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Types of Farming in Tennessee

University of Tennessee Agricultural Experiment Station

S. Darrell Mundy

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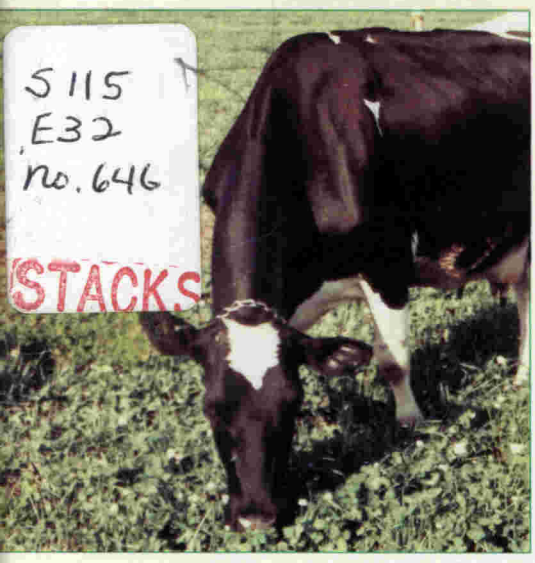

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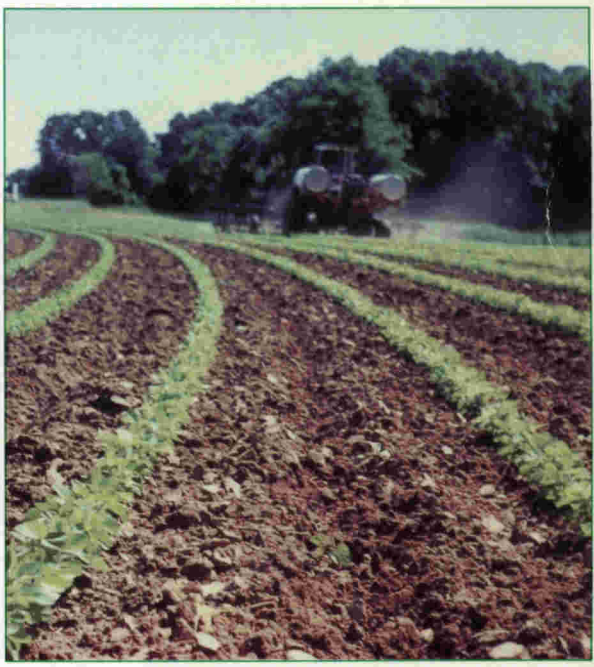

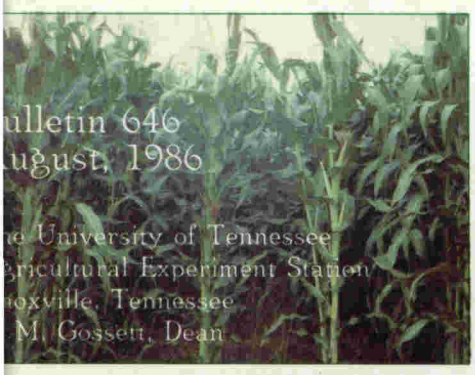

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FOREWORD

The authors acknowledge the contribution to this work of Bulletin No. 311, *Types of Farming in Tennessee*, written by Joe A. Martin and B.H. Luebke and published by the Tennessee Agricultural Experiment Station in 1960. Also, the assistance given by co-workers in the Tennessee Agricultural Experiment Station and the Agricultural Extension Service was most helpful. The authors are especially indebted to M.E. Springer, formerly of the Plant and Soil Science Department of the University of Tennessee, who suggested improvements on information pertaining to soils. G.J. Buntley, C.M. Farmer, H.C. Goan, F. Harper, D.L. Hunter, E.L. Rawls and C.B. Sappington provided pertinent information on various aspects of the study. M.B. Badenhop, D.R. Humberd and J.A. Martin were helpful in critically reviewing and suggesting improvements in earlier drafts. Melitta Stoutt, Anne Norwood and Shelia Cooper were most helpful in typing drafts of the manuscript.

SUMMARY

Agriculture in Tennessee is characterized by a diversity of crop and livestock production. The most important crops from the standpoint of cash receipts over the last three years, 1982-84, were soybeans, tobacco, greenhouse-nursery products, and cotton while soybeans, hay, wheat, corn and cotton led all crops in acreage harvested. Most of the state's production of corn and hay and some of the small grains were fed to livestock on the farms where these crops were produced. In general, vegetables, fruits and similar specialty crops were of lesser importance on a statewide basis, but contributed significantly to farm income in areas of the state where these type crops were grown.

Commercial livestock production included primarily beef, dairy, swine and poultry. Livestock and livestock products accounted for slightly less than half of the state's cash income from farming over the last three years, 1982-84.

Differences in area specialization in crop and livestock production provided the basis for demarcation of types-of-farming areas. Thirteen major types-of-farming areas have been identified in this report. Within these 13 areas the degree of uniformity or diversity varied greatly. These areas ranged from the specialized areas of cash grain production, where as much as two thirds of the income was derived from one crop, to the highly diversified areas where as many as four or five crop and livestock enterprises were needed to account for two-thirds of the area's farm income. In several areas, especially around urban centers and in the mountain regions, part-time farming was important.

Differences in types of farming are the result of many physical, biological, economic and social factors which limit or influence the use of resources. The main factors are soils, topography, climate, plant varieties, animal breeds, diseases, insects, costs of production, costs of transportation, local market demands, population density, institutions, customs and habits.

The 13 major types-of-farming areas and their general locations are as follows:

Area 1 - Cash Grain - Mississippi Bottoms
Area 2 - Cash Grain, Livestock - Northern Plateau Slope
Area 3 - Cash Grain, Cotton, Livestock, Poultry - Southern Plateau Slope
Area 4 - Cash Grain, Livestock - Eastern Plateau Slope
Area 5 - Livestock, Cash Grain, Dairy - Southern Highland Rim
Area 6 - Livestock, Tobacco - Western Highland Rim
Area 7 - Tobacco, Livestock - Northern Highland Rim
Area 8 - Livestock, Dairy, Tobacco - Central Basin
Area 9 - Livestock, Tobacco, Horticultural, Dairy - Eastern Highland Rim
Area 10 - Livestock, Poultry, Specialty Crops, Dairy - Sequatchie Valley and Southern East Tennessee Valley
Area 11 - Livestock, Vegetable, Cash Grain, Dairy - Cumberland Plateau
Area 12 - Dairy, Livestock, Tobacco - Lower East Tennessee Valley
Area 13 - Tobacco, Livestock, Dairy - Upper East Tennessee Valley

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TYPES OF FARMING IN TENNESSEE

S. Darrell Mundy and Morgan D. Gray*

INTRODUCTION

Modern agriculture in Tennessee is one of several sectors of the total economy of the state. Agriculture, whether considered in a national or state context, consists of a rather complex and changing set of organizations, including farms, farm supply firms, production marketing firms and public agricultural services.

This bulletin provides a general review of agriculture in Tennessee with major emphasis on the farm subsector. It outlines briefly the physical, economic and social conditions under which farming is done and identifies some of the changes which are taking place. Finally, a locational delineation of types-of-farming areas in the state is presented. This description of the farm subsector is designed to aid the reader in better understanding of Tennessee agriculture as it relates to the physical, biological, economic and social characteristics of the state and nation.

The objectives of this report are: 1) to provide data to better understand Tennessee agriculture, particularly the farm subsector; 2) to indicate the various types of farming in Tennessee; and 3) to delineate types-of-farming areas within the state.

Information has been gathered from many sources: the Bureau of the Census and other statistical and administrative units in the United States Department of Commerce; the United States Department of Agriculture; the University of Tennessee, especially the Agricultural Experiment Station; the Tennessee Department of Conservation; historical treatises; conferences with informed persons; and from personal observations.

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FACTORS AFFECTING TYPES OF FARMING IN TENNESSEE

Tennessee farms with agricultural product sales per farm of $1,000 or more were classified into 13 major types in the 1982 Census of Agriculture by type of products produced. These types ranged from specialty products farms such as fruit or nut farms to the more commonplace farm types such as cash-grain, cotton and dairy farms.

The kind and combination of products grown by farmers in any area are the result of several factors. These factors can be divided into four general groups: physical, biological, economic and social. Physical factors include topography, soils and climate; biological factors include farm animals, crops, insects and plant and animal diseases; economic factors include market outlets, transportation, prices, costs and returns; and the social factors involve population and other demographic aspects and man-made institutions.

Results of the interaction of these four groups are changing constantly. For example, limits imposed on production in an area by soil, topography and climate are being pushed back constantly by advancements in scientific knowledge and managerial ability. In recent years, for instance, many improvements have occurred in animal breeding, in the development of plant varieties, in producing fertilizers and other farm chemicals, in farm equipment and machinery and in farm organization and management.

The impacts of social change upon agriculture in Tennessee are equally evident as those associated with the physical, biological and economic forces. Shifts in agriculture accompanied by an approximate 85 percent decline in farm population in the last 50 years, the continued urbanization of rural areas and change in government programs affecting rural areas indicate the dynamic influence of social change. The interaction of these forces has resulted in large scale changes in the Tennessee farm subsector especially between 1930[1] and 1982.

From 1930 to 1982, the number of farms decreased from about 245,600 to 90,565, a 63 percent decrease; the average size farm increased from approximately 73 to 138 acres, an 89 percent increase. Total land in harvested crops decreased 1.6 million acres, a 25 percent decline; land in pasture declined about 37 percent; cotton, 79 percent; corn for grain, 80 percent; and tobacco, 49 percent. In contrast, harvested wheat acreage increased 238 percent, and acreage of soybeans harvested for beans increased 76 times. The number of horses and mules on farms declined about 89 percent from 1930 to 1982, while the number of cattle and calves more than doubled.

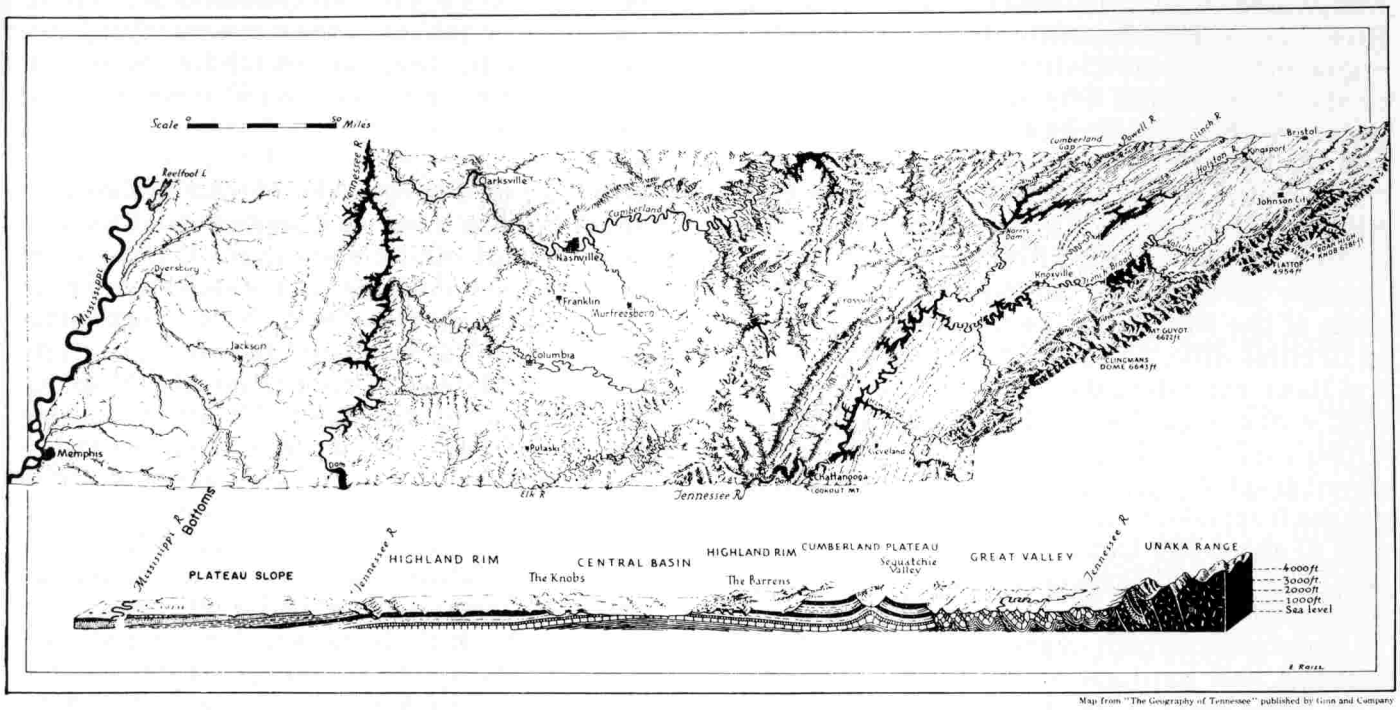
Physical Factors

Physiographic Regions

The state has eight major physiographic divisions based on geologic and geographic differences. These are from west to east: 1) Mississippi Bottoms, 2) Plateau Slope of West Tennessee, 3) Western Valley of the Tennessee River, 4) Highland Rim, 5) Central Basin, 6) Cumberland Plateau, 7) Valley of East Tennessee and 8) Unaka Range. These major natural divisions or regions lie across the state as shown in Figure 1.

Mississippi Bottoms. The Mississippi Bottoms are located in the extreme western part of the state between the Plateau slope of West Tennessee and the Mississippi River. The eastern boundary is very clearly marked by the abrupt bluff outlining the adjoining region, a bluff ranging from 50 to 150 feet, or more, in height. The Bottoms vary in width from a few hundred feet to about 15 miles. They reach across the state from north to south, forming part of the Mississippi Delta area, which extends southward to the Gulf of Mexico. The elevation ranges from

[1]B.H. Luebke, S.W. Atkins and C.E. Allred. 1939. *Types of Farming in Tennessee*, Bulletin No. 169, Agricultural Experiment Station, University of Tennessee, Knoxville.



Map from "The Geography of Tennessee" published by Ginn and Company

Figure 1. Physiographic Division of Tennessee (Map from "The Geography of Tennessee" Published by Ginn and Company)

about 300 feet at the northern edge of the state to about 200 feet at the south and coincides closely with the high-water mark of the Mississippi River. The surface extent in Tennessee embraces about 800 square miles.

Portions of this alluvial plain are subject to overflow and some have been left in swamp and forest. Other portions have been cleared, protected by levees and drained and are being farmed. Most of the former residents have left the low areas not protected by levees.

Plateau Slope of West Tennessee. The Plateau Slope of West Tennessee is a plain between the Mississippi Bottoms and a line which generally follows the Western Valley of the Tennessee River. The elevation is about 600 feet in the southeastern corner, about 350 to 400 feet in the northwestern portion and about 250 feet at Memphis in the southwestern corner. It is about 9,800 square miles in area and ranks as the second largest physiographic region.

The topography of this region is undulating to rolling with some dissected or broken portions, particularly in the eastern part. The underlying limestone rock is covered with a deep mantle of water-laid and wind deposits.

The loess (silty wind-laid materials) is of considerable depth near the Mississippi bluffs. However, it becomes thinner toward the east where soils of Coastal Plain origin are exposed on slopes.

Drainage is satisfactory on the uplands, but the riverbeds in many places have been cut down almost to the level of the outlets into the Mississippi. This causes problems of overflow along the bottomlands. Many of the river bottoms are in places so low as to be marshy and forest covered.

Western Valley of the Tennessee River. The Western Valley of the Tennessee River is a narrow band lying next to the eastern edge of the Plateau Slope of West Tennessee. The elevation is about 350 to 400 feet and the surface area is about 200 square miles, making this the smallest of the physiographic regions of the state. The alluvial bottomlands which make up the major part of the region vary from narrow bands to areas 10 miles wide.

Highland Rim. Just east of the Tennessee River lies the Highland Rim. This physiographic region encircles the Central Basin and extends to the Cumberland Plateau on the east and beyond both the Kentucky border on the north and the Alabama border on the south.

The width of the Highland Rim varies considerably. It is only 20 to 30 miles wide in the eastern portion but is 50 to 60 miles wide in the western portion. The northern and southern parts of the Rim inside Tennessee are about 5 to 10 miles wide, although in one place the Central Basin extends to the Alabama line. The total land surface includes about 11,600 square miles, which ranks the Highland Rim as the largest physiographic region in the state. The elevation ranges from about 1,100 feet in the eastern portion to about 600 feet in the northwestern portion. The general slope of the Rim is toward the northwest.

Limestones which vary greatly in their makeup and hardness underlie the Highland Rim. Some parts of the Rim are dissected, hilly and rough while other parts are level to undulating.

Central Basin. The Central Basin lies near the center of the state, entirely surrounded by the Highland Rim. Roughly elliptical in shape, it is about 60 miles wide and 120 miles long. Its longer axis lies northeast and southwest across the state. This is the only physiographic region which does not extend entirely across both the northern and southern borders of the state. The surface includes about 5,400 square miles with an average elevation of about 500 feet.

The rock formations which gave rise to this geographical region are the limestones that underlie the siliceous limestones of the Highland Rim. The hardness of these rocks is variable, causing differences in surface features. These surface differences are also the result of the different rock exposures resulting from the dome-like uplift of the rock layers in this region. This doming has permitted the weathering away of the surface, through erosion and solution of the overlying material, in the same way that the Central Basin of Kentucky was formed. In fact, on the outer part of the Basin in Tennessee where the soils are formed from phosphatic limestones, the types of farming tend to duplicate those of the Central Basin of Kentucky. The limestones of the inner part of the basin are lower in phosphate, and the soils and types of farming differ from those of the outer basin.

The terrain of the Basin is not a smooth surface but is generally rolling and in some places rough. The hills are outlying sections of the Rim or remnants of the Rim limestones overlying the Basin, which, because of their resistant character, have protected the softer Basin rocks underneath.

Cumberland Plateau. The elevated tableland extending in a northeast-southwest direction across the state and known as the Cumberland Plateau is part of the greater Allegheny Mountains, which extend from New York into Alabama. At the northern boundary of Tennessee, the Plateau is approximately 70 miles wide, narrowing to about 50 miles at the southern boundary. The area includes about 4,500 square miles. The elevation is about 2,000 feet above sea level. In places on its eastern side, there is a sheer wall about 1,000 feet high facing the East Tennessee Valley. The Plateau is capped by massive sandstones, the resistant character of which is responsible for its high elevation above the surrounding territory. On its western edge the boundary is more irregular with long spurs jetting out from the main body of the Plateau, giving a ragged appearance in contrast to the smoother boundary on the east. Between these western spurs lie deep coves or valleys.

The region in the main is a plateau. The surface is not a level plain, however, for much deep dissection by erosion has developed. The northeastern part is especially dissected, and a number of hills, some of which are long and ridgelike, rise above the general level of the Plateau.

The trough-like Sequatchie Valley, which extends almost halfway to the Kentucky line from the Alabama boundary, is so deeply entrenched in the Plateau surface that it reaches the limestones underlying the Plateau sandstones. These limestones are similar to those of the Valley of East Tennessee.

Valley of East Tennessee. Lying next to the Cumberland Plateau and roughly parallel to it, with a general northeast-southwest trend, is the Valley of East Tennessee. It is a succession of ridges and minor valleys. The width varies from 45 to 70 miles, the greatest east-and-west distance being in the northern part. The elevation averages about 1,000 feet above sea level. This is the third largest physiographic region of the state, containing about 8,000 square miles.

The rock formations here are largely limestones and shales, though some sandstone caps the higher ridges. The limestones vary from nearly pure limestone to cherty dolomites. Because of the series of ridges and valleys

already mentioned, the topography changes drastically from west to east. Many of the ridges are high and, because of the steep slopes, are still forest covered. Where they are lower and more rounded, farming has taken over the tops as well as the broad, gentle slopes between. The Valley of East Tennessee is not a river valley but is the result of the geologic faulting and folding from pressure that originated in the southeast and which so dislocated the original horizontal rock structures that many of the beds are on edge. Being resistant to erosion, the sandstones and cherty dolomites usually form ridges; the more easily eroded limestones and shales tend to form valleys. Between these two extremes lie many kinds of variations.

Unaka Range. In the extreme eastern part of the state lies the Unaka Mountain region. The boundary line between Tennessee and North Carolina follows, for the most part, the crest of the Unaka Range, a portion of the huge Appalachian chain of the eastern United States. The loftiest peaks reach an elevation of more than 6,500 feet. The region varies from 2 to 20 miles in width within the state; it covers an area of approximately 2,200 square miles and for the most part is rough and rugged. The rock formations consist largely of quartzites, conglomerates, slates, granites and gneisses. Although of limited agricultural importance in proportion to its total area, this region embraces a number of fertile valleys and coves which are of considerable local importance.

Soils

The numerous soils of the state differ greatly in how they formed, what they are and how they behave. Such differences influence the ways each soil can be used and what it can produce under each use.

Comprehensive soil surveys and detailed soil maps have been completed for 63 counties. These county soil maps and reports provide detailed information about soil characteristics, crop adaptation and expected yields. Some soil maps have been made of many individual farms. An active soil survey program is continuing.

Because of the number and variety of soils, some grouping is necessary to give a general picture of the soil resources of large areas. Seventeen soil associations are shown in Figure 2. A soil association is a group of different soils in a repeating pattern on a landscape and is usually named for the predominant soils. With each association the several soils differ in their characteristics and behavior but present a pattern unlike the adjoining association.

Some of the soil associations — for example, 1 and 17 — correspond closely with physiographic divisions (Figure 1). In other physiographic provinces, however, there may be two or three soil associations. Also, soils have some influence upon land use as shown by general similarities in Figure 2 and the types-of-farming areas in Tennessee (as shown later in Figure 29).

General Description of the Soil Associations

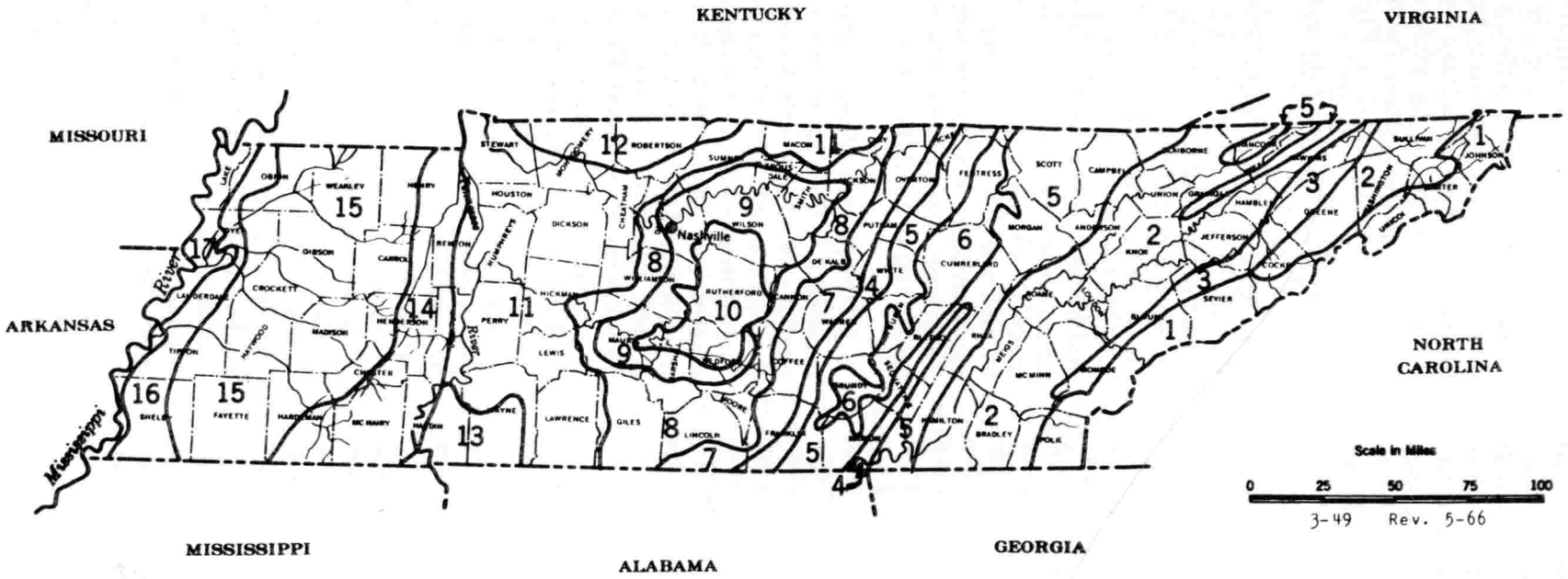
1. Ramsey-Stony Land-Porters Association. This is the mountainous area along the eastern border of the state and corresponds with the Tennessee portion of the Unaka Range. Forest occupies a great portion. The small amount of tillable land is chiefly along the streams and footslopes and in the coves. Here soils are fairly productive under good management. Much of the area is steep, and some of the soils are stony or shallow to bedrock. The underlying rocks are mainly metamorphic with lesser amounts being igneous. This association occupies about 5.5 percent of the total land area of Tennessee.

2. *Fullerton-Dewey-Dunmore-Sequoia Association.* This association occupies a major part of and, along with Association 3, makes up the vast majority of the Valley of East Tennessee. The surface is mainly rolling and hilly. Soils are chiefly from limestone with narrower interbelts from shale. They are highly variable in content of rock, depth to rock and other characteristics. Few are poorly drained. Productivity of most of the upland soils is moderate to low; the soils of the bottoms and terraces are more productive but limited in extent. These soils, along with the better uplands, are well suited to farming. Many of the shallow, rocky and steep soils can probably be used best for forests. This association makes up 15 percent of the total land area of the state.

3. *Dandridge-Whitesburg Association.* This is an association of small extent near the east side of the Valley of East Tennessee. The landscape is hilly and steep. The soils are from calcareous shale and are shallow to bedrock.

Because the soils are low in water holding capacity and the slopes are steep, most of the association is suited to pasture and forest. The area suited to cultivated crops is small. However, the soils of the bottoms and footslopes are well suited to intensive use and under good management are productive. The Dandridge-Whitesburg Association includes 2.5 percent of the land area of Tennessee.

