eaten for several days, stated that he was going to save out a thousand dollars of this employee’s wages at the end of the next season so the employee would have money for food and clothes when he returned the next time. This was not a coercive attempt to ensure the employee’s return, but an attempt to force the employee to act according to American labor force ideals that expect employees to ration their resources between paychecks. The farmer disliked loaning the employee money at the start of the season and then withholding wages in repayment, an arrangement that resembles the debt peonage that shackled Southern tenant farmers during the early decades of the twentieth century.

Those who have had more limited contact with Mexicans hold more variable attitudes towards them, ranging from open acceptance to mistrust. One farmer who had never hired migrant labor, but who had worked on a setter alongside a Mexican employee while helping out on his cousins’ farm stated that he thoroughly enjoyed the wide-ranging conversation the two had shared and was impressed with his fellow worker’s language skills. If he were to hire Mexicans, he supposed he’d have to learn the other fellows’ language. On the darker side of Anglo-Hispanic social relations, a number of farmers expressed mistrust or fear of Mexican workers. The linguistic barrier that non-Spanish speaking farmers encounter when working with Spanish-speaking crews transforms them from insider to outsider on their own farms, engendering negative feelings in the process. Reflecting on his experience hanging tobacco with a crew talking among themselves in Spanish, one farmer expressed unease at not comprehending his workers: “You never know if they’re going to kill you.”
While the work scene was a familiar one to the farmer — half a dozen people hanging tobacco for long hours, talking to pass the time — the experience departed radically from what he was used to because he was unable to take part in the conversation that is a key mechanism for coping with routine manual labor. The work felt more tedious to the farmer, and he sensed a loss of control. Language and the ability to communicate played a key role in the different outcomes of these two cross-cultural encounters and influenced the attitudes that the local farmers formed towards Mexican migrant workers.

An underpinning of Giddens' theory of structuration is that agency or individual action has both intended and unintended consequences, and both are implicated in the formation of structure. Much of what people do in their day-to-day lives is accomplished reflexively with discursive knowledge of the social context and consequences of their actions (Giddens 1979, 7). However, that knowledge has limits, and unanticipated consequences proceed from actions intended to produce a particular desired outcome. Social system changes concomitant to the introduction of migrant workers to Madison County are an excellent illustration of this principle.

One unintended consequence of medium-scale farmers' importation of migrant workers to solve their own labor problem is that they eased the labor situation for smaller-scale farmers as well. The smaller farms do not offer enough work to draw migrant crews on their own, yet once crews have finished the harvest on the larger farm or farms they initially came to work on, most seek out jobs on smaller farms nearby. Small-scale farmers also sometimes approach a crew they observe working on a neighbors' farm and contract for their labor. Thus, within the past few years, a tightly
constricted farm labor pool has expanded, reversing a decades-long trend and easing the labor pinch that many farmers felt.

Soon after agricultural developments precipitated a demographic shift in the local labor force, horizontal connections within the manufacturing sector brought other Hispanics to Madison County. A manufacturer of medical supplies has in recent years transferred Hispanic employees from a sister plant in California. By 1995, about one-third of its hundred person workforce in Madison County was Hispanic, according to human resources personnel. Juan was transferred from California in 1994, and his younger brother joined him a year later, after completing high school there. Like many of the transfers, Juan and his brother work part-time on area farms when not pulling long shifts at the plants. They have performed a variety of tasks, from digging a basement to harvesting tobacco. Among the plant's employees are a number of part-time farmers who have found in their new co-workers the harvest time labor that they wanted to hire. Jane and Dave, the couple described earlier who had started buying float plants to save time, hired five Hispanic workers to help with their harvest. Jane's contacts with the local Hispanic community come from her plant job. Thus, the industrial and agricultural labor pools overlap and developments within one economic sector affect the other, as in this case when one company's intra-regional transfer of employees unintentionally augmented the pool of people willing to perform part-time agricultural labor.
At the close of the twentieth century, Madison County contains over a thousand family farms specializing in commodity production, but retaining elements of an earlier less specialized agricultural system. The success of farmers in adapting their farm practices and livelihood strategies to their mountain environment and to changing socioeconomic conditions and political economy of tobacco during the twentieth century may be measured by the middle-class lifestyles that most farm households have achieved. The grueling poverty that has stigmatized Appalachia in other places and other times is not in evidence, and tobacco has much to do with the survival and relative health of the system of small-scale farms in an era of farm consolidation and farm loss.

