August 1, 1942

To the Committee on Graduate Study:

I am submitting to you a thesis written by Edmond J. Lebrun entitled "The Cumberland Plateau, Its Agricultural Situation and Possibilities." I recommend that it be accepted for eighteen quarter hours credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

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Major Professor

We have read this thesis
and recommend its acceptance:

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Accepted for the Committee

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Dean of the Graduate School

# THE CUMBERLAND PLATEAU, ITS AGRICULTURAL SITUATION AND POSSIBILITIES

A THESIS

Submitted to
The Committee on Graduate Study
of
The University of Tennessee
in
Partial Fulfillment of the Requirements
for the degree of
Master of Science

by

Edmond J. Lebrun

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# INTRODUCTION

Purpose and Procedure: The central purpose of this study is to determine the agricultural situation and possibilities of the Cumberland Plateau in Tennessee for agricultural and other uses, as a basis for guiding future development and settlement of the area on a sound and permanent plan. Because of prevailing agricultural conditions and the broad interest on the part of agricultural and other agencies, study of and planning for the Plateau area may be considered a major post-war planning activity.

As a contribution to knowledge of the agricultural possibilities of the Plateau, this report derives its chief merit from the fact that it brings together, organizes, and present graphically, information from a variety of sources showing agricultural conditions and possibilities in various segments of the region, and indicates important trends that should be recognized in developing the area.

The information is presented graphically by a series of dot maps showing the concentration of each factor by civil districts. Data are also shown by means of tables and charts.

A general overall picture of the area is presented, which is

then followed by a delineation of the region into divisions having similar agricultural factors.

Data are presented for 1930 and 1935 on a civil district basis, with an attempt to bring the data up to date by the use of ten representative Plateau counties for 1940. The ten counties used are: Campbell, Scott, Fentress, Morgan, Cumberland, Van Buren, Bledsoe, Grundy, Sequatchie, and Marion. All have 50 percent or more of their total land area on the Plateau. These counties have been often used in publications in presenting information for the Cumberland Plateau area in Tennessee. By using the data for these counties on a per farm basis, or on a percent basis, the variation from the true situation is minimized.

Definition of Terms Used: The terms used in this report are the same as those given in the Census of Agriculture, except where otherwise stated. Accepted terminology of farm management was used in analysis of farm records in Chapter X.

Source of Data: At the time of writing this report civil district data for 1940 were not available. District data for 1930 and 1935 were supplemented by county data for 1940. Data by civil districts for 1930 had been obtained by special tabulation of the Census of Agriculture, for use in a previous study of the Southern Appalachians, and are kept in the files of the Department of Agricultural Economics and Rural Sociology, University of Tennessee. Farm

records for 107 unit test demonstration farms kept under the supervision of the Farm Management Department, Agricultural Extension Service, University of Tennessee, were analyzed, the findings being presented in Chapter X of this report.

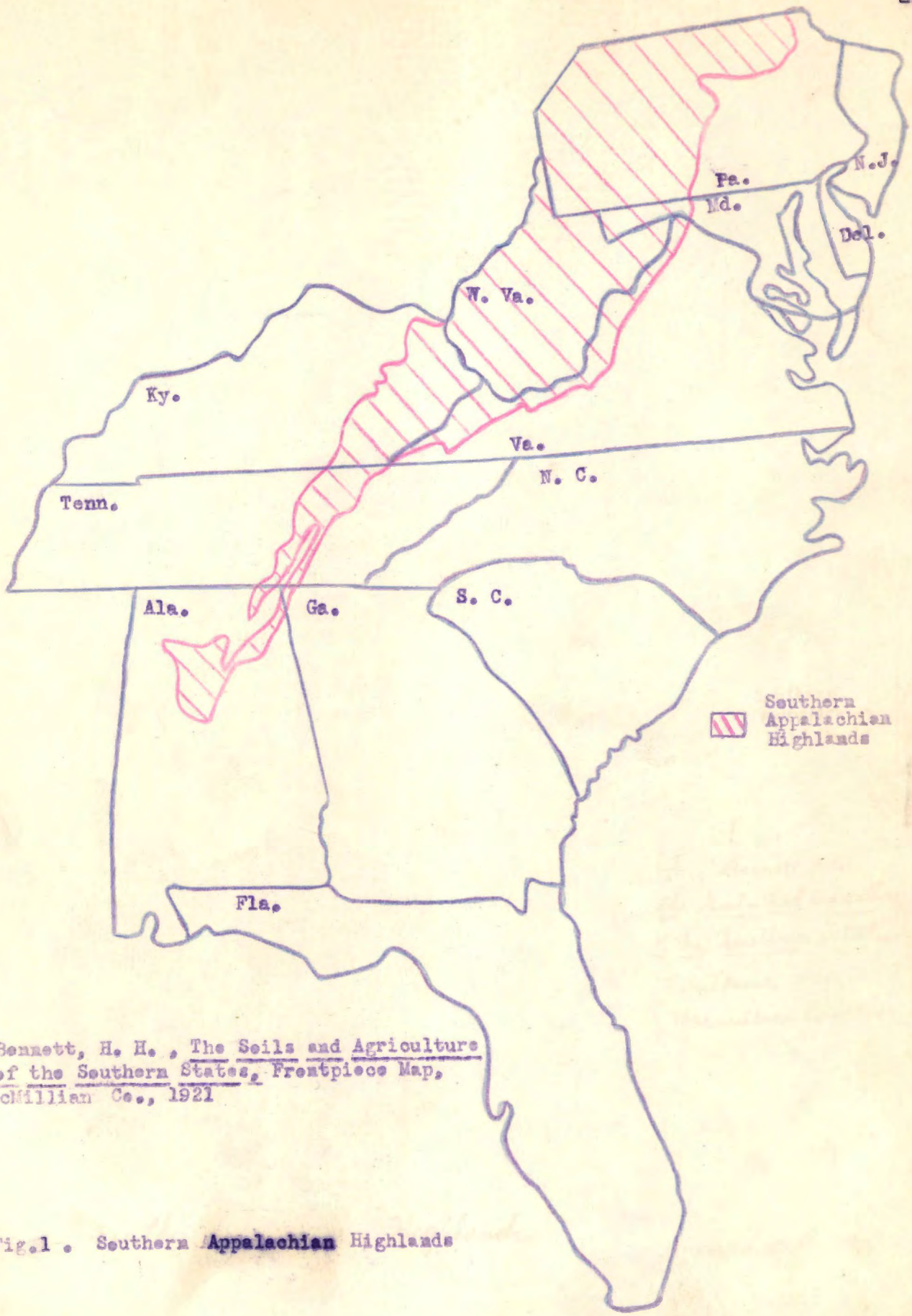
# CHAPTER I

## PHYSICAL FEATURES

### Location of Cumberland Plateau

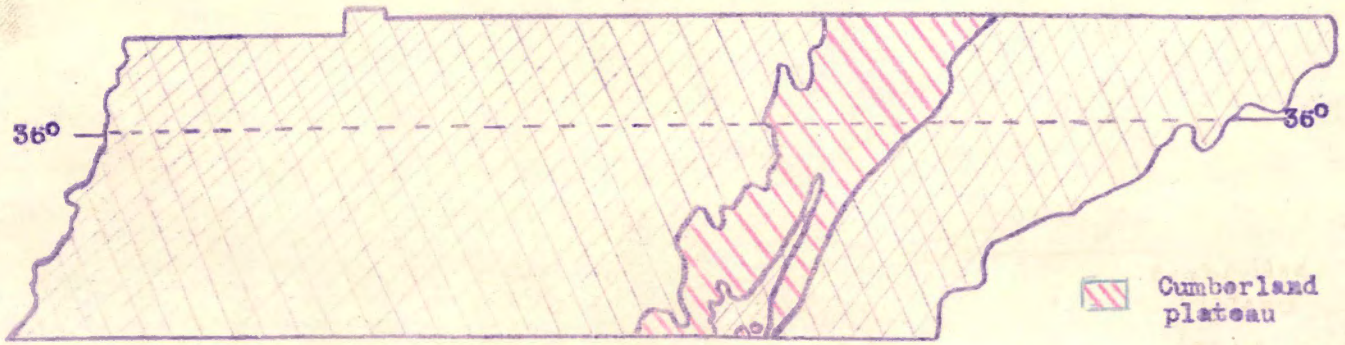
The Cumberland Plateau is located in the western part of the Southern Appalachian Highlands, an area extending from northern Virginia southwest through eastern Tennessee, West Virginia, and eastern Kentucky. The Highlands are made up of three physiographic regions: the Blue Ridge, the Appalachian Valleys and Ridges, and the Appalachian Plateaus.

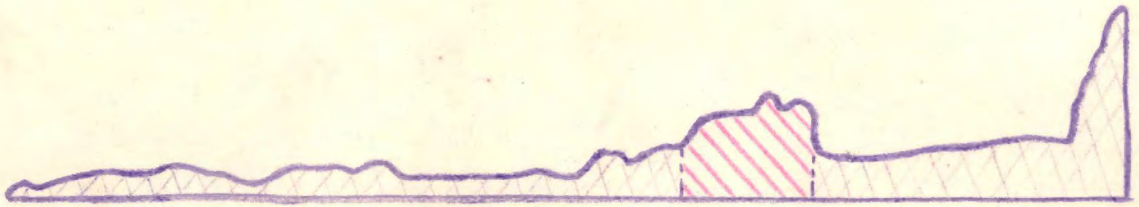
The Cumberland Plateau extends beyond the borders of Tennessee up into eastern Kentucky and West Virginia, but the particular section covered in this report is the table land extending northeastward across the east central part of Tennessee and bounded on the south by the state lines of Alabama and Georgia, on the west by the Highland Rim of Middle Tennessee, on the north by the state line of Kentucky, and on the east by the East Tennessee Valley. This report covers




*Bennett, H. H., The Soils and Agriculture of the Southern States, Frontpiece Map, MacMillian Co., 1921

Fig.1. Southern Appalachian Highlands



* C. E. Allred, S. W. Atkins, Human and Physical Resources of Tennessee, Tennessee Agriculture Experiment Station, Knoxville, Tennessee, 1939

Fig. 2. Cross section of Tennessee along 36° parallel showing Cumberland Plateau

that part of the Plateau within the state of Tennessee.

There are twenty-two counties in Tennessee having land on the Cumberland Plateau. Those counties with over three-fifths of their land in this area in order of proportion of Plateau land are: Morgan, Scott, Cumberland, Fentress, Bledsoe, Sequatchie, Grundy, Campbell, and Van Buren. Counties having between a third and a half of their land area on the Plateau are: Marion, Rhea, and Anderson. Counties with less than one-fourth of their land in the area are: Hamilton, White, Claiborne, Pickett, Franklin, Overton, Putnam, Roane, Warren, and Coffee. Morgan lies entirely within the region, while Coffee has only 1 percent of its land area lying on the Plateau.

## Size of Plateau

The Plateau is 71 miles wide along the Kentucky-Tennessee line. The width at the southern boundary is about 50 miles. The twenty-two Tennessee counties having land in the area have a total area of 6,035,840 acres of which approximately 45.2 percent or 2,727,402 acres is Plateau land[1] (Table I). In this report, land not showing the characteristics of the Plateau was not included in the area. This fact would cause much of the bottom land around rivers and larger streams, cut down into the underlying limestone, to be excluded.

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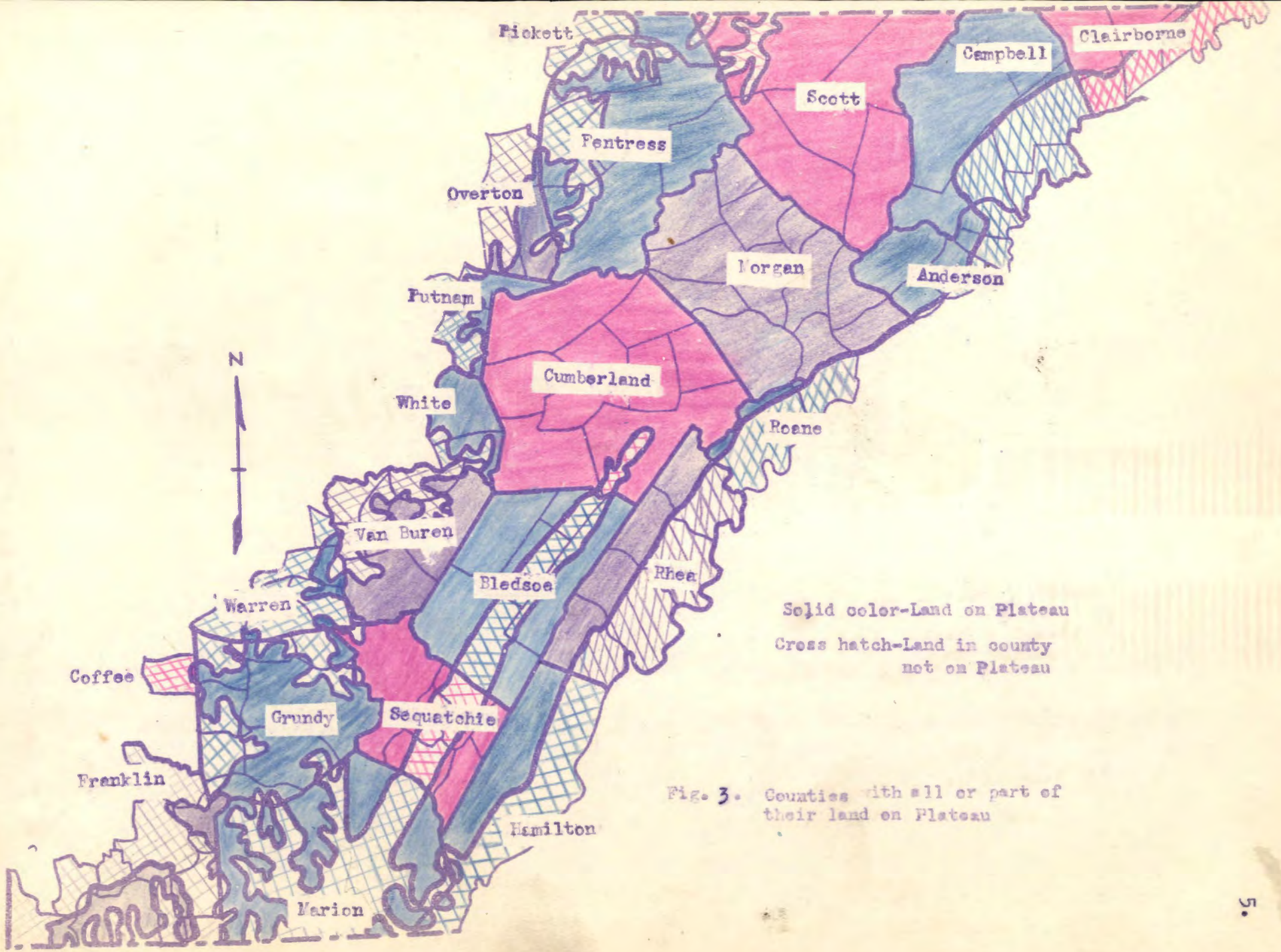
(1) Total county areas were taken from U. S. Census of Agriculture, 1930. Proportion of land lying on the Plateau was calculated from Geologic Map, Tennessee, 4th edition revised 1933, Walter F. Pond, State Geologist.




Solid color-Land on Plateau

Cross hatch-Land in county not on Plateau

Fig. 3. Counties with all or part of their land on Plateau

TABLE I. APPROXIMATE ACREAGE OF LAND IN PLATEAU COUNTIES OF TENNESSEE, AND PERCENT ON PLATEAU, 1941

| Counties | Approximate Land Area * | Percent of Plateau Land ** | Acres of Plateau Land |
|---|---|---|---|
| Anderson | 216,320 | 34.6 | 74,846 |
| Bledsoe | 258,560 | 68.7 | 177,630 |
| Campbell | 286,080 | 62.7 | 179,372 |
| Claiborne | 284,800 | 17.8 | 50,694 |
| Coffee | 278,400 | 1.3 | 3,619 |
| Cumberland | 434,560 | 94.9 | 412,397 |
| Fentress | 319,360 | 68.9 | 220,039 |
| Franklin | 359,040 | 17.2 | 61,754 |
| Grundy | 229,120 | 68.5 | 156,947 |
| Hamilton | 368,640 | 21.7 | 79,994 |
| Marion | 324,480 | 45.0 | 146,016 |
| Morgan | 344,960 | 100.0 | 344,960 |
| Overton | 282,880 | 13.4 | 37,905 |
| Pickett | 111,360 | 17.7 | 19,710 |
| Putnam | 261,120 | 11.2 | 29,245 |
| Rhea | 214,400 | 42.3 | 90,691 |
| Roane | 242,560 | 5.8 | 14,068 |
| Scott | 351,360 | 95.1 | 334,143 |
| Sequatchie | 174,720 | 72.4 | 126,497 |
| Van Buren | 163,200 | 62.2 | 101,510 |
| Warren | 283,520 | 5.5 | 15,593 |
| White | 246,400 | 20.2 | 49,772 |
| Total | 6,035,840 | 45.19 | 2,727,402 |

* Approximate land area in county taken from 1940 U. S. Census.

** Percent of plateau land found by use of planimeter and Geologic Map of Tennessee, Fourth Edition, 1933.

## Topography

The Plateau is a relatively flat to rolling table land with many low ridges and shallow valleys. This table land rests upon the general plane of the state, and rises about 1000 feet above the surrounding country.