GENERAL SOIL MAP OF TENNESSEE



SOIL ASSOCIATION AREAS

1. Ramsey-Stony Land-Porters
2. Fullerton-Dewey-Dunmore-Sequoia
3. Dandridge-Whitesburg
4. Waynesboro-Cumberland-Sequatchie
5. Ramsey-Hartsells-Stony Land
6. Hartsells-Ramsey
7. Baxter-Mountview-Dickson
8. Dellrose-Mimosa-Bodine
9. Maury-Mimosa-Rockland
10. Talbott-Rockland-Cumberland
11. Bodine-Mountview-Dickson
12. Pembroke-Crider-Baxter
13. Shubuta-Waynesboro-Bodine
14. Lexington-Shubuta-Ruston-Dulac
15. Grenada-Loring-Memphis
16. Memphis-Loring
17. Commerce-Robinsonville-Sharkey

Figure 2. Soil Associations of Tennessee (Courtesy of Soil Conservation Service)

4. *Waynesboro-Cumberland-Sequatchie Association.* There are two areas of this association, one in the Sequatchie Valley and the other on the Highland Rim at the base of the Cumberlands. The surface is predominantly rolling with some admixture of smoother and hillier areas. The soils are mainly from old alluvium. They are chiefly red, well drained and moderate to fairly high in productivity. The soils are suited to a variety of crops and respond well to good management. This association occupies 2.5 percent of the land area of the state.

5. *Ramsey-Hartsells-Stony Land Association.* The parts of the Cumberland Plateau occupied by this association are predominantly steep and rugged and, on the steepest parts, large angular rocks and boulders are abundant. The soils are formed mainly from sandstones and shales and are shallow to bedrock. These soils are low in fertility and are mostly poorly suited to crops or pasture. A large part is occupied by forests. Limited areas, consisting of the soils on the bottoms and on the smoother uplands, are suited to tillage. Approximately 11 percent of the land area of the state consists of this association.

6. *Hartsells-Ramsey Association.* The broader ridgetops or plateau areas of the Cumberland Plateau have soils that are relatively shallow to bedrock of sandstone or shale. The soils are low in fertility but are permeable and easily worked. They respond well to fertilization and good management. Much of the area is occupied by cutover hardwood forests, though appreciable acreages have been cleared and used for farming. About 3.5 percent of the land area of the state is in the Hartsells-Ramsey Association.

7. *Baxter-Mountview-Dickson Association.* This association occupies the greater part of the Eastern Highland Rim. It lies as an undulating plateau dissected by the gorges of streams. The soils are formed chiefly from limestones and cherty limestones and are moderately deep to bedrock. They are moderate to low in fertility and their internal drainage is moderate to slow. Fragipans limit their range of suitability. Much of this association is cleared and is used for crops. The rougher parts along the drainageways are largely under forest. The productivity of the soils in this association is lower than for the redder soils of Association 4. This association includes 3.5 percent of the land area of the state.

8. *Delrose-Mimosa-Bodine Association.* This association occupies the more hilly part of the Outer Central Basin. The landscape consists of strongly sloping narrow irregular ridges with cherty soils and rolling valleys on lowlands with clayey soils and stony land. Intermixed with these are some areas of terrace and bottom soils. Except for Bodine and Baxter, the cherty soils on the high ridges, the soils are moderately high in natural fertility. Below the Bodine and Baxter, most of the soils are medium to high in phosphate. About half of the area is suitable for crops but the remainder is stony or steep. About 7 percent of the land area of the state includes soils in this association.

9. *Maury-Mimosa-Rockland Association.* This association occupies the smoother parts of the Outer Central Basin. Topography is undulating to rolling with limited parts that are hilly. Many of the soils are formed from phosphatic rocks. Fertility is moderate. Soils usually are not so shallow to bedrock as many of the Inner Basin soils. This association includes 5 percent of the land area of the state.

10. *Talbott-Rockland-Cumberland Association.* This association occupies the inner part of the Central Basin. The landscape is undulating to gently rolling with large portions occupied by stony land. Many of the soils are shallow to bedrock. They are lower in content of phosphate than those of the Outer Basin. On the better soils productivity is moderate to high. However, about a third of the area is too stony for tilled crops. Some soils are so shallow that they support only a sparse growth of cedars. Approximately 2.5 percent of the land area of the state is in this association.

11. *Bodine-Mountview-Dickson Association.* This association makes up the major part of the Western Highland Rim. Narrow ridgetops, steep slopes and narrow valley floors are the result of dissection of the plateau by streams. Soils on the steep slopes are mainly cherty soils from cherty limestone. In a few places the ridgetops are extensive. Here the yellowish Mountview and Dickson soils were formed from one to two feet of loess over limestone residuum. The Dickson soils have fragipans at about two feet. The soils of the uplands in general are acid and low in fertility. However, those on the valley floors are productive under good management. About two-thirds of the association is under forest. The soils are less productive than those of most other associations. The association makes up 14 percent of the land area of the state.

12. *Pembroke-Crider-Baxter Association.* This association occupies a part of the Northern Highland Rim. The area is predominantly undulating and rolling with small strips of hilly land along the larger valleys. The soils were formed from about two feet of loess over limestone residuum. Some are moderately well drained with fragipans, and others are well drained and more productive soils. Because the soils respond well to good management, this is one of the most productive areas of the state. About 2 percent of the land area of the state is included in this association.

13. *Shubuta-Waynesboro-Bodine Association.* This association is within the Plateau Slope of West Tennessee, but the area has many characteristics of the dissected Western Highland Rim. It is mainly rolling and hilly, and many of the upland soils are gravelly or sandy and low in fertility. The steeper parts of the upland are best suited to forest. Soils on the broader ridges can be cultivated, but yields are medium to low. The soils of the bottomlands are suited to intensive use and are productive under good management. This association includes 1.5 percent of the land area of the state.

14. *Lexington-Shubuta-Ruston-Dulac Association.* This association is on a dissected plain just west of the Tennessee River. Topography ranges from nearly level to hilly. Sands and clays of Coastal Plain origin underlie all of the area and give rise to soils on the slopes. On the smoother areas, a thin layer of loess overlies the Coastal Plain sediments and influences soil properties. Fragipans are common on these smoother areas. The soils are low in fertility but are fairly responsive to good management. They are easy to work but are difficult to conserve. The steeper slopes are largely in forest. Where they have been cultivated, erosion has been severe. About 6 percent of the land area of the state consists of soils of this association.

15. *Grenada-Loring-Memphis Association.* This is an extensive association which occupies much of the plateau slope of West Tennessee. The soils of the uplands are derived from moderately deep loess underlain by Coastal Plain sands and clays. The majority of the soils have fragipans which restrict drainage and influence use suitability. The soils range from poorly drained to well drained and from low to moderate in fertility. They are easy to till but erode easily. The first bottoms along the stream are broad. Alluvial soils are an important part of the association. Some of the bottoms are too poorly drained for either crops or pasture. The majority of bottom soils are well suited to crops and are used intensively. Soils of this association include 13.5 percent of the land area of the state.

16. *Memphis-Loring Association.* This association includes the predominantly well drained soils derived from deep loess. Relief is rolling and hilly; much erosion is evident. The soils are naturally fairly fertile and also respond to good management. The short steep slopes in places make tillage difficult. The soils on gentler slopes are suited to a wide variety of crops and, under a high level of management, good yields are produced. The bottoms in this association are moderately fertile and vary from poorly drained to moderately well drained. Where drainage is adequate, high yields of crops can be produced under good management. About 3 percent of the land area of the state consists of soils in this association.

17. *Commerce-Robinsville-Sharkey Association.* This association corresponds to the Mississippi Bottoms. The soils are derived from alluvium of the Mississippi River and tributary streams. The soils are fertile and vary from fine to medium texture. Extensive areas are poorly drained. The soils with fine texture and poorer drainage are difficult to till; crop yields are uncertain. The soils with medium texture and good drainage are among the most productive soils in the state. The lower and more poorly drained areas may be best suited to forest when drainage is not feasible. Soils of this association make up 2 percent of the land area of the state.

Climate[2]

Most aspects of the climate of Tennessee, such as temperature, length of growing season and precipitation, are related to the widely varying topography of the state. Temperature tends to decrease on the average 3°F per 1,000 feet increase in elevation. Consequently, portions of the state with higher elevation like the Cumberland Plateau and the mountains of the east have lower average temperature than the Valley of East Tennessee or other lower parts of the state.

[2]*Climates of the States—Tennessee.* Weather Bureau, U.S. Department of Commerce, February, 1960.

Temperature tends to increase from north to south in the valley reaching a magnitude at the southern end similar to that of Middle and West Tennessee where elevation variations are of minor consideration. The average annual temperature varies from over 62°F (16°C) in extreme southwestern Tennessee to near 45° F (7°C) at the top of the highest peaks in the east.

The growing season (freeze-free period) ranges from 170 days or less in the higher altitudes of the Unaka Mountains to over 225 days in the Mississippi Bottoms near Memphis (Figure 3). The short growing season at the higher elevations in combination with high warm season precipitation produces a flora similar to that of the southern edge of the Hudson Bay in Canada, while the longer season in West Tennessee permits the growing of cotton. Tennessee lies in the transition zone between an agriculture that is typically northern and one that is typically southern, and the state has some of both. The effects of the southern latitude and of a higher altitude, in shifting the position of lines of equal length of growing season, are plainly visible when studied in connection with the map showing the physiographic divisions of the state (Figure 1).

Tennessee lies in the humid portion of the United States. The principal source of moist air for the state is the Gulf region. Consequently, a gradual decrease of average precipitation occurs from south to north. However, this effect is obscured for the most part by the overriding influence of topography. Average precipitation is generally higher at higher elevations. This relationship is apparent in all parts of the state. A large part of the annual rainfall of about 50 inches (Figure 4) occurs in the growing season (Figure 5). Although average rainfall does not vary widely over the state, the average occurrence of prolonged dry spells does vary considerably with soil characteristics and with evaporation and transpiration rates. In general, the probability of a severe drought occurring increases as one moves from east to west across the state.[3]

The greatest precipitation occurs during the winter and early spring over most of the state. The mild winter climate, along with rain which tends to fall in downpours, causes soil erosion, a serious problem in Tennessee.

[3]*The Occurrence of Drought in the Tennessee Valley*, The Tennessee Valley Authority, June, 1958.

Economic and Social Factors

Markets and Transportation

Market outlets serving Tennessee farmers are part of an integrated system of exchange which unites the economy of local communities with the national economy and with foreign countries through international trade. While some portion of many farm products are consumed locally, such as Grade A milk, eggs, meats, fresh fruits and vegetables, most products are sold for processing and consumption outside the local community. In-state markets for fresh products are provided by a population of about 4.6 million people who are located in rural areas, towns and cities distributed over the state as shown in Figure 6.

About 60 percent of the population of Tennessee in 1980 was urban with the remaining 40 percent being rural. Ten percent of the rural population was classified as rural farm and the remaining 90 percent, rural nonfarm. Tennessee had 69 cities and towns of more than 5,000 persons; 37 municipalities had more than 10,000 population; and four, over 100,000.

In general, urban areas of the state have experienced net gains in population during most of the twentieth century, partly through migration from rural areas. Population declined in rural Tennessee by 11 percent from 1950 to 1980, while population in urban areas increased 91 percent during the same period. Twenty-four Tennessee counties are included in the six Standard Metropolitan Statistical Areas (SMSA's) in the state as classified by the Bureau of the Census. About 63 percent of the state population resides in these 24 metropolitan counties. The populations of the metropolitan and numerous small urban areas provide the primary in-state markets for perishable farm products. The central markets through which most farm products move tend to be located in the larger cities.

Tennessee lies midway between important out-of-state markets to the north such as Chicago and Detroit, to the northeast such as New York and to those of the south such as New Orleans, Atlanta, Jacksonville and Miami. Being in the north-south line of freight traffic tends to favor the location of transshipment facilities and of processing plants which can take advantage of lower "in transit" freight costs.

Virtually all farms of the state are accessible to all-weather roads and truck transportation.

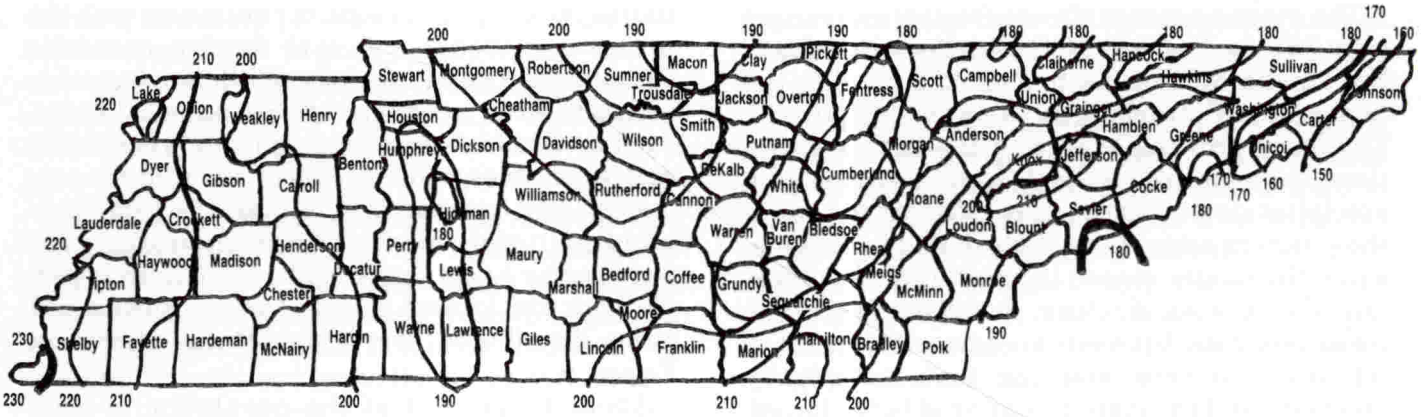


Figure 3. Average Number of Days Without a Killing Frost
(Source: *Types of Farming in Tennessee*, University of Tennessee, Bulletin 311, March, 1960)

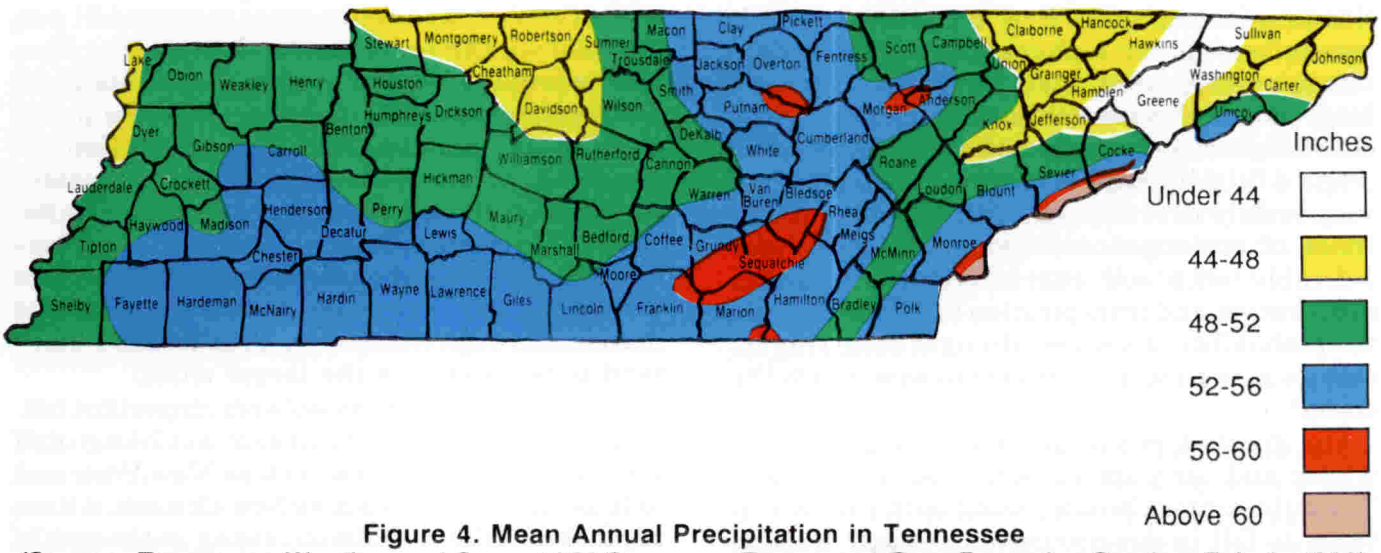


Figure 4. Mean Annual Precipitation in Tennessee
(Source: *Tennessee Weather and Crops 1979 Summary*, Tennessee Crop Reporting Service, Feb. 8, 1980)

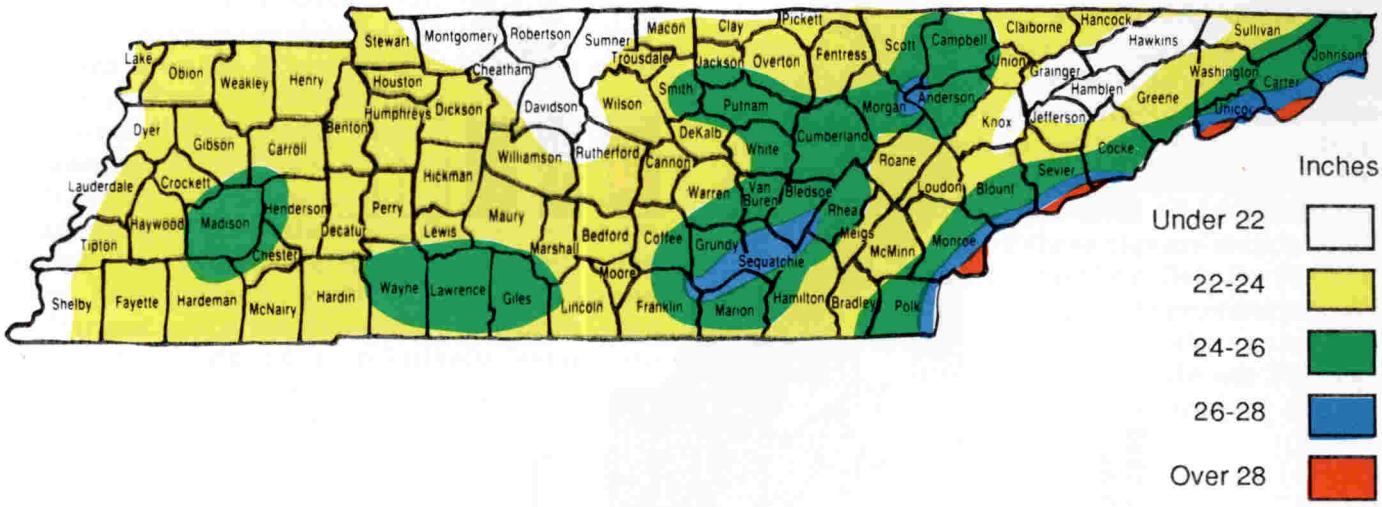


Figure 5. Average Warm-Season Precipitation — April through September in Tennessee (Source: *Tennessee Weather and Crops 1979 Summary*, Tennessee Crop Reporting Service, Feb. 8, 1980)

This is especially significant for dairy, specialty and poultry farms which require frequent market deliveries. Truck transportation is important to agriculture in Tennessee. Most raw and processed farm commodities, and most farm inputs like chemicals, materials and machinery are transported by truck during some phase of economic activity between producer or manufacturer and the user or consumer. The interstate highway system that crisscrosses the state in an east-west and north-south direction contributes greatly to the truck transportation system. Agriculture, a major user of trucks, is second only to personal transportation as a user, both in number of trucks and truck-miles driven.

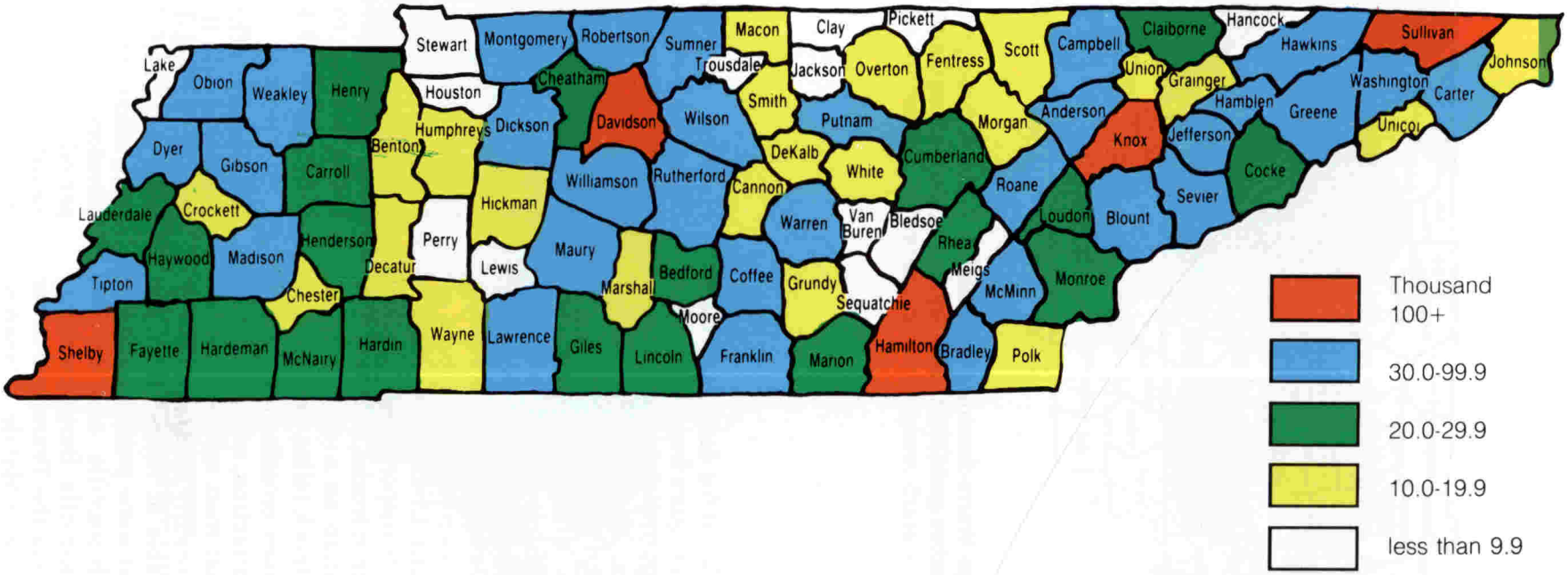
Four railroad trunk lines, crossing the state in a general north-south direction, serve the principal trade centers. East-west railroad service across the state is less readily available. Barge transportation is available at Memphis on the Mississippi River and at some points along the Tennessee River to Knoxville and on the Cumberland River to Nashville. Barge transportation is also available via the Tennessee River and Tombigbee Waterway to Mobile, Alabama. However, only Chattanooga on the Tennessee River and Memphis on the Tennessee portion of the Mississippi River have major barge unloading facilities for receiving grain. These river ports and a few others on the Mississippi, Tennessee and Cumberland Rivers in Tennessee have barge loading facilities for out-shipment of grain.

Marketing, handling, processing and distribution of agricultural products and their derivatives have very complex operation systems. Some brief examples of these systems follow for the major farm commodities produced in the state: soybeans, tobacco, cotton, livestock (beef cattle and hogs) and dairy products.

Soybeans. The demand for soybeans is associated with the international demand for soybean oil and meal. Soybeans, soybean oil and soybean meal each has its own market structure.

Soybeans are first sold usually at country elevators, often in the October-November harvest period. The beans are shipped from these elevators primarily by truck or rail to larger and more strategically located terminal elevators, oil

Figure 6. Population by County in Tennessee, 1980
(Source: Tennessee Statistical Abstract 1983/84)



mills or export elevators. About 160 elevators are now handling soybeans in Tennessee. Four soybean crushing plants are in the state, and about 50 million bushels of beans are processed in Tennessee each year. Most of the soybeans produced in West Tennessee are crushed in the Memphis area or are shipped as beans to the New Orleans area for export. Most of the soybeans grown in East and Middle Tennessee are shipped to out-of-state crushers or are crushed in East Tennessee. Almost all soybeans are processed into meal or oil by soybean crushing plants in the United States or in other countries. Soybeans are storable so processing occurs throughout the year. Consequently, much of the crop is stored at harvest and then moved out of storage into crushing plants at a relatively even rate throughout the year. All soybeans enter the marketing channels eventually with the exception of seed and a small quantity fed as beans.

Soybean oil, the major vegetable oil in the United States, makes up 76 percent of the vegetable oil sold in the domestic market. Four soybean oil refining plants are located in Tennessee.

Soybean meal is the primary protein source in U.S. livestock and poultry feeds. More than 100 feed manufacturing firms, which rely heavily on soybean meal, operate in Tennessee.

Tobacco. Almost all the tobacco grown in Tennessee is sold at auction at 19 markets in more than 100 warehouses in the state. Most of the leaf is used domestically; however, about 15 percent is exported as unmanufactured leaf, as well as an additional amount as tobacco products. Several major tobacco firms in Tennessee are involved in the manufacture of snuff, smoking tobacco, chewing tobacco and cigars. Leaf merchants also are located in the state.

Cotton. Cotton is marketed through many local markets and at Memphis, an important interior concentration point. Memphis is the largest spot (cash) cotton market in the world. Growers can forward contract their cotton crop, sell spot cotton to one or more of the 78 operating gins in the state, sell directly to a cotton merchant and perhaps even sell direct to a textile mill. Cotton warehousing facilities are at 19 locations in the cotton-producing area in the state. More than 50 business firms in the state are involved in merchandising cotton. In 1982, there were more than 600 textile mills and apparel manufacturing plants in Tennessee, many of which use cotton as a major fiber in their operations.

Livestock. Slaughter livestock may be sold at a terminal market in Memphis, through about 55 auction markets distributed over the state, through order buyers and direct to packers. Feeder livestock are sold through weekly auction markets, direct from the farm to dealers, order buyers and other farmers or through graded sales across the state where pooling of feeder calves and feeder pigs is accomplished. Each year about 550 feeder pig sales are held at 13 locations. About three-fourths of these pigs are shipped out-of-state, primarily to the Corn Belt for further feeding to slaughter weight. Approximately 75 graded feeder calf and yearling sales are held at 25 locations. Many of these cattle are shipped either north or west to be grazed or fed in feedlots.

Dairy products. Tennessee provides a good market for fluid milk and other dairy products produced in the state. Practically all milk produced in the state is sold to 29 processing plants and dealers mostly in market areas regulated by Federal Milk Orders. Marketing orders are legal instruments used to assist in establishing stable and orderly marketing. The three Tennessee order markets presently in effect are Memphis, Nashville and Tennessee Valley. About three-fourths of the milk produced in the state is marketed through regional dairy cooperatives, which are owned by dairy farmers.

Farm Production, Income, Level of Resource Use and Tenure

Production. In spite of the downward trend in farm population and number of farms in the state, the trend in total farm production has been upward over the past 34 years (Figure 7). With average annual production in 1949 as a base equal to 100, the index of farm production stood at 162 in 1983. Total production has increased about 1.7 percent per year over the past 34 years.