A combination of social, political, and economic forces threaten tobacco's position as the staple of the Madison County's farm economy, however. Increased health consciousness and awareness of the dangers of smoking has decreased the domestic market for cigarettes and led to calls for the elimination of the tobacco program and government involvement in tobacco research. Increasingly conservation-minded farm bills have mandated changes to farming practices that have altered the landscape of burley tobacco production. Foreign-grown tobacco has begun to rival domestic leaf in quality while undercutting it in price, weakening American domination of the high grade leaf market. Changes in manufacturing processes, particularly the development of reconstituted leaf, and the growing popularity of generic cigarettes among consumers, lessen manufacturer's reliance on high quality U.S. burley.

Structural changes in the burley tobacco farm system are similar to those experienced by family farms throughout the United States (Friedberger 1988, 1-14;
Barlett 1989, 253-270). A cycle of overproduction reduces farm gate prices and
necessitates increased capitalization and expansion of production for farms to remain
economically viable. Land prices rise as scenic rural areas become magnets for vacation
and second home buyers. Rural demographics shift as farm operators age and their
children migrate to cities. The agricultural labor market shrinks in tandem with
mechanization and out-migration, and off-farm employment increases.

Structural changes reflect the accumulation of numerous individual decisions
made in response to changing social, political, economic, and environmental conditions
(Brush and Turner 1987, 26). My focus has been on the interplay of these micro- and
macro-scale factors in reshaping the farm system, especially during the past twenty
years. Although the federal tobacco program has proved a powerful force for the
continuation of the commodity-oriented production system, it has not imposed stasis.
Farmers have experimented, innovated, adopted technology and farm practices from
outside the region, and adjusted their livelihood strategies while seeking to maintain a
rural way of life that they find satisfying. Some changes have had a slow but marked
cumulative effect, such as the reforestation that accompanied increasing farm
specialization in tobacco. Other changes have occurred with remarkable rapidity since
the late 1980s, yet have had significant impacts on the production practices, labor
relations, and landscape of tobacco. Included in this category are the movement of
seedling production off-farm, the introduction of migrant workers and subsequent
development of a small, but growing Hispanic population, and the acceptance of non-
traditional curing structures. Positioning these changes within the everyday experience
of farmers affords a better understanding of the trajectory and processes of farm change in Madison County.

As Madison County farmers approach the twenty-first century, a looming concern remains the outcome of negotiations under way between major tobacco manufacturers, the FDA, and state attorneys general to settle states’ lawsuits for recovery of costs incurred in treating tobacco-related illnesses. The settlement has the potential to affect burley farmers in two ways — by decreasing the demand of U.S. consumers for cigarettes and by altering or eliminating the tobacco program. Burley farmers’ fates are closely linked to cigarette consumption because virtually all U.S. burley is used in cigarette manufacture (Reed 1980, 72). Nothing less than gradual weaning of the American public from its nicotine addiction is the goal of the FDA. The FDA has publicly pursued a policy of reducing smoking among teenagers, as most smokers acquire the habit during their teenage years (Hilts 1995), but representatives of the tobacco industry suspect that, in seeking the power to regulate tobacco as a drug, the FDA plans a phased reduction and eventual elimination of nicotine in cigarettes (Tobacco Outclassed 1997). Indeed, provisions of the tentative settlement reached in June 1997 between states, private attorneys, and the tobacco industry (but later tabled) specified that the FDA could regulate nicotine as a drug, but could not ban it until 2009 (Neergaard 1997), a provision that implies the possibility of a later ban.