The area in Tennessee is fairly simple in structure and divisions, with only two partially detached portions, and with a few ranges bordering or resting on it. The Sequatchie Valley, running up into the region, divides the southern portion nearly into half. The eastern portion of the region is formed by the range of mountain known as Walden Ridge, extending from the Georgia state line to the Kentucky state line. At the northern end of this eastern portion is found such mountains as Cross, in Anderson County, with a maximum elevation of 3550 feet above sea level; Crab Orchard, in Cumberland and Morgan counties, with an elevation of 3000 feet; and Round Knob, in Scott County, with a maximum elevation of 2960 feet. These mountains were formed as a result of folding rock formations, causing this eastern portion to be about 1500 feet above the surrounding country.(2)

The eastern boundary is a steep escarpment extending in a curved, line from the southern border of the state northeastward through the counties of Hamilton, Rhea, Roane, Anderson, Campbell, and Claiborne

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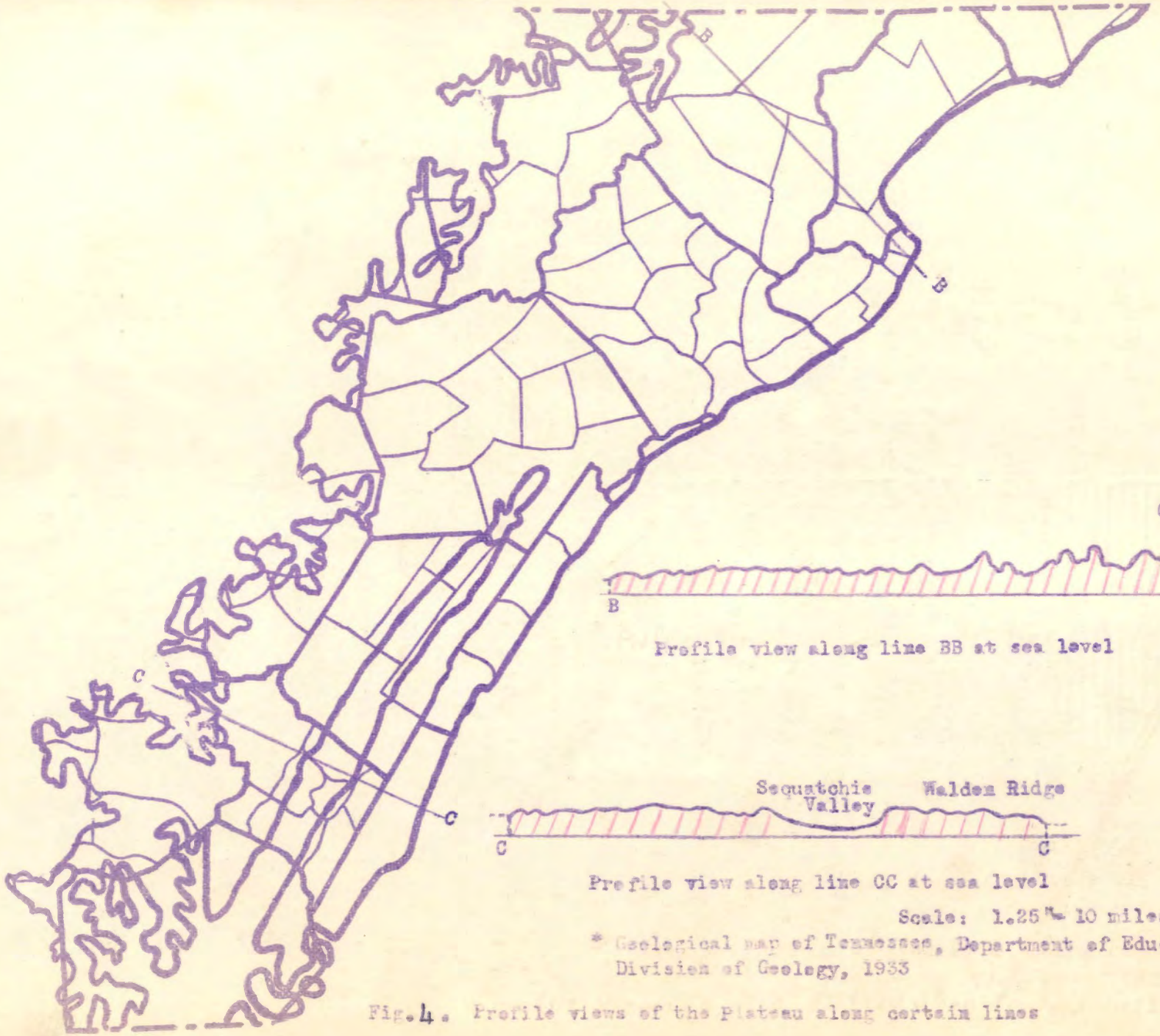
(2) C. E. Allred, S. W. Atkins, Human and Physical Resources of Tennessee, Department of Agricultural Economics and Rural Sociology, University of Tennessee, 1939, p. 10.







Profile view along line BB at sea level




Profile view along line CC at sea level

Scale: 1.25" = 10 miles

* Geological map of Tennessee, Department of Education, Division of Geology, 1933

Fig. 4. Profile views of the Plateau along certain lines

to the Kentucky-Tennessee state line. The escarpment along this eastern border is steep with cliffs and precipices rising abruptly from 600 to 1000 feet above the plane of the East Tennessee Valley.

The western portion of the region is of rolling to rough topography due to the horizontal and slow weathering sandstone underlying this area. Along the western boundary are deep valleys causing long, narrow, twisted sections of Plateau to extend into the Highland Rim. The topography of the whole area is a gradual slope from the eastern escarpment to the irregular western edge where there is no distinct escarpment.

Sequatchie Valley: The southern half of the Plateau is bisected by the Sequatchie Valley through which the Sequatchie River flows to the Tennessee. This valley, not a part of the Plateau, was formed by the river carving out the rock and soil as it flowed down the huge cracks caused by the folding of the large mass of rocks underlying this area.

The valley, 70 miles long with an average width of five miles and extending 30° east, has steep slopes with identical outcroppings on both sides.(3) The floor is 650 feet above sea level at the point where the Tennessee river enters the valley. The soil is made up of

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(3) Wilbur A. Nelson, The Southern Tennessee Coal Fields, Bulletin 334, Tennessee Division of Geology, 1925, pp. 12-16.

limestone formations similar to that of the East Tennessee Valley. Many long streams flow into the valley from the west, but only a few short streams flow into it from the eastern side.

Grassy Cove:[4] The Crab Orchard Mountains are found in the eastern part of Cumberland County and at the head of the Sequatchie Valley of which they are the uneroded extension formed by folding rocks. It is here in the mountains that Grassy Cove is found, an enclosed valley having the same elevation as the Plateau proper. The floor is composed of a limestone formation which makes it a productive agricultural soil.

While at one time this valley was drained by transverse streams, it is now drained by a subterranean passage through which the water flows to reappear at the head of the Sequatchie Valley as a large spring. The presence of thick silt deposits over the floor of Grassy Cove indicates that the underground channel through which the water drains may have become blocked at times causing the cove to be flooded.

## Elevation

In elevation, the Plateau ranges from about 1000 to 3000 feet above sea level with an average of about 1800 feet (Table II). Starting in the southwest corner of the area, the general elevation between

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(4) Wilbur A. Nelson, op. cit., pp. 16-17.

TABLE II. APPROXIMATE ELEVATIONS IN TENNESSEE COUNTIES HAVING SOME OR ALL OF ITS LAND ON THE CUMBERLAND PLATEAU

| County | Elevation Above Sea Level (Feet) | | Elevation of Some Points on Plateau (Feet) | |
|---|---|---|---|---|
| | Highest | County Average | County Seats on Plateau | Another Town in County on Plateau |
| Anderson | 3550 (Cross Mt.) | 2000 Western one-half | | |
| Bledsoe* | 2057 | 1900 | | Farmingdale 1709 |
| Campbell* | 3550 (Cross Mt.) | 2000 | | |
| Claiborne | 3100 (Log Mt.) | 1500 | | Cumberland Gap 1315 |
| Coffee | 1900 (Cunningham Cove) | 1100 | | |
| Cumberland* | 3000 (Crab Orchard Mountain) | 1800 | Crossville 1881 | Pleasant Hill 1901 |
| Fentress* | 1800 (Skinner Mt.) | 1600-1700 | Jamestown 1698 | Wilder 1553 |
| Franklin | 2000 | 1000-1500 Eastern part | | |
| Grundy* | 2100 | 2000 | Altamont 1923 | |
| Hamilton | 2000 | 1700-1800 Western part | | |
| Marion | 3200 | 1500-1700 | | |
| Morgan* | 3100 (Ward Mt.) | 1500 | Wartburg 1373 | Oakdale 792 |

(continued)

TABLE II. APPROXIMATE ELEVATIONS IN TENNESSEE COUNTIES HAVING SOME OR ALL OF ITS LAND ON THE CUMBERLAND PLATEAU (continued)

| County | Elevation Above Sea Level (Feet) | | Elevation of Some Points on Plateau (Feet) | |
|---|---|---|---|---|
| | Highest | County Average | County Seats on Plateau | Another Town in County on Plateau |
| Overton | 2000 | 1000 | | |
| Pickett | 1710 (Huddleston Knob) | 900-1000 | | |
| Putnam | 2004 | 1000 | | Monterey 1899 |
| Rhea | 2000 (Walden Ridge) | 1500 Western part | | |
| Roane | 2000 | 1000 Eastern part | | |
| Scott* | 2960 (Round Knob) | 1500-1600 | Huntsville 1400 | Oneida 1439 |
| Sequatchie* | 2400 (Walden Ridge) | 2000 | | Cagle 1900 |
| Van Buren* | 2000 | 1800-1900 | Spencer 1839 | Clarktown 1889 |
| Warren | 1883 (Mt.Cardwell) | 1000 | | |
| White | 2026 (Chestnut Mt.) | 1000 | | Clifty 1583 |

* Counties having 62 percent or more of their land area on Plateau.

Source: C. E. Allred, S. W. Atkins, Tennessee, Economic and Social, Department of Agricultural Economics and Rural Sociology, University of Tennessee, 1929.

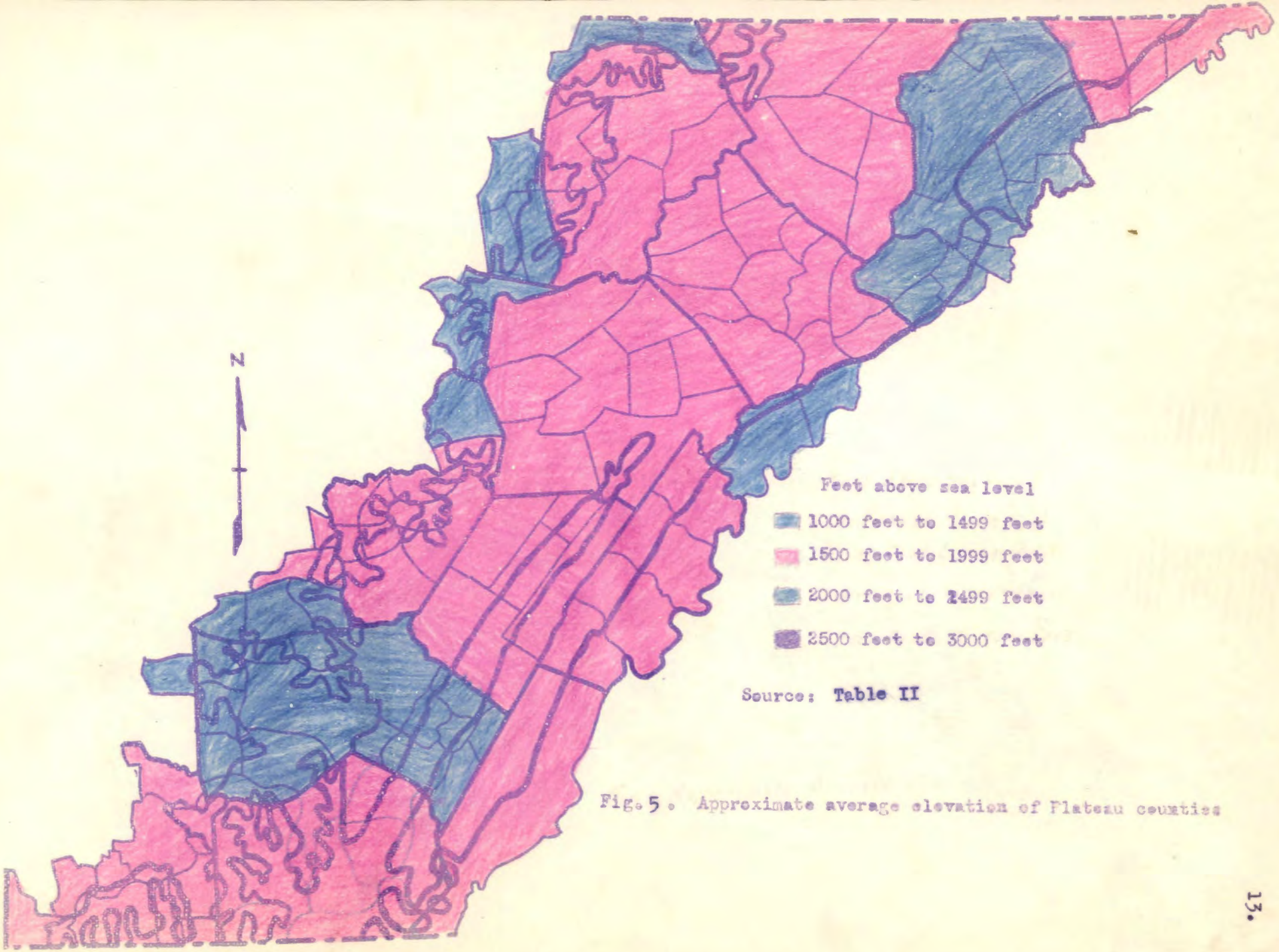


Fig. 5. Approximate average elevation of Plateau counties

Cowan and Orme is between 1700 and 1800 feet above sea level. The valley that runs through this section has an average elevation of about 1000 feet. Proceeding north along the western edge, the elevation of the flat topped ridges increases to 1900 and to 2000 feet in the vicinity of Sewanee, while east of Hillsboro the main ridges have an average elevation of 2100 feet. Continuing northeast along the western portion, the elevation decreases to 1700 feet in the vicinity of Collins River. This elevation is maintained along the western portion of the region as far north as Spencer where the elevation is 1839 feet, and from Spencer on north to Bon Air and on to Monterey, the elevation will average around 1800 feet above sea level.

The interior of the Plateau corresponds to the general elevation of its adjacent western edge for the most part except where uneroded former sections still remain as ridges.

Walden Ridge, in the eastern part, has an elevation of about 2000 feet above sea level at its southern end and an elevation of 2500 feet at its northern end, with the elevation of the ridge between the extremities varying from 1800 to 2000 feet above sea level.

Outliers of the Plateau: Several outliers of the Plateau that have been cut off from the main body by the Tennessee River and its numerous streams are found along the Alabama-Tennessee state line. One of these sections, Raccoon Mountain, is a part of Walden Ridge but cut off from it by the Tennessee River. This mountain extends southwestward

into the northwest corner of Georgia and northeastern part of Alabama where it is known as Sand Mountain.

Several smaller outliers are found at the state line of Georgia and Tennessee and cut off from the main body of the Plateau. One of these outliers, Lookout Mountain, is in Marion County, while another section of about 61,754 acres, set off by the Highland Rim, is found in Franklin County.

All along the western side of the main area, there are numerous small outliers set off in the Highland Rim. There are no outliers extending into the East Tennessee Valley from the eastern sides.

## Geology

The Plateau is underlain by a coal bearing formation making it a part of the greatest coal bearing formation in the United States.(5) It is made up of rocks of the Carboniferous Age which are divided into three series: the Mississippian, Pennsylvanian, and Permian.(6) The rocks of the area are principally of the Pennsylvanian series with the rocks of the valley in the Mississippi series.(7) Those of the

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(5) C. E. Allred, S. W. Atkins, op. cit., p. 10.

(6) W. A. Nelson, op. cit., p. 26.

(7) Ibid., p. 27.

Mississippian series are comprised mainly of limestone and underly the Pennsylvanian series in thick beds. The upper strata of the region being of the Pennsylvanian series is formed of sandstone, shale, and conglomerates with the rocks ranging in color from gray through yellowish to reddish.

Effect of Geology on Topography:[8] Evidence is seen in rock outcroppings to substantiate the belief that the Plateau is a part of a great plain that once extended over the whole of Middle and West Tennessee. The top formations, coal measures made up of sandstone, shale, clay, and coal beds underlain by mountain limestone formations, has largely disappeared from the other portions of the state, leaving sandstone and its underground layers as a table land now known as the Cumberland Plateau. In the process of erosion, the western edge was irregularly cut and notched, until it has reached its present condition. The east edge of the area was formed differently in that due to a geological fault there was a downward slipping of the eastern side of the great mass leaving the steep, regular escarpment of the Plateau.