Farming in Tennessee has exhibited two significant long-term trends. First, the trend has continued toward larger commercial farms and, second, the number of part-time farms has increased dramatically.

On the larger commercial farms, operators produce primarily for profit through market sales. Larger farms are making up a higher proportion of all farms where size, in general terms, refers to level of resource use, level of output and sales,

or a combination of both.

A long-term increase in the proportion of farms classified as part-time has occurred. The operators of these farms work off the farm a significant number of days per year and/or earn a substantial proportion of their income from nonfarm income sources. Family income from all sources for these part-time farmers compares favorably with that of the larger, full-time farmers.

Business goals of farmers as a group are difficult to categorize, especially for part-time farmers. Obviously, some part-time farmers are producing primarily for profit as the main incentive; others may place stronger preference on the perceived amenities of living in a rural area with only a secondary concern for profit; and some may view farming as an avocation or hobby, primarily as a means of using leisure time. For the hobby farmer, emphasis is more on the enjoyment of farming, rather than on output or profit. In addition, some, particularly the part-time operators of smaller size farms, may use most of the produce from their farm for home consumption, viewing farm output as an income-in-kind supplement to off-farm income. Little emphasis is placed on producing for cash sales.

An additional group of farms is the small, low cash-income farms on which operators do not work off the farm. A large part of total production on these farms is consumed in the home. The surplus above home needs is sold, and farm cash income is low. This group of farms was once very large but has declined substantially and is now a relatively small proportion of total farms. Families on some of these farms are considered to be under a subsistence level of living when there is no outside income. At the same time, other families in this group would not be necessarily living at a subsistence level because of other income sources such as nonfarm income from retirement pensions, rental income, investments and/or other nonlabor income.

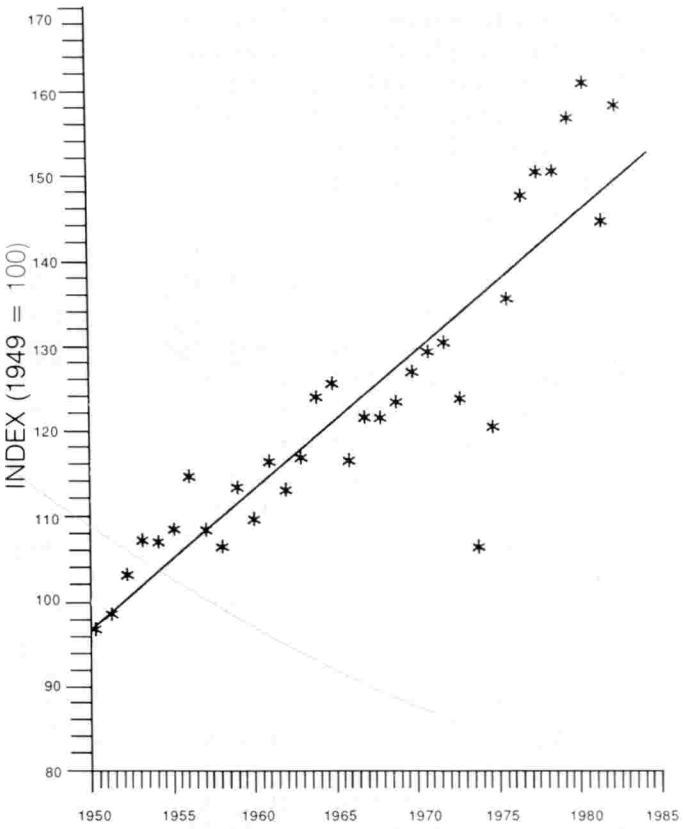


Figure 7. Index of Total Agricultural Production 1950-1984.

Resources and income. The distribution of farm resources and the proportional contribution to total agricultural production and sales in the state in 1982 by various economic classes of farms are shown in Table 1. Generally, the economic classes with the larger sales per farm, when taken as a group, produced the bulk of the farm products for sale. This situation occurred even though this group contained fewer farms and less farmland acreage than the economic classes as a group with lower farm incomes. For example, farms comprising the economic classes with sales of $20,000 or more per farm made up 16 percent of the farms in the state; however, this group produced about 77 percent of all farm products sold. This same group controlled about 6 million acres or about 48 percent of all farmland in the state. These farms had in their farm inventory about 45 percent of all cattle and calves in the state, 77 percent of all hogs and pigs, 32 percent of all sheep and lambs, 20 percent of all horses and ponies, 92 percent of all chickens three months old or older and over 99 percent of all broilers and other meat-type chickens. These farms produced 82 percent of all corn for grain, 88 percent of all soybeans, 95 percent of all cotton, 42 percent of all tobacco and 49 percent of all hay produced in Tennessee in 1982.

By contrast, farms with less than $20,000 in sales per farm made up about 84 percent of all farms. Farms with less than $20,000 in sales tended to hold in inventory more than half of the cattle and calves and most of the sheep and lambs

and horses and ponies. These smaller farms produced 58 percent of the tobacco and about one-half of the hay. About half of the farms in the state (53 percent) earned less than $5,000 per farm from the sale of agricultural products equivalent to about 6 percent of the value of products sold in 1982. Most of the farm income of this economic class was from the sale of tobacco and beef cattle and calves.

About 61 percent of all farm operators reported working one day or more off the farm in 1982 (Table 1) with most of those operators reporting 100 or more days worked off the farm. Farm operators in a particular economic class who reported that they worked off the farm as a percentage of all farm operators in that same class varied inversely with the value of agricultural products sold. For example, about 65 percent of all farm operators who sold less than $2,500 in agricultural products reported working off the farm 100 or more days in 1982. In contrast, less than 8 percent of farm operators with sales of $500,000 or more worked off the farm 100 days or more. Generally, farms with smaller sales tended to be operated by farmers who worked more days off the farm than did the operators of larger farms. That is, a higher proportion and a larger number of smaller farms tended to be managed by part-time operators than was the case with larger farms.

Although not reported since the 1974 Census of Agriculture, most farm operators have sources of income other than farming. About 72 percent of all farm operators reported nonfarm income in 1974 (Table 1). Fifty percent had off-farm income equal to or greater than the value of farm products sold; about 22 percent had off-farm income that was less than value of farm products sold; and about 27 percent did not report or reported no off-farm income in 1974. Generally, the percentage of farm operators with off-farm income equal to or greater than farm sales as a percentage of all operators in an economic class varied inversely with value of agricultural products sold. The percentage varied from a low of 0 percent for the two largest classes to a high of 70.5 percent for farms with sales under $2,500. Farms in economic classes of $10,000 or more had higher percentages of operators who earned off-farm income that was less than value of farm product sales than farms with less than $10,000 sales.

Type of farm and volume of sales per farm. All farms with sales of $1,000 and over were classified in the 1982 Census of Agriculture into 13 types of farms, which are presented in Table 2. Each type is classified on a percentage basis by volume of sales by farm.

Of the farms with sales of $1,000 and over, no particular type tended to be predominantly large scale. Eighty-four percent of all farms with sales of $1,000 or more had sales of less than $20,000 in 1982; that is, most farms tended to be small. The tobacco type was one of the most extreme examples; 91 percent of all tobacco farms had sales of less than $20,000 in 1982. In terms of the number of farms, 92 percent of the livestock-farm type (primarily beef and hog farms), the type with the largest number of farms, had sales under $20,000 per farm.

Poultry and egg, dairy and cotton farms tended to have a higher proportion of farms with larger sales, with 91, 81 and 55 percent, respectively, having sales of $20,000 or more. Poultry and egg farms had 39 percent of all farms in this type selling over $100,000 in products per farm. Thirty-three percent of all dairy farms and 21 percent of all cotton farms reported sales of more than $100,000 in products per farm in 1982.

Size of farm in acres. The average size farm in the state has been getting larger. The upward trend began in 1935 when the average size farm was 70 acres. The year, 1935, marked the reversal of a downward trend which started in 1840 when the average size was 260 acres. In the 47 years, 1935-82, the average size of farm in the state increased 97 percent, rising from 70 to 138 acres. This trend occurred primarily because of the migration of people from the farm sector. Agricultural mechanization, economies of size and increased opportunities for nonfarm employment in urban areas accounted primarily for this trend.

Distribution of farms by size through time. Various trends were evident within the upward movement in farm size over the 28-year period, 1954 to 1982 (Figure 8). The average size of farm increased dramatically from 1954 to 1982, from 87 to 138 acres. This change was attributed to an increase in the number of farms of 500 acres or more in size coupled with a corresponding decrease in the number of farms of less than 500 acres in size. The 28-year period also was characterized by movement toward part-time farming. Small and medium size farms were declining due to the loss of farm labor to urban nonfarm employment and the relative inefficien-

Table 1. Distribution of Resources and Total Sales by Value of Agricultural Products Sold in Tennessee, 1982[a]

	Unit	All Classes Total Agricultural Products[b]	$500,000 and over	$250,000-$499,999	$100,000-$249,999	$40,000-$99,999	$20,000-$39,999	$10,000-$19,999	$5,000-$9,999	$2,500-$4,999	Under $2,500	Abnormal Farms
Farms and land in farms												
Farms	Number	90,565	238	696	2,565	4,712	6,247	10,986	16,859	19,026	29,211	25
	Percent	100	0.26	0.77	2.83	5.20	6.90	12.13	18.63	21.01	33.25	0.03
Land in farms	Mill. acres	12.47	0.43	0.82	1.63	1.73	1.43	1.63	1.73	1.39	1.64	0.03
Average size of farm	Acres	138	1,817	1,182	637	368	230	148	102	73	56	1,274
Value of land and buildings	Bill. $	12.55	0.47	0.86	1.63	1.59	1.34	1.51	1.65	1.56	1.93	0.04
Land in farms according to use												
Harvested cropland	Percent	100.0	6.5	12.2	22.8	20.0	12.0	9.8	7.7	4.8	4.0	0.2
Pastureland[c]	Percent	100.0	1.7	3.5	7.7	11.1	11.6	15.6	17.4	14.2	16.9	0.2
Woodland[d]	Percent	100.0	1.6	3.2	6.8	10.0	11.2	14.9	17.9	15.3	19.0	0.2
Other cropland	Percent	100.0	1.9	3.8	9.4	8.8	11.0	12.6	15.8	16.2	20.2	0.3
Market value of agricultural products sold	Mill. $	1,683.9	197.9	237.3	398.5	297.1	173.0	152.7	119.1	68.4	34.5	5.5
	Percent	100.00	11.75	14.09	23.67	17.64	10.27	9.07	7.07	4.06	2.05	0.33
Estimated market value of machinery and equipment	Mill. $	1,870.9	55.4	125.0	274.2	266.6	203.3	231.8	255.7	223.2	231.0	4.8
	Percent	100.00	2.96	6.68	14.66	14.25	10.87	12.39	13.67	11.93	12.35	0.26
Livestock (percent based on number of head)												
Cattle and calves	Percent	100.0	2.8	5.1	11.2	13.1	12.6	15.1	16.2	12.1	11.6	0.3
Hogs and pigs	Percent	100.0	11.1	13.4	22.8	18.1	11.3	10.0	6.3	3.9	2.8	0.3
Sheep and lambs	Percent	100.0	- - -	3.0[e]	1.8	9.5	18.0	17.0	20.1	12.9	17.5	0.2
Horses and ponies	Percent	100.0	0.7	1.7	3.9	5.7	8.4	12.5	15.9	17.1	33.9	0.2
Poultry (percent based on number)												
Chickens 3 mos. old or older	Percent	100.0	58.9	17.7	7.0	4.6	3.4	2.3	1.3	1.3	2.3	1.2
Broilers and other meat type chickens	Percent	100.0	8.9	26.4	42.9	19.3	2.0	0.4	0.2	0.0	0.0	0.0

(Continued)

Table 1 (continued)

	Unit	All Classes Total Agricultural Products[b]	$500,000 and over	$250,000-$499,999	$100,000-$249,999	$40,000-$99,999	$20,000-$39,999	$10,000-$19,999	$5,000-$9,999	$2,500-$4,999	Under $2,500	Abnormal Farms
Crops												
Field corn for grain	Mill. bu.	48.5	3.0	6.8	12.9	11.1	5.9	4.2	2.5	1.2	0.8	0.2
Soybeans	Mill. bu.	55.4	5.0	9.0	16.1	12.5	6.0	3.7	1.9	0.7	0.3	0.1
Cotton	Thou. bales	306.2	46.1	81.0	94.8	51.5	17.4	9.5	4.1	1.2	0.3	0.2
Tobacco	Thou. lbs.	155,161.2	534.1	3,318.3	11,634.0	22,299.5	27,414.0	33,494.9	29,910.8	18,455.7	7990.0	109.7
Hay	Thou. tons	1,923.7	54.9	103.9	249.0	274.4	263.1	300.9	300.8	200.3	171.1	5.2
Percentage of farm operators reporting any days of work off farm												
Reporting any	Percent	60.7	15.1	21.3	24.1	36.5	48.7	57.2	61.6	64.0	70.3	32.0
1-99 days	Percent	8.7	7.6	7.8	9.7	12.8	11.6	10.3	8.5	7.7	7.3	12.0
100 or more days	Percent	52.0	7.6	13.5	14.3	23.7	37.2	46.9	53.0	56.3	63.0	20.0
Percentage of operators reporting off-farm income in 1974												
Reporting any off-farm income equal to or greater than value of agricultural products sold	Percent	50.0	0.0	0.0	0.1	0.8	3.1	13.2	34.6	51.1	70.5	0.0
Off-farm income less than value of farm products sold	Percent	22.3	42.6	51.3	56.8	57.5	60.2	52.5	35.2	19.7	6.8	0.0
Not reporting or reporting none	Percent	27.4	24.1	41.4	40.3	40.6	35.9	33.8	29.8	29.0	22.7	0.0

[a] All data from the *1982 Census of Agriculture*, Vol. 1, Part 42 except off-farm income which was from the *1974 Census of Agriculture*.

[b] Includes abnormal farms.

[c] Includes pastureland, all types, except woodland pasture.

[d] Includes woodland pasture.

[e] The percentage is for farms with $250,000 or more.

Table 2. Distribution of Economic Classes (Volume of Sales of $1,000 or More) by Type of Farm in Tennessee, 1982

	Economic Classes									
	$500,000+	$250,000-$499,999	$100,000-$249,999	$40,000-$99,999	$20,000-$39,999	$10,000-$19,999	$5,000-$9,999	$2,500-$4,999	Less than $2,500	Total Number of Farms
	(percent)									
Cash grain	0.5	1.9	7.2	13.9	13.9	16.8	17.4	13.1	15.4	10,994
Cotton	2.2	5.6	13.0	18.9	15.0	18.0	14.6	7.9	4.8	1,010
Tobacco	0.0	0.0	0.2	1.6	5.3	13.8	25.2	29.6	24.3	26,481
Sugar, potato, hay, peanuts	0.0	0.0	0.3	1.1	2.8	7.3	16.5	20.7	51.3	2,024
Vegetables, melons	0.8	1.2	3.0	4.9	9.6	11.4	15.0	18.9	35.2	769
Fruits and tree nuts	0.0	0.3	0.6	2.0	1.4	6.2	6.5	8.2	74.9	355
Horticultural	3.4	3.6	6.6	10.4	13.1	16.1	16.5	11.6	18.7	701
General farm (crop)	0.2	1.0	3.4	8.0	12.3	17.0	15.8	7.0	35.2	2,537
Livestock	0.1	0.3	0.9	2.5	4.6	10.0	17.2	21.6	42.8	39,336
Dairy	1.4	5.7	25.9	30.4	17.8	11.6	4.1	1.3	1.9	3,231
Poultry, eggs	5.2	9.5	24.1	24.3	8.1	3.5	1.1	1.3	22.9	713
Animal specialty	0.1	0.4	1.6	1.6	3.6	5.5	9.6	15.3	62.2	1,407
General farm (livestock)	0.4	0.7	2.9	5.7	13.2	10.7	8.9	4.7	52.9	982
Percent farms with sales of $1,000 or more	0.3	0.8	2.8	5.2	6.9	12.1	18.6	21.0	32.3	100.0
	(number)									
Total number of farms	238	696	2,565	4,712	6,247	10,986	16,859	19,026	29,211	90,540

Source: *1982 Census of Agriculture*, Vol. 1, Part 42.

cy of operators of smaller farms compared to the more advanced, larger commercial farms. In spite of the rapid change in the average size of farm, most farms were still small and medium size in 1982 (Figure 9). About 63 percent of the farms in 1982 were less than 100 acres, and only about 16 percent were 220 acres or larger. Farm size varied considerably by type of farming and geographical location within the state.

Tenure. The division of rights and privileges in the control and use of land has been a matter of concern and importance to people everywhere. The way in which rights in land are shared and held by farmers and other landholders affects the way land is used and the general well-being of the farm population.

Only 7.2 percent of Tennessee farms were operated by tenants in 1982 (Figure 10). The highest rate was reached in 1930 and 1935 with 46 percent of all farms being tenant operated. The most rapid rates of decline in farm tenancy occurred during the World War II period (1940-45) when the rate dropped from 40 to 33 percent and again from 1964 to 1669 when the rate decreased from 16.1 to 7.5 percent. The number of tenants declined 70 percent between 1964 and 1982, while the number of owners declined 32 percent.

Of the tenure groups, part-owners was the only one which showed an increase from 1935 to 1982. Most of this increase occurred from 1945 through 1954 when the number of part-owners increased by 74 percent. Many owners of small farms were renting additional land to expand production and to gain efficiency in the use of labor and machines during this period. Before and after this 10-year period, part-owners declined except during the 1974-82 period. Part-owners as a percentage of all farm operators increased slightly from 20 to 22 percent from 1964 to 1982. However, while part-owners made up only 5 percent of all farm operators selling $20,000 or more in farm products in 1964, this percentage increased to 52 percent in 1982. In other words, part-ownership is still an important means to achieve a more viable economic farming unit.

The larger commercial farms produce and sell about 90 percent of the agricultural products produced in the state. Thirty-eight percent of the land operated by farmers selling $20,000 or more in farm products in 1969 was rented. In 1982 this percentage rose to 44 percent for farmers selling $20,000 or more in farm products. The larger commercial farmers operated, through ownership and/or rental arrangements, about 48 percent of all farmland in the state. Full tenancy among the larger commercial farms was 9.0 percent in 1982 which was slightly higher than the 7.2 percent for all farmers. Consequently, most of the land rented by larger commercial farmers was rented by part-owners.

Figure 8. Size of Farms in Acres
Percent Change in Number of Farms by Size of Farm, 1954-1982
(Source: Census of Agriculture)

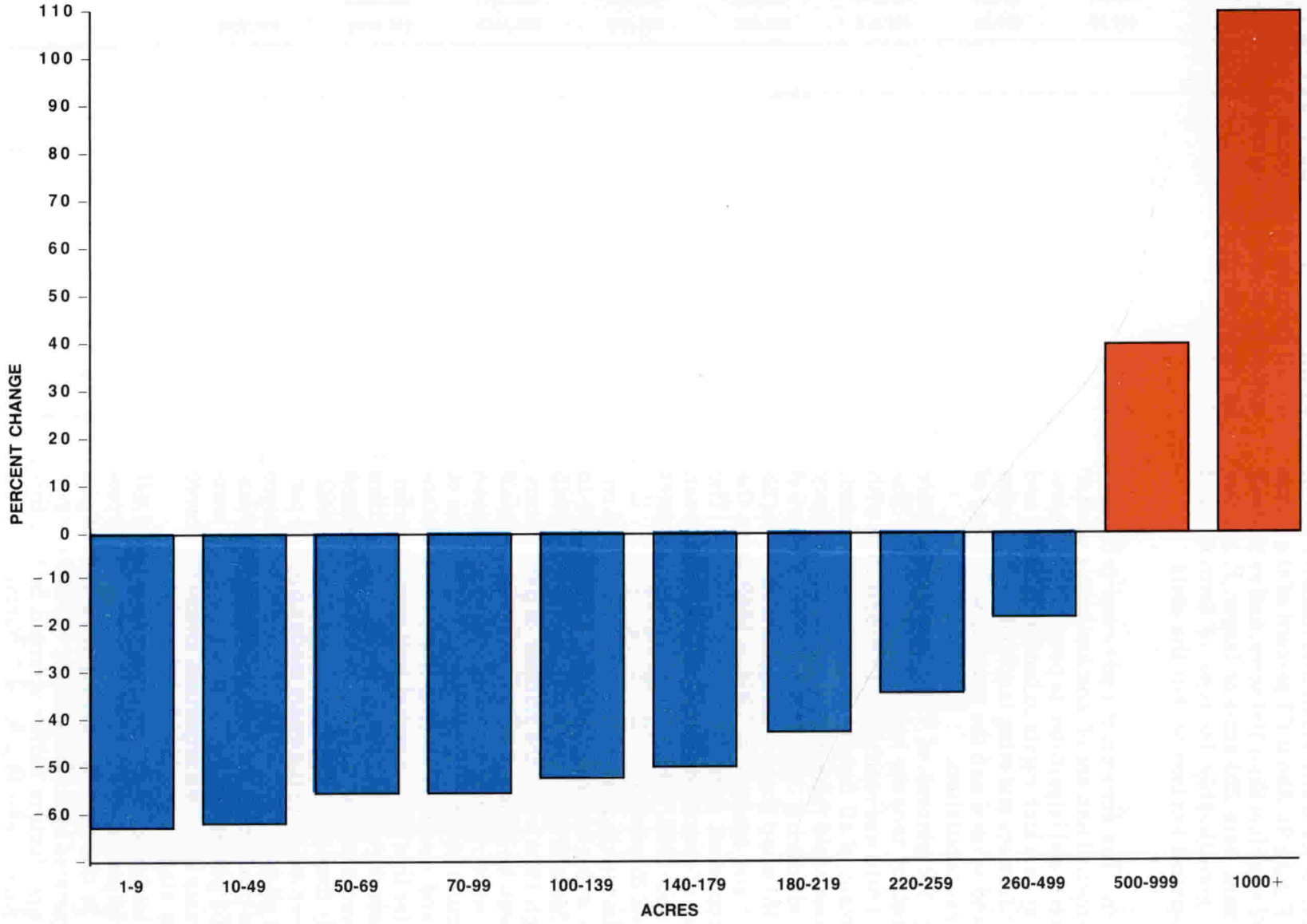


Figure 9. Percentage Distribution of All Farms by Size of Farm, Tennessee, 1982 (Source: Census of Agriculture)

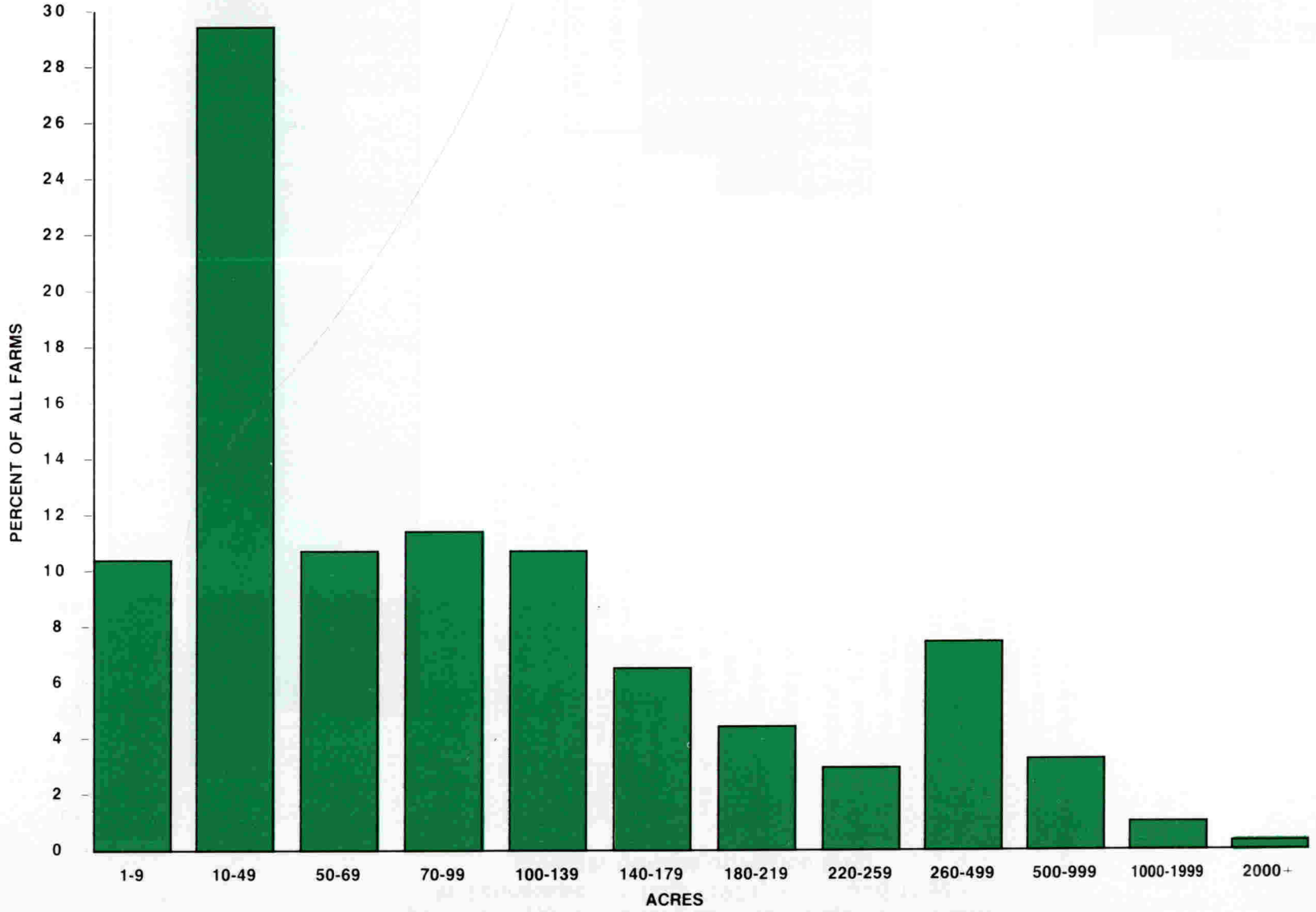
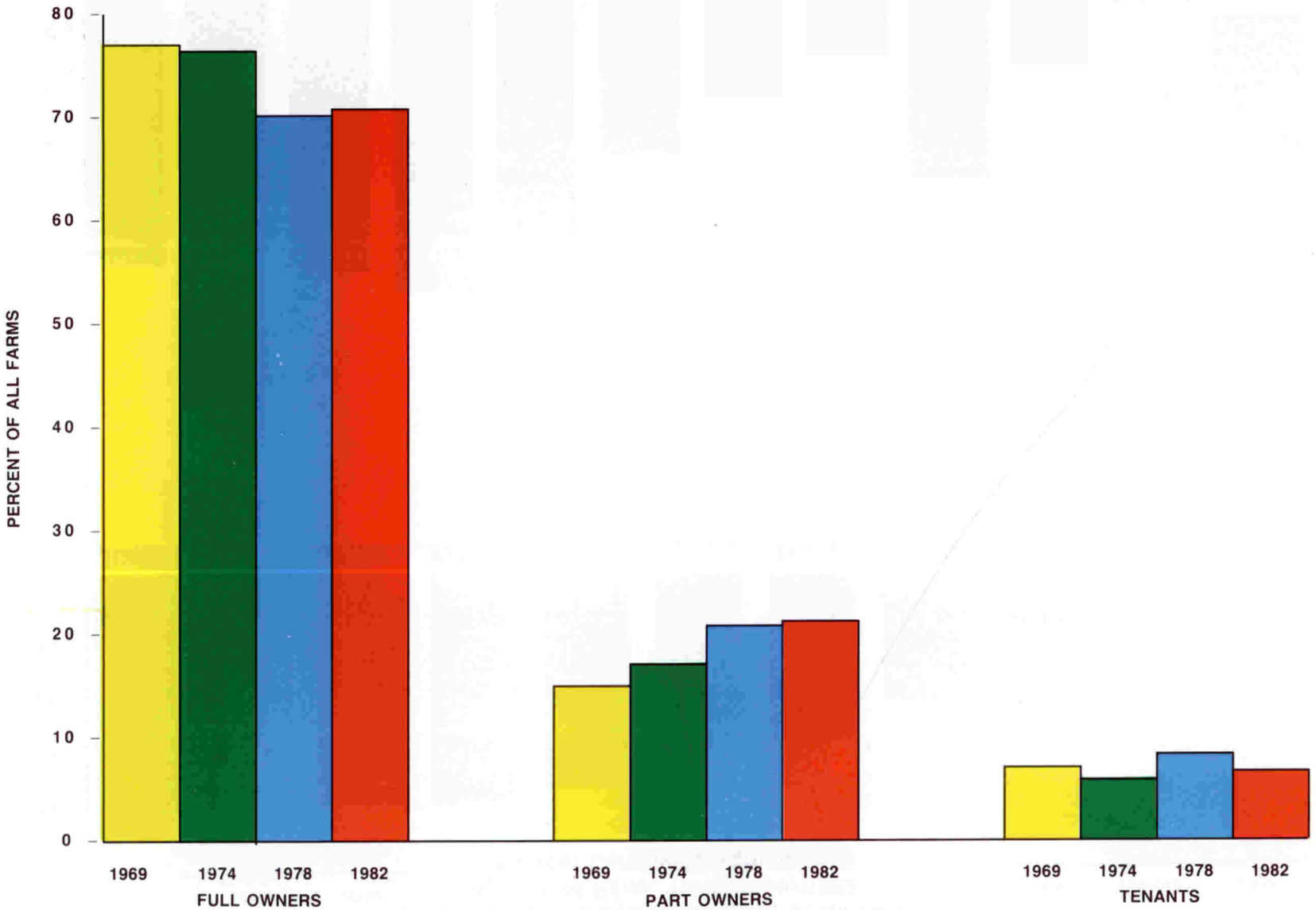