One fear among U.S. farmers is that a hostile regulatory climate will encourage cigarette makers to continue internationalizing their manufacturing operations, placing them within emerging markets and closer to sources of foreign-grown burley that sells for half to one-third the price of U.S. burley. While it has long been maintained that
higher-priced U.S. tobacco remains in demand because of its premium quality, manufacturer-sponsored agricultural projects in Africa and Latin America are narrowing U.S. growers’ quality advantage, and burley farmers fear that they cannot compete on an open world market (Kessler 1995; FAO 1990, 5; Johnson 1984, 105-6). They are currently protected by a trade barrier, the farm bill’s domestic content law, which stipulates that cigarettes made in the U.S. must contain at least eighty percent US-grown tobacco.

The effects of deregulating tobacco production and marketing are less certain, and no consensus on the nature of the changes to be made to the tobacco program has been reached. The most drastic course entails eliminating the tobacco program and making direct payments to allotment holders to compensate farmers who have made capital investments in allotment and to ease the transition to other crops. Compensation of eight dollars per pound of quota owned during the 1995 to 1997 program years is a figure that has appeared in one senate proposal to end the tobacco program (North Carolina Cooperative Extension Service 1997). The average payment to Madison County farmers under this proposal would be in the range of $12,000 to $15,000, depending on which year was used to determine the quota base. Farmers who elected to take the payment in a lump sum at program termination would agree to end all tobacco production, while farmers who accepted payment over three years would be allowed to grow tobacco in an unregulated market (North Carolina Cooperative Extension Service 1997).

An alternative proposal maintains production limits, but allows tobacco price to be set by the free market. Economists studying the possible effects of program
elimination have reached differing conclusions on whether the cumulative benefits would outweigh the costs, but they are in broad agreement on a few points. Production would expand, production would shift geographically to areas with the lowest production costs, prices would fall and probably become less stable, and small-scale farmers would be hurt more than large-scale farmers (Shureshwaran et al. 1990; Sumner and Alston 1984; Reed 1980). Madison County, then, is the kind of area that would suffer the most from program elimination, with its mostly small-scale farmers who are poorly positioned to expand production or initiate cost-reducing mechanization.

Madison County's peripheral location within the agricultural establishment does not bode well for increased federal assistance to offset a declining tobacco economy.

Between 1995 and 1998, government retrenchment produced proposals to close both the county's Forest Service and Farm Services Agency offices, consolidating them with those in neighboring counties. Vigorous local protest eventually caused these plans to be tabled.

As of September 1988, no comprehensive tobacco settlement had been reached. With progress towards an agreement temporarily stalled, the question of tobacco regulation may be resolved in the courts. Given that Congressional discussions about the elimination of the tobacco program have recurred at intervals since the early 1980s, it would be premature to herald the death of the tobacco program. Alternatively, major program changes could be implemented as early as the 1999 crop year (Brown 1998).

Madison farmers feel the weight of this contingent future. Uncertainty about the tobacco program has slowed purchases of allotment and barn building. It has produced much defiant rhetoric in defense of tobacco. And while it has given a new urgency to
the low-level experimentation with production systems in which farmers have long engaged, no single alternative to tobacco has emerged that is likely to replace tobacco income for more than a few farmers.

Prediction is an undertaking fraught with peril, but because the events of the next few years have the potential to dramatically reshape tobacco farmers' lives, an attempt at anticipating the future is desirable. I can envision several possible futures for Madison County. If tobacco manufacturers win the pending lawsuits or negotiate a settlement that preserves the tobacco program, then Madison County farmers will continue to rely on tobacco as a major source of income. The number of full-time tobacco farmers will likely continue to dwindle, but many people will grow small plots as part of their multiple livelihood strategies. A relatively small number of farmers, including medium-scale farmers and small-scale farmers who have been actively enlarging their production units during the 1990s, will continue to expand production, relying on migrant workers or perhaps even adopting one of the mechanical burley harvesters developed at the University of Kentucky in the 1980s and marketed by Four Star of College Station, Tennessee. A slow attrition in numbers of active farmers will occur.