## Drainage

Natural surface drainage is good to excessive, with sheet

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(8) C. E. Allred, op. cit., p. 10.

erosion resulting on much of the rather steep slopes that are under clean cultivation. However, much of the water that falls onto this area rapidly soaks into the ground and down through cracks in the sandstone to the limestone formation where it passes underground through channels to reappear as springs. There are several small areas throughout the region composed largely of clay soil, where drainage is very poor and the soil too wet and soggy for crop production. These areas are not numerous nor large, and by the use of proper drainage could be brought under cultivation.

All drainage of the region is cared for by tributaries of the Tennessee and Cumberland Rivers. The southern half of the area drains towards the Tennessee River, while the northern half is drained by streams flowing into tributaries of the Cumberland River.

On Walden Ridge, the watershed is never more than a half mile from the escarpment along the Sequatchie Valley, with practically all of the drainage going directly into the Tennessee River by way of its tributaries.

The rivers and streams draining the region carry large amounts of water in the winter and spring months. In the summer and fall they tend to become shallow, with many of their branches drying up entirely.

## CHAPTER II

## POPULATION AND COLONIES STARTED IN PLATEAU

Important clues regarding economic resources and other assets or liabilities of a region are often presented by distribution, changes, or density of population. Many characteristics of population and its changes have their counterparts in agriculture or industrial changes of the region under study.

Due to the many revisions in minor civil district boundaries, no attempt is made here to show population changes by minor civil districts, but ten counties having nearly all of their land on the Plateau have been used instead.

### Population

Growth: In 1940 there was a total population of 140,371 in ten counties having most of their land on the Plateau.(1) These counties increased in population by nearly one-fifth between 1930 and 1940. In 1930 there was a population of 118,943 as shown in Table III. Each of the counties reported an increase between 1930

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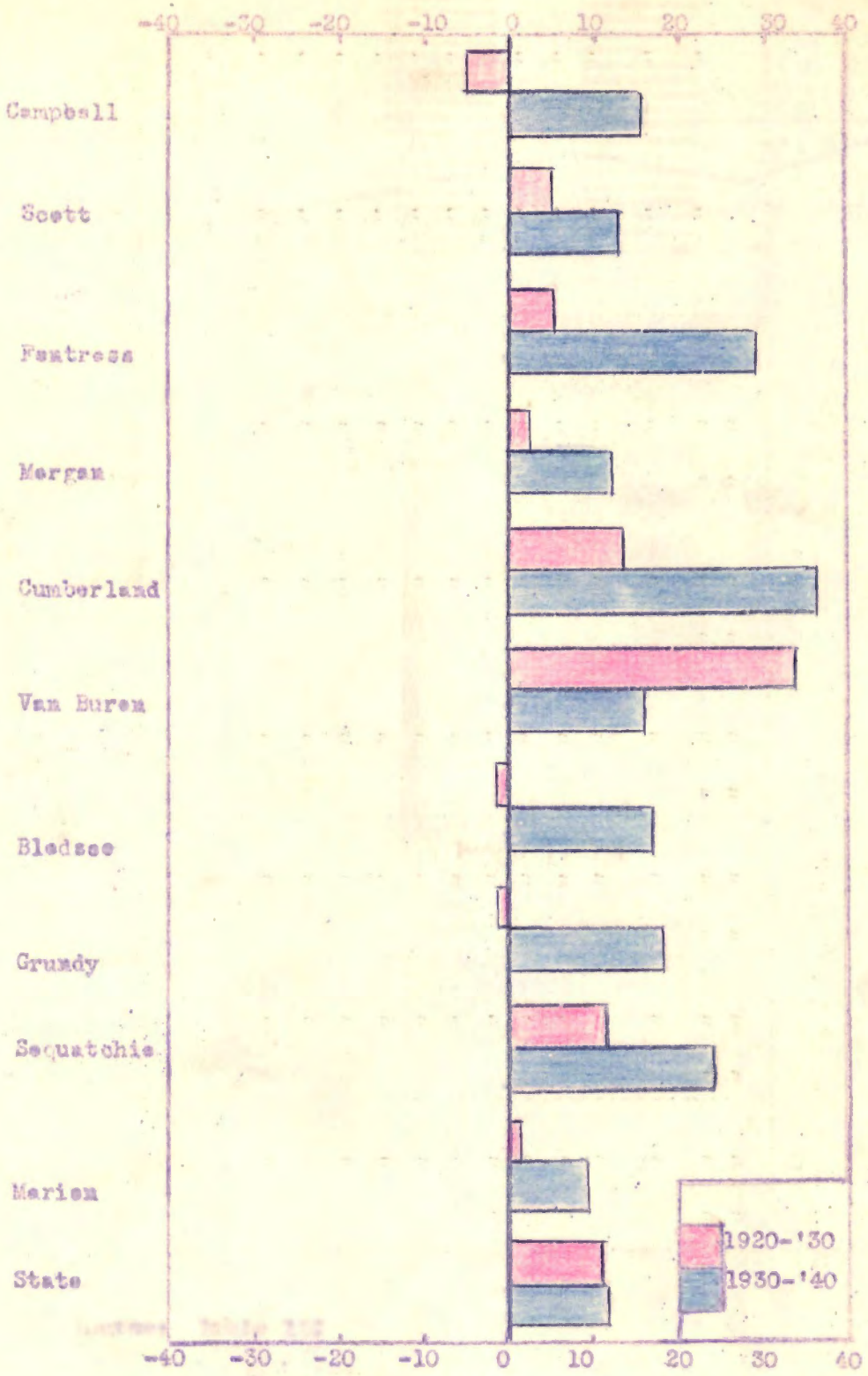
(1) The ten counties in order of proportion of Plateau land were: Morgan, Scott, Cumberland, Sequatchie, Fentress, Bledsoe, Grundy, Campbell, Van Buren, and Marion.

TABLE III. TOTAL POPULATION BY TEN YEAR PERIODS, TEN PLATEAU COUNTIES AND THE STATE, 1890-1940, AND PERCENT OF INCREASE, 1920-1930, 1930-1940

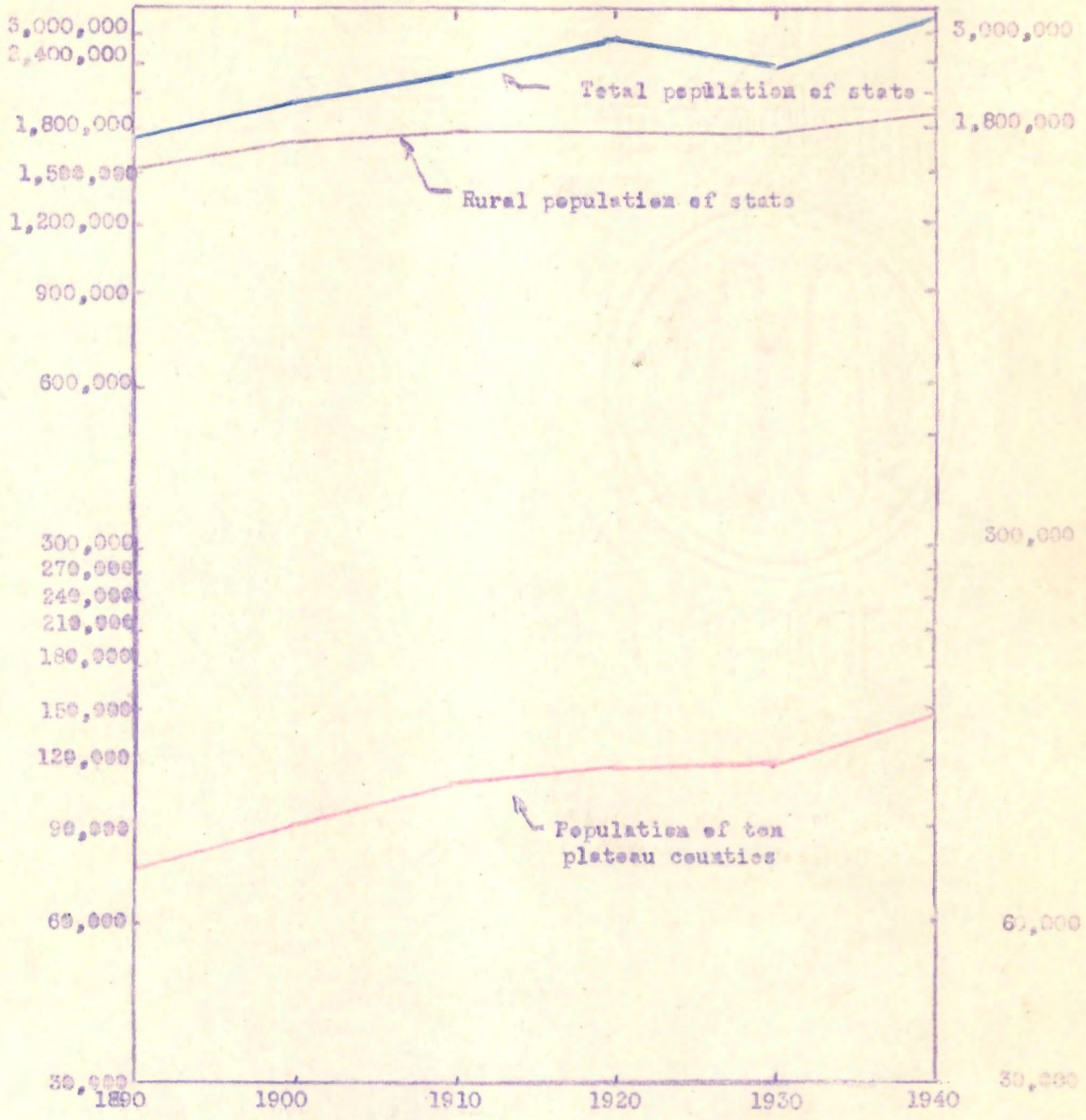
| County | 1890 | 1900 | 1910 | 1920 | 1930 | 1940 | Percent of Increase | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1920-1930 | 1930-1940 |
| Campbell | 13,486 | 17,317 | 27,387 | 28,265 | 26,827 | 31,131 | -5.1 | 16.0 |
| Scott | 9,794 | 11,077 | 12,947 | 13,411 | 14,080 | 15,966 | 5.0 | 13.4 |
| Fentress | 5,226 | 6,106 | 7,446 | 10,435 | 11,036 | 14,262 | 5.8 | 29.2 |
| Morgan | 7,639 | 9,587 | 11,458 | 13,285 | 13,603 | 15,242 | 2.4 | 12.0 |
| Cumberland | 5,376 | 8,311 | 9,327 | 10,094 | 11,440 | 15,592 | 13.3 | 36.3 |
| Van Buren | 2,863 | 3,126 | 2,784 | 2,624 | 3,516 | 4,090 | 34.0 | 16.3 |
| Bledsoe | 6,134 | 6,626 | 6,329 | 7,218 | 7,128 | 8,358 | -1.2 | 17.3 |
| Grundy | 6,345 | 7,802 | 8,322 | 9,753 | 9,717 | 11,552 | - .4 | 18.9 |
| Sequatchie | 3,027 | 3,326 | 4,202 | 3,632 | 4,047 | 5,038 | 11.4 | 24.5 |
| Marion | 15,411 | 17,281 | 18,820 | 14,402 | 17,549 | 19,140 | .8 | 9.1 |
| Total | 75,301 | 90,559 | 109,022 | 116,119 | 118,943 | 140,371 | 2.3 | 15.3 |
| State total | 1,888,635 | 2,020,616 | 2,184,789 | 2,616,556 | 2,337,885 | 2,915,841 | 11.9 | 11.4 |
| State rural | 1,767,518 | 1,720,018 | 1,726,659 | 1,743,744 | 1,693,977 | 1,529,124 | | |

Source: Census of Population, 1920, 1930, 1940.




**Source: Table III**

Fig. 6. Comparison of percent of increase in population in ten Plateau counties and in the State, 1930-1940




**Source: Table III**

Fig. 7. Comparison of change in population on the plateau with state total and rural population, 1890-1940

and 1940, with increases ranging from 9.1 percent in Marion County to 36.6 percent in Cumberland. Three of the counties reported decreases during 1920's; however, they then increased approximately 18 percent during the thirties. With the exception of Van Buren County, the increases were much greater during the thirties than during the twenties (Figure 6). As compared with state population changes for these two periods the Plateau was below the average percent of increase in the period 1920 to 1930, but above the average of the state in the years 1930 to 1940. Figure 7 shows the increases in population on the Plateau as compared with that of Tennessee. It should be pointed out that the largest Plateau town is under 2500 in population, consequently all population is classed as rural in the Census. Therefore, a more accurate comparison is made when the area is compared with the rural population of Tennessee.

The fact that increases during 1930 were so much greater than those during the twenties may be due to a reduction in amount of out migration. It is estimated that, except for Van Buren, all of these counties had a net out-migration during the twenties, and that the total net migration away was approximately 16,000 persons, but the net migration out of these same counties during the thirties was only 2600.(2)

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(2) Memorandum statement, Conrad Taeuber, Acting Head, Division of Farm Population and Rural Welfare, Bureau of Agricultural Economics, July 21, 1941.