Figure 10. Type of Tenure as Percentage of All Farms in Tennessee for 1969, 1974, 1978, and 1982 (Source: Census of Agriculture)



MAJOR LAND USES

The total land area of the State of Tennessee excluding water is 26,449,920 acres. Total farmland at 12,474,931 acres in 1982 was about 47 percent of total land area. Cropland, excluding pasture, made up about 40 percent of total farmland (Table 3) and about 19 percent of the total land area of the state in 1982. Cropland used only for pasture or grazing and other land (primarily pasture) comprised about a third of all farmland or about 16 percent of the total land area. Woodland, including woodland pasture, occupied the remaining 26 percent of the farmland or 12 percent of the total land area of the state. A large part of the land area not in farms was in forests. Land available for cropping was about 7.6 million acres.

Localization of Land Use

Patterns of major land use (Figures 11, 12, 13 and 14) correspond in general to the physiographic features of the state. The Unaka Mountains, the Cumberland Plateau and the Western Highland Rim had the smallest portion of total land area in farms and the smallest proportion of farmland in crops. West Tennessee had the highest percentage of cropland harvested where it exceeded the percentage of pastureland. In the Central Basin and the Upper East Tennessee Valley, the pasture area exceeded that of cropland harvested. These regions have large areas of shallow or steep soils not adapted to cultivated crops but which support good pastures.

Trends in Land Use

Total farmland in the state has declined about 8 million acres in the last 70 years (Figure 15). This land has gone into other uses such as commercial forest; urban, industrial and transportation uses; national defense and other governmental areas; and TVA reservoirs. Long-run trends among the three major uses of farmland show that the acreages devoted to woodland and cropland have declined, while other land (mostly pastureland) has shown a general increase since 1920.

Table 3. Distribution of Farmland In Tennessee by Major Uses, Acreage and Percentage of Total Farmland, 1950-82[a]

Land Use	1982		1978		1974		1969		1964		1959		1954		1950	
	Thou. Acres	Percent	Thou. Acres	Percent	Thou. Acres	Percent	Thou. Acres	Percent	Thou. Acres	Percent	Thou. Acres	Percent	Thou. Acres	Percent	Thou. Acres	Percent
Total farmland	12,475	100.00	12,681	100.00	13,103	100.00	15,057	100.00	15,266	100.00	16,081	100.00	17,654	100.00	18,534	100.00
Harvested cropland	4,549	36.46	4,409	34.77	3,746	28.59	3,472	23.06	3,618	23.70	4,116	25.60	4,861	27.53	5,575	30.08
Cropland used only for grazing	2,608	20.91	2,886	22.76	3,501	26.72	3,781	25.11	3,059	20.04	3,217	20.00	3,095	17.53	2,856	15.41
All other crops	445	3.57	490	3.86	509	3.88	1,151	7.64	1,178	7.72	1,166	7.25	1,061	6.01	1,489	8.03
Woodland, including woodland pasture	3,249	26.04	3,363	26.52	3,411	26.03	4,375	29.06	4,859	31.83	5,201	32.34	5,935	33.62	5,869	31.67
All other land	1,624	13.02	1,532	12.08	1,936	14.78	2,278	15.13	2,552	16.72	2,381	14.81	2,703	15.31	2,746	14.82

[a]Source: *United States Census of Agriculture*, Census Years, 1950-82.

Figure 11. Land in Farms by County in Tennessee, 1982
(Source: 1982 Census of Agriculture, Vol. 1, Part 42, County Data)

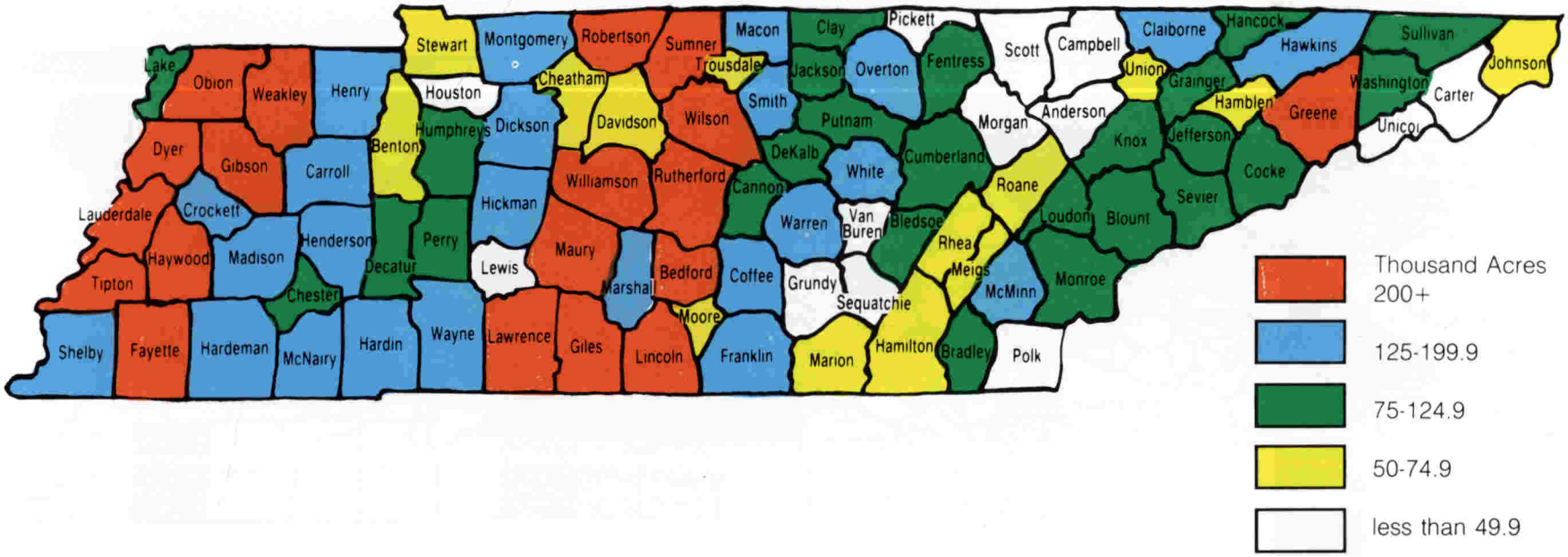


Figure 12. Cropland Harvested by County in Tennessee, 1982
(Source: 1982 Census of Agriculture, Vol. 1, Part 42, County Data)

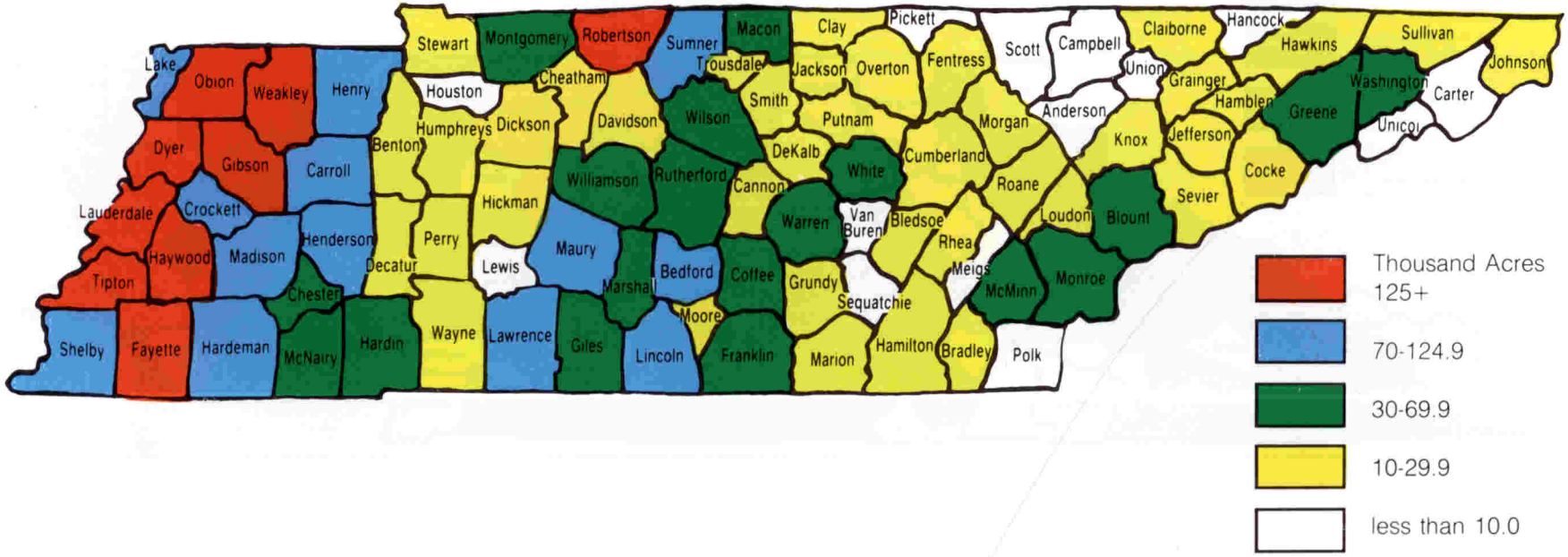


Figure 13. Pastureland-Cropland Pasture and Other Land by County in Tennessee, 1982
(Source: 1982 Census of Agriculture, Vol. 1, Part 42, County Data)

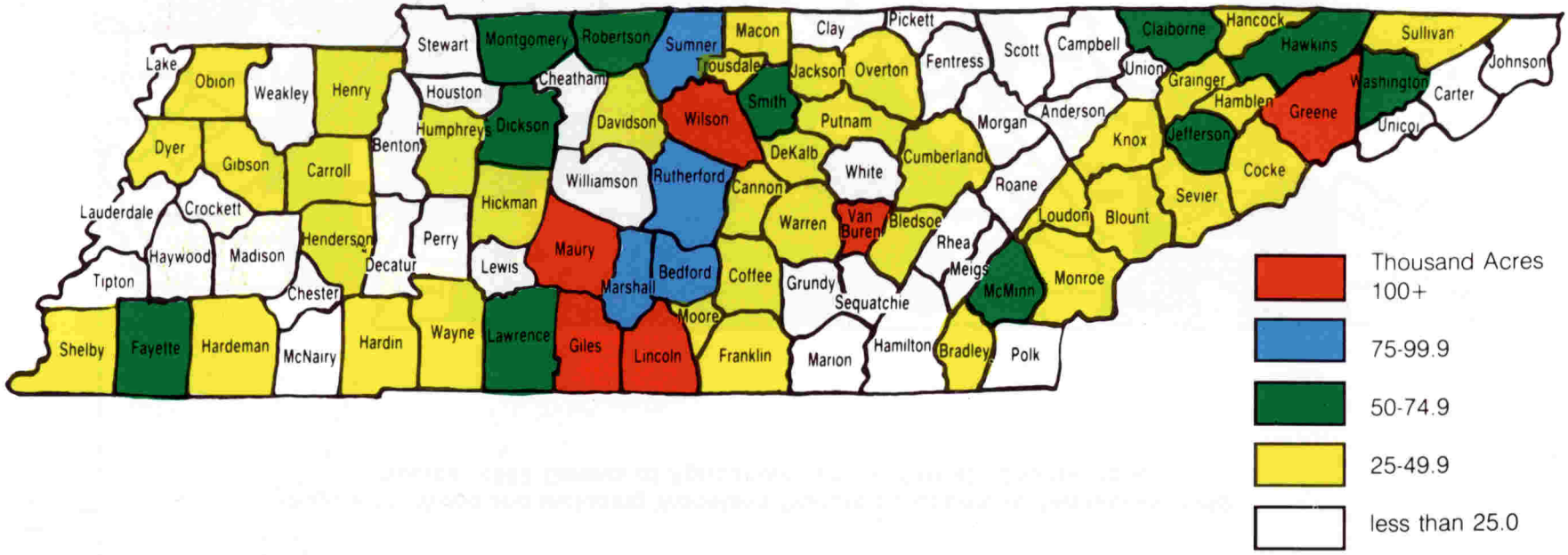


Figure 14. Woodland including Woodland Pasture by County in Tennessee, 1982
(Source: 1982 Census of Agriculture, Vol. 1, Part 42, County Data)

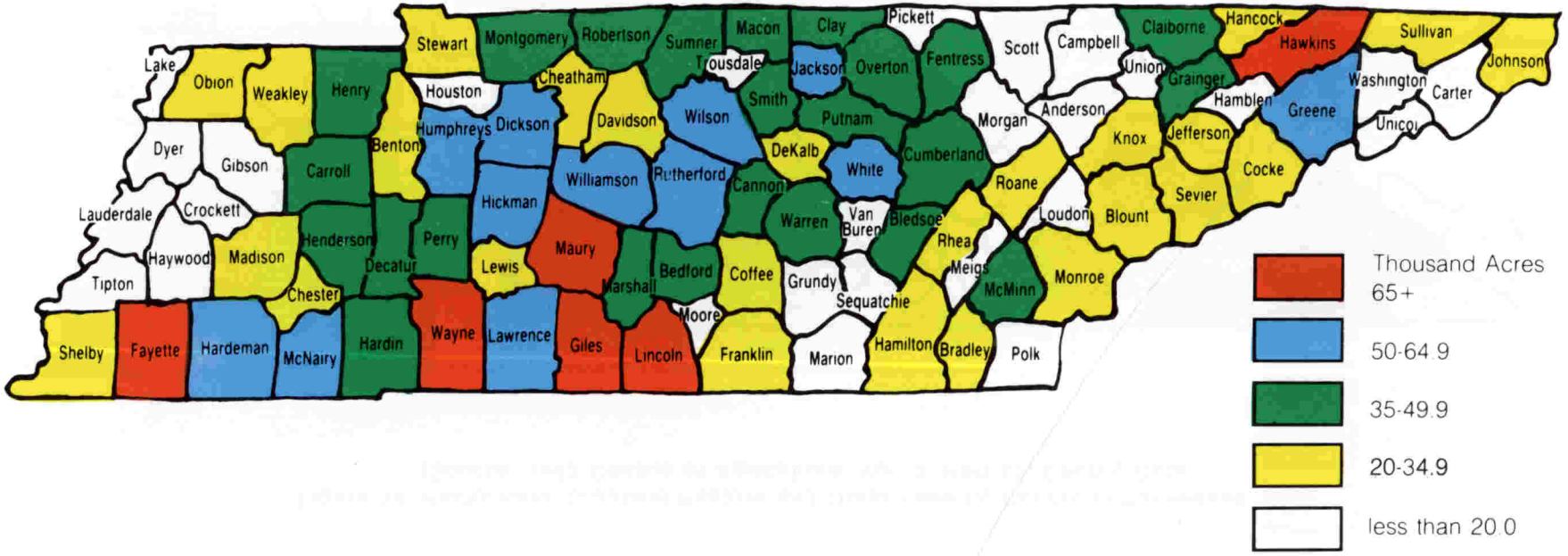
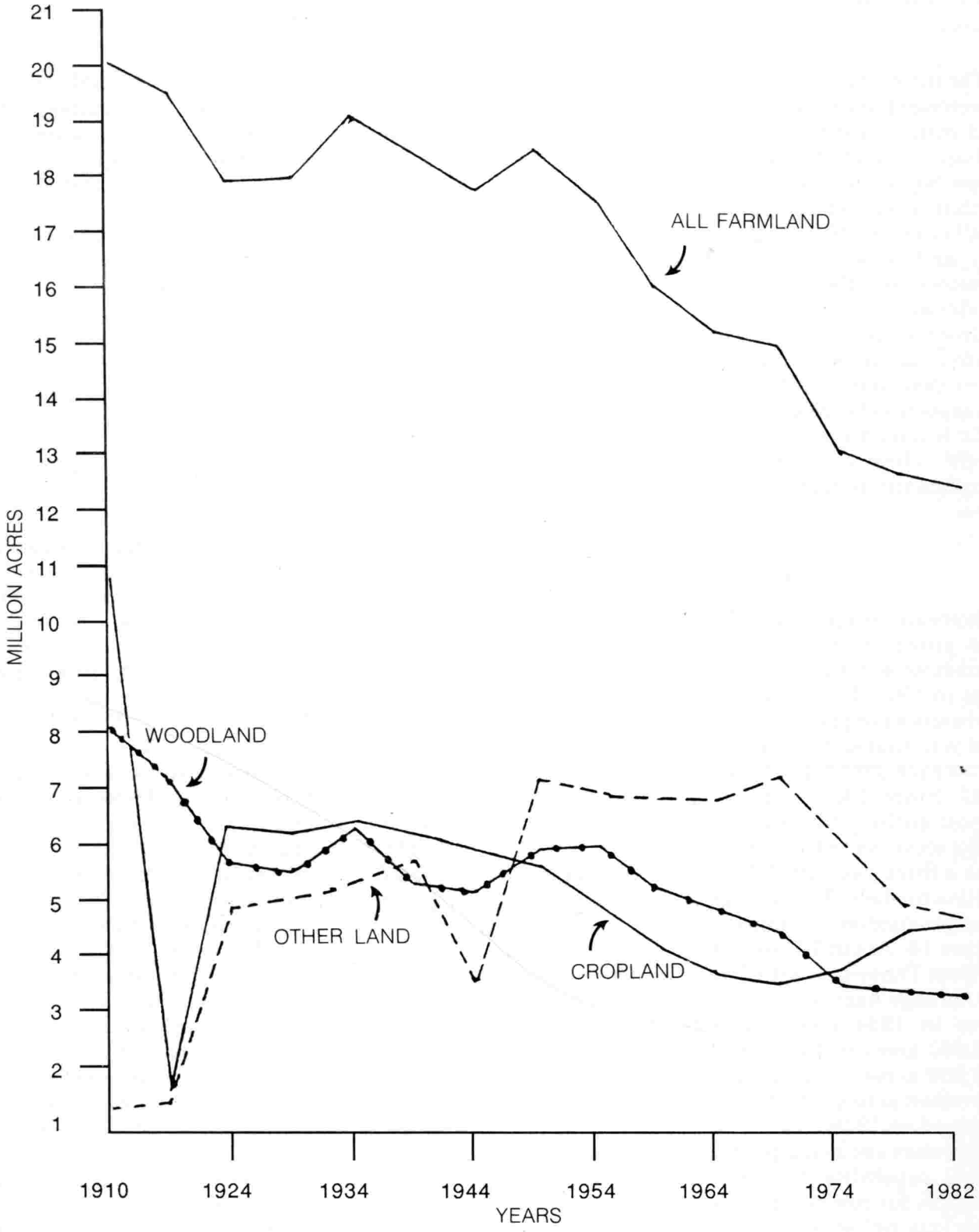


Figure 15. Acreage in Farmland in Tennessee, 1910-1982
(Source: Census of Agriculture.)



CROP DISTRIBUTIONS AND TRENDS

The most important crops from the standpoint of acreage harvested were soybeans, hay, wheat and corn in 1982 (Table 4). In terms of dollar value of production, soybeans ranked above other crops. Soybeans, tobacco and greenhouse-nursery in that order had the highest farm cash receipts of all crops in 1982-84. The majority of the corn, hay and some of the small grains are fed to livestock on the farm where the crops are produced.

Greenhouse and nursery products, although quite localized, were an important component of farm cash receipts. On the other hand, truck crops such as berries, fruits and vegetables were of little importance in the state compared to field crops. However, these crops contributed significantly to farm cash income in some local areas.

Soybeans

Soybeans, originally an East Asian crop, were first grown in the United States around 1800. Tennessee soybean production records were first kept in 1924. From that time until the 1940's, soybeans were primarily harvested for hay. The first year that soybean acreage for beans surpassed acreage grown for forage in Tennessee was 1947. Since 1960 soybeans have been grown almost entirely for beans. Tennessee presently ranks eleventh in the U.S. in soybean production with a three-year (1982-84) annual average of 47 million bushels. The acreage distribution of soybean production by counties in 1984 is shown in Figure 16. About 73 percent of the acreage was in West Tennessee with Dyer the leading county. Acreage harvested for beans at 1.85 million acres in 1984 increased 3.2 times from the 586,000 acres in 1964 and 10.2 times from the 182,000 acres in 1950 (Figure 17). The largest harvested acreage to date at 2.62 million acres occurred in 1979.

Soybeans are being produced on a wide range of soil capability classes, some of which are desirable for row cropping while others are not. A serious soil erosion problem exists in many counties of West Tennessee primarily because of the widespread practice of producing soybeans on soils that are highly erosive and unsuitable for intensive row crop production.

Average annual cash receipts from soybeans over the last four years (1981-84) have been about $299 million. Since 1973 soybeans have been the leading cash crop in Tennessee with the exception of 1984.

Tobacco

Four types of tobacco were grown in the state in 1984 (Figure 18). Distribution of total tobacco production for 1984 is shown in Figure 19. Burley tobacco, Type 31, a light air-cured tobacco, was grown on about 61,000 acres in East and Middle Tennessee. One sucker, Type 35, a dark air-cured tobacco, was grown on about 1,300 acres, mostly in the 11 northern counties of Middle and northeastern West Tennessee. Eastern dark-fired, Type 22, was produced on about 11,800 acres in eight counties of northern Middle Tennessee, while western dark-fired, Type 23, was grown on 890 acres in two northern counties in West Tennessee.

Total tobacco acreage in Tennessee of 74,990 acres in 1984 was about 46 percent of the peak acreage of 1930 (Figure 17). However, production in pounds of tobacco actually increased slightly. Yields, particularly of burley, have greatly increased through adoption of improved cultural practices and new varieties. Dark-fired tobacco was the principal tobacco produced in the state until tobacco products consumption shifted to cigarettes after World War I and brought about a shift to burley tobacco production. Burley has exceeded dark-fired in both value and acreage since 1936 (Figure 18). Tobacco was an important cash crop during the early settlement of most areas where it is currently grown, except in the Valley of East Tennessee where it developed since World War I.

The bulk of tobacco production occurred on farms of small acreage with a substantial proportion of the crop being produced by part-time

Table 4. Relative Importance of Principal Crops in Tennessee[a]

	Farms Reporting Production 1982	Acreage Harvested 1982	Farm Value of Production 1982	Annual Average Cash Receipts 1982 to 1984
	(percent)[b]			
Field corn for grain or seed	25.11	12.39	11.15	5.24
Field corn for silage, green chop or dry, or hogged or grazed	4.67	2.74	4.45	- - -
Sorghum for grain or seed	1.57	1.47	0.90	0.61
Sorghum for silage, green or dry, hay, or hogged or grazed	0.17	0.11	0.11	- - -
Wheat for grain	11.21	15.83	7.34	7.27
Other small grain for grain	1.06	0.35	0.15	- - -
Soybeans for beans	19.27	46.26	29.75	27.86
Hay, alfalfa, other tame small grain, wild grass silage green chop	58.69	24.78	9.68	0.92
Cotton	2.48	5.32	8.44	9.27
Tobacco	49.00	1.81	19.71	26.29
Irish potatoes and sweet potatoes	4.07	0.07	0.36	0.27
Vegetables	2.78	0.68	1.96	- - -
Berries for sale	0.59	0.02	0.09	- - -
Land in orchards	2.12	0.16	0.17	0.22
Greenhouse-nursery	1.24	0.36	5.56	16.45
Other crops	0.50	0.20	0.12	- - -

[a]Sources: *1982 Census of Agriculture* and *Tennessee Agricultural Statistics.*

[b]Percentage items in each respective column will not add to 100 percent due to multiple farm production, double cropping and using averages. Column percentages were calculated respectively on the following bases: farms reporting harvested cropland, total harvested cropland, total farm value of crop production and annual cash receipts from all crops.