If, however, the tobacco program ends or cigarette regulation substantially reduces cigarette demand, and the resulting anticipated drop burley prices occurs, farmers face a more sudden and possibly drastic relocation. Some part-time farmers enter and leave production based on their expectation of market price, so a long-term price drop would likely induce them to abandon production all together. In households where tobacco is a supplemental source of income that farmers use, in the common
attribution, to buy Christmas presents, abandonment of tobacco production will likely
necessitate some belt tightening, but not produce severe economic distress. However,
the two-out-of-three quota rule has already eliminated many of those who merely dabble
in tobacco production. For most remaining farmers, tobacco is a substantial and
important component of household income, and one not easily replaced. Some farmers
will be able to compensate for loss of tobacco income by putting more emphasis on
other parts of multiple livelihood strategies, working off-farm more, for instance.
Unfortunately, those farmers most reliant on tobacco production or income from quota
rental are those least well equipped to transition into tobacco-free livelihoods. Full-time
farmers and older farmers may never have worked off-farm, and they probably left
school at an earlier age than younger farmers. Accustomed to the readily available
tobacco market, they are likely ill-prepared to undertake the kind of self-marketing and
promotion that in-migrants engaged in alternative forms of agriculture have had to do to
create markets for specialized high-value crops. Production for the Asheville farmer’s
market will likely increase, and some farmers will expand their cattle herds.

Some households, however, will be unable to adjust in these ways and will
experience severe economic problems, accompanied by emotional and psychological
distress. Communities in Madison County have mechanisms for helping households
through hard times, such as church-sponsored collections of donations and communal
work groups, but the rural safety net seldom assists more than one or two households at
a time. These mechanisms may be unable to cope with larger scale economic
perturbations, making increased rates of farm foreclosures and farm sales to developers
and vacation-home buyers likely, hastening the transition of the southern part of the
county to a bedroom community of Asheville and of the northern part to a non-agricultural rural area. Loss of farm income will also have a trickle down effect on local businesses. Equally difficult to measure are intangible losses stemming from altered social patterns and loss of identity. Tobacco is central to cultural identity, and tobacco unifies the community through shared work patterns and labor exchanges. How would cessation of swap work affect neighborliness and sense of community?

One factor working in favor of a continuing and prospering farm community is the strength of local cultural traditions which are consciously preserved in everyday life and in the life of the community. Evidence for the value placed on agrarian traditions may be found in the continued use of draft horses in households that own tractors, in farmers’ wish to preserve a landscape of open fields, and in the preservation of old farm equipment that is shown with pleasure to inquisitive visitors. Beyond these private actions and interests, conscious preservation of traditional farm culture occurs at the community level in the form of public celebrations of agrarian tradition. One such celebration, a threshing using machinery dating to the 1920s, has been held on Bear Creek since 1988. The other, the Madison County Plow Day, celebrating the use of draft horses in farming, was inaugurated in 1995 by the Grapevine community. Both are non-commercial events held by and for members of the community. No entrance fee is charged. No vendors hawk T-shirts or souvenirs. The events are advertised locally by brief notices in the county’s weekly newspaper.

Both events celebrate the area’s agricultural heritage, but they differ in meaningful ways which cast the newer event, which was repeated in 1996, in a hopeful light for farmers’ ability to take an active role in shaping their future. The threshing
event celebrates historic farm practices, not active ones. The event centers on farm
equipment and production systems that are no longer used. An antique steel-wheeled
tractor is connected by a series of pulleys to power a hulking threshing machine for a
demonstration of grain threshing in a county where almost no small grain is grown.
Wheat has not been grown since the late 1970s. Barley, buckwheat, and rye production
halted prior to 1970. The 1992 census noted a mere four acres of oats, which may well
have been the grain grown for that year’s threshing. Except for the men who set up the
equipment, two men who feed the thresher and one who rakes the hay into a baler, the
event is non-participatory. Many people from the surrounding communities, both
natives and in-migrants, stop by to watch the work for a while and chat with each other,
and children may run their hands through the stream of grain coming out of the
thresher’s chute, but attendees form an audience rather than a labor group. Thus, this
older of the two agrarian celebrations is a nostalgic re-creation of farm history.