Fig. 8. Total population, 1929




Fig. 9. Total population, 1939

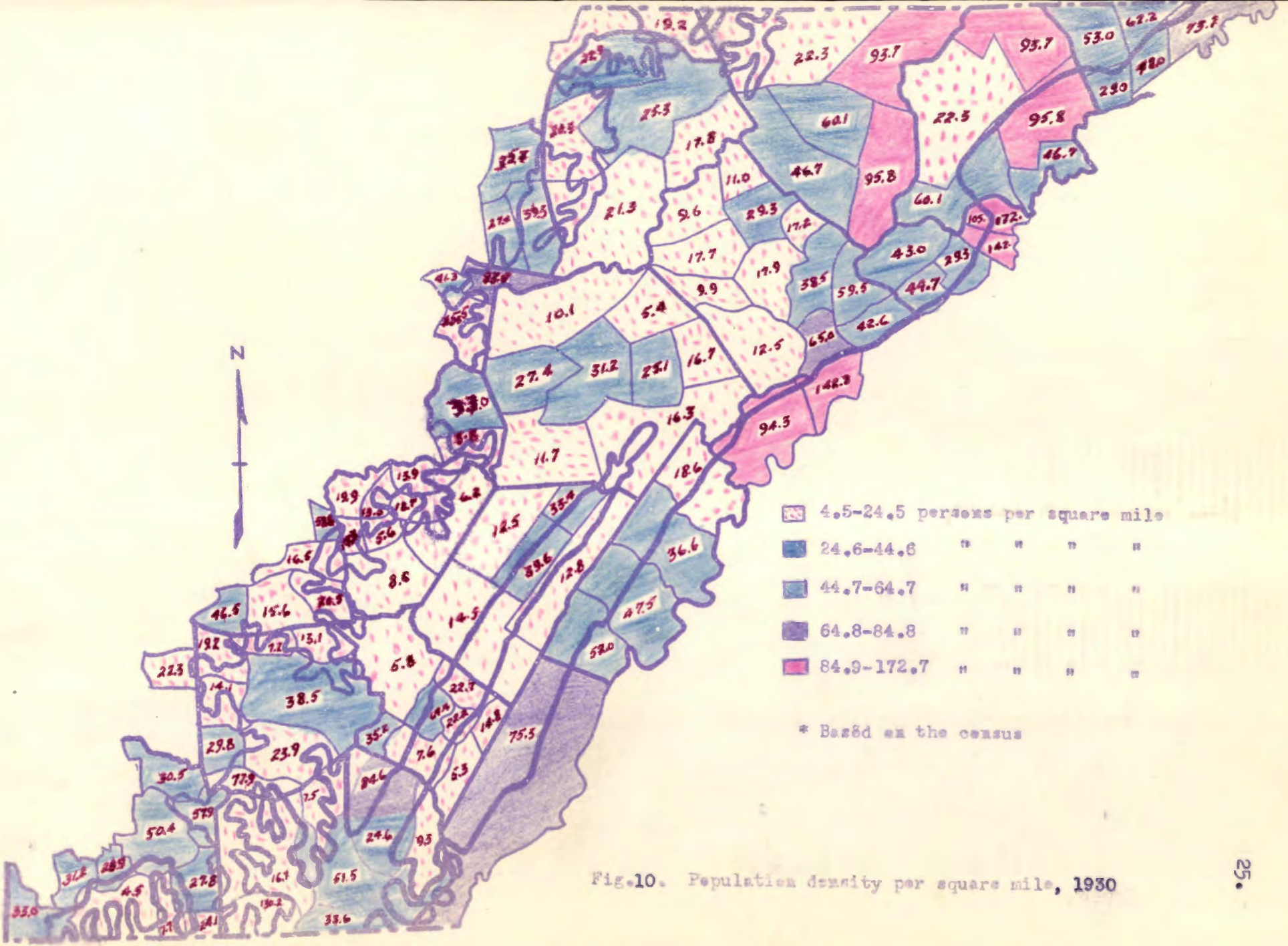


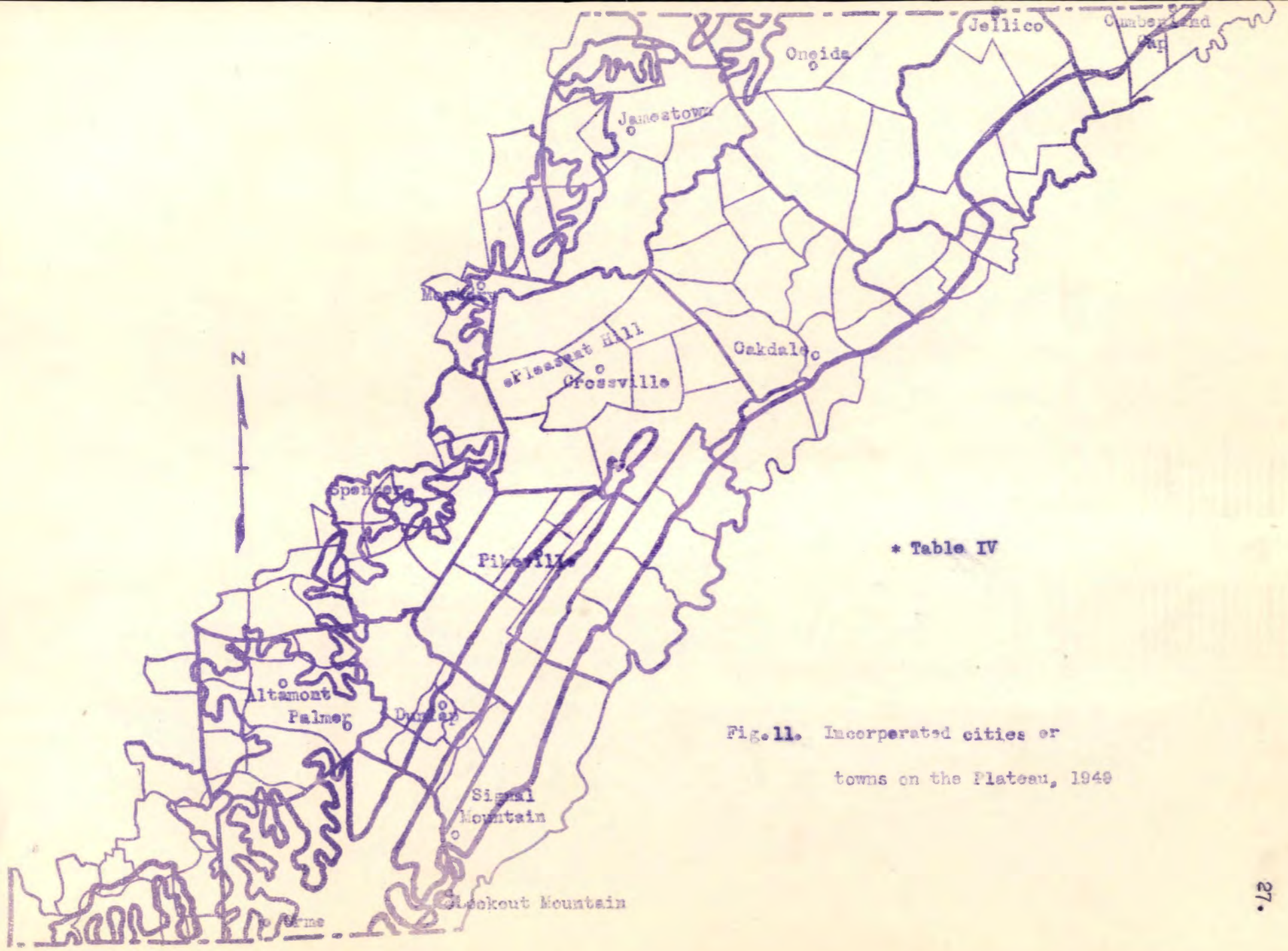

Fig.10. Population density per square mile, 1930

Distribution of Population: Population density in 1940 was 31.9 persons per square mile on the Plateau, and 69.5 persons per square mile for the State or nearly double the Plateau density. The range of density per square mile in 1940 was from 99.7 persons in the western section of Hamilton County to 14.6 in Van Buren County.

The greater density of population, as shown in Figure 9 for 1930, is found along the borders of the area and in the valleys.

The greater density of population in the northeastern section of the area is due to the coal mining locations, and the greater concentration of people along the borders of the region is due in part to the influence of factors inherent to the other geographic divisions bordering the area.

Cities and Towns: There were fourteen incorporated places in the area and two in the Sequatchie Valley in 1940 according to the census (Figure 10). None of these had a population as large as 2500. Only four of these incorporated towns, Dunlap, Oakdale, Oneida, and Orme had decreases during the years 1930 to 1940 (Table IV). The other twelve towns increased during the period.




* Table IV

Fig. 11. Incorperated cities or towns on the Plateau, 1949

TABLE IV. POPULATION OF INCORPORATED PLACES FOUND ON CUMBERLAND PLATEAU AND IN SEQUATCHIE VALLEY

| City or Town | County | 1940 | 1930 | Increase 1930-1940 |
|---|---|---|---|---|
| Altamont | Grundy | 238 | 140 | 98 |
| Crossville | Cumberland | 1511 | 1128 | 383 |
| Cumberland Gap | Claiborne | 409 | 365 | 40 |
| Dunlap * | Sequatchie | 721 | 1295 | -574 |
| Jamestown | Fentress | 1230 | 857 | 373 |
| Jellico | Campbell | 1581 | 1530 | 51 |
| Lookout Mtn. | Hamilton | 1545 | 1031 | 514 |
| Monterey | Putnam | 1742 | 1731 | 11 |
| Oakdale | Morgan | 900 | 1123 | -223 |
| Orme | Marion | 277 | 466 | -189 |
| Palmer | Grundy | 1228 | 1158 | 70 |
| Pikeville * | Bledsoe | 759 | 551 | 208 |
| Pleasant Hill | Cumberland | 178 | 165 | 13 |
| Signal Mtn. | Hamilton | 1308 | 966 | 342 |
| Spencer | Van Buren | 508 | 390 | 118 |
| Oneida | Scott | 1252 | 1382 | -130 |

* Located in Sequatchie Valley.

Source: United States Department of Commerce, Bureau of Census, Population, 16th Census, 1940.

Farm and Non-Farm Population: In 1940, the farm population was 64,848 for the ten Plateau counties, or 51.6 percent of the total. The farm population in 1930 was 53,349, or 45.9 percent of the total, while the percent of non-farm population was 54.1 percent or 62,957. When these figures are compared with the rural farm of the state, the percent farm population on the Plateau is 24.6 percent less than the percent of rural

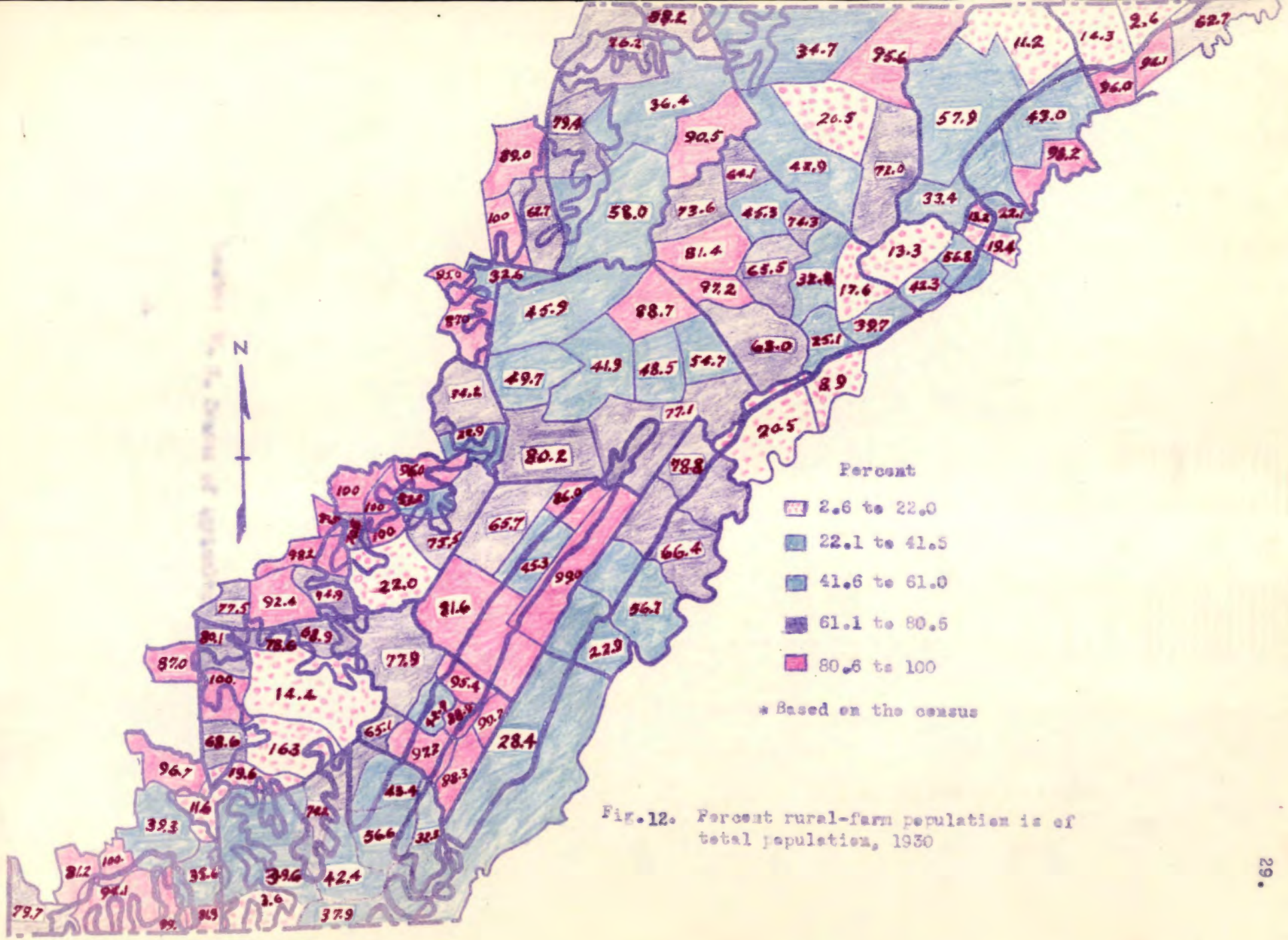
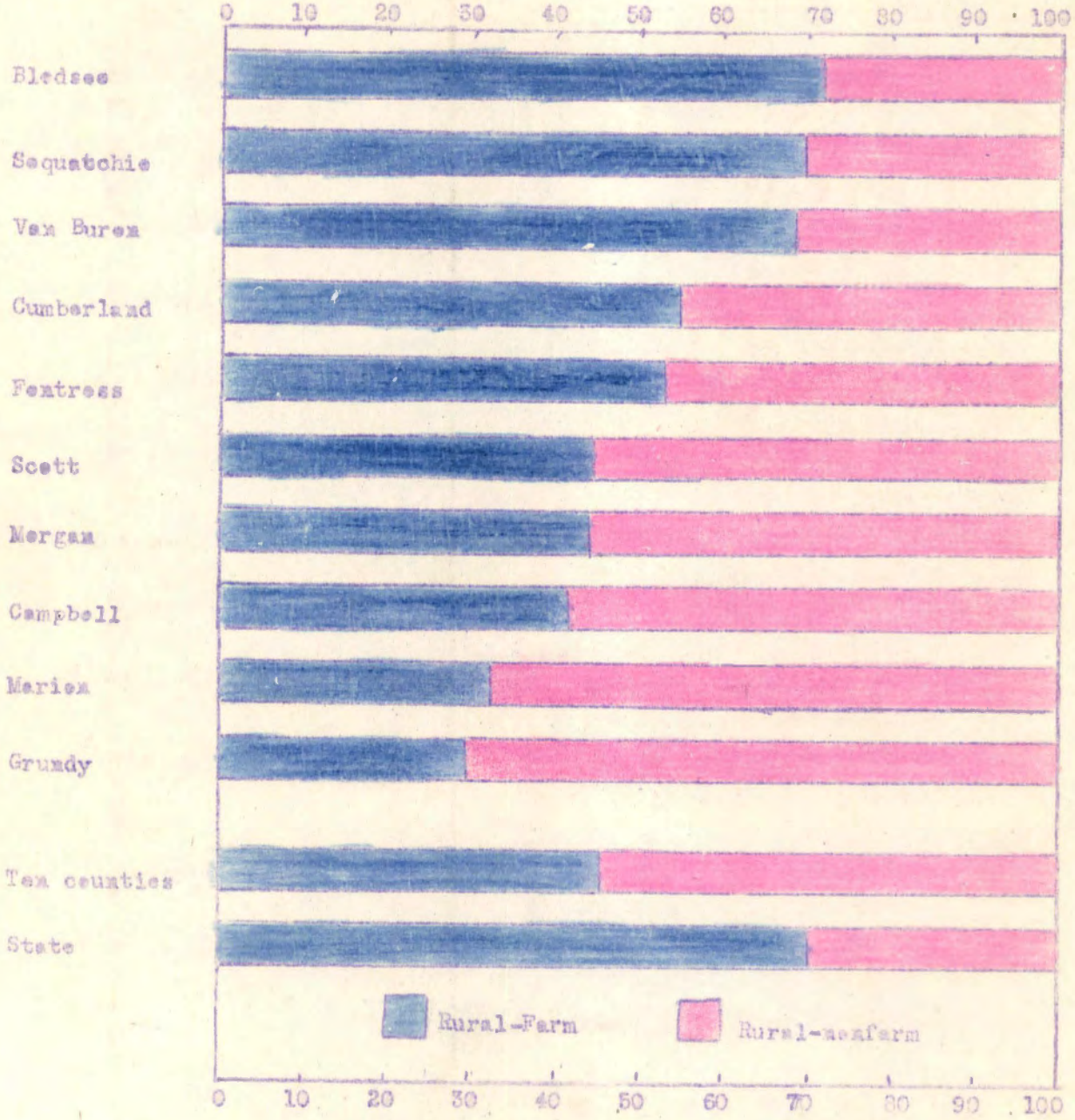



Fig. 12. Percent rural-farm population is of total population, 1930




Source: U. S. Census of Agriculture, 1940

Fig. 13. Comparison of percent of rural-farm and rural-nonfarm population in ten Plateau counties and in the State, 1939

farm population of Tennessee. Bledsoe County with a 71.9 percent farm population was the only county having a larger rural farm population than that of the state.(3) As shown by Figure 12, the percent of farm population in this area tends to be low around the coal mines. The range of percent of farm population in 1930 was from 2.6 percent in one section of Claiborne County to 100 percent in the central section of Van Buren and in the western part of Grundy.

With one half of the population non-farm, it is evident that the people here are by no means solely dependent upon agriculture for their livelihood, inasmuch as many of the people work full time in other industries. However, a considerable number of these non-farm families, although not living on tracts large enough or of sufficient agricultural productivity to be classified as farm, do produce significant quantities of food for their own use, and secure many of the other low costs of living enjoyed by families living in the country. This does not hold true in all cases, for many of the inhabitants, especially in mining villages, make no pretense of producing food, but buy all that is consumed.

Age: The age distribution of any population gives some evidence as to rate of increase or decrease, assuming no mobility.

Population under 15 years of age in 1930 was 40.1 percent of the total, while the percentage of population over 21.4 was 46.4. There

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(3) It should be borne in mind that state figures are for rural farm, and do not include urban population.

were 29.4 percent under 15 years of age for the state, 6.9 percent lower than the average for the Plateau.

Birth Rates: Birth rates are high on the Plateau, and if there were no migration there would be a rapid increase in population. On the basis of 1930 figures it is estimated that if the birth and death rates for the years 1925-1930 were to continue, the population would more than double in each generation of about 30 years. At that time a population which was just maintaining itself would have required 440 children under 5 years of age per 1000 women 20-44 years of age.(4) The lowest rate in the area was that in the farm population of Grundy County where it was only 711; the highest was for the farm population of Van Buren County where it was 1107. Under such conditions it is necessary either to expand the resources base or to find outlets for the population through migration, if distress is to be avoided. If, as happened in Grundy County, there is also a contraction of the resources base, widespread distress is almost inevitable.

Size of Rural Families: Among the rural-farm population, the size of families in the more rugged, isolated, and economically handicapped areas tends to be large compared with those among farm people living in more fertile areas. In the case of rural non-farm population

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(4) Memorandum statement, Conrad Taeuber, Acting Head, Division of Farm Population and Rural Welfare, Bureau of Agricultural Economics, July 21, 1941.

the size of family does not show as direct a relationship to topography, but a tendency towards large families is evident in the coal mining villages.

The median size of all families in 1930 was 4.81 persons per family. The range of median size of family was from 4.18 persons per family in Grundy to 5.36 persons per family in Fentress. The northern half of the region consisting of Campbell, Scott, Fentress, Morgan, and Cumberland reported the median size of family as above 5.02 persons, while the southern portion of the region consisting of Van Buren, Bledsoe, Grundy, Sequatchie, and Marion reported the median size of families as below 4.76. The median size of families for the state as a whole was 4.22, or .59 lower than the average for the Plateau.

Large families usually mean more children to provide for out of the family income and when it is realized that families with limited opportunities are often those with larger-than-average size of family, the situation appears more serious. Not only does the burden of support of a large proportion of children rest upon families with small incomes, but counties suffer in that larger schools and other facilities to care for the high proportion of children and young people are needed. State grants in aid may afford some relief, but the public problem arising from rearing large numbers of children in such areas remains acute.