Figure 16. Soybeans Planted for All Purposes by County in Tennessee, 1984
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)

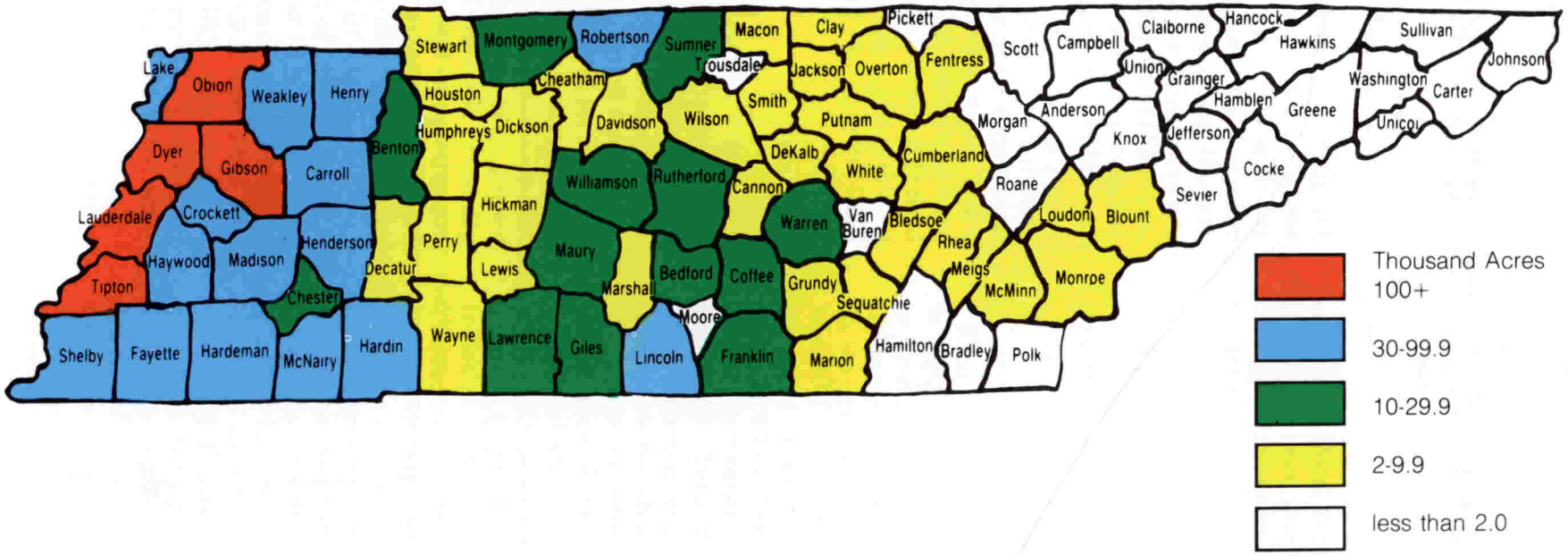
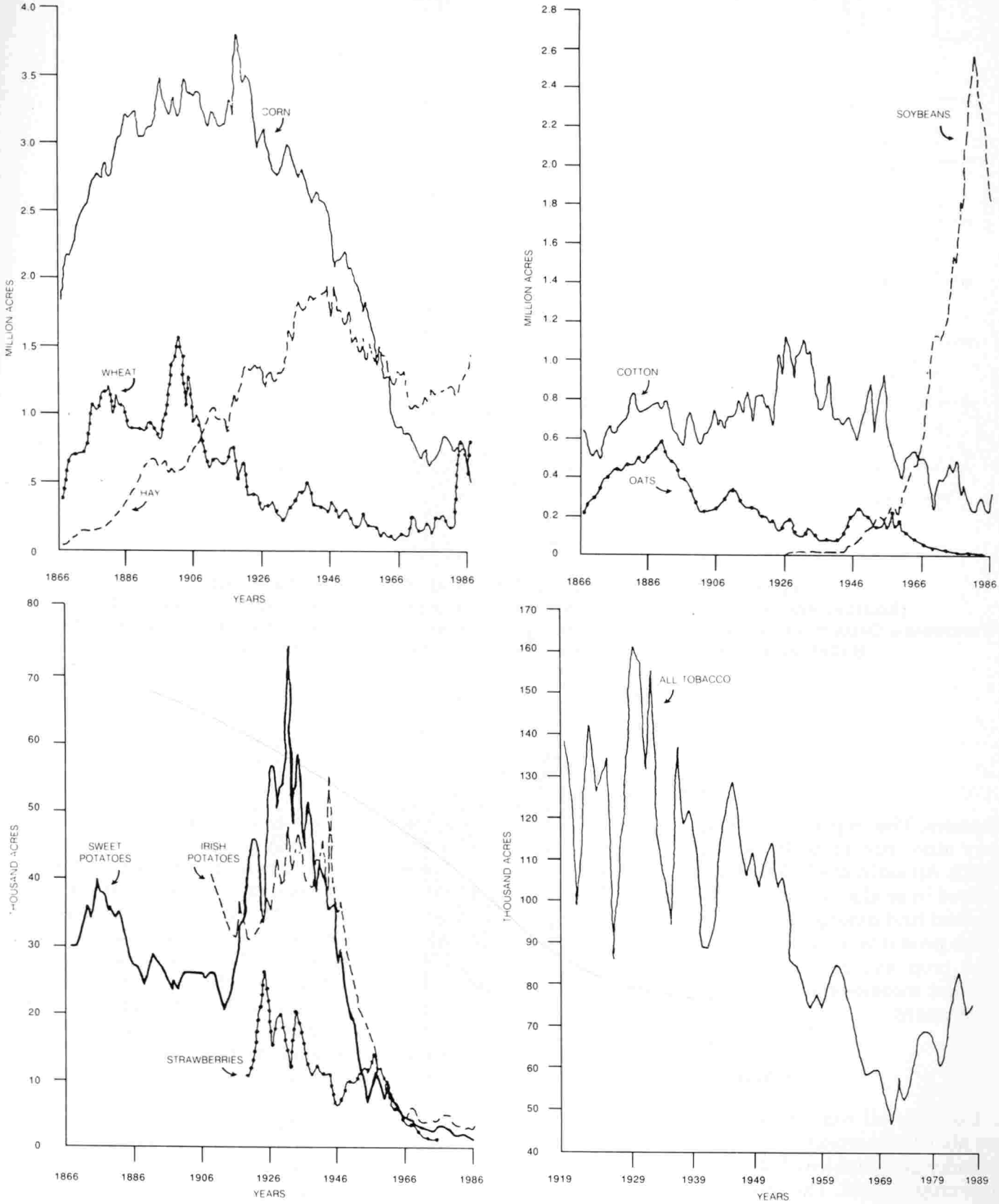


Figure 17. Trends in Acreages of Crops in Tennessee, 1866-1985 (Source: *Agricultural Trends in Tennessee Crop and Livestock Statistics 1866-1960*, Tennessee Department of Agriculture, September, 1964; and *Tennessee Agricultural Statistics* Annual Bulletins for years 1961 through 1985, Tennessee Crop Reporting Service.)



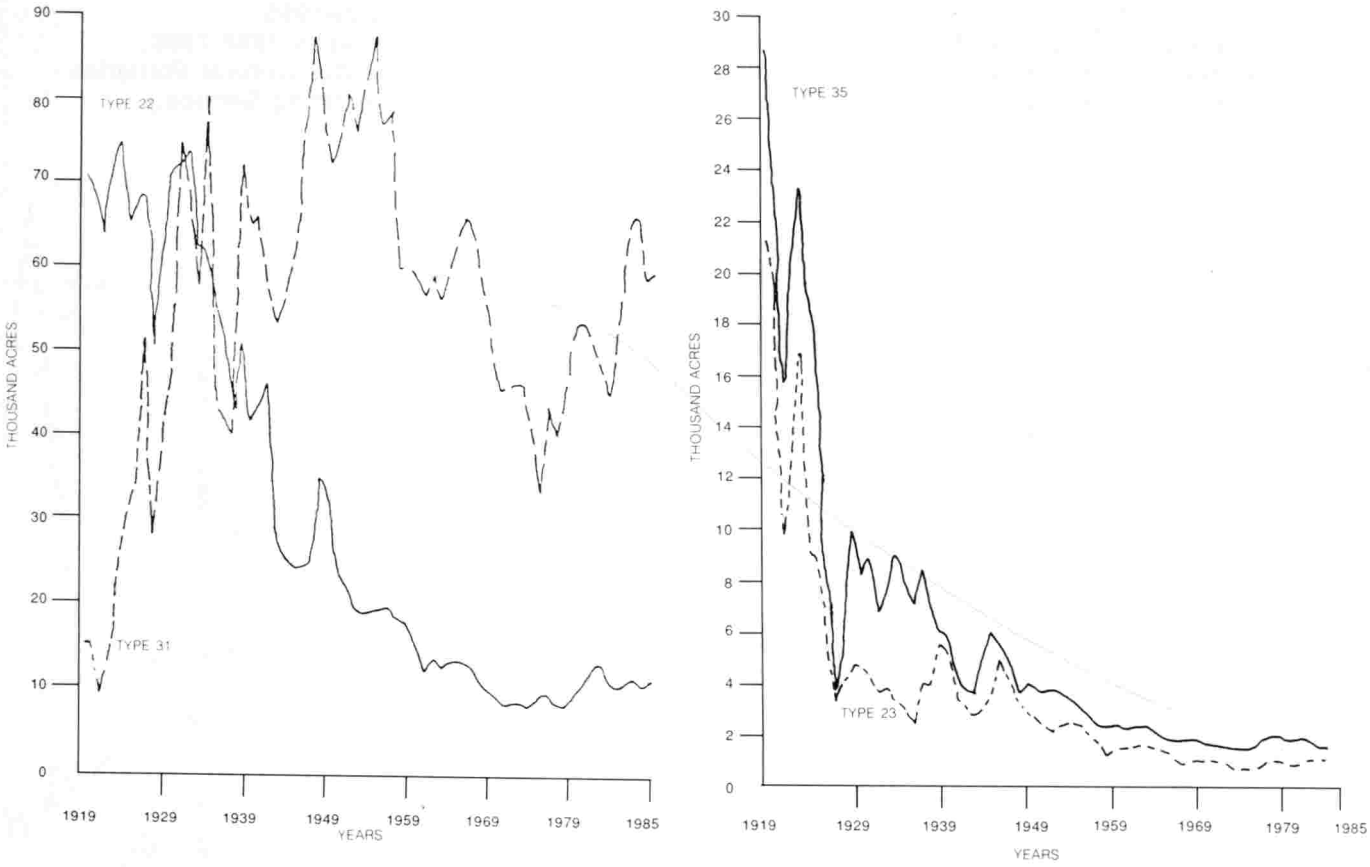


Figure 18. Acreage of Tobacco by types, Tennessee, 1919-1984 (Source: *Agricultural Trends in Tennessee Crop and Livestock Statistics 1866-1960*, Tennessee Department of Agriculture, September, 1964; and *Tennessee Agriculture Statistics* Annual Bulletins for Years 1961 through 1985, Tennessee Crop Reporting Service.)

farmers. The crop was grown on more farms than any other row crop (40 percent of all farms) in 1982. An estimated 75,000 farm families are involved in producing tobacco in the state. The crop ranked first among all crops and third among all farm products in value of cash receipts in 1984. The crop has consistently ranked among the highest income-producing farm enterprises in recent years.

Corn

Corn for all commercial purposes was grown on about 24 percent of all farms in the state and a wider geographical distribution than any other row crop in 1982. The acreage by county for 1984 was distributed as shown in Figure 20. Almost all of the corn for grain produced in the state was yellow with a small amount being white. Almost all of the yellow corn is used for livestock feed, while almost all of the white corn is used for human food. Corn tended to compete with cotton, soybeans and wheat in West Tennessee, to some extent with soybeans in Middle Tennessee and with hay and wheat in Middle and East Tennessee. Even counties with thin upland soils but fertile bottoms, such as those in the Highland Rim area, had substantial acreage of cropland planted to corn.

About 60 percent of the corn produced for grain in the state was fed to livestock (primarily hogs) on the same farms where the corn was grown. The remaining 40 percent was sold as cash grain.

Figure 19. All Tobacco by County in Tennessee, 1984
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)

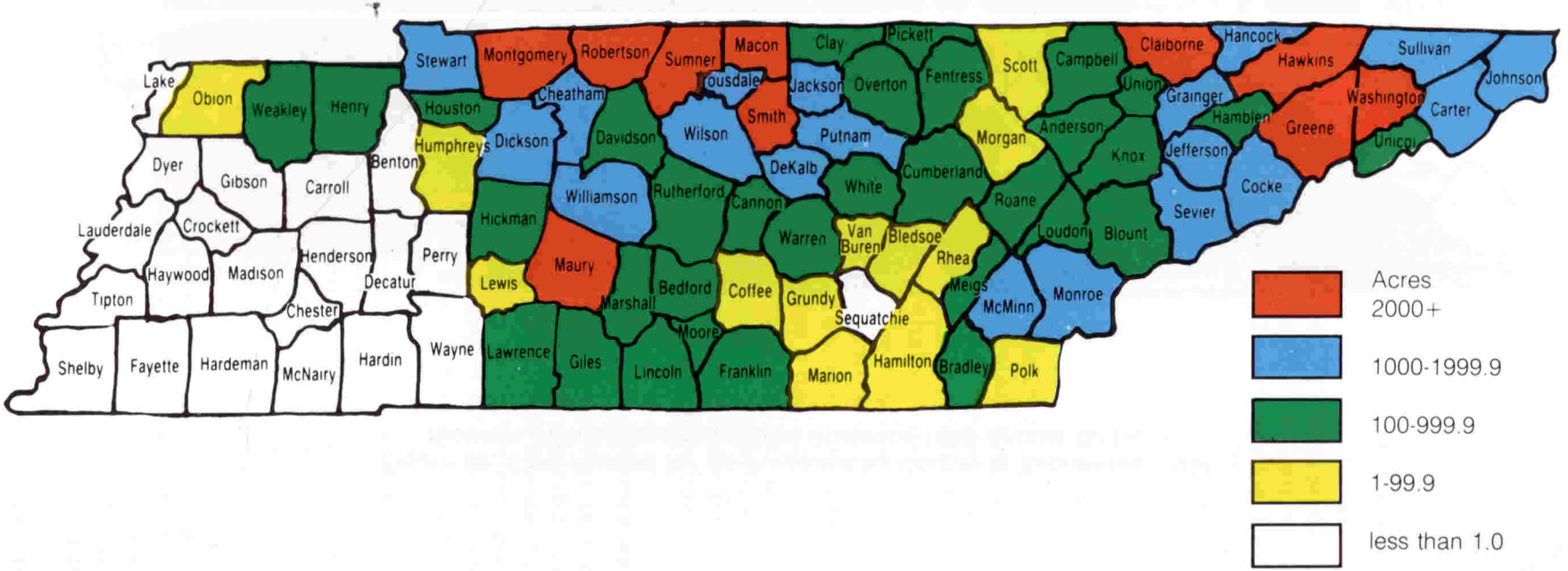
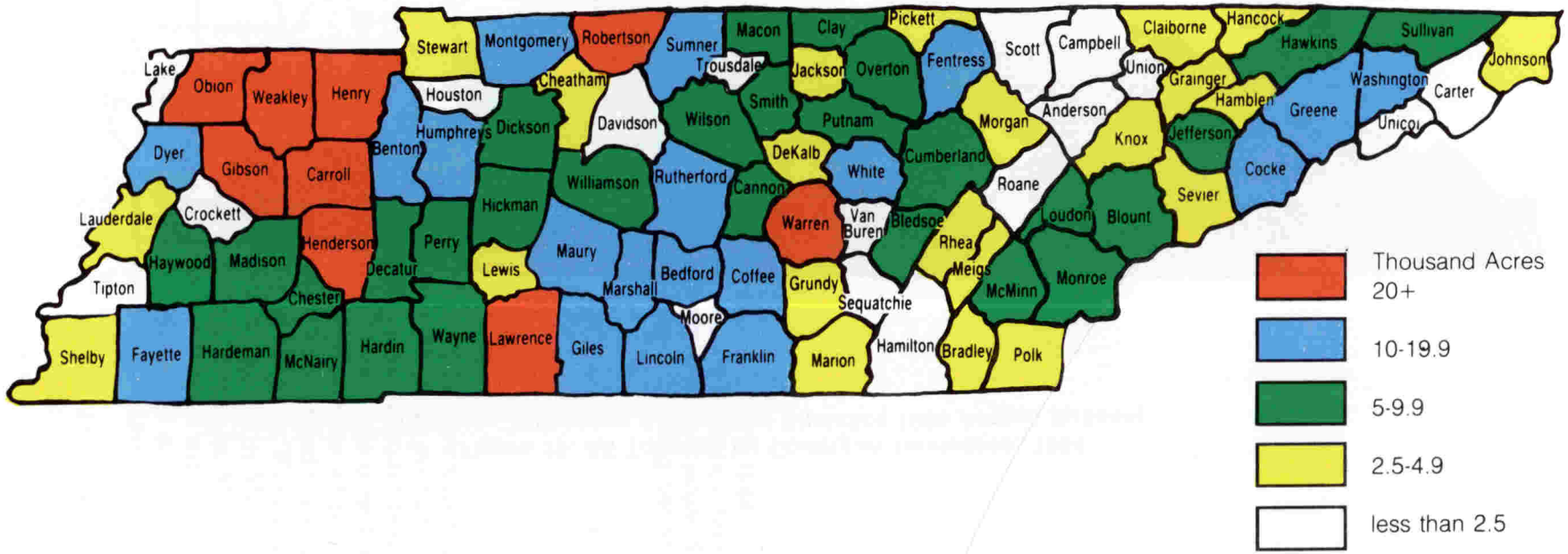


Figure 20. Corn Planted for All Purposes by County in Tennessee, 1984
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)



Corn is an important silage crop, especially for dairy cows. About 19 percent of the total Tennessee corn crop was used as silage and related feeds in 1984.

Corn was the principal pioneer crop and acreage continued to expand until 1900 (Figure 17). Acreage started to decline at the turn of the century, but it was given an impetus by World War I. Since then it has dropped to about 22 percent of the 1917 acreage. Corn acreage also dropped in proportion to other crops with only 15 percent of harvested cropland in corn in 1982. Tennessee ranked first among the states in corn production in 1839 but had fallen to nineteenth place by 1984. Corn acreage has declined drastically over the long term; however, total production of corn has not declined nearly as much because of increased yields per acre.

Hay

Hay was grown on more farms in the state than any other crop in 1982. Over 43.7 thousand farms, which were widely dispersed, produced 1.92 million tons of hay on about 1.13 million acres of land (Figure 21).

Hay is used primarily as feed for beef cattle and, to a lesser extent, dairy cattle. Hay is utilized, for the most part, as feed for livestock on the farm where it is produced. Some hay was sold (19 percent) as a cash crop in 1982 with most sales occurring locally.

Clover-grass and mixed grass hays were the predominant types grown in 1984. These became most prominent during the 1960's, displacing lespedeza. Lespedeza was widely planted in the state after World War I, and in the 1930's it became the principal hay crop. Lespedeza maintained this status until the 1950's.

Alfalfa acreage started increasing substantially in the late 1930's and trended upward until the early 1960's. The devastating effect of the alfalfa weevil on yield and production costs led to a significant reduction in acreage in the 1960's and early 1970's. Alfalfa was produced on 150,000 acres in 1984, which was about 80 percent of the previous high of 188,000 acres in 1958. Most alfalfa is used for feeding dairy cows.

Cotton

Cotton, although still a very important crop in the state, continued to decline in terms of acreage, output and cash receipts when compared to other crops like soybeans and tobacco. Cotton was the leading cash crop in the state for many years. In recent years, soybeans and tobacco have surpassed cotton in gross farm receipts.

Tennessee cotton acreage was 340,000 acres in 1984. Most of the cotton was grown in the western part of the state. In addition, 5,610 acres were produced in Franklin, Lincoln, Rutherford and Giles counties in Middle Tennessee (Figure 22). Cotton acreage has trended downward since 1930 (Figure 17).

Small Grains

Wheat acreage has trended downward since 1900 (Figure 17). Wheat acreage at 152,400 acres in 1969 was the smallest on record, while the 1,025,000 acres planted in 1981 compared with the higher acreages of the early years of this century. In 1984, planted acreage was 670,000 acres. Dyer County in northwest Tennessee led in wheat production (Figure 23). Wheat production increased in recent years because of more favorable wheat prices, higher yielding varieties and increased use of intensive cultural practices such as double cropping with soybeans.

Acreages of other small grains such as barley, oats and rye have declined in importance relative to wheat since the 1950's. In 1954, acreage of oats was near that of wheat (Figure 17). However, acreage of the crop began declining in the early 1960's and continued the trend through the first half of the decade of the 1980's. Barley acreage jumped from a negligible amount before World War I to over 100,000 acres in 1944 and then declined to about 9,000 acres in 1982. All small grain acreage harvested for grain in 1982 was 16 percent of all crops harvested.

Vegetables, Berries and Fruits

Commercial production of vegetables, berries and fruits is widely distributed across the state. Relatively few acres are used to produce these commodities. Nevertheless, specific commodities are quite important to localities where they are grown and contribute significantly to farm income in those areas.

Acreages of commercial snap beans led all vegetables grown in the state at 12,222 acres in 1982. Snap bean production was important in Cumberland and Fentress counties (Table 5). Acreage in these two counties accounted for about 64 percent of the total acreage for the state.

Commercial production of sweet potatoes declined drastically from a high of 75,000 acres in 1932 to 1,000 acres in 1984 (Figure 17). Sweet potatoes were produced for sale in over 58 counties in the state in 1982. Counties with the largest acreages included Lincoln, Gibson and Weakley.

Irish potato production has also experienced a

Figure 21. Hay Excluding Sorghum Hay by County in Tennessee, 1982
(Source: 1982 Census of Agriculture, Vol. 1, Part 42)

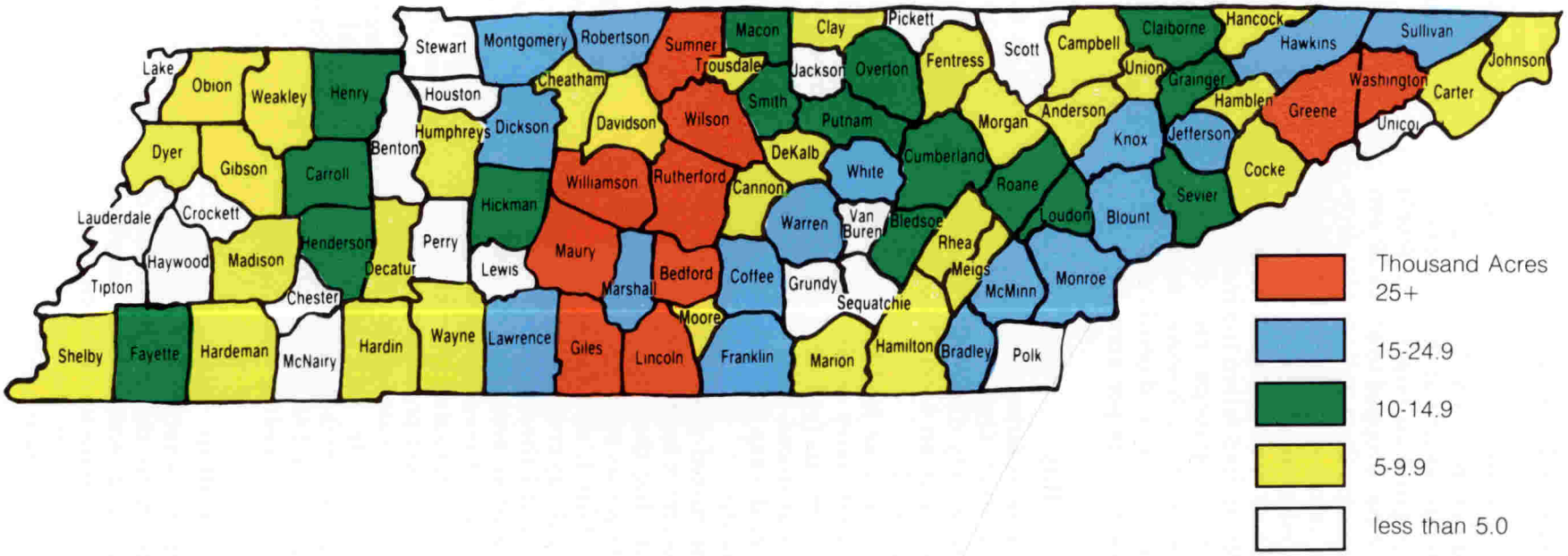


Figure 22. Cotton Harvested by County in Tennessee, 1984
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)

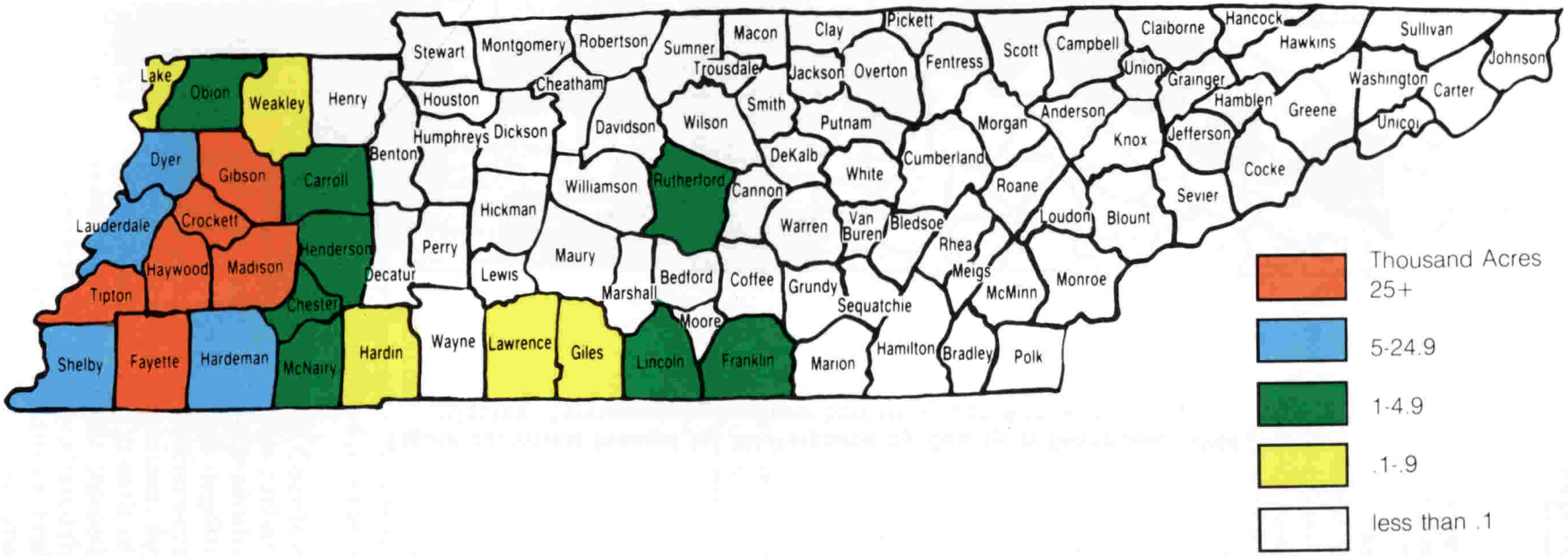


Figure 23. Wheat Planted for All Purposes by County in Tennessee, 1984
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)