The plow day, however, celebrates traditional farm practices that are still in use.
Moreover, the celebration mirrors functional aspects of those everyday practices in
transmitting farm knowledge to children through their involvement in farm activities
and in community action to aid individuals in times of need. Overtly, the plow day was
a celebration of the use of draft horses in farming. Half a dozen teams of the big
Belgian and half-Belgians were present, and everyone who wished had a chance to
guide the plow or hold the reins while walking beside the horse. The festival had
several less obvious purposes, however. By honoring traditional practices it subtly
contributed to a sense of pride in local culture. The noisy delight of eight-year olds in
guiding the massive horses and the quiet competence of a pair of teenage brothers who
have performed the same task many times at home mark the plow horse tradition as one that is likely to continue. The field chosen as the site for the event belonged to an elderly farmer who had been experiencing heart trouble and was unable to undertake heavy work. By the end of the afternoon, his large bottomland field had been plowed, harrowed, and seeded with a cover crop broadcast by hand. A church-sponsored dinner provided a noon-time break and fund-raiser. The plow day, conceived, organized and enacted by local farmers as a functional celebration of traditional culture, encapsulates the importance Madison County farmers place on preserving their culture.

The people of Appalachia have often been characterized as simple, traditional folk, passive inheritors of a "culture of poverty" or hapless victims of a larger colonizing society. Such stereotypes are common for traditional societies, but they do not acknowledge the active role that traditional peoples play in innovating or in adapting to changing political, economic and environmental realities while retaining valued cultural elements (Stevens 1993, 413). Contrary to stereotypes about Appalachia's isolation, subsistence orientation, and imperviousness to change, Madison County farmers actively pursued commodity production, starting with corn in the early nineteenth century and switching to tobacco as technological and biological innovations diffused into the region and regional economic development created transportation infrastructure and markets. Farmers altered their level of commitment to the market as leaf prices waxed and waned with the changing political economy of tobacco manufacturing and government intervention in commodity markets. Madison County's burley tobacco farmers have adapted and continue to modify their economic and farming strategies in response to changing socio-economic and political conditions. They have also
continued to practice selected agricultural and social traditions that reflect farmers' local knowledge or accumulated understanding of successful practices in the mountain environment. Despite incursions into farmland by the creeping amenity landscape, tobacco remains the linchpin of Madison’s farm economy. As Madison County farmers face the challenges posed by an increasingly difficult climate for family farms and the contestation of tobacco, they might draw solace from reflection upon a past in which their community’s ability to innovate, adopt, and adapt holds out hope for their ability to cope with an uncertain future.
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Vita

Catherine Marie Algeo was born in Gainesville, Florida, in 1962. After earning an undergraduate degree in computer science at Duke University she worked as a software engineer at Data General Corporation in Research Triangle Park, North Carolina, and at the Center for Mathematics and Computer Science in Amsterdam, the Netherlands, for six years. A growing fascination with place and culture led her to graduate school in geography at Louisiana State University, where she earned a doctorate in 1998. She currently teaches geography at the University of Wisconsin-Stevens Point.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Catherine Marie Algeo

Major Field: Geography

Title of Dissertation: 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

Approved:

W. V. Davidson
Major Professor and Chairman

J. W. Murchison
Dean of the Graduate School

EXAMINING COMMITTEE:

L. E. Harvis
co-chair

J. W. Murchison

Kent Mathewson

M. O. Murchison

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