Large farm families are related to population mobility and to

standard of living. When more young people are being reared on farms in a given area than are needed for farm workers, three conditions are apt to result:[5] (1) the surplus population may migrate to areas where there are greater agricultural or non-agricultural opportunities; (2) the surplus may find non-agricultural employment sufficiently close by to permit continued residence on the home farm; and (3) if this surplus population continues to live on the home farm and finds employment only in local agriculture, unless changes occur in type of farming or in prices of farm products, either the volume of product or the value of product or both, on a per capita basis, is likely to decline. The third alternative is almost certain to mean a lower standard of living for the farm families involved, while the first two alternatives are more likely to mean at least a constant standard of living.[6]

Migration: Social as well as economic factors influence the size of families and the movement of population with environment factors playing a large part. If there is little migration during the 1940's, population will increase considerably in this area. If only the population of working age 15-64 is considered, it is reasonably easy to estimate what would happen for people who will be in this

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(5) United States Department of Agriculture, Miscellaneous Publication No. 205, Washington, D. C., January 1935.

(6) Ibid.

group in 1950 are now living.

For men on farms, if there is no migration, the situation will be approximately as follows:(7)

| | |
|---|---|
| Number who will pass their 65th birthday | 1,917 |
| Number who will die before reaching their 65th birthday | 951 |
| Total number of "vacancies" due to deaths or reaching retirement age | 2,868 |
| Number of young men who will reach their 15th birthday | 7,411 |

Thus during the years 1940-1950, if there is no migration, there is likely to be about 7,411 farm boys passing their 15th birthday and presumably ready to enter the labor force, but only 2,868 "vacancies" due to death or retirment are expected to occur. (These are approximations, and the age 15-64 is used because it can be secured from census figures. Also no allowances were made for number of men being inducted into Army during the present emergency.) Thus an estimated 258 persons are entering this age group for every 100 who leave it by death or retirement.(8)

In the non-farm population, the situation is somewhat more stringent, for there the ratio of entrants into the age group per 100 "vacancies" is 275. Without migration the number of men 15 to 64 years

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(7) Statement by Conrad Taeuber, Acting Head, Division of Farm Population and Rural Welfare, July 21, 1941.

(8) Conrad Taeuber, op. cit.

old in the rural non-farm areas would increase about 24 percent in the ten year period 1940 to 1950.

These figures clearly show the immediacy of finding some alternative opportunities for the oncoming generations of the population on the Plateau. The presence of surplus labor in the area has a bearing upon the location of additional factors in the region, and the question arises, should new factories be built where a considerable number of needed personnel may continue to live in their present homes, or should such factories be built in the larger towns or cities thereby stimulating greater urban concentration and a continued depopulation of rural communities?

## Education

The extent to which young people are being trained for adjustment that may need to be met can be indicated by an index of school conditions. In 1940 there were 30,323 school children enrolled in all grades from the first to the eighth in the Plateau county schools. There were 40.9 of the total enrollment in the first and second grades, while for the same year only 35.3 percent of enrollment in county schools for the state as a whole was in the first and second grades (Table V). In 1940 there was 6.8 percent of the pupils enrolled in the eighth grade, while in the state as a whole there was 7.9 percent in the eighth grade (Table V). The data do show that the Plateau tends to have a larger percent of enrollment in the first and second

grades than does the state, and it is also true that if as many as 40.9 percent of the children in the public school system are in the first two grades, the proportion who complete the elementary school curriculum in this area is small. The completion of the 5th and 6th grades does seem to represent the maximum achievement which can be expected. In 1930, there was 8.4 percent illiteracy for the area, while the percent of illiteracy was 7.2 percent for the state. If the data for Knoxville, Chattanooga, Nashville, and Memphis on illiteracy is

TABLE V. TOTAL NET ENROLLMENT, COUNTY ELEMENTARY SCHOOLS, PERCENT IN FIRST AND SECOND GRADE AND PERCENT IN EIGHTH GRADE, TEN PLATEAU COUNTIES, STATE, 1940
(WHITE)

| County | Total Enrollment | Enrollment in First and Second Grades | Percent of Enrollment in First and Second Grades | Enrollment in Eighth Grade | Percent of Enrollment in Eighth Grade |
|---|---|---|---|---|---|
| Scott | 3,758 | 1,718 | 45.7 | 284 | 7.6 |
| Fentress | 3,307 | 1,455 | 44.0 | 204 | 6.2 |
| Campbell | 6,737 | 2,946 | 43.7 | 380 | 5.6 |
| Grundy | 2,503 | 1,068 | 42.7 | 163 | 6.5 |
| Bledsoe | 1,951 | 817 | 41.9 | 141 | 7.2 |
| Marion | 3,589 | 1,369 | 38.1 | 256 | 7.1 |
| Cumberland | 3,723 | 1,382 | 37.1 | 300 | 8.1 |
| Van Buren | 879 | 317 | 36.1 | 54 | 6.1 |
| Morgan | 3,171 | 1,107 | 34.9 | 227 | 7.2 |
| Sequatchie | 705 | 241 | 34.2 | 64 | 9.1 |
| Total | 30,323 | 12,420 | 40.9 | 2,073 | 6.8 |
| State | 333,278 | 117,893 | 35.3 | 26,343 | 7.9 |

Source: Annual Report of the Department of Education, Tennessee, 1940.

not included in the state average, the percent of illiteracy was 8.3 percent, only 0.1 percent lower than the average for the Plateau.

TABLE VI. SCHOLASTIC POPULATION BETWEEN 6 AND 18 YEARS IN 1939, TOTAL NET ENROLLMENT IN ELEMENTARY SCHOOLS AND IN HIGH SCHOOLS, AND PERCENT TOTAL NET ENROLLMENT IS OF SCHOLASTIC POPULATION, TEN PLATEAU COUNTIES, 1940

| County | Scholastic Population | Net Enrollment Elementary School | Net Enrollment High School | Total Net Enrollment | Percent Enrollment Is of Scholastic Age |
|---|---|---|---|---|---|
| Sequatchie * | 1,194 | 1,007 | 190 | 1,197 | 100.0 |
| Cumberland | 4,327 | 3,723 | 531 | 4,254 | 98.3 |
| Scott | 5,141 | 4,227 | 532 | 4,759 | 92.6 |
| Bledsoe | 2,430 | 1,951 | 262 | 2,213 | 91.6 |
| Morgan | 4,059 | 3,171 | 525 | 3,696 | 91.1 |
| Marion | 5,104 | 3,875 | 639 | 4,514 | 88.4 |
| Campbell | 8,669 | 6,737 | 921 | 7,658 | 88.3 |
| Van Buren | 1,110 | 879 | 97 | 976 | 87.9 |
| Grundy | 3,216 | 2,503 | 323 | 2,826 | 87.9 |
| Fentress | 3,877 | 3,307 | 82 | 3,389 | 87.4 |
| Total | 39,127 | 31,380 | 4,400 | 35,482 | 90.7 |

* Figures are for county and city schools.

Source: Annual Report of the Department of Education, Tennessee, 1940.

As is true in all parts of the country, the schools here are poor in some respects or in some communities, and good in others.

The percent of scholastic population between 6 and 18 years attending elementary and high school in 1940 in the ten Plateau counties

was 90.7 (Table VI). The figures are more representative rather than actual, as for example Sequatchie is shown as having 100 percent of its scholastic age population attending school. It may be that a few of those enrolled are older or younger than the scholastic age 6 to 18. These data on education should be regarded as affording comparative indices of extent to which the people are reached by education facilities.

## Negroes and Foreign-Born Whites

In 1930, the number of negroes in the area was 5,897, 3.3 percent of the total population. This is a very low percentage of negro population when compared to the 20 percent for the state as a whole in the same year. Marion County had the largest negro population, 9.4 percent, while the negro population in Scott County was 0.2 percent of the total population. As shown by Figure 14, the negro population and the foreign-born white population are very insignificant factors on the Plateau and need little consideration in a report such as this.

The percent of foreign-born white was 0.9 in 1930, while the percent of foreign-born white in the state for the same year was 1.0.

## Colonization(9)

Colonies: Numerous colonies have been established in Tennessee during the latter half of the 19th Century. Although many were unsuc-

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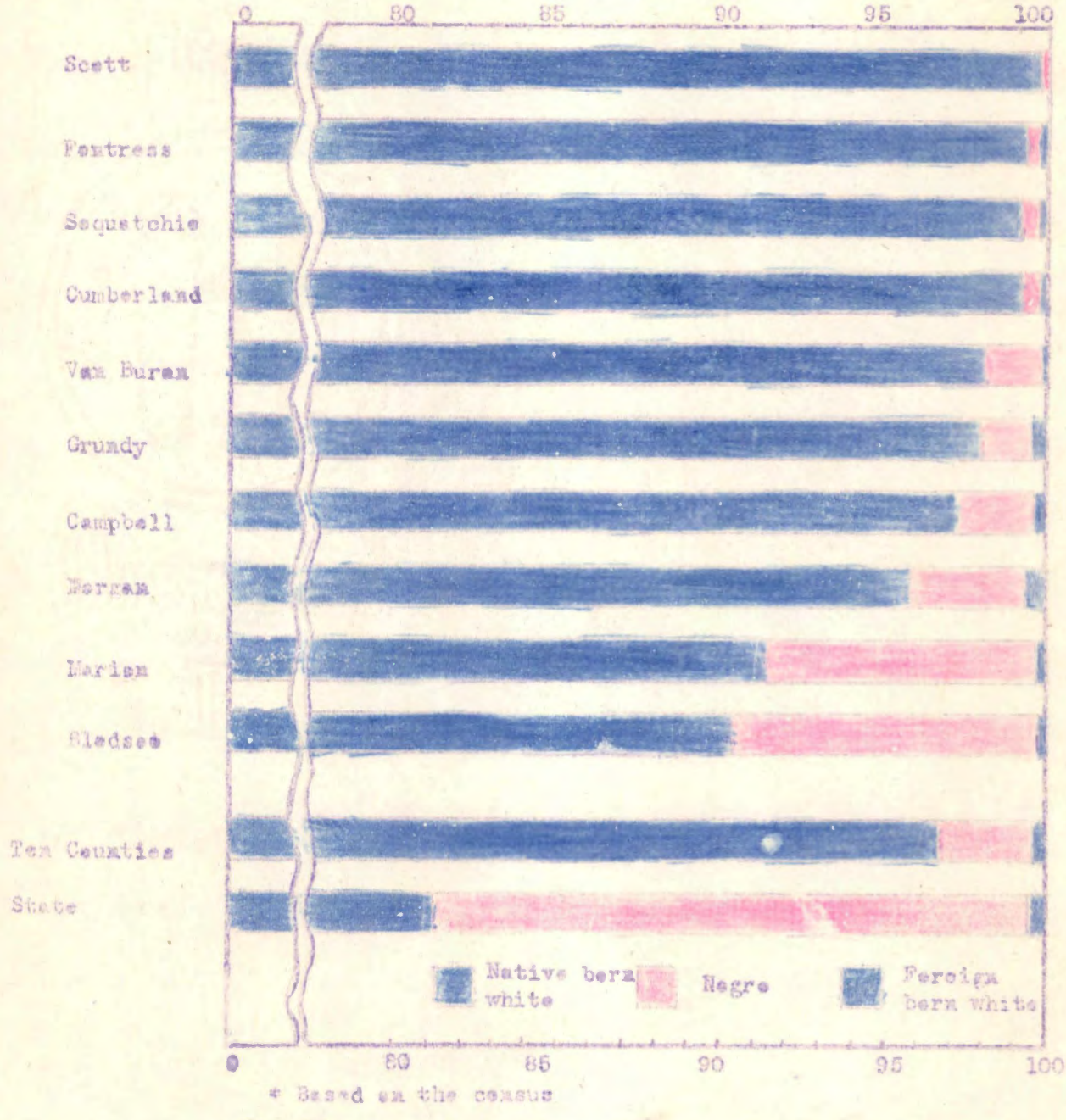
(9) C. E. Allred, S. W. Atkins, Human and Physical Resources of Tennessee, Department of Agricultural Economics and Rural Sociology, University of Tennessee, 1939.




* Based on the census

Fig. 14. Comparison of the percent of native born white, of negro, and of foreign born white, population in ten Plateau counties and in the State, 1930

cessful they brought into the state a high type of foreign-born population, which has largely remained, thus furnishing some of the best citizens of the state. The people settling these projects were largely German with a few other nationalities such as English, French, Bohemian, Norwegian, and Polish.

Most of the attempts in the recent colonizing projects in Tennessee have been on the Plateau. However there were people already living in the Plateau when most of these projects were formed, and the area was in no way first settled by the colonies.

One of the early colonizing projects was at Wartburg, Scott County, in 1845. The work of establishing the colony was carried on by the Tennessee Colonization Company, a co-partnership enterprise between several New York and European capitalists interested in the sale of real estate, and which had for its purpose the colonization of Morgan, Scott, Fentress, and Cumberland counties, with German and Swiss immigrants. From the time of the first settlement to 1855 from 800 to 1000 immigrants, mostly Germans with some Swiss, Austrian, Dutch, and French immigrants, settled at Wartburg. The colony, however, was not successful, and in the early stage of development, many of the settlers moved away because of two consecutive crop failures, and the effects brought on by the Civil War.

Another unsuccessful but interesting attempt at colonization, was the English Colony at Rugby, in Morgan County. It was an attempt by the Board of Aid to Land Ownership, of England, to help young Englishmen

secure small tracts of land at low prices by advantageous purchases of large tracts of land by the group. The plan of the colony was the development of a pleasure and health resort, with some agriculture and industry to be carried on. Approximately one thousand young Englishmen came to the colony, many of whom were men of means and social prestige, but due to such factors as mismanagement, absence of its chief directors, conflicting titles, drought of 1881, typhoid epidemic, inexperience of settlers, and failure to work hard on the part of the group, the colony failed.

In 1880 a colony consisting principally of Germans from Michigan established a settlement at Allardt in Fentress County. This colony, one of the more successful colonies in the Cumberland Plateau, had been influenced to colonize at Allardt by the Michigan firm of Allardt and Gunt.

Other colonization attempts on the Cumberland Plateau include: the Bohemian Colony at Mayland in Cumberland County, which was established about 1913 and disbanded about three years later; and the German-Swiss settlement at Gruetli, in Grundy County.

Most of the original settlers of these colonies are dead and their descendents to a large degree have intermarried with other people of the respective areas. A Norwegian colony, established near Frankfort in Morgan County, failed in 1895; and a Polish colony was established about 1909 near Deer Lodge.

As a result of the first colonies and early settlers making their homes here, the people of the area in a large degree are descendents of families who have been in this country for several generations and are what is commonly referred to as hardy, native American stock.

Cumberland Homesteads: The most recent colonization project in the area is the Cumberland Homesteads, Incorporated, which was started in Cumberland County in 1934 as one unit of the Federal Subsistence Homesteads. The Homesteads were a subsidiary of the Subsistence Homesteads Corporation set up by the National Recovery Act in 1933, in the United States Department of the Interior. The principal objective was to aid in redistribution of the over-balance of population in industrial centers by establishing selected unemployed families on small farms.

The plans of the project called for buying at least 10,000 acres of land; and as much of the Plateau had been sold by the state originally in large tracts, this section was the easiest in which to acquire such a tract in one piece. The first tract of 11,856 acres was purchased in 1934 from the Missouri Land and Coal Company. This tract had been cleared of timber years before, but never cultivated. It was fairly level, and had some native building stone of good quality, some timber, and soil that was characteristic of the Plateau as a whole.

The project provided for 350 families, with the farms to be sold to the settlers on a 15 to 25 year payment plan at a low interest rate. To finance the project approximately $840,000 was allotted by the Federal

Subsistence Homestead Corporation, out of the $25,000,000 provided by Congress. The average farm cost to the settlers as of 1934 was approximately $2,350 each, for an average of 35 acres of land, buildings,[10] tools, and a small number of farm animals.

Families selected were stranded miners, permanently displaced lumbermen, and some farmers from submarginal land.

Many of the settlers had been on relief for three or four years and were greatly in need of some help. About 50 percent were selected from Cumberland County, 35 percent from adjoining counties, and 10 percent from the rest of the state with about 5 percent from outside the state.[11]

The Cumberland Homesteads are now supervised by the Farm Security Administration, and is a community of approximately 200 families.[12]

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(10) United States Department of the Interior, Information Concerning Divisions of Subsistence Homesteads, Division of Subsistence Homesteads, Washington, D. C., Bulletin 1, 1936.

(11) Ibid.

(12) H. J. Bonser, R. G. Milk, Neighborhoods and Communities of Cumberland County, Tennessee, Department of Agricultural Economics and Rural Sociology, University of Tennessee, Monograph No. 129, 1941, p. 20.