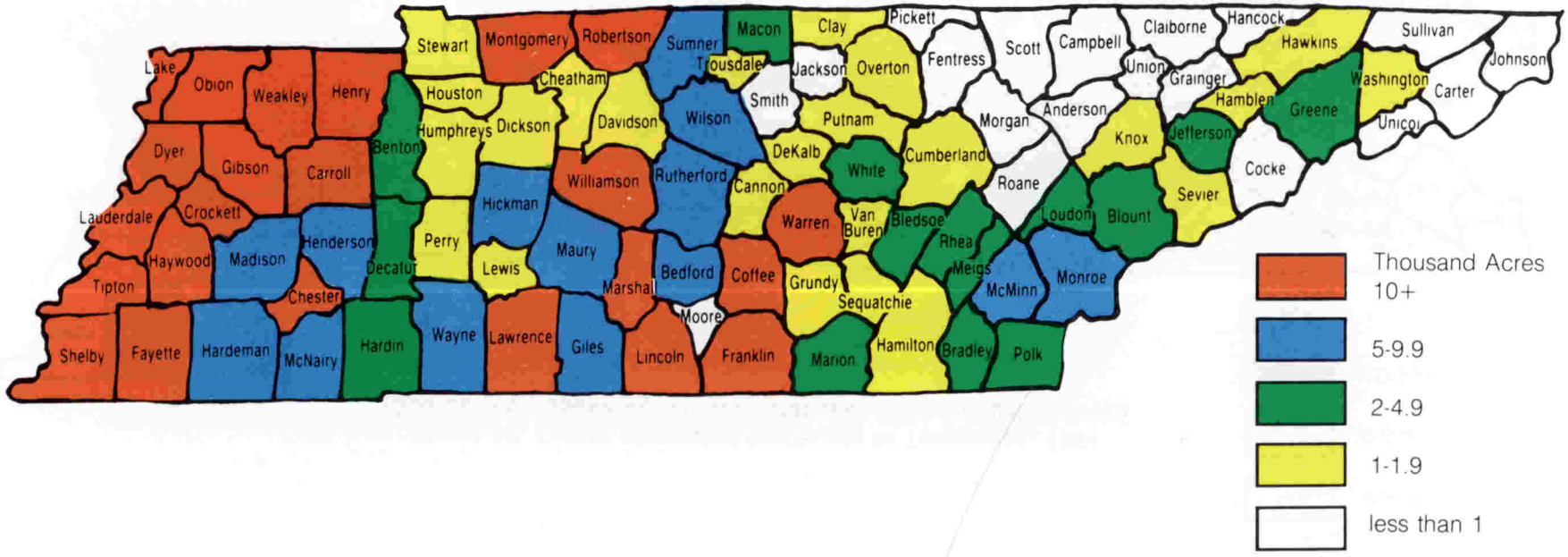


Table 5. Tennessee Commercial Vegetables, Berries and Fruits With Harvested Acreages of 100 Acres or More for the State, Number of Counties and Leading Counties, by Acreage Produced, 1982[a]

Commodity	Total Harvested Acreage for State	Number of Counties with Reportable Production, 1982	Leading Counties in Acreage Harvested, 1982
	(acres)	(number)	(county)
Snap beans	12,222	53	Cumberland, Fentress
Head cabbage	864	16	Cocke, Gibson, Rhea
Cantaloupes	331	25	Blount, Lincoln, McMinn
All green peas	2,643	22	Fayette, Tipton, Hardeman
Cucumbers and pickles	232	26	Gibson, Lauderdale
Okra	179	23	Haywood, Gibson, Davidson
Sweet peppers	424	30	Lawrence, McNairy, Rhea
Pimientos	1,333	16	Coffee, Lawrence, McNairy
Pumpkins	628	10	Rhea
Squash	302	18	Crockett, Hardeman, Lauderdale
Sweet Corn	1,296	70	Robertson, Shelby, Knox
Tomatoes	2,826	58	Rhea, Bledsoe, Cocke
Turnip greens	1,682	11	Dyer
Watermelons	794	52	Blount, Lincoln
Apples	3,517	90	Obion, Cocke
Grapes	413	70	Bradley
Peaches	2,654	87	Shelby, Obion, Lawrence
Pecans	415	38	Dyer, Haywood, McNairy
Strawberries	861	b	
Spinach	1,533	b	
Sweet potatoes	1,205	b	Lincoln, Gibson, Weakley
Irish potatoes	2,206	b	Lincoln

[a]Source: *Census of Agriculture*, Vol. 1, Part 42.

[b]No county totals recorded

great decline. The crop was grown on 2,206 acres in 1982. Lincoln County led in acreage harvested in 1982. Although the crop never reached the level of sweet potato acreage, trends in acreage of the two crops have been approximately the same (Figure 17).

Strawberries declined drastically from the 1924 peak of 26,200 acres to 6,308 acres in 1945. During the next five years, acreage increased to about 9,331 acres and then decreased again to only 861 acres in 1982. Strawberry production is labor intensive, especially in harvesting, and costly on a per acre basis. Marketing must be timely because of high perishability. Some producers, who are conveniently located near retail consumer markets, have engaged in retail pick-your-own harvesting-marketing operations in which the consumer harvests his/her berries. This allows the farmer to reduce higher harvest labor requirements and provides a market for the product.

Humboldt, in Gibson County of Central West Tennessee, was once the center of the most important Tennessee area producing vegetables for sale. One reason for its importance was Humboldt's proximity to northern railroad shipment lines. Truck transportation, development of a frozen food industry, growth of the Tennessee nonfarm population and competition from other states have materially altered the pattern of the fruit and vegetable industry. Fruit and vegetable production has dispersed greatly from the

original Humboldt center (Table 5). Presently, green peas are grown primarily in Fayette, Tipton and Hardeman counties and turnip greens in Dyer County. Cocke, Gibson and Rhea counties are important areas for producing cabbage. Robertson, Shelby and Knox lead all counties in sweet corn acreage, and Rhea, Bledsoe and Cocke lead in tomato acreage.

Areas near Memphis, Nashville, Knoxville and Chattanooga showed some concentration of vegetable production for local markets. Almost all of the small canneries, once scattered over the state before the 1950's, have disappeared. But in their place, diversified processing plants have been built with regional and national distribution capabilities. These firms also ship in supplies of fresh fruits and vegetables from out-of-state producing areas for processing.

Commercial apple orchards were few. Counties with the most apple acreage included Obion in northwestern West Tennessee and Cocke County in East Tennessee. Commercial peach production, once important in East Tennessee in Anderson, Roane, Rhea, Hamilton and Bradley counties, has virtually disappeared. Some commercial orchards exist in other parts of the state such as southern Middle Tennessee, especially in Lawrence County and in West Tennessee, especially in Shelby, Obion, Hardeman and McNairy counties.

Greenhouse and Nursery Products

Greenhouse and nursery products were listed as sources of farm income in more than 56 Tennessee counties in the *1982 Census of Agriculture*. *Nursery Business* magazine ranked Tennessee as the fifth largest nursery producer in the nation in 1984. The Tennessee Department of Agriculture certified 764 nurseries on 25,168 acres in that same year. Tennessee is the largest producer in the South of narrowleaf evergreens, ornamental trees and deciduous plants. The 1984 cash receipts from farm marketings of greenhouse and nursery products were $193.8 million or 9.8 percent of total farm cash receipts in the state. Cash receipts from greenhouse and nursery products ranked fifth among all agricultural products behind cattle, dairy, tobacco and soybeans in 1984.

Warren County led all counties in the amount of square footage under glass or other protection as well as the open acreage in nursery products. Hamilton, Davidson, Sullivan and DeKalb counties had substantial square footage under protection, while open acreage in nursery products was important in DeKalb and Franklin counties.

Other Crops

Several other crops are produced in the state that were not discussed or listed in the tables above. Relatively few acres are used in producing them and production tends to be localized. Farm cash receipts, when compared to the state total, are low. However, specific commodities contribute to the farm income of some localities. Some examples include sorghum for syrup, sod harvested, greenhouse vegetables, mushrooms, blueberries, blackberries, mustard greens, field seed, grass seed, peanuts and popcorn.

LIVESTOCK DISTRIBUTION AND TRENDS

Total cash receipts from livestock and livestock products with a few exceptions were generally more than that of crops since 1960. Before 1960, cash receipts from crops generally exceeded cash receipts from livestock. Total farm cash receipts for crops and livestock as an annual average between 1982 and 1984 was over $1.98 billion. Livestock and livestock products made up about half (47.4 percent) of this total.

The relative importance of livestock enterprises for the state can be seen in Table 6. In this table, "Livestock and Livestock Products" include not only the usual livestock, beef cattle and swine, but also dairy, sheep, and poultry, as well as minor animal enterprises.

Cattle and calves led all categories of livestock in terms of cash receipts by contributing 39.6 percent. Dairy products sales ranked second at 30.9 percent and have shown greater stability than receipts from cattle and calf sales. Milk price supports and production controls have tended to stabilize milk price. Price and volume of marketings of cattle and calves have fluctuated rather widely.

Hogs ranked third as a source of income from livestock production and contributed 16.1 percent to total livestock receipts. Eggs and poultry ranked fourth.

The general trend in livestock production has been upward since 1866 (Figure 24). The increase since 1930 has been pronounced; the long-term increase was caused primarily by a sharp rise in beef cattle numbers. The long-run trend in numbers of sheep, hogs, horses and mules has been downward. The trend in the numbers of chickens, excluding commercial broilers, has been mixed, declining some since 1945.

Beef

The distribution of beef cattle in Tennessee in 1985, represented by beef cows per county, is presented in Figure 25. The Central Basin had the greatest density with lesser concentration in East and West Tennessee.

The long-term trend in beef cattle production has been generally upward with some cyclical variations (Figure 24). Tennessee ranked fourteenth among the 50 states in 1984 in the number of cattle and calves on farms. Cash receipts from cattle and calves in 1984 at $477.1 million ranked first among all farm commodities in the state and made up 24.0 percent of total farm cash receipts. Most of the receipts were from the sale of feeder calves. Forage and pasture production capability of much of the land and favorable climatic conditions are conducive to feeder calf production. Feeder calf production also blends well with part-time farming because the enterprise is not as labor intensive as many other enterprises. Many farmers who have other farm enterprises such as crops as a principal farm income source also produce feeder calves as a supplementary enterprise.

Some weaned feeder calves are backgrounded prior to feeding out by placement on full grain feed or a combination of grain and forage. Backgrounding is primarily the pasturing of weaned calves and growing them from about 400-500 pounds live weight to 600-700 pounds. After backgrounding, these calves are finished or fattened, usually in an out-of-state feedlot.

A limited number of cattle are fattened on grain and concentrates in Tennessee but cattle finishing is a minor enterprise. Most (4,670 farms) of the 4,951 farms that reported sales of fattened cattle in 1982 were small feeding operations with sales of less than 50 head.

Dairy

Tennessee ranked fourteenth among the 50 states in number of milk cows in 1984. The distribution of milk cows (Figure 26) shows the greatest density in the Central Basin followed by the East Tennessee Valley. Whole milk not only supplies local markets but is manufactured into cheese, ice cream and ice cream mix, milk sherbet and milk sherbet mix, ice milk and ice milk mix, dried skim milk, condensed milk, evaporated milk and creamery butter, much of which is shipped out-of-state. About 90.9 percent of the total milk production of 2.152 billion pounds was marketed off the farm to plants and

Table 6. Inventory Number and Cash Receipts from Livestock and Livestock Products, Tennessee[a]

Commodity	Inventory January 1, 1985	Average Annual	1982-84 Cash Receipts as a Percentage of Total Livestock Receipts
	(number in thou.)	(thou. dollars)	(percent)
Cattle and calves[b]	2,175	371,258	39.6
Milk cows and replacement dairy heifers	300	- - -	- - -
Dairy products	- - -	289,859	30.9
Hogs and pigs	1,100[c]	150,562	16.1
Eggs	- - -	43,269	4.6
Chickens (not including broilers)	4,100	60,139[d]	6.4[d]
Broilers produced	64,521[e]	- - -	- - -
Sheep and lambs	9	251	0.03
Wool	- - -	24	0.003
Other	- - -	21,640	2.3
Total	- - -	937,003	100.0

[a]Source: Tennessee Agricultural Statistics, 1985 Annual Bulletin.

[b]Cattle and calves include beef heifers, all steers and all bulls.

[c]Hog inventory as of December 1, 1984.

[d]Chicken cash receipts include broilers.

[e]Broiler inventory for 1981, the latest available data.

dealers in 1984; 0.3 percent was sold by farmers directly to consumers; 8.8 percent was used on farms where it was produced as milk, cream and butter for family members and as milk for calves. In 1940 more farms reported sales of cream than reported sales of fluid milk. However, the practice of marketing cream has all but disappeared.

Dairy cow numbers trended upward from 1870 to the late 1950's. Since 1960, cow numbers have decreased. The number of milk cows on farms in 1984 (208,000) was about 44 percent of the number in 1960 (Figure 24). Also, the number of commercial farms from which milk and cream were sold declined sharply the last 20 years. Milk and cream were sold on 4,189 farms in 1982, which was only 18.8 percent of the number of farms on which these products were sold in 1964. However, total milk production changed little because milk production per cow increased from 4,600 pounds per cow per year in 1960 to 10,346 pounds in 1984.

Swine

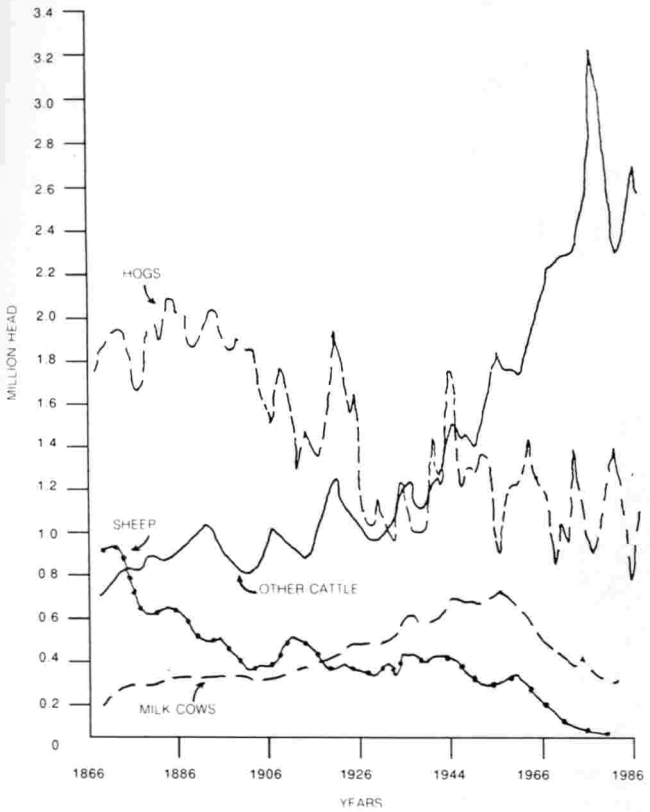
Hog and pig numbers totaled 1.1 million in 1984 with the heaviest concentration in West Tennessee, especially in Weakley, Henderson, Gibson and Obion counties (Figure 27). These counties are also important in the production of corn, the principal feed for hogs.

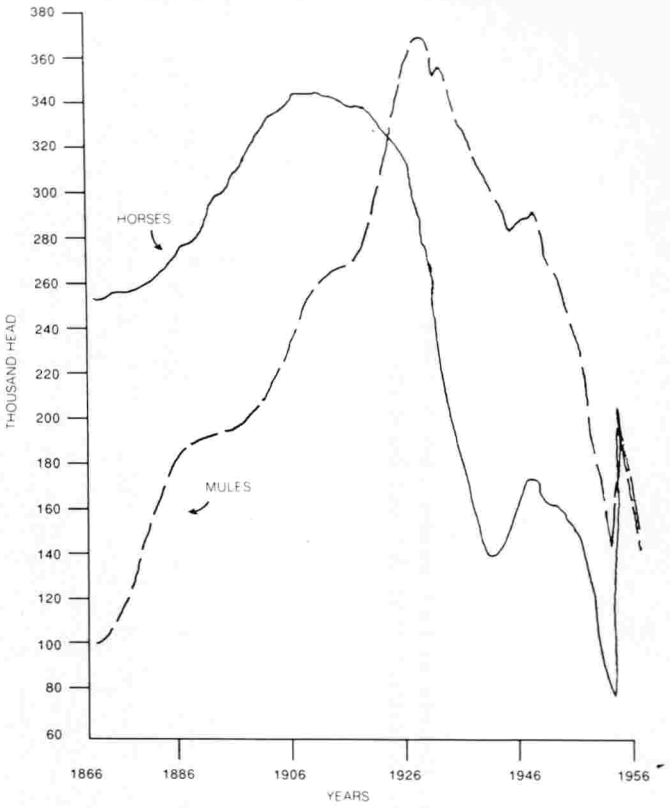
Tennessee ranked first in the country in hog production in 1840 and 1850, producing about 3 million head. In 1984 the state ranked fourteenth out of 50 states in commercial hog inventories.

Tennessee is an important state in the production of feeder pigs. Feeder pigs accounted for about 14.5 percent of the sales from hogs in 1982. Counties which ranked the highest in sales of feeder pigs included Henderson, Smith, White, Hardin and Lawrence counties.

Over 525,000 feeder pigs were sold through organized Tennessee feeder pig sales in 1985 at 13 auction locations. Feeder pigs are also sold directly by producers to finishers. Over half the

Figure 24. Trends in Livestock in Tennessee, 1866-1985
(Source: *Agricultural Trends in Tennessee Crop and Livestock Statistics 1866-1960*, Tennessee Department of Agriculture, September, 1964; and *Tennessee Agricultural Statistics* Annual Bulletins for years 1961 through 1985, Tennessee Crop Reporting Service.)





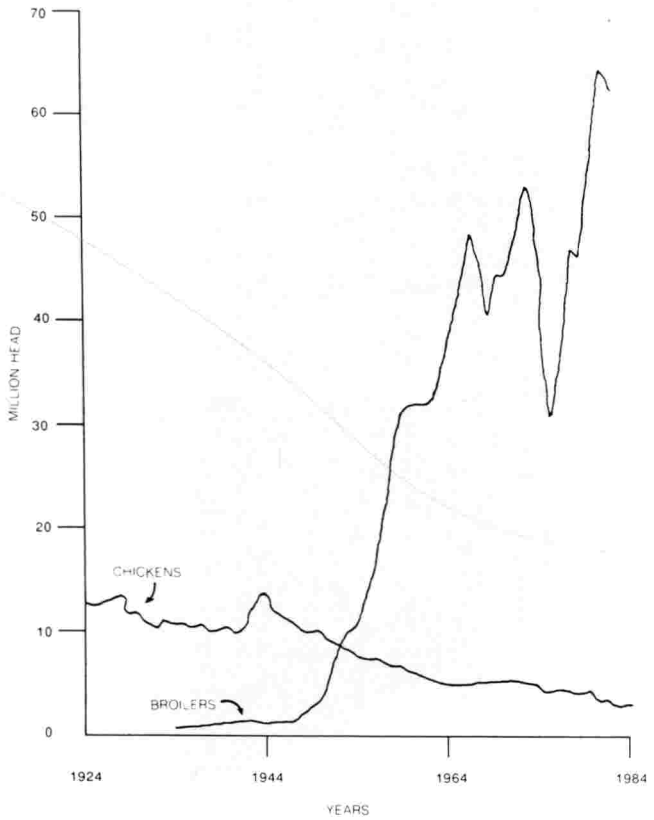


Figure 25. Beef Cows on Farms by County in Tennessee, Jan. 1, 1985
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)

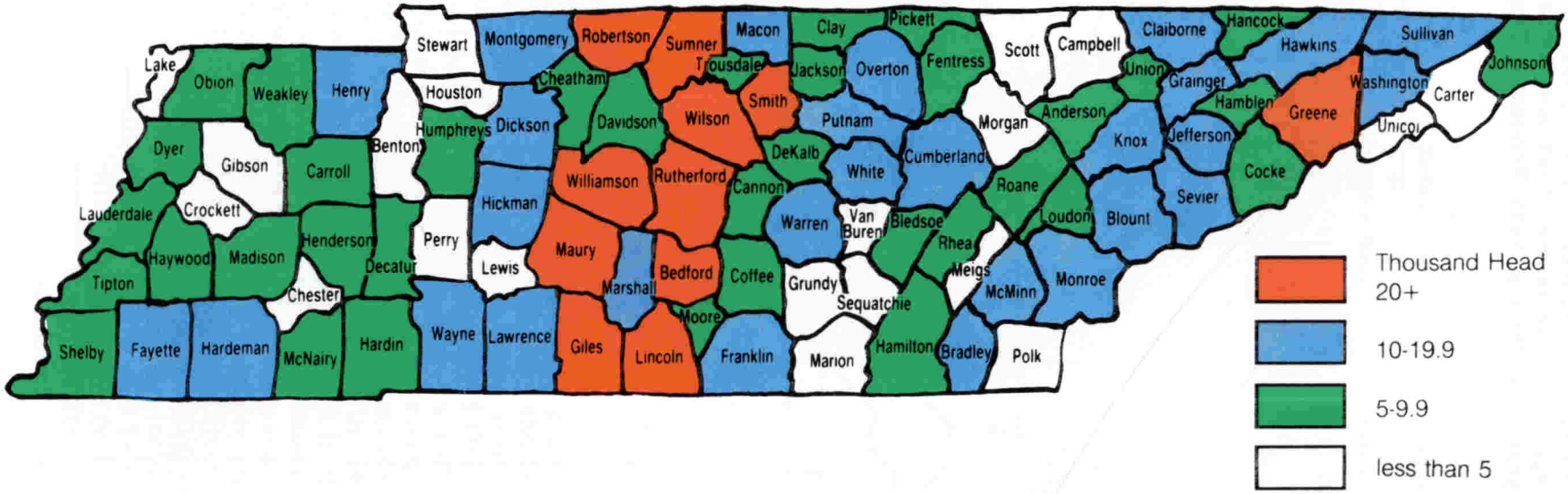


Figure 26. Milk Cows on Farms by County in Tennessee, Jan. 1, 1985
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)

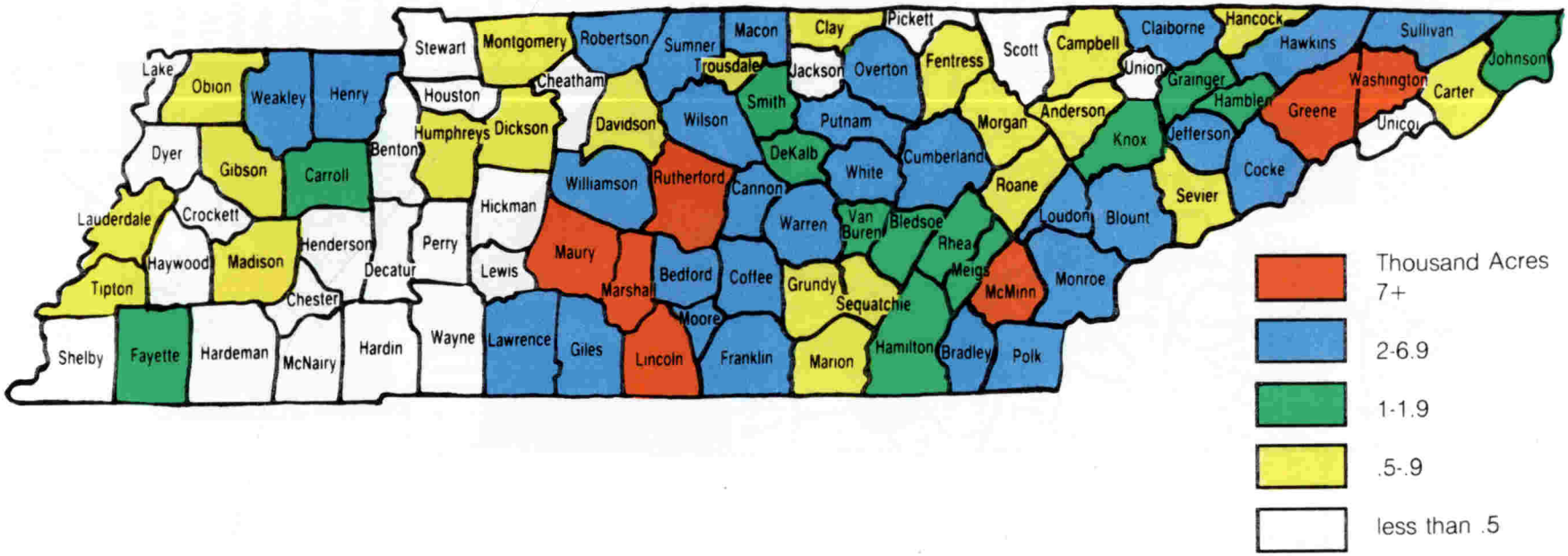
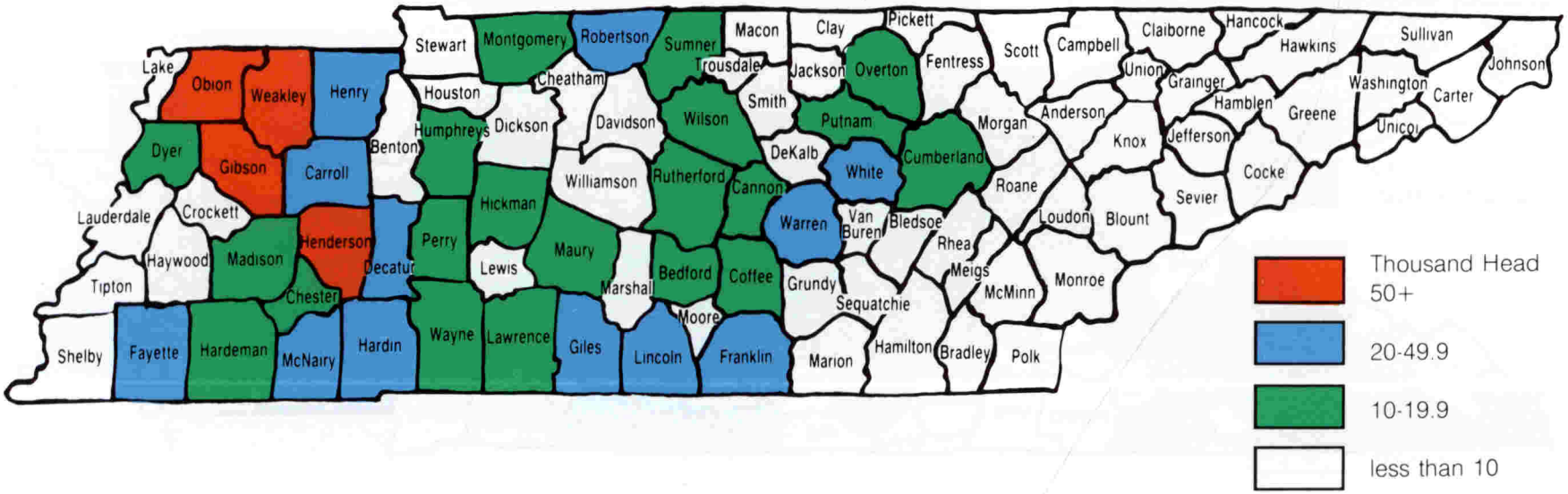


Figure 27. All Hogs and Pigs on Farms by County in Tennessee, Dec. 1, 1984
(Source: Tennessee Agricultural Statistics 1985 Annual Bulletin)



pigs produced on Tennessee farms are finished on the same farms in farrow-to-finish production systems.