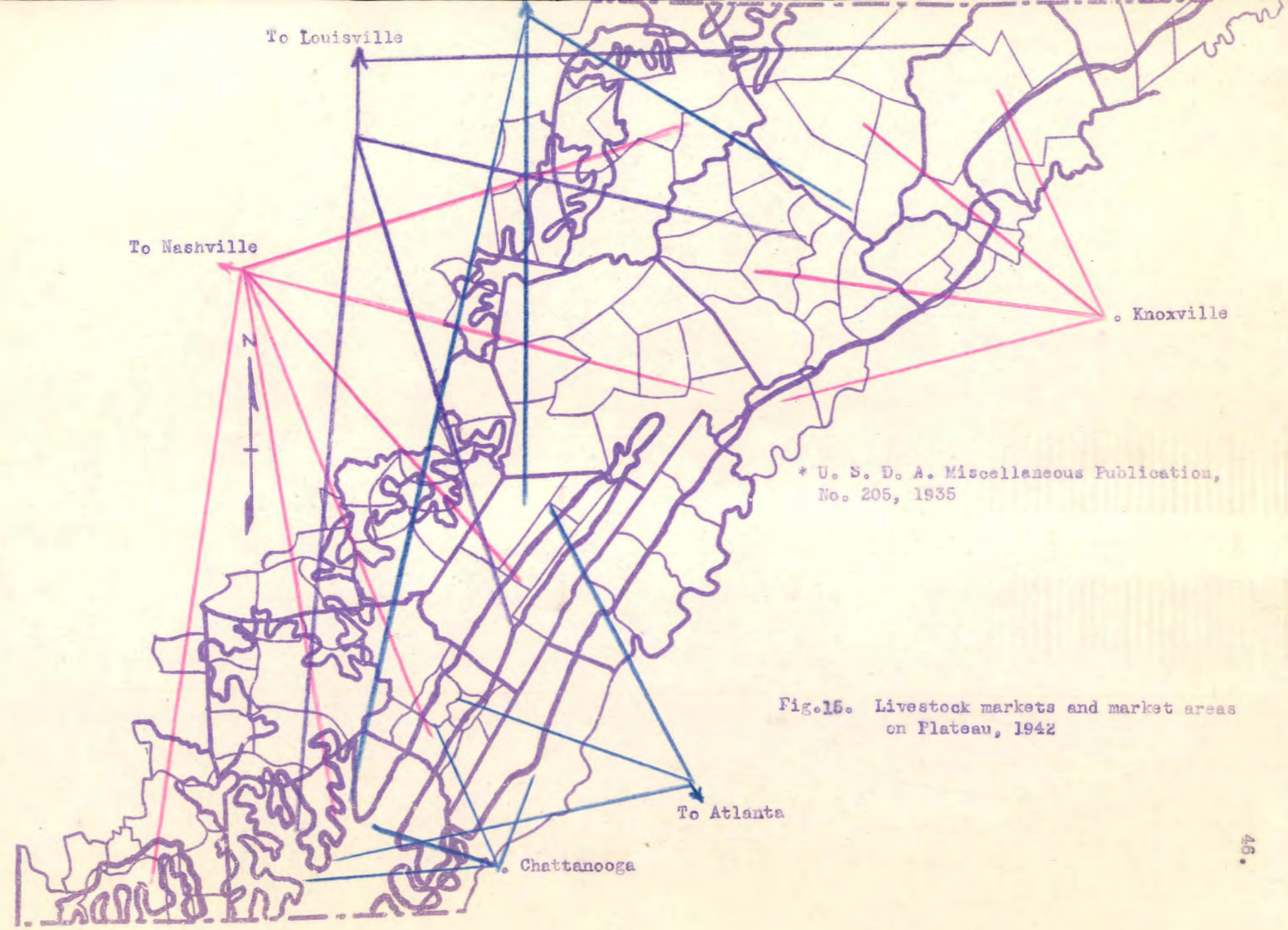
## CHAPTER III

## MARKETS, TRANSPORTATION, AND INDUSTRIES

### Markets

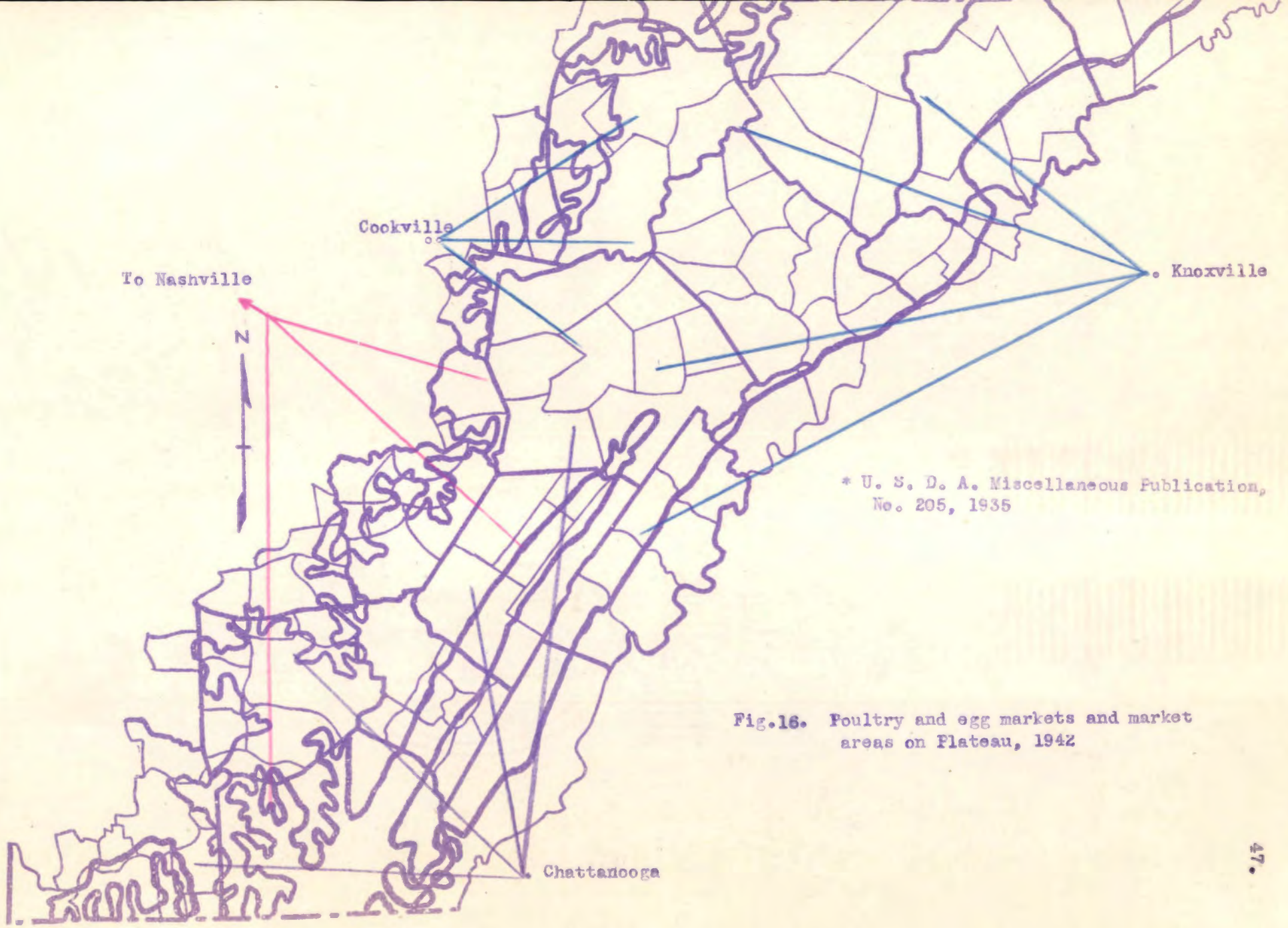
The self-sufficiency of many of the farms on the Plateau, and the high degree of part-time farming provides the economic setting for an agricultural marketing system that is relatively decentralized and that serves, largely through small markets and consumers that are within the area. However, some of the farm products requiring processing are shipped to surrounding markets outside the area as is some of the livestock. The products shipped are usually taken by truck to the nearest market where they are either consumed or taken over by shippers who send them on to larger markets.

Livestock Markets: Beef cattle, lamb, and hogs are the principal livestock grown for market in the region. The principal classes of cattle grown in the area are feeder and stocker cattle which, in addition to being bought by feeders in the cattle-feeding areas, are shipped to Cincinnati, Pittsburg, and other markets in the eastern corn belt, with good slaughter cattle being marketed in the important slaughter and consuming centers of the northern and eastern markets of the country.



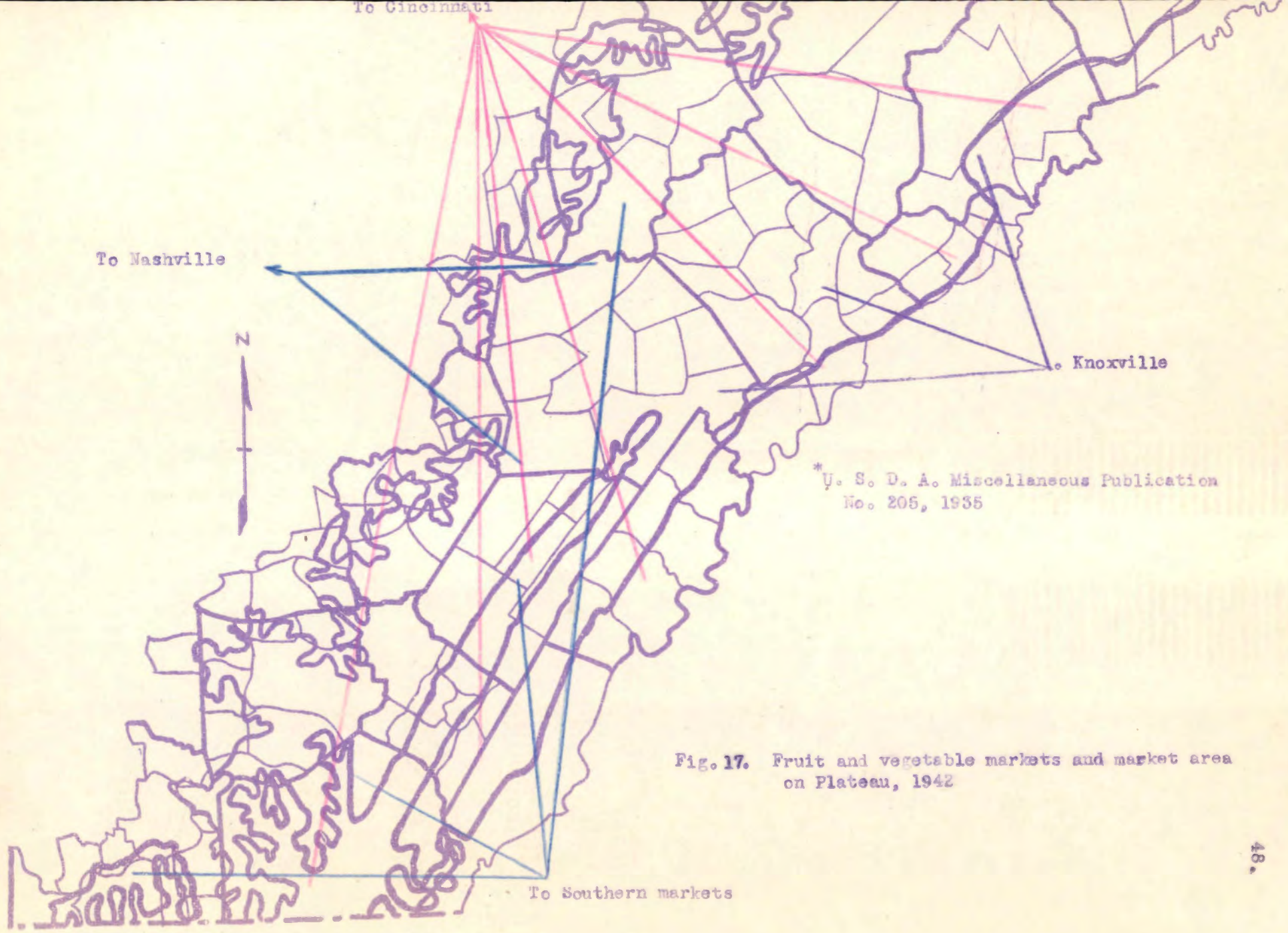

* U. S. D. A. Miscellaneous Publication, No. 205, 1935

Fig. 15. Livestock markets and market areas on Plateau, 1942




* U. S. D. A. Miscellaneous Publication, No. 205, 1935

Fig.16. Poultry and egg markets and market areas on Plateau, 1942




*U. S. D. A. Miscellaneous Publication No. 205, 1935

Fig. 17. Fruit and vegetable markets and market area on Plateau, 1942

As shown by Figure 15, Knoxville serves as a market for livestock produced in the northeastern section of the Plateau while such markets as Chattanooga and Atlanta serve the southeastern sections of the Plateau. Livestock is shipped to Nashville from the western and middle sections while Louisville and Cincinnati serve as markets for much of the livestock produced in all parts of the Plateau.

Some feeders and stocker cattle are at times sold on livestock auction markets as Lexington, Danville, and Mount Sterling in nearby central Kentucky where an important cattle-feeding industry has developed.

There is a livestock market at Crossville, Cumberland County, that serves the Plateau as a livestock marketing center. This market was started as a cooperative about 1917, and soon developed into a sheep selling cooperative. A few years later it developed into a cattle market. In 1938 a new barn was built, and the market ceased to be a cooperative.

Most of the stock coming here is feeder stock, coming from Pikeville, Harriman, Rockwood, Rubke, Sparta, Cookeville, and surrounding counties with most of it from Cumberland County.(1)

Stock from this market goes in all directions with top hogs usually sold to buyers who take them to Knoxville. Yearlings and feeder stuff usually go north to Kentucky. Fat hogs are usually taken by buyers who sell on the Knoxville market, as Knoxville packers do not have buyers here as a rule. Fat steers usually are sent to Knoxville with some of

---

(1) Information is not complete on this market. It is largely based on one day's sales, but does give an idea of how the stock is marketed.

them going to Chattanooga. Butcher cows go to Knoxville, Chattanooga, and Kentucky, while a lot of the young butcher cows are grass fed in Kentucky. Cattle that are classed as canner and cutter are shipped to Knoxville and Chattanooga. A few cattle and lambs come from the Sequatchie Valley, mostly feeders, as the price is better here for feeders than it is at McMinnville. However, not much fat stuff comes from the valley.

On June 24, 1941, the commission selling was handled at 50 cents per head for cattle, 1 dollar per head for bulls, 25 cents per head for hogs, 25 cents per head for sheep, and 1 dollar per head for horses. The number of truck licenses recorded as being at the market around 12:45 P.M., June 24, 1941, were: 10 from Cumberland, 8 from Bledsoe, 3 from Fentress, 2 from Overton, and 2 from Roane. The following had at least one truck there: White; Van Buren; Monroe; Putnam; Lincoln, Kentucky; Russell, Kentucky; and Ohio. For the most part, the automobile license plates were from Cumberland County.

On the whole, however, the production of hogs and dairy products in the area is distinctly below consumption and much of that consumed must be brought in from other areas. The population in coal mining centers and in the sections adapted for tourists provide an outlet for more animal products than the Plateau farms are producing at present, especially pork.

Poultry and Egg Markets: Considering the region as a whole, the marketing of eggs and poultry is largely an inter-county and intra-county movement rather than a shipping to outside markets. The poultry and eggs in the greater portion of the area are usually marketed locally at the mining centers and in the urban centers found relatively close to the Plateau as Knoxville, Nashville, Chattanooga, and in Cookeville (Figure 16). Markets for both poultry and eggs tend to be the same although they do differ somewhat in importance, and in the channels of distribution. One important difference is that eggs apparently are shipped to more distant markets whereas poultry markets tend to be more localized.

Fruit and Vegetable Markets: Much of the fruit and vegetables produced are marketed locally in the town within the area, with Nashville, Knoxville, and Chattanooga serving as a market for much of the produce shipped out of the region (Figure 17). A small quantity of strawberries is grown and shipped to the northern markets as Cincinnati, which also serves as a market for the tree fruit that is grown.

Irish and sweet potatoes grown for market are sent to such southern markets as New Orleans and Birmingham. However, most of the fruit and vegetables grown are consumed locally in the mining towns. The quantity of fruit and vegetables produced in the area is not sufficient to meet the needs of the towns resulting in fruit and vegetables being shipped into

the area.

Cooperative Buying and Selling: Cooperative marketing among the farmers is of minor importance notwithstanding the fact that the marketing of farm products is not well developed in many parts.

In 1940 there were about 303 farms reported doing business with or through cooperatives (Table VII). More farms were reported, for the

TABLE VII. NUMBER OF FARMS REPORTING BUSINESS WITH OR THROUGH COOPERATIVES, CUMBERLAND PLATEAU, 1940

| County | Any Business (Farm) | Selling and/or Buying (Farms) | Selling (Farms) | Buying (Farms) | Service (Farms) |
|---|---|---|---|---|---|
| Bledsoe | 13 | 8 | 5 | 4 | 6 |
| Sequatchie | 42 | 41 | 25 | 30 | 11 |
| Van Buren | 2 | 2 | 2 | 1 | 1 |
| Cumberland | 115 | 103 | 65 | 88 | 54 |
| Fentress | 62 | 12 | 3 | 10 | 53 |
| Scott | 11 | 10 | 1 | 10 | 2 |
| Morgan | 11 | 11 | 7 | 11 | 6 |
| Campbell | 18 | 3 | | 3 | 15 |
| Marion | 19 | 18 | 8 | 15 | 1 |
| Grundy | 10 | 10 | 6 | 8 | |
| Total | 303 | 218 | 122 | 180 | 149 |
| State | 22,084 | 9,946 | 7,276 | 5,006 | 14,669 |

Source: Census of Agriculture, 1940.

same year, as buying through cooperatives (180 farms) than were selling through cooperatives (122), while 149 farms were reported as being con-

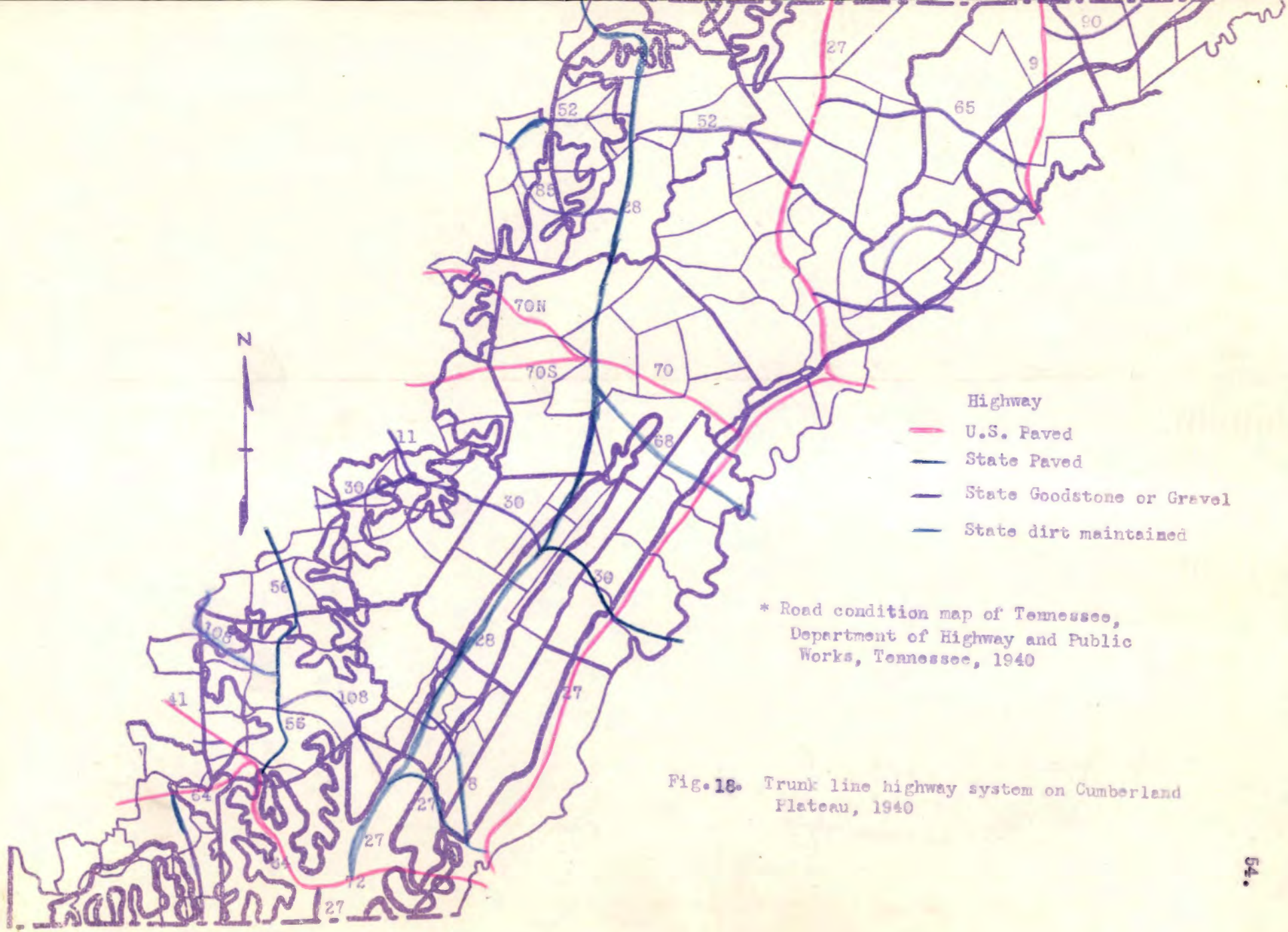
nected with service cooperatives.

Neither cooperative selling nor cooperative buying appears to have reached the limits of possible development in this region. The local character of much of the trade in farm products, the non-commercial type of agriculture in many sections, and the problems inherent in cooperative organizations are effective to progress in association efforts. Experience has demonstrated that there are opportunities through cooperative effort, for creating new and better markets and for improving distributive service, especially in such supplies as feeds, seeds, and fertilizer.

## Transportation

This inability of the producer to market his products easily is caused, in part, by the factor of transportation which may be pointed out as one of the chief causes for the present state of economic development and isolation of much of this region. One of the chief obstacles to development of a satisfactory system of transportation has been the vastness of the area in proportion to the population and economic enterprise carried on.

Highways: The building of a network of all-weather roads has been relatively recent as construction of turnpikes, macadam, and plank roads was undertaken on a small scale in the period of extensive development of public works during the first part of the nineteenth century but




* Road condition map of Tennessee, Department of Highway and Public Works, Tennessee, 1940

Fig. 18. Trunk line highway system on Cumberland Plateau, 1940

was followed by over a half century of stagnation in road building. A renewed interest in public roads was evident at the close of the century, public attention then being directed to the construction and maintenance of highways chiefly by local governments instead of private operation as had prevailed in the earlier period. Progress in road improvement was slow, and extreme isolation was characteristic of the rural population until a comprehensive system of highways were developed by the state, assisted by the Federal Government.

Figure 18 shows the highway system as it exists at the present time, and although there are many miles of highway in and around the Plateau, many square miles of Plateau land are still too far from a highway to bring under profitable cultivation.

In 1940, Sequatchie had 18.2 percent of its farms on hard surface roads, while Van Buren had 5.7 percent of its farms on hard surface roads.(2) The percentage of farms on hard surface roads for the same year in six other counties were: Cumberland, 17.0 percent; Bledsoe, 16.2 percent; Grundy, 14.6 percent; Fentress, 11.6 percent; Morgan, 7.4 percent; and Scott, 7.6 percent. For the most part, the highest percentage of farms in the counties were on improved gravel roads, except in Bledsoe, Scott and Morgan. Scott had the highest percent of farms, 39.5 percent,

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(2) Hard surface roads means concrete, macadam, or tar roads.

on improved dirt roads, while in Bledsoe, 32.8 percent were on improved dirt. In Morgan 37.3 percent of the farms were on unimproved dirt roads.

The percent of farms on hard surface roads is greater on the Plateau than is the percentage for the state, but the percent of farms on unimproved dirt roads is greater in the area than that of farms on unimproved roads in the state.

TABLE VIII. PERCENT OF FARMS BY TYPE OF ROAD, TEN PLATEAU COUNTIES, AND STATE, 1940

| Type of Road | Plateau | State |
|---|---|---|
| Hard surface | 15.7 | 13.9 |
| Gravel, shell, shale | 35.7 | 45.8 |
| Dirt | | |
| Improved | 20.4 | 18.5 |
| Unimproved | 28.2 | 21.8 |

Source: Census of Agriculture, 1940.

The high percent of farms on unimproved dirt roads in the area is caused mainly by the high percent of unimproved dirt roads in the three counties: Morgan, 37.3 percent; Scott, 36.7 percent; and Van Buren, 34.2 percent.

Trucks and Automobiles: In 1940 there were 19.0 automobiles per 100 farms, and 8.6 motor trucks in the area. For the same year there were 34.4 automobiles per 100 farms in the state and 7.6 motor trucks per 100 farms. The number of automobiles per 100 farms in Grundy was 27.0, while

in Sequatchie 7.1 automobiles were reported per 100 farms. Grundy also had the highest proportion of motor trucks, 11.1 per 100 farms, and again Sequatchie was lowest with 3.3 motor trucks per 100 farms. Number of automobiles per 100 farms in other counties were: Bledsoe, 21.8; Morgan, 21.4; Van Buren, 20.9; Cumberland, 20.4; Fentress, 12.7; and Scott, 11.3.

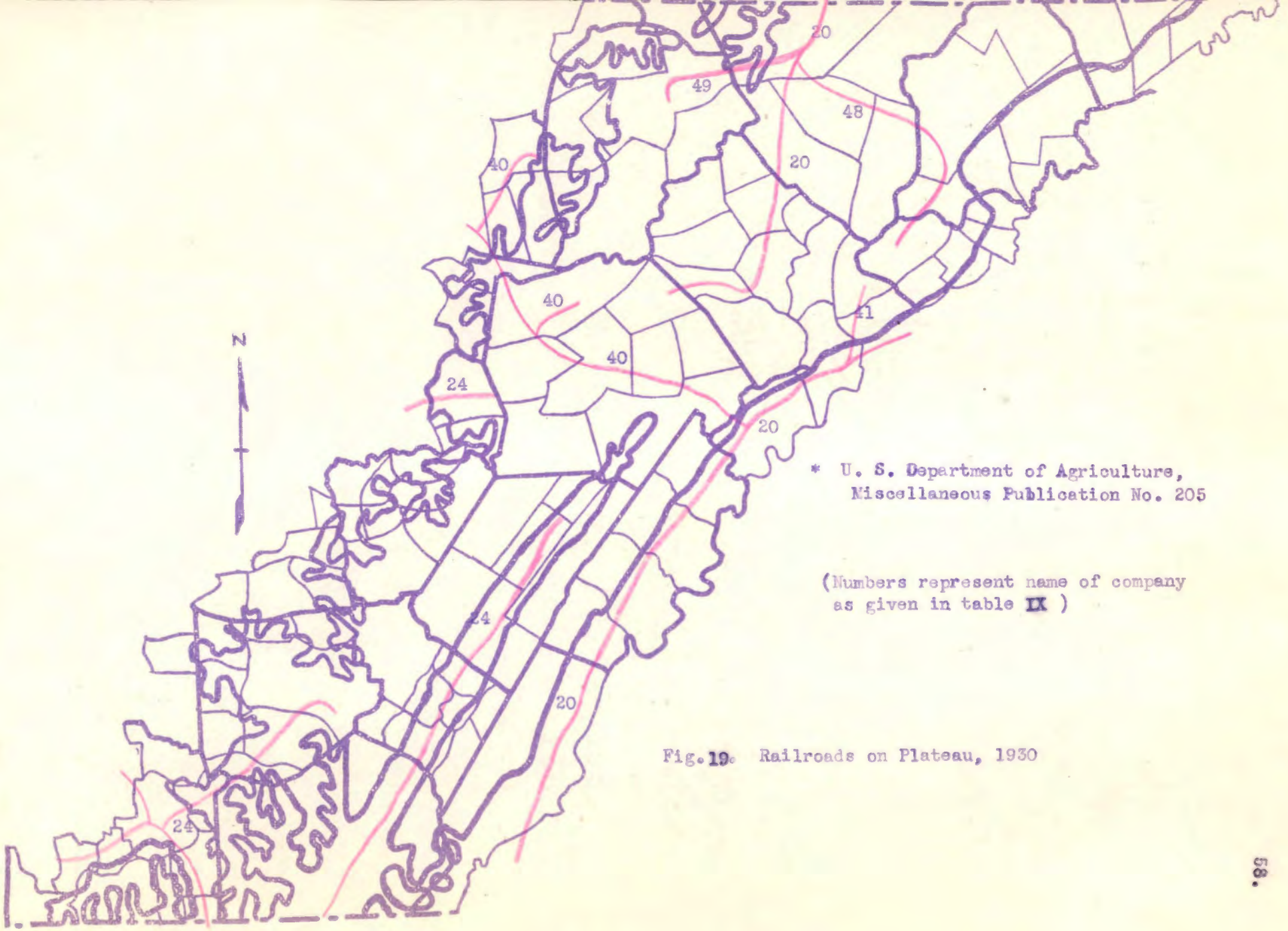
Some travel is still done largely by horseback and mule back on many of the small, isolated farms where farm incomes are small, and where there are few good roads.

Railroads: With the development of natural resources, particularly coal, toward the close of the last century, a fair amount of railroads were built. Figure 19 shows the railroads in 1930. An outstanding feature of the railroads here is that they tend to be localized, with short connecting lines going to several of the towns and mines. The railroads tend to follow the valleys with many of the mountainous sections not able to take advantage of railroad service except at a high expense to get to the railroad.

TABLE IX. RAILROAD COMPANIES ON CUMBERLAND PLATEAU, 1930

| Name of Company | Numbers Used in Figure 19 to Designate Company |
|---|---|
| The Cincinnati, New Orleans, and Texas Pacific Railroad Company | 20 |
| The Nashville, Chattanooga, and St. Louis Railroad Company | 24 |
| Tennessee Central Railway Company | 40 |
| Harriman and Northeastern Railroad Company | 41 |
| Tennessee Railroad Company | 48 |
| Oneida and Western Railroad Company | 49 |

Source: United States Department of Agriculture, Miscellaneous Publication No. 205, Washington, D. C., January 1935.




* U. S. Department of Agriculture,
Miscellaneous Publication No. 205

(Numbers represent name of company
as given in table IX )

Fig. 19. Railroads on Plateau, 1930

## Industry

Development of specialized types of land use has permitted the growth of manufacturing and a degree of specialization which has stimulated the exchange of goods and the development of transportation facilities. This sequence of events has served, in a measure, to relieve the otherwise heavy pressure of a rapidly increasing labor supply on farms by providing increased employment in nearly all industries, and as a consequence, the rural non-farm population, it is estimated, increased roughly from one third of the total to nearly three-fifths. in 1930. The 1930 census data on occupations shows that there were about 28,370 gainful workers, and of these 12,000 were engaged in agriculture, including 2,700 hired laborers and 2,300 persons reported as unpaid family workers. No other occupational group approached agriculture in size, while mining was second with 3,500 workers.

Personnel and Payrolls: Table X shows the personnel and payrolls in industry and businesses in ten Plateau counties for 1935. The manufacturing reported does not include the so-called hand and neighborhood industries in which little or no power machinery is used (carpentering, blacksmithing, etc.), but does include all manufacturing industries with products valued at $5,000 and above. Only those proprietors and firm members devoting the major portion of their time to their business are included. "Service field" as reported in Table X

TABLE X. PERSONNEL AND PAYROLL IN INDUSTRY AND BUSINESS, TEN PLATEAU COUNTIES, 1935

(PAYROLL EXPRESSED IN THOUSANDS OF DOLLARS)

| Items | Bledsoe | Campbell | Cumberland | Fentress | Grundy | Marion | Morgan | Scott | Sequatchie | Van Buren |
|---|---|---|---|---|---|---|---|---|---|---|
| No. of active proprietors | 72 | 307 | 170 | 123 | 100 | 249 | 111 | 163 | 45 | 40 |
| Number of employees | 265 | 2,964 | 323 | 573 | 753 | 2,149 | 1,221 | 694 | 160 | 17 |
| Payroll: Amount (dols.) | 126 | 2,188 | 194 | 489 | 520 | 1,519 | 569 | 422 | 75 | 5 |
| Rank in state | 69 | 11 | 63 | 48 | 46 | 19 | 44 | 54 | 77 | 95 |
| Manufactures: No. empl. | 107 | 459 | * | 56 | 73 | 1,180 | 318 | 504 | 57 | - |
| Payroll (dols) | 42 | 289 | * | 35 | 37 | 840 | 295 | 304 | 16 | - |
| Retail: No. employees | 45 | 398 | 94 | 63 | 91 | 205 | 70 | 71 | 32 | 7 |
| Payroll (dols.) | 24 | 292 | 65 | 33 | 63 | 133 | 52 | 59 | 11 | 2 |
| Mines and quarries: | | | | | | | | | | |
| No. employees | * | 1,853 | 118 | * | | * | 790 | * | * | - |
| Payroll (dols.) | * | 1,400 | 66 | * | | * | 198 | * | * | - |
| Service: No. employees | 28 | 61 | 4 | 20 | 24 | 25 | 17 | 34 | 12 | 5 |
| Payroll (dols.) | 8 | 25 | 2 | 5 | 7 | 12 | 6 | 10 | 3 | 1 |
| Construction: No. emp. | - | 9 | 4 | | - | - | - | 3 | - | - |
| Payroll (dols.) | - | 7 | 3 | | - | - | - | 2 | - | - |
| Miscellaneous: No. emp. | 85 | 29 | 103 | 434 | 548 | 670 | 18 | 62 | 57 | 5 |
| Payroll (dols.) | 52 | 26 | 58 | 416 | 403 | 452 | 11 | 34 | 42 | 2 |

* Combined with "Miscellaneous" to avoid disclosing the operation of individual organizations.

Source: U. S. Bureau of Census of Business, 1935.

consists of such industries as all repairing and servicing stations and shops, personal service establishments, and business service establishments. The construction reported covers the activities of general contractors, operative builders, and special trade contractors. In miscellaneous items were included places of amusement charging fees, motor trucking for hire which maintained a recognizable place of business and were receiving fifty percent or more of their 1935 revenue from the transporting of people's goods for a price, motor bus transportation, public warehouse, advertising agencies, and tourist camps.

Campbell County ranked 11th in the state in amount of payroll or salaries, wages, bonuses, or commissions paid employees during the year (Table X). While many of the people receiving part of this payroll in 1935 in Campbell County did not live on the Plateau, Figure 20 shows that there were 89.7 days of work for pay per Plateau farm operator, and it is assumed that part of this relatively large payroll was received by the farm operators on the Plateau. Two other counties reporting above one thousand employees were Marion, with 2,149, and Morgan, with 1,221. Van Buren County reported the least number of employees, 17, and ranked 95th or lowest in amount of payroll for any county in the state. Clay, glass, and stone industries accounted for nearly 200 workers in Marion County, and knitting mills for 500. Steam and street railroads accounted for 395 workers in Morgan, and 275 in Scott.