Poultry

Poultry, as farm flocks, once were prevalent and well distributed over the state. However, the number of farms having small farm flocks has declined sharply to an insignificant level. The national movement of the poultry industry toward large-scale production at the farm level which tends to be highly integrated or linked with large-scale feed suppliers and poultry products processors accounts largely for this decline. The broiler industry in Tennessee is one example of this integration. The farmer supplies inputs such as housing and utilities along with labor and shares management responsibility with the feed supplier-processor. The supplier-processor provides inputs such as chicks, feed and management as needed to produce the broilers. Hence, the level of decision making for production and marketing is integrated across production-marketing levels in the marketing chain.

The egg industry is less integrated than broilers, especially in Tennessee where production is not as important as in some other Southeastern states. Nevertheless, only about one-third of the eggs produced in Tennessee are still produced by independent farmers. Current trends in the industry indicate that egg production is moving toward the level of integration prevalent in the broiler industry.

Poultry production on a commercial scale is somewhat geographically concentrated. Concentration in the case of broilers is primarily east of Nashville and appears to be mostly a function of location related to feed supplier-processors. The more important counties in broiler production include Bradley, McMinn, Grundy, Polk, Hamilton, Franklin, Bedford and Fentress.

Egg production among contract producers seems to be a function of location of major demand centers for eggs and location of feed suppliers. Independent producers are more dispersed across the state than the integrated producers. The more important counties in egg production include Fayette, Robertson, Sumner, Franklin, Bedford, McNairy and Warren. About one-half of the eggs produced in Tennessee are marketed in the state. The 1984 farm cash receipts for eggs were $44 million.

Horses, Ponies and Mules

Before the widespread adoption of tractor power in Tennessee, horses and mules were the major source of power used for farming. As shown in Figure 24, horse numbers on farms reached a peak in 1950, while mule numbers continued upward until 1922. Total workstock units (horses and mules) reached a maximum in 1920, two years later than the peak for the U.S. The decline of horses preceded that of mules because horses were the first to be replaced by motor power.

While the number of draft-type horses declined drastically since the 1920's, a rather significant increase in the number of horses and ponies of light breeds occurred in recent years. Although the collection of annual farm data on horses and mules was discontinued during the mid-fifties, the American Horse Council estimated that there were about 221,000 head of equine in the state in 1985. About 90 percent of these were light breeds used for breeding, riding, showing and racing. Only 53,951 horses and ponies were inventoried on farms in the state in 1982 (Figure 28). Tennessee ranked second in the Southeast in 1985 in the number of head of equine and tenth among all states in the nation. Many equine are not boarded on farms but are located in suburban and rural nonfarm residential areas. For example, the metropolitan counties, such as Shelby, Knox, Davidson and Hamilton, have among the largest number of head per county among all counties in the state. Most of these equine are not owned by farmers. Counties leading in the number of horses and ponies on farms were mainly in Middle Tennessee, namely Williamson, Rutherford, Giles, Sumner and Bedford counties and Shelby County in West Tennessee.

The Tennessee walking horse, a famous show and pleasure riding breed, originated in Middle Tennessee during the early history of that area. The breed was officially recognized in the 1930's by the organization of a breed association. The center of breeding and production of Tennessee walking horses is in Marshall and Bedford counties and in surrounding counties of Middle Tennessee. In addition to this breed, all of the major breeds are generally represented in the state.

Data on the economic importance of the horse industry in Tennessee are limited. However, aggregate income to farm and nonfarm interests is quite significant and is especially important in some local areas.

Other Products

Several other animal and related products are produced in the state that were not discussed above. Relatively few farms are involved in their

production and, in most cases, production is localized. Cash receipts, when compared to the state total, are low. However, some of these commodities contribute significantly to the farm income of individuals in some localities. Furthermore, some of the minor enterprises contribute to the agricultural economy in ways that are difficult to quantify. An important example is honey bees in the pollination of some agricultural crops. Such benefits are not reflected in cash receipts from sales of honey and bee colonies, but are nevertheless quite important. Some examples of other enterprises in addition to honey bees include sheep, goats, mules, fish, rabbits and worms.

Figure 28. Horses and Ponies on Farms by County in Tennessee, 1982
(Source: 1982 Census of Agriculture, Vol. 1, Part 42)

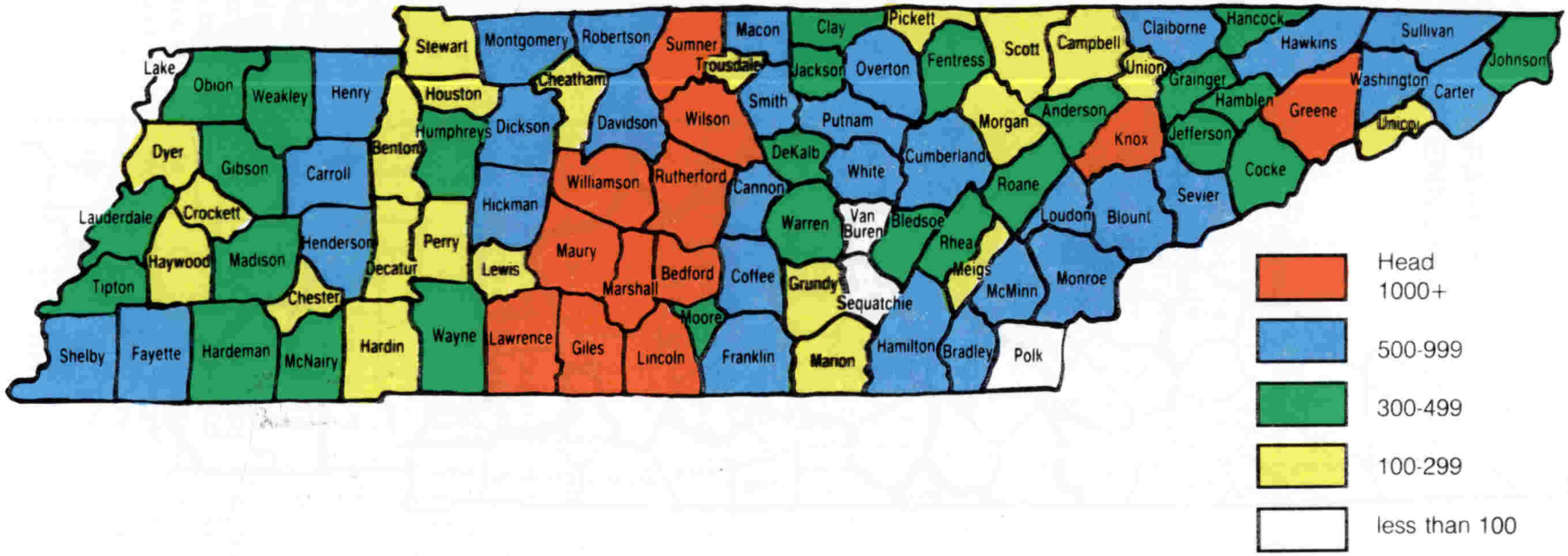
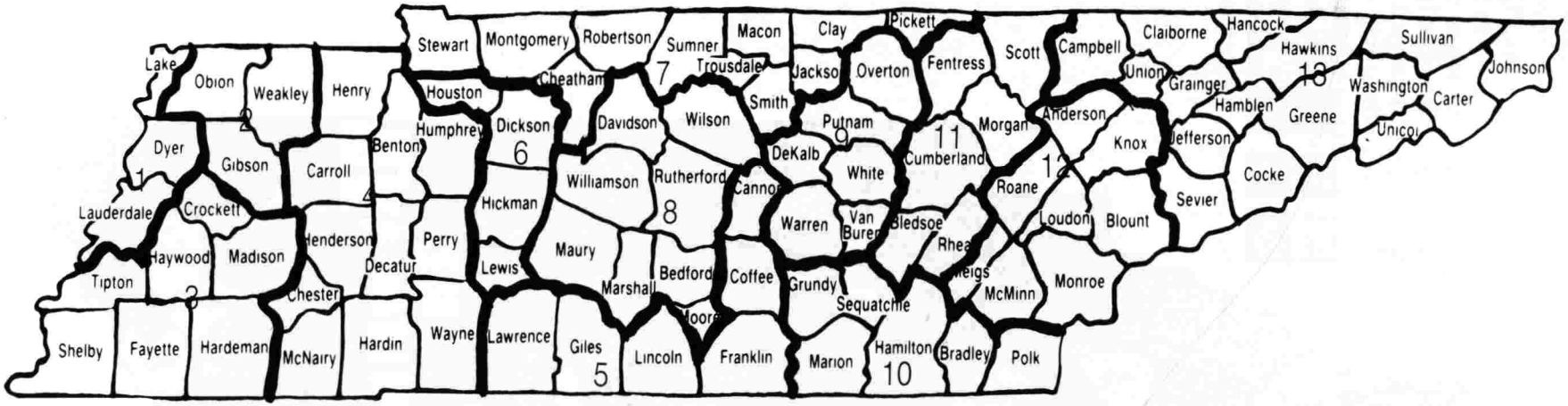


Figure 29. Types-of-Farming Areas in Tennessee



1. Cash-grain
2. Cash-grain, Livestock
3. Cash-grain, Cotton, Livestock, Poultry
4. Cash-grain, Livestock
5. Livestock, Cash-grain, Dairy
6. Livestock, Tobacco
7. Tobacco, Livestock
8. Livestock, Dairy, Tobacco
9. Livestock, Tobacco, Horticultural, Dairy
10. Livestock, Poultry, Specialty Crop, Dairy
11. Livestock, Vegetable, Cash-grain, Dairy
12. Dairy, Livestock, Tobacco
13. Tobacco, Livestock, Dairy

TYPES-OF-FARMING AREAS IN TENNESSEE

Thirteen types of farms in Tennessee were recognized in the *1982 Census of Agriculture*: cash grains, cotton, tobacco, other field crops, vegetables and melons, fruits and tree nuts, horticultural specialties, livestock (except dairy), dairy, poultry and eggs, animal specialties, general (primarily crop) and general (primarily livestock) (Table 7). The classification was based on source of cash income. A farm was classified as a given type if 50 percent or more of the value of all products sold in 1982 was from the source indicated by the named type. For example, a farm was classified as a dairy farm if 50 percent or more of its cash income in 1982 was derived from the sale of dairy products.

Farms were classified as general when the value of products from any one source or a closely allied group of sources did not represent as much as 50 percent of all products sold. General farms were classified into two groups: primarily crop and primarily livestock. Some farms included in the *1982 Census of Agriculture* were abnormal farms and were excluded from the type-of-farm classifications.

Localization of farms of a certain type or combination of types gave rise to types-of-farming areas. Among Figures 12 through 28, some show the distribution of the important crop and livestock enterprises in Tennessee. These figures indicate that production of one or a combination of enterprises in an area determined the primary source or sources of income and, hence, the types of farms in the area. Usually more than one type of farming was practiced in an area; therefore, to describe an area adequately, a major type and one or more minor types of farming were often indicated and named in the description.

In many areas of the state, the boundaries to the types-of-farming areas are not sharply defined, especially in the western part of the state where the topographic and other physical characteristics of the landscape are more uniform. Hence, one type of farming tends to shade off gradually into another type. In other parts of the state, the boundaries of types-of-farming areas are fairly well defined by abrupt changes in topography, such as the line following the bluff separating the Mississippi Bottoms and the Plateau Slope, or the break between the Central Basin and the Highland Rim, or the East Tennessee Valley and the Cumberland Plateau. However, delineation of areas based on such differences was, for the most part, impossible because of data limitations. The county was the smallest spatial unit of observation on which data were available in the *1982 Census of Agriculture*. Therefore, county data were utilized to identify the types-of-farming areas. As a result, county boundaries served in some cases as approximations of the "true" boundaries between the areas that, in reality, were functions primarily of physical and economic differences rather than politically established county boundaries. Under the constraint of this data limitation, 13 major types-of-farming areas were identified based on county data (Figure 29). In each of the areas, one or a combination of types of farming prevailed.

Area 1 - Cash Grain - Mississippi Bottoms

Area 1, located at the extreme northwestern end of the state, includes Lauderdale, Dyer and Lake counties. The area is the northern extension of the Mississippi Delta; it consists mainly of the floodplain east of the Mississippi River (Figures 1 and 29). However, the eastern half of Dyer County lies on the Northern Plateau Slope. Area 1 contains 2.8 percent of the land area of the state and slightly over 4.5 percent of the farmland.

The major part of the soils in Area 1 coincides very closely with Soil Association 17 (Figure 2). The predominant soils are Commerce, Robinsonville and Sharkey which were primarily from alluvium. These soils have great natural fertility and they produce abundant yields of adapted crops.

The climate is mild and humid. The average annual precipitation is 50 inches. The heaviest

Table 7. Relative Importance of Farm Types by Number, Size, and Values in Tennessee, All Farms, 1982[a]

Type of Farm	Farms	Farms	Farm Area	Average Size of Farm	Value of Land and Buildings	Value of Farm Product
	(number)	(percent)	(percent)	(acres)	(percent)	(percent)
All farms	90,540[b]	100.00	100.00	138	100.00	100.00
Cash grain	10,994	12.14	26.44	300	23.92	24.68
Cotton	1,010	1.12	3.37	416	3.41	4.54
Tobacco	26,481	29.25	14.49	68	16.75	12.25
Other field crops	2,024	2.24	1.77	109	2.13	0.71
Vegetables and melons	769	0.85	0.59	96	0.80	1.15
Fruits and tree nuts	355	0.39	0.20	71	0.25	0.10
Horticultural specialties	701	0.77	0.48	85	1.05	3.39
Livestock[c]	39,336	43.45	38.40	122	36.41	23.00
Dairy	3,231	3.57	7.09	274	7.42	18.45
Poultry and egg	713	0.79	0.49	86	0.72	6.06
Animal specialties	1,407	1.55	0.77	68	1.50	0.82
General (primarily crop)	2,537	2.80	4.13	203	3.95	3.38
General (primarily livestock)	982	1.08	1.52	194	1.27	1.14
Farms with sales of $10,000 or more	25,444	28.10	38.13	302	58.80	86.49
Farms with sales of less than $10,000	65,096	71.90	61.62	73	40.84	13.19

[a]Source: *1982 Census of Agriculture.*

[b]Does not include abnormal farms such as state-owned farms.

[c]"Livestock" includes beef and swine but not dairy and animal specialty.

rainfall occurs in the late winter and early spring months, while the driest seasons are late summer and early autumn. The growing season varies from 210 to 220 days.

About 75 percent of the total land area was in farms in 1982 with over 81 percent of all farmland in the area being harvested cropland. Soybeans accounted for 83 percent of the harvested cropland; wheat, almost 31 percent; and cotton, corn, sorghum, hay and vegetables accounted for the rest (Table 8).

Sixty-six percent of the farms in the area were cash-grain farms. Almost 23 percent of the farms in Area 1 were classified as nondairy livestock farms. This emphasis mainly came from beef although some swine were produced in the area. Forty percent of farm operators were full-owners, 40 percent were part-owners and 20 percent were tenants.

Farming was on a large scale compared with other areas in the state. The average-size farm was 357 acres compared with 138 for the state.

Area 2 - Cash Grain, Livestock - Northern Plateau Slope

Area 2, located in northwestern West Tennessee, includes Obion, Weakley and Gibson counties (Figure 29). The area contains 4.2 percent of the land area of the state and almost 6.2 percent of the farmland area. Cash grain and nondairy livestock were the predominant types of farming in 1982.

The major part of the soils in Area 2 coincides with Soil Association 15 (Figure 29). Only the soils in the western part of Obion County correspond to Soil Association 16. The soils are mainly from deep or moderately deep loess with the Grenada, Loring and Memphis series predominating. Yields of major crops are above the state average. Average annual precipitation is about 50 inches. The growing season varies from 200 to 210 days.

Seventy percent of the total land area was in farms in 1982. Of the farmland, about 72 percent was in harvested cropland, and slightly more than 9 percent was woodland, including woodland pasture (Table 8). Approximately 10 percent was other cropland and cropland used for pasture. Other land (mainly pasture) made up 8 percent of the area. Average farm size in the area at 228 acres was larger than the state average. The percentage of farms operated by tenants was low at about 8 percent. Full and partial ownership at about 58 and 34 percent of all farms, respectively, were the predominant tenure arrangements in the area.

Fifty-five percent of the farms in the area were cash grain with soybeans being the most important crop in 1982. Over 63 percent of the harvested cropland acreage was soybeans. Wheat accounted for about 26 percent, and corn accounted for about 21 percent.

Almost 34 percent of the farms in the area were classified as livestock with swine production leading beef production in farm numbers and sales. Swine production was enhanced by favorable soil, topography, and climate for corn production.

Area 3 - Cash Grain, Cotton, Livestock, Poultry - Southern Plateau Slope

Area 3 is made up of the seven southwestern counties of Tennessee: Shelby, Tipton, Fayette, Haywood, Crockett, Hardeman and Madison (Figure 29). The area accounts for slightly more than 7 percent of the land area of the state and about 11.6 percent of the state's farmland. Cash grain, cotton, livestock and poultry farming predominated in the area in 1982.

The Memphis-Loring and Grenada-Loring-Memphis Soil Associations cover most of the area (Figure 2). The area slopes south and west from about 600 feet elevation in the east and 400 feet in the northwest to 250 feet at Memphis. The topography is undulating to rolling with some dissected or broken portions, particularly in the eastern part. The loess or silty windlaid material is of considerable depth in the western portion of the area. However, the loess becomes thinner toward the east where soils of Coastal Plains origin are exposed on slopes. Drainage is satisfactory on the uplands, but the riverbeds in many places have been cut down almost to the level of the outlets into the Mississippi causing drainage problems after heavy rains. Many of the river bottoms are low, marshy and covered with forests.

Precipitation in the area ranges from about 50 to 54 inches per year. The growing season ranges from 200 days on the eastern border to 230 days at Memphis.

Almost 58 percent of the total land area was in farms in 1982 (Table 8). Of the farmland, 61 percent was in harvested cropland; 12.1 percent was in other cropland and cropland pasture; about 16 percent was in woodland; and about 10 percent was in other land (mainly pasture). Average farm size in the area was 289 acres which was considerably larger than the state average. Land tenure percentages were approximately 55, 34 and 11 percent for full-ownership, part-ownership and tenancy, respectively.

Thirty-two percent of the farms in the area were classified as cash grain. Sixteen and 37 percent, respectively, were classified as cotton and nondairy livestock farms. Soybeans and cotton were the major row crops grown in the area. Soybeans accounted for 61 percent of the harvested crop acreage, while cotton accounted for 20 percent. Wheat and corn accounted for about 15 and 3 percent of the harvested crop acreage, respectively.

Cash grain and cotton sales as a percentage of total sales were 41 and 31 percent, respectively, and were followed by poultry (primarily in Fayette County), cattle and calves, and hogs and pigs at about 8, 7 and 6 percent, respectively. Swine production tended to increase from the southwestern counties to the northwestern counties.

Area 4 - Cash Grain, Livestock - Eastern Plateau Slope

Area 4 is composed of two tiers of counties extending across the state north to south, parallel to the portion of the Tennessee River Bottoms where the river flows north (Figures 1 and 29). The area has 13.3 percent of the total land area of the state and slightly over 11.5 percent of the farmland. Counties included in the area are Henry, Carroll, Benton, Henderson, Decatur, Chester, McNairy, Hardin, Humphreys, Perry and Wayne. Hilly areas are located especially in the watershed of and close to the Tennessee River which drains most of the area.

Table 8. Types-of-Farming Areas and Their Major Agricultural Characteristics, Tennessee, 1982[a]

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10	Area 11	Area 12	Area 13
Number of farms	1,581	3,401	5,030	7,536	7,953	2,397	11,087	10,817	5,984	2,486	2,614	7,165	22,314
Average size farms (acres)	357	228	289	191	151	157	123	142	118	128	168	102	70
Percent of total land in farms	75.2	69.7	57.9	40.7	60.8	37.1	56.4	61.9	50.0	20.3	26.7	34.9	42.8
Type of farming	proportion of all farms in area (percent)												
Cash grain	66.0	54.7	31.7	33.4	15.4	7.0	8.2	5.8	6.3	7.3	5.2	2.5	0.8
Cotton	2.7	2.3	16.4	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tobacco	0.0	0.6	0.0	1.1	8.2	17.5	50.5	17.4	25.5	1.0	7.5	26.2	63.7
Horticultural	0.1	0.4	0.9	0.1	0.5	0.1	0.1	0.3	6.3	2.0	0.3	0.8	0.2
Other field crops	1.0	1.6	1.9	2.0	2.6	3.7	1.7	2.9	2.5	3.8	4.1	3.4	1.4
Vegetables and melons	3.4	0.9	1.8	0.8	0.9	1.4	0.3	0.5	0.4	1.0	4.9	1.0	0.5
Fruits and tree nuts	0.4	0.3	0.5	0.4	0.3	0.7	0.2	0.3	0.6	1.4	0.8	0.6	0.3
Livestock[b]	22.8	33.7	37.3	55.6	59.8	63.1	32.4	59.6	48.8	61.2	63.1	52.8	25.0
Dairy	0.5	1.5	0.9	1.0	6.1	0.9	1.8	5.7	4.0	5.3	3.9	4.8	4.1
Poultry and egg	0.1	0.1	0.8	0.3	0.7	0.4	0.4	0.6	0.2	10.1	2.8	1.2	0.2
Animal speciality	0.6	0.9	3.2	1.6	1.4	2.4	1.1	2.9	0.8	2.3	2.1	2.5	0.6
General (crop)	1.8	2.3	3.6	1.9	2.6	2.5	4.2	2.6	3.6	3.1	3.8	3.2	2.2
General (livestock)	0.4	0.6	1.1	1.1	1.6	1.2	1.0	1.5	1.0	1.4	1.4	0.9	0.9
Tenure	proportion of all farms in area (percent)												
Full-owner	41.3	57.7	55.0	65.8	73.5	75.8	69.6	75.3	73.5	75.4	74.4	73.8	75.3
Part-owner	39.6	33.8	33.7	27.3	20.7	19.5	22.3	18.6	20.5	20.7	21.1	20.8	17.7
Tenant	19.1	8.5	11.3	6.9	5.8	4.7	9.9	6.1	5.9	3.9	4.5	5.4	7.0
Total farmland use	proportion of total farmland in area (percent)												
Harvested cropland	81.3	72.2	61.3	37.8	32.9	17.0	28.9	24.7	25.1	25.4	23.5	24.8	20.1
Other cropland	2.1	2.6	3.6	3.2	2.4	3.7	5.0	2.9	4.2	3.0	3.6	4.1	4.6
Cropland pasture	5.7	7.9	8.5	13.7	23.3	25.2	23.1	29.8	24.3	25.4	22.2	29.6	30.5
Total woodland	5.0	9.4	16.4	34.1	25.5	40.7	27.7	25.3	31.4	32.4	40.1	27.9	28.7
Other land	5.8	8.0	10.2	11.1	15.9	13.5	15.3	17.2	15.0	13.8	10.6	13.6	16.1

(Continued)

Table 8 (continued)

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10	Area 11	Area 12	Area 13
Harvested cropland use	proportion of harvested cropland in area (percent)												
Corn	2.0	20.7	3.0	21.1	17.0	17.7	16.7	9.4	19.0	12.6	18.2	8.7	11.8
Sorghum	2.0	1.7	2.6	2.5	0.5	0.7	0.1	0.5	0.3	0.4	0.0	0.0	0.0
Wheat	30.7	26.4	14.6	12.5	16.1	6.9	7.3	14.7	5.7	11.1	5.7	6.8	1.9
Soybeans	83.6	63.5	60.7	54.5	40.5	18.9	35.4	27.1	22.5	27.3	17.7	13.1	2.3
Hay	2.7	4.6	5.5	14.9	30.5	53.2	32.8	49.0	42.9	50.1	43.7	64.3	66.3
Cotton	3.0	3.0	20.3	1.1	1.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Tobacco	0.0	0.0	0.0	0.1	0.6	2.9	7.1	2.0	2.6	0.1	0.7	2.7	9.9
Vegetables	0.1	0.1	0.5	0.1	0.3	0.1	0.1	0.2	0.4	0.6	10.3	0.5	0.5
Sales as a percent of total sales	proportion of total sales in area (percent)												
Cash grain	81.3	60.4	41.1	46.1	23.0	12.6	20.5	12.4	9.8	7.0	11.9	5.3	2.6
Cotton	5.0	3.6	30.7	1.4	0.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Tobacco	0.0	0.2	0.0	1.1	4.0	20.4	38.1	12.3	11.1	0.4	3.4	11.8	39.1
Hay	0.2	0.8	0.5	1.0	1.3	1.7	1.2	1.5	1.1	1.0	1.1	1.6	1.4
Vegetables	2.4	0.4	0.9	0.3	0.4	0.3	0.1	0.3	0.5	0.8	14.5	0.5	1.2
Nursery-greenhouse	0.0	0.1	1.4	0.1	2.2	0.4	0.0	1.8	25.6	2.9	0.1	3.4	0.8
Poultry	0.0	0.0	8.2	0.0	3.3	0.1	4.2	3.6	1.7	44.8	6.4	9.5	1.5
Dairy	1.5	5.4	2.6	4.2	28.3	5.8	7.9	28.1	19.8	12.0	17.2	37.2	22.7
Cattle and calves	5.1	4.1	6.9	7.2	20.4	36.6	17.8	29.2	18.5	13.4	24.3	21.2	21.2
Hogs and pigs	0.9	17.3	5.8	27.3	11.4	16.8	3.1	4.7	6.7	0.8	10.1	2.2	1.8
Other	3.5	7.7	1.9	11.2	4.9	5.4	7.0	5.8	5.2	16.9	10.9	7.4	7.6

[a]Source: *1982 Census of Agriculture.*

[b]"Livestock" includes beef and swine but not dairy and animal specialty.

Area 4 was similar to Area 2 in kinds of commodities produced, but the mix of enterprises was quite different. Instead of cash grain being the predominant type as in Area 2 (Table 8), nondairy livestock farming predominated in 1982. The soils of the area (Figure 2) are mainly from the Grenada-Loring-Memphis Soil Association and the Lexington-Shubuta-Ruston-Dulac Soil Association west of the Tennessee River and Bodine-Mountview-Dickson and the Shubuta-Waynesboro-Bodine Soil Associations east of the river. Soils in the area range from gravelly or sandy in the hilly areas of the east to the fertile, easy-to-manage bottoms of the west. Most of the soils in the area are low in fertility and are difficult to conserve. The steeper slopes are largely in forests. Where they have been cultivated, erosion has been severe.

Precipitation in the area ranges from about 50 inches in the northern counties of Henry, Benton and Carroll to about 54 inches in the southern counties. The growing season averages about 200 days.

About 38 percent of the total farmland in the area was harvested cropland in 1982 (Table 8). Almost 14 percent of the total farmland was in cropland pasture and over 34 percent of the farmland was in woods.

Slightly under 7 percent of the farms were operated by tenants; 66 percent of the farms were operated by full-owners; and the remainder were part-owners. Average farm size at 191 acres was larger in Area 4 than for the state.

Soybeans was the major row crop grown in the area, accounting for 54 percent of the harvested crop acreage. Corn was the second most important crop, utilizing 21.8 percent of the harvested crop acreage, followed by hay with almost 15 percent. Cash grain sales made up 46 percent of total farm sales in the area, but only about a third of all farms were classified as cash grain farms. Fifty-six percent of the farms in the area were classified as livestock with swine production being the most predominant, accounting for 27 percent of total farm sales. Beef production was the second most important livestock enterprise, accounting for 7 percent of total farm sales.

Area 5 - Livestock, Cash Grain, Dairy - Southern Highland Rim

Much of Area 5 coincides for the most part with the Southern Highland Rim and is level to rolling (Figures 1 and 29). A portion of the area extends into the Eastern Highland Rim and includes Cannon and Coffee counties which tend to be more rough and hilly than the southern counties of Lawrence, Giles, Lincoln and Franklin. It has 7.4 percent of the total land area of the state and 9.6 percent of the farmland.

Although the major soils in Area 5 are of the Baxter-Mountview-Dickerson and Dellrose-Mimosa-Bodine Soil Associations, several other soils are found (Figure 2). Lawrence County is dominated by the soils in the Bodine-Mountview-Dickerson Association. The central part of Franklin County contains soils from the Waynesboro-Cumberland-Sequatchie Association, while the soils in the southern part are primarily from the Ramsey-Hartsells-Stony Land Association.

Precipitation in the area ranges from about 50 inches in Cannon County to 54 inches for the rest of the area. The growing season averages about 200 days.

About 61 percent of the total land area was in farms with slightly under one-third of the farmland being harvested cropland in 1982 (Table 8). Twenty-three percent of all farmland was cropland pasture, and 26 percent of the farmland was in woods. Sixteen percent of all farmland was other land (mainly pasture).

Slightly under 6 percent of all farms were operated by tenants. In contrast, 74 percent of all farms were operated by full-owners. About 21 percent were part-owners. Farms in the area averaged 151 acres compared to 138 acres for the state.

Soybeans and corn were the major cash grain crops grown in the area. Soybeans accounted for 40 percent of the harvested cropland acreage, while corn accounted for 17 percent and wheat, 16 percent. Only about 15 percent of all farms were classified as cash grain.

Sixty percent of the farms were classified as nondairy livestock farms with cattle and calf production being the most important nondairy livestock enterprise according to sales. Beef and swine together accounted for 32 percent of total farm sales in the area. Swine was less important on the basis of percentage of total sales than in Areas 2 and 4, but hog and pig sales still contributed over 11 percent to total sales.

Only about 6 percent of the farms in the area were classified as dairy but sales of dairy products accounted for over 28 percent of total agricultural sales in the area, the highest of all commodity sales categories. Because of the importance of the beef and dairy enterprises, hay and pasture were grown extensively throughout the area.

Area 6 - Livestock, Tobacco - Western Highland Rim

Area 6 contains almost 4 percent of the land area of the state and 3 percent of the farmland. Four counties—Lewis, Hickman, Dickson and Houston—comprise the area (Figure 29). Elevation varies from about 900 feet in the south to 650 feet in the north. Drainage is by the Tennessee and Cumberland rivers and their tributaries. The topography is rolling to rough with deep and narrow valleys.

The area is made up primarily of the Bodine-Mountview-Dickson Soil Association (Figure 2). Soils are generally shallow, cherty and low in natural fertility. However, considerable areas of productive river bottoms are located along the Tennessee and Duck rivers and their tributaries.

Precipitation in the area ranges from about 50 inches annually in the northern sections to about 54 inches in the southern sections. Length of the growing season ranges from about 185 to 190 days.

Slightly over a third of the land area was in farms in 1982 (Table 8). Of the farmland, less than a fifth was harvested cropland. Cropland pasture accounted for almost 26 percent of the farmland. Much of the farmland (40 percent) in the area was in forest. The average-size farm in the area was 157 acres, which was about 13 percent larger than the state average of 138 acres. The area had a low rate of tenancy at 4.7 percent of all farms, while full-ownership occurred on 76 percent of the farms and part-ownership on about 20 percent of the farms.

Sixty-three percent of the farms in the area were classified as nondairy livestock farms; 7 percent, cash grain; and 17 percent, tobacco. Most of the tobacco farms were located in the northern portion of the area.

In terms of value of sales, beef production was the most important farm enterprise in the area, accounting for almost 37 percent of total farm sales. To support large numbers of cattle, 53 percent of the harvested crop acreage was in hay. Swine production was the second most important livestock enterprise in the area, accounting for almost 17 percent of total farm sales. Tobacco at over 20 percent of total sales was the most important row crop in terms of sales and second only to cattle and calves among all commodities. Soybeans and corn were the major row crops in terms of acreage grown in the area, accounting for 37 percent of crop acreage harvested when taken together. Most of the corn was consumed by livestock within the area. Soybeans was the major cash grain grown in the area and accounted for almost 19 percent of harvested cropland acreage.

Area 7 - Tobacco, Livestock - Northern Highland Rim

Area 7 is located primarily on the Northern Highland Rim and includes the 11 counties of Stewart, Montgomery, Cheatham, Robertson, Sumner, Trousdale, Macon, Smith, Jackson, Clay and Pickett (Figures 1 and 29). The area occupies 9 percent of the total state land area. Farmland in the area accounts for 9.1 percent of the total farmland in the state.

The topography ranges from almost level to hilly. The hilly areas are next to the Central Basin and in the vicinity of the Cumberland River. The elevation is 600 to 700 feet with the slope in general being to the northwest. Drainage is by the Cumberland River and its tributaries.

The soils are largely in the Bodine-Mountview-Dickson, Pembroke-Crider-Baxter, Dellrose-Mimosa-Bodine, Maury-Mimosa-Rockland and Baxter-Montview-Dickson Soil Associations (Numbers 11, 12, 8, 9 and 7, respectively, in Figure 2). Soil productivity varies widely. For example, the soils of the Bodine-Mountview-Dickson Association are less productive than the soils in the Pembroke-Crider-Baxter Association, which respond well to good management.

The growing season varies from about 190 days in the eastern part to about 200 in the southern part. Annual precipitation ranges from a low of 44 inches in areas of Montgomery, Robertson and Cheatham counties to a high of 56 inches in areas of Clay, Jackson and Pickett counties.

Fifty-six percent of the land area was in farms in 1982 (Table 8). Slightly more than a fourth of all farmland was cropland used for pasture. Woodland accounted for another 27 percent of the farmland and other land (mainly pasture), 15 percent. The large acreage in pasture was necessary to support the large number of beef cattle in the area. To provide winter feed for these animals, one-third of all crop acreage harvested was devoted to hay production. Soybeans, corn and wheat accounted for about 35, 17 and 7 percent, respectively, of the harvested cropland acreage.

The average farm size was 123 acres, which was below the state average. The prevailing tenure arrangement was full-ownership (about 70 percent of all farms); however, the rate of tenancy at 10 percent of all farms was higher than in neighboring types-of-farming areas.

Over 50 percent of the farms were classified as

tobacco farms and over 38 percent of total cash receipts in the area came from tobacco. However, tobacco utilized only 7.1 percent of the harvested crop acreage. Three types of tobacco were grown in the area. In Stewart, Montgomery, Robertson and Cheatham counties, most of the harvested acreage was dark-fired tobacco, second was burley, followed by dark air-cured. Sumner County had some dark-fired and dark air-cured tobacco but was predominantly a burley producing county. Burley was the predominant type grown in the rest of the counties in the area.

Thirty-two percent of the farms in the area were classified as nondairy livestock farms with cattle and calves accounting for 17 percent and swine for 3 percent of total farm sales. Less than 2 percent of the farms were classified as dairy, but dairying made up almost 8 percent of total farm sales in the area. Sale of cash grains accounted for approximately 20 percent of total sales with soybean acreage being twice as much as corn acreage. Most of the cash grains was produced in Montgomery, Robertson, and Sumner counties. Hay and pasture were produced extensively throughout as support enterprises for the dairy and beef animals in the area.

Area 8 - Livestock, Dairy, Tobacco - Central Basin

Area 8 is located almost in the center of the state and corresponds approximately to the Central Basin (Figures 1 and 29). The area includes eight counties: Davidson, Wilson, Williamson, Rutherford, Maury, Marshall, Bedford and Moore. It contains 9.3 percent of the total land area of the state and slightly over 12 percent of the total farmland. The average elevation is about 600 feet, but hills rising to 800 feet are common. The topography varies from slightly rolling to rolling and hilly. Drainage is chiefly by the Cumberland River in the north and the Duck River in the south.

The soils are among the most fertile in the state. They are composed of Soil Associations 8, 9 and 10 (Figure 2). The soils of the Dellrose-Mimosa-Bodine Association occupy the more hilly part of the Outer Central Basin. Except for Bodine and Baxter, the cherty soils on the high ridges, the soils are moderately high in natural fertility. The brown-colored phosphatic soils of the Maury-Mimosa-Rockland Association occupy the smoother parts of the Outer Central Basin. These soils are easily tilled and well adapted to a wide range of farm crops. The red-colored soils of the Talbott-Rockland-Cumberland Association occupy the inner part of the Central Basin. Many of the soils are shallow to bedrock. They are lower in content of phosphate than those of the Outer Basin. On the better soils, productivity is moderate to high. Annual precipitation is about 50 inches. Length of growing season ranges from 195 to 200 days.

Sixty-two percent of the land area in Area 8 was in farms in 1982 (Table 8). The proportion of farmland in harvested crops was only about 25 percent, but the proportion of land in pasture was the second highest of all areas in the state. Much of the pasture is nonplowable, being rocky land unsuited for cultivation. However, much of this pastureland provides excellent spring grazing. The average-size farm in the area was 142 acres in 1982 compared with the state average of 138 acres. Three-fourths of the farms in the area were operated by full-owners; 19 percent by part-owners; and 6 percent by tenants.

Hay and soybeans occupied over half of the harvested cropland at 49 and 27 percent, respectively. Although tobacco accounted for only 2 percent of the harvested cropland, it accounted for 12 percent of the total farm sales in the area. Wheat and corn accounted for 15 percent and 9 percent, respectively, of harvested cropland in the area.

Nondairy livestock farms comprised 60 percent of all farms in the area; dairy comprised about 6 percent. In area 8 cattle and calves sales as a percentage of total farm sales were slightly higher than the equivalent percentage for dairy. Cattle and calves sales as a percentage of total sales for the area were 29 percent, leading dairy by about one percentage point.

Area 9 - Livestock, Tobacco, Horticultural, Dairy - Eastern Highland Rim

Area 9 is located on the Eastern Highland Rim and includes seven counties: Overton, Putnam, DeKalb, White, Warren and VanBuren (Figures 1 and 29). The area contains 5.6 percent of the total land area in the state and 5.3 percent of the total farmland. The average elevation is about 1,000 feet with a general slope to the west and northwest. The topography along both the eastern and western borders is rough. Outliers of the Cumberland Plateau intersect the eastern portion, while the western portion is broken by deep, winding, steep-sided valleys formed by streams cutting back into the Rim surface. It is drained by the Caney Fork and Cumberland Rivers.

The soils of Area 9 are composed mainly of the

Soil Associations 4, 5 and 7 (Figure 2). The soils of the Baxter-Mountview-Dickson Association occupy most of the western portion of the area. They are moderate to low in fertility and their internal drainage is moderate to low. These soils are lower in productivity than the redder soils of Association 4 (Waynesboro-Cumberland-Sequatchie), which occupy the center of Area 9. The soils of the more rugged portions of Area 9, located on the eastern side, are low in fertility and are generally poorly suited for crops or pasture production. These soils belong to the Ramsey-Hartsells-Stony Land Association. Much of this portion of the area is occupied by forest.

Annual precipitation in Area 9 is about 54 inches. Length of the growing season is about 190 days.

Fifty percent of the land area was in farms in 1982 (Table 8). Slightly over 25 percent of all farmland was in harvested cropland. Approximately 24 percent of the farmland was in cropland pasture; slightly over 31 percent, in woodland; and 15 percent, in other land (mainly pasture).

About 74 percent of the farms in the area were operated by full-owners; 20 percent, by part-owners; and 6 percent, by tenants. Average farm size was about 118 acres.

About 49 percent of all farms were classified as nondairy livestock farms in the area in 1982. Cattle sales made up 18.5 percent of total sales while swine sales accounted for almost 7 percent. Although only 4 percent of the farms in Area 9 were designated dairy, about 20 percent of the total farm sales came from the dairy enterprise.

Hay production accounted for 43 percent of the harvested crop acreage in Area 9, while corn accounted for another 19 percent. Wheat and soybeans each accounted for almost 6 and 23 percent of the harvested crop acreage, respectively, while tobacco accounted for less than 3 percent. Over 25 percent of all farms in the area had tobacco. The tobacco enterprise accounted for about 11 percent of total farm sales in the area.

Only 6.3 percent of the farms in the area were classified as horticultural, which involved mainly nursery products produced in Warren County. However, sales of nursery and greenhouse products made up almost 26 percent of total sales.

Area 10 - Livestock, Poultry, Specialty Crops, Dairy - Sequatchie Valley and Southern East Tennessee Valley

The Sequatchie Valley and the southern portion of the East Tennessee Valley make up Area 10 which included the counties of Grundy, Sequatchie, Marion, Hamilton, Bradley and Polk (Figures 1 and 29). The area contains about 5.9 percent of total land area of the state and 2.5 percent of the farmland of the state. As in some of the other areas, a wide variety of types of farming was practiced in this part of the state. In terms of farm type designations, livestock farms dominated the area, followed by poultry, dairy, cash grain and other field crops in 1982 (Table 8).

Soils in the area are from Soil Associations 1, 2, 4, 5 and 6 (Figure 2). The soils in the western portion of Area 10 are primarily of Soil Associations 5 and 6. They were formed mainly from sandstones and shales and are shallow to bedrock. Many of the soils are low in fertility and most are poorly suited to crops or pasture. The soils of the broader ridgetops and plateaus are low in fertility but respond well to fertilization and good management. The soils of the Sequatchie Valley are of the Waynesboro-Cumberland-Sequatchie Association, which are mainly red, well drained and moderate to fairly high in productivity. These soils are suited to a variety of crops and respond well to good management. The soils of the eastern portion of Area 10 are in the Ramsey-Stony Land-Porters and Fullerton-Dewey-Dunsmore-Sequoia Soil Associations. These soils range from the productive soils, derived from alluvium and limestone, in the valleys to infertile soils of the cherty, and often shaley, ridges and knobs. The average elevation of the area is about 700 feet.

The rainfall is usually adequate for producing general farm crops, such as corn, small grains and hay. The average annual precipitation is about 56 inches. The average growing season is about 200 days.

Only 20 percent of the land area was in farms in 1982 (Table 8). Twenty-five percent of all farmland was in harvested cropland; 25 percent was in cropland pasture; 32 percent was in woodland; about 14 percent was in other land (mainly pasture).

The average size of farm in Area 10 at 128 acres was less than the state average. Three-fourths of the farms in the area were operated by full-owners, 21 percent by part-owners and 4 percent by tenants.

Hay was the predominant crop grown in the area and accounted for almost 50 percent of the harvested crop acreage. Soybeans and corn were the second and third most important crops, accounting for 27.3 and 12.6 percent, respectively, of harvested acreage. In terms of land use, specialty enterprises like horticultural crops

were relatively unimportant. However, in terms of the percentage of total sales, almost 21 percent of all farms sales in the area were from combined sales of vegetables, nursery and greenhouse and other nonmajor enterprises (Table 8).

The predominant farm type was nondairy livestock (beef and swine), which accounted for about 61 percent of all farms but only 14 percent of sales. Poultry farms made up only 10 percent of all farms, but sales, primarily from broilers, comprised 45 percent of total farm sales in the area and led all categories of sales by a wide margin. Nondairy livestock and dairy were third and fourth in sales, respectively, after specialty enterprises discussed above.

Area 11 - Livestock, Vegetable, Cash Grain, Dairy - Cumberland Plateau

Area 11 includes the counties of Scott, Fentress, Morgan, Cumberland, Bledsoe and Rhea and is located mainly on the Cumberland Plateau (Figures 1 and 29). This elevated tableland, extending in a northeast-southwest direction, is a southern extension of the Allegheny Mountain area. The elevation of the area is about 2,000 feet. The topography is deeply dissected by streams. Drainage to the west is by the tributaries of the Duck and Cumberland rivers, and drainage to the east by those of the Tennessee River. The area contains 6.2 percent of the state total land area but only 3.5 percent of the farmland.

The soils of this area belong mostly to Soil Associations 5 (Ramsey-Hartsells-Stoney Land) and 6 (Hartsell-Ramsey). These soils are easily tilled but have low natural fertility. They are relatively shallow to bedrock. They respond well to fertilization and good management. Much of the area is occupied by cutover hardwood forests, though appreciable acreages have been cleared and used for farming.

The growing season is about 180 days, being equal to that of the eastern mountain area. Precipitation averages about 55 inches, but in some parts it is 60 inches.

Little land was used for the production of nonforest crops and livestock. Of the total land area, only about 24 percent was in farms; and of the farmland, 40 percent was in woodland in 1982 (Table 8). Historically, the forest resources of this area have provided an important economic base in terms of employment and income for the farm population. However, less than 1 percent of gross farm sales came from forestry production in 1974, the last time that such data were collected in the Census of Agriculture. Considerable acreage of farmland was cutover timberland. Also, a considerable part of the area has been set aside as state forests and parks.

Average farm size was 168 acres. Seventy-four percent of the area farms were operated by full-owners, 21 percent by part-owners and less than 5 percent by tenants.

Harvested crops occupied less than a fourth of the farmland (24 percent) in 1982, whereas cropland pasture and other land (mainly pasture) together occupied almost a third. Main crops in Area 11 were hay, corn, soybeans, vegetables and wheat at approximately 44, 18, 18, 10 and 6 percent of harvested crop acreage, respectively. The more important crops in terms of sales were vegetables and cash grain at about 14 and 12 percent of total farm sales, respectively.

Sixty-three percent of all farms in Area 11 were classified as nondairy livestock farms in 1982. These farms generated more than one-third of total farm sales (beef and swine combined). Although dairy farms only made up about 4 percent of all farms, about 17 percent of all farm sales were from dairy farms. Poultry farms generated over 6 percent of all farm sales and constituted less than 3 percent of all farms in the area.

Area 12 - Dairy, Livestock, Tobacco - Lower East Tennessee Valley

Area 12 includes the eight counties: Anderson, Knox, Roane, Loudon, Blount, Meigs, McMinn and Monroe. With the exception of portions of some western parts of Anderson County, which lie in the Cumberland Mountains, and the eastern parts of Monroe and Blount counties, which lie in the Smoky Mountains, Area 12 occupies the lower East Tennessee Valley (Figures 1 and 29). The area contains about 7.9 percent of the total land area of the state and 5.8 percent of the farmland in the state.

The East Tennessee Valley consists, in large part, of a series of ridges running northeast and southwest with narrow to wide valleys between the ridges. Some parts of the area are characterized by low knobs. The soils of the Fullerton-Dewey-Dunmore-Sequoia Soil Association are prevalent in the valley (Figure 2). Soils range from productive soils derived from alluvium and limestone in the valleys to infertile soils of the cherty, and often shaley, ridges and knobs. Most of the soils are derived principally from cherty limestones, cherty dolomites and shale. Less extensive areas are derived from limestone and

sandstone. First and second bottoms along the Tennessee River and larger tributaries, though limited in extent, are of considerable agricultural importance.

The rainfall is usually adequate for producing general farm crops. The length of the growing season is around 200 days.

A dominant force affecting agriculture in the East Tennessee Valley has been a rapidly expanding industrial economy with an increase in rural nonfarm population. In Area 12, Knoxville industries and service agencies have provided many nonfarm jobs for the farm population, which has resulted in a large number of small, part-time farms in the area. The predominance of part-time farming was reflected in part by farm size. In 1982, the average farm size was 102 acres, which was 15 percent below the state average (Table 8). Land tenure characteristics were similar to most other areas of Middle and East Tennessee. Most of the farms (74 percent) were operated by full-owners in 1982. Part-owners operated 21 percent of all farms and tenants operated 5 percent.

Only 35 percent of the total land area was in farms. Of the land in farms, about 25 percent was harvested cropland; 30 percent, cropland pasture; 28 percent, woodland; and 14 percent, other land (mainly pasture). Almost two-thirds of the harvested acreage was in hay production. Thirteen percent was in soybeans, while slightly less than 9 percent of the harvested crop acreage was in corn in 1982. Slightly over 26 percent of all farms in the area were classified as tobacco farms, but only 2.7 percent of the harvested crop acreage was used for the crop. The more important crops in terms of sales were tobacco, cash grains and nursery-greenhouse products at 11.8, 5.3 and 3.4 percent of total sales, respectively.

About 53 percent of all farms were classified as nondairy livestock farms, and about 5 percent were classified as dairy farms. In terms of farm sales, dairy production was the most important enterprise among all livestock and crop enterprises. Dairy products accounted for 37.2 percent of total sales. Other important livestock sales categories included cattle and calves and poultry with 21.2 and 9.5 percent of total sales, respectively.

Area 13 - Tobacco, Livestock, Dairy - Upper East Tennessee Valley

In terms of land area covered, Area 13 is the largest types-of-farming area in the state. It includes the Upper East Tennessee Valley as well as the mountainous areas to the north and northwest and the Unaka Mountain range along the eastern border of the state (Figures 1 and 29). The area contains almost 14 percent of the total land area of the state and slightly over 12.5 percent of the farmland. Sixteen counties are included in the area: Campbell, Claiborne, Hancock, Union, Grainger, Jefferson, Sevier, Cocke, Hamblen, Hawkins, Greene, Washington, Sullivan, Unicoi, Carter and Johnson.

Most of the soils in the area belong to Soil Associations 2 and 3 (Figure 2). The surface is mainly rolling and hilly. The soils range from the highly productive soils in the valleys to the infertile soils on the ridges and knobs. The soils in the mountainous areas along the eastern border of the state belong to the Ramsey-Stony Land-Porters Soil Association. These correspond with the Tennessee portion of the Unaka Range. This portion of the area is occupied primarily by forests. The small amount of tillable land is chiefly along the streams and foot slopes and in the coves. Soils here are fairly productive under good management.

Rainfall in the area is adequate for producing most crops ranging from about 46 inches annually in the northwestern counties of Claiborne and Hancock to over 60 inches in the mountainous regions of Sevier and Cocke counties. The average growing season is about 180 days with the exception of the mountainous areas along the eastern border of the state where the growing season is only about 150 days.

As in Area 12, farming in Area 13 has been influenced by a rapidly expanding industrial economy. Part-time farming is important. The average farm size was only about half the state average and was the smallest of all types-of-farming areas in 1982 (Table 8). Three-fourths of all farms were operated by full-owners, about 18 percent by part-owners and 8 percent by tenants.

Forty-three percent of the land area was in farms. Twenty percent of the farmland was in harvested cropland; 30 percent, in cropland pasture; 29 percent, in woodland; and 16 percent, in other land (mainly pasture). In terms of land area, hay was by far the dominant crop grown in the area. Almost two out of every three acres of harvested cropland was devoted to hay production. Corn production made up about 12 percent of the harvested crop acreage. In terms of acres devoted to tobacco production, Area 13 ranked highest in the state accounting for about 10 percent of the harvested crop acreage.

Sixty-four percent of the farms in the area were

classified as tobacco farms. Burley tobacco sales led all categories of farm sales and accounted for 39 percent of the cash receipts from farming in the area. Nondairy livestock farms were the second most prevalent farm type, accounting for 25 percent of the farms. Sales of beef cattle and calves made up about 21 percent of total farm sales in the area. Only about 4 percent of the area farms were classified as dairy, but sales from these farms accounted for almost 23 percent of total agricultural sales in the area.

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