Industrial Firms: As shown by Table XI there was reported in a directory of industries inspected by the Department of Labor in 1930, a

TABLE XI. DIRECTORY OF INDUSTRIES ON CUMBERLAND PLATEAU INSPECTED BY DEPARTMENT OF LABOR WITH NUMBER OF EMPLOYEES, 1930

| Location and Style of Firm | Business | Number of Employees | | | |
|---|---|---|---|---|---|
| | | Over 16 | | Under 16 | |
| | | Male | Female | Male | Female |
| **Campbell - Jellico:** | | | | | |
| City Bakery | Bakery | 5 | 1 | | |
| Cumberland Raincoat Co. | Mfg. Raincoats | 5 | 24 | | |
| Elk Manufacturing Co. | Mfg. chemicals | 5 | 16 | | |
| Imperial Welding Co. | Welding | 4 | | | |
| Jellico Cream Co. | Mfg. ice cream | 6 | | | |
| Jellico Knitting Mills | Mfg. hosiery | 23 | 63 | | |
| Jellico Laundry and Cleaner | Laundry and dry cleaning | 1 | 5 | | |
| Orange Crush Bottling Works | Bottlers | 5 | | | |
| Tennessee General Utility Co. | Mfg. ice | 10 | | | |
| Tennessee General Utility Co. | Power house | 13 | 3 | | |
| **Cumberland Co.-Crossville:** | | | | | |
| Cumberland Veneer Co. | Mfg. veneer products | 22 | 1 | | |
| **Morgan County - Lancing:** | | | | | |
| Emory River Lumber Co. | Lumber | 101 | | | |
| **Scott County - Oneida:** | | | | | |
| Carson Cafe | Cafe | 1 | 3 | | |
| Gem Theater | Theater | 2 | 1 | | |
| Ideal Dry Cleaner | Dry Cleaner | 4 | | | |
| Oneida Machinery Co. | Machine shop | 25 | | | |
| Oneida Coca Cola Bottling Company | Bottlers | 2 | | | |
| Pearson Hardwood Flooring Company | Hardwood flooring | 53 | | | |
| Rockwood Mills | Mfg. hosiery | 11 | 100 | | |
| Scott County News | Publishers | 4 | | | |
| Tennessee Railroad | Railroad | 10 | | | |

Source: Annual Report, Department of Labor, 1930.

Cumberland Raincoat Company at Jellico employing 5 men and 24 women, while in the same town Jellico Knitting Mills employed 23 men and 63 women. In Campbell County for those industries that are on the Plateau and that were inspected 77 men and 113 women were reported as employed. Ten industries were reported as inspected in Oneida, Scott County, with 112 men and 104 women employed.

The lumber industry is fairly important in the area. Large quantities of wood in the form of railroad ties, pulpwood, tanning extract wood and bark, mining timber, cooperage stock, firewood, poles, posts and many other products are cut annually in the region. The employers in forest products industries are employed for the most part in the manufacture of lumber and timber products with the remainder in other forest products industries, which include those engaged in making barrels, flooring, handles, and similar products.

Saw and planing mills include less than half as many workers as mining, with most of the employment in this industry reported from Scott, Morgan, Grundy, and Pentress counties. The least amount of employment in the wood using industries is reported from Bledsoe.

Evidence as to the amount of employment that will be afforded by timber and wood-using industries in the future is not conclusive. In view of the depleted condition of the forests, it seems improbable that manufacturing industries will provide additional employment, except possibly of temporary duration, for many years. In fact, it may prove impossible to avoid a temporary reduction in the timber cut, with a

consequent decrease of employment and regional income from timber and timber products.

As reported in a directory of wood using industries and producers of special wood products, the following establishments and locations were reported:(1)

TABLE XII. DIRECTORY OF WOOD USING INDUSTRIES, CUMBERLAND PLATEAU, 1940

| County and Type of Product | Name of Firm | Town |
|---|---|---|
| **Millwork** | | |
| Bledsoe | Cromwell Lumber Company | Pikeville* |
| Grundy | Sam Werner Lumber Company | Tracy City |
| **Handles** | | |
| Cumberland | Cumberland Plateau Handle Co. | Crossville |
| | Link Handle Company | Crossville |
| Marion | Sequatchie Handle Company | Sequatchie* |
| **Barrels and Cooperage** | | |
| Bledsoe | Cumberland Mountain Stave Co. | Pikeville* |
| | Alvin Suggs | Pikeville* |
| Grundy | Sam Werner Lumber Company | Tracy City |
| Scott | Oneida Stave and Lumber Co. | Oneida |
| **Flooring** | | |
| Bledsoe | Cromwell Lumber Company | Pikeville* |
| Grundy | Sam Werner Lumber Company | Tracy City |
| Scott | Pearson Flooring Company | Oneida |
| **Bobbins and Shuttles** | | |
| Sequatchie | Perry Cope and Sons | Dunlap* |

* Not on Plateau, but in Sequatchie Valley.

(1) James O. Hazard, Directory of Wood Using Industries in Tennessee, Department of Conservation, Division of Forestry, Nashville, Tennessee, Circular No. 15, 1940.

Days of Work Off the Farm for Pay: Most of the farm families had incomes other than from farm. Various kinds of work off the farm by the farm operator averaged 64.6 days per farm in 1929 (Figure 20). Outside earnings by other members of the family, besides that of the farm operator, from sources such as teaching, work in the factory, mines and other industries listed; and pensions, interest, and dividends were some of the more important means by which the family income was increased above that which was obtained on the farm.

Figure 20 shows the number of days work off the farm for pay per farm operator in 1929. The dots representing each two days reported were heaviest in concentration in the eastern section of Morgan and Anderson County due, in part, to the employment of these farm

TABLE XIII. NUMBER OF DAYS WORK OFF THE FARM PER CUMBERLAND PLATEAU FARM OPERATOR, 1930

| 80 - 89 Days | 70 - 79 Days | 60 - 69 Days | 50 - 59 Days | 40 - 49 Days | 30 - 39 Days |
|---|---|---|---|---|---|
| Campbell<br>Putnam<br>Morgan<br>Overton<br>Scott | Anderson<br>White<br>Claiborne<br>Cumberland | Grundy<br>Hamilton<br>Franklin<br>Fentress | Marion<br>Sequatchie | Rhea<br>Van Buren<br>Bledsoe | Warren<br>Pickett |

Source: Census of Agriculture, 1930.

operators in such cities off the Plateau as Rockwood and Harriman in Roane County and Clinton in Anderson County. Every civil district in the area reported at least 6 days per farm of work off the farm for pay.

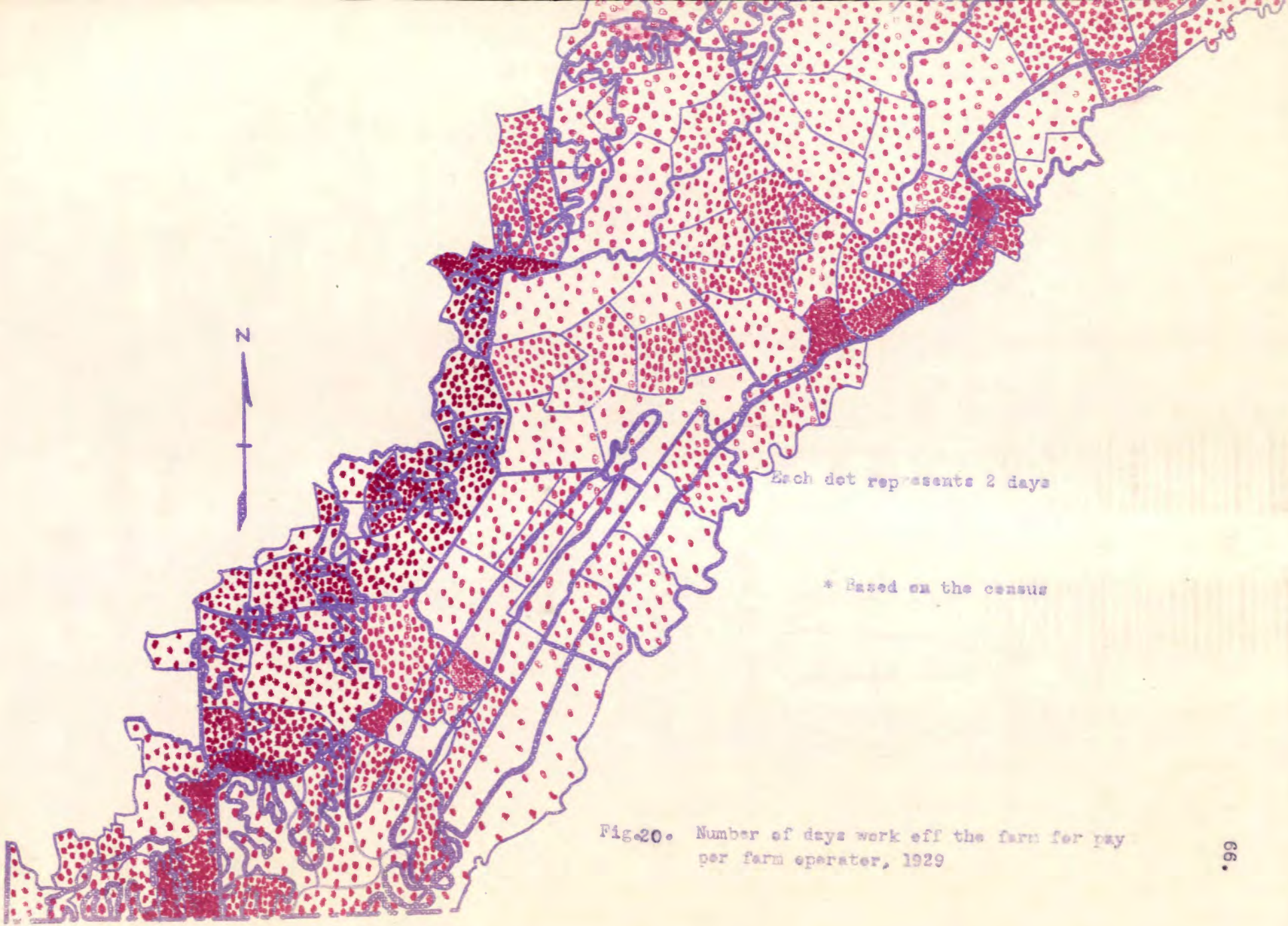



Fig.20. Number of days work off the farm for pay per farm operator, 1929

The counties in the northern section of the area reported more days work off the farm for pay than did those farms in the southern portion. In 1934, of the Plateau farm operators who were working off the farm for pay, there were reported 174 in agriculture, 3420 in non-agricultural duties, and 724 in classes not reported. Scott reported 559 employed in non-agriculture, while Van Buren reported 33 in non-agriculture.

Coal Mining:(2) It will take years to make a scientific and engineering study of the coal deposits in order to recommend ground to prospect for new coal mines, and this work should be carried on now. The coal industry is developed enough for the present needs, but it is only a matter of a few years before some of the larger mines will be worked too far back to be profitable. There are so few definite markers in the coal field, such as persistent limestone, that the correlation of beds from field to field is possible only by painstaking, almost foot by foot, detailed mapping.

The coal bearing formation of Tennessee and the Cumberland Plateau cover the same area and it is divided into what is known as the northern coal field and the southern coal field. The southern coal field including parts of Bledsoe, Franklin, Grundy, Hamilton, Marion, Putnam, Rhea, Sequatchie, Van Buren, Warren and White counties, and all of Cumberland County, contains approximately 2200 square miles, but only

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(2) Adapted from annual reports of Division of Mines, Department of Labor, 1930, 1940.

1420 square miles of the area contains coal above the Sewanee conglomerate.(3)

The northern coal field includes parts of Anderson, Claiborne, Fentress, Overton, Pickett, and Roane counties; and all of Scott and Morgan counties. Cumberland County produced 54,000 tons of coal in 1930, but in 1939 only 15,930 tons were reported as mined. The three

TABLE XIV. COAL MINING DATA, TENNESSEE, 1940

| County | Annual Output | | No. of Mines | Wages Disbursed (000) | No. of Employees |
|---|---|---|---|---|---|
| | Tons (000) | Average Value | | | |
| Claiborne | 1,274 | $2.00 | 12 | $1,449 | 1,779 |
| Campbell | 1,227 | 2.00 | 32 | 1,507 | 1,735 |
| Anderson | 984 | 1.50 | 13 | 1,366 | 1,394 |
| Marion | 469 | 1.50 | 19 | 697 | 788 |
| Grundy | 357 | 1.50 | 2 | 541 | 509 |
| Fentress | 292 | 1.50 | 5 | 339 | 342 |
| Morgan | 244 | 1.25 | 15 | 158 | 558 |
| Scott | 93 | 1.50 | 11 | 100 | 188 |
| Hamilton | 71 | 2.00 | 13 | 35 | 96 |
| Bledsoe | 52 | 1.35 | 4 | 74 | 134 |
| Rhea | 36 | 1.50 | 2 | 37 | 65 |
| Sequatchie | 32 | 1.50 | 4 | 3 | 63 |
| Putnam | 22 | 1.35 | 3 | 14 | 121 |
| Van Buren | 21 | 1.50 | 3 | 22 | 49 |
| Cumberland | 16 | 1.50 | 17 | 9 | 57 |
| Overton | 7 | 1.50 | 6 | 5 | 40 |
| White | 4 | 1.25 | 5 | 1 | 29 |
| Pickett | - | 1.25 | 2 | - | - |
| Total | 5,181 | 1.50 | 158 | 6,343 | 7,977 |

Source: Annual Report of Department of Labor, Division of Mines, Tennessee, 1940.

(3) Division of Geology, the Southern Coal Field, Bulletin 33A, 1925.

leading counties in coal production in 1939, Claiborne, Campbell, and Anderson, were the same counties that were leading in coal production in 1911, although Claiborne had taken first place over Campbell County in 1939.

Expansion in coal production in Campbell and Claiborne was due, in part, to the development of rail transportation there, but since 1911, Campbell has decreased from 1,704,000 tons to 1,275,000 tons in 1939, a decrease of about one-third. Claiborne County decreased about one sixth, from 1,288,000 tons in 1911 to 1,075,000 tons in 1930, but has increased in output of coal to 1,275,000 tons in 1939. Anderson, the third ranking county, has increased from 735,000 tons in 1930 to 984,000 tons in 1939.

In 1935, although Campbell County ranked second to Claiborne in number of employees, it ranked first in amount of wages disbursed, and in the number of mines. In 1935, 34.7 percent of the mines were located in the leading three coal mining counties, Claiborne, Campbell, and Anderson. For the same year these three counties employed 61.5 percent of all the employees reported as engaged in coal mining in Tennessee, and disbursed 52.3 percent of the total wages paid for employment in coal mining in Tennessee. From this it can be seen that the northern coal field is more important as a source of income as well as a production area than is the southern coal field.

Quarrying: The most important deposits of stone found in Tennessee are marble, limestone, and sandstone. Outcrops of good marble

are scattered widely over East Tennessee, but no marble is quarried commercially on the Cumberland Plateau.

The quarries listed by the annual report of the Division of Mines, Department of Labor, for 1940, as in the area are:

1. Crab Orchard Stone Company, Crossville
2. Cumberland Stone Company, Crossville
3. Tennessee Stone Company, Crab Orchard
4. Southern States Lime Corporation, Crab Orchard
5. Building Supply Company, Monterey

Limestone, calcium carbonate usually containing some clay, sand, magnesia and other impurities, occurs in the natural state in a variety of colors from light gray to dark gray. This stone is used principally for construction purposes, both building and roads, and in making cement, concrete and lime.

Very little of the limestone supply of Tennessee is quarried on the Plateau, but in 1930, 25,000 tons were reported quarried in Cumberland County for the making of roads. In 1939, 9,200 tons were reported quarried in the same place for making roads.

The production of sandstone is relatively unimportant in Tennessee as the only two important companies were located at Crossville, Cumberland County.(4) The total value of the product was $97,884 and 50 men were employed for which wages amounting to $43,476 were paid in 1930. In 1939, the number employed in the production of this building

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(4) C. E. Allred, S. W. Atkins, Human and Physical Resources of Tennessee, Agricultural Experiment Station, University of Tennessee, 1939.

and flagging stone was 44 producing 201,280 tons of flagging stone and 2,531 tons of rubble stone. The total value of the product was $63,689.

Sandstone formations are found throughout Fentress County that can be used for building stone. About 8 miles northwest of Jamestown, flagstone similar to the type of sandstone quarried at Crab Orchard may be found.

Throughout much of the northern half of the plateau sandstone may be found that is suitable for building stone, but at the present time not much quarrying is being done.

Petroleum: Only four counties, Morgan, Clay, Scott, and Pickett, produced oil in 1930. The percent of the state total produced by each of these counties was Morgan 56.4, Clay 33.1, Scott 9.5, and Pickett 1.0.

The usual annual production of natural gas has varied from one million to ten million cubic feet, and with an increased demand, this production could probably be increased.(5) The Sunbright field, Morgan County, has been mentioned as a possible source of natural gas for Knoxville and other cities.(6)

The annual report of the Department of Labor, 1940, does not show any record of petroleum being produced for 1940.

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(5) C. E. Allred, S. W. Atkins, Human and Physical Resources of Tennessee, Agricultural Experiment Station, University of Tennessee, Knoxville, 1939.

(6) Ibid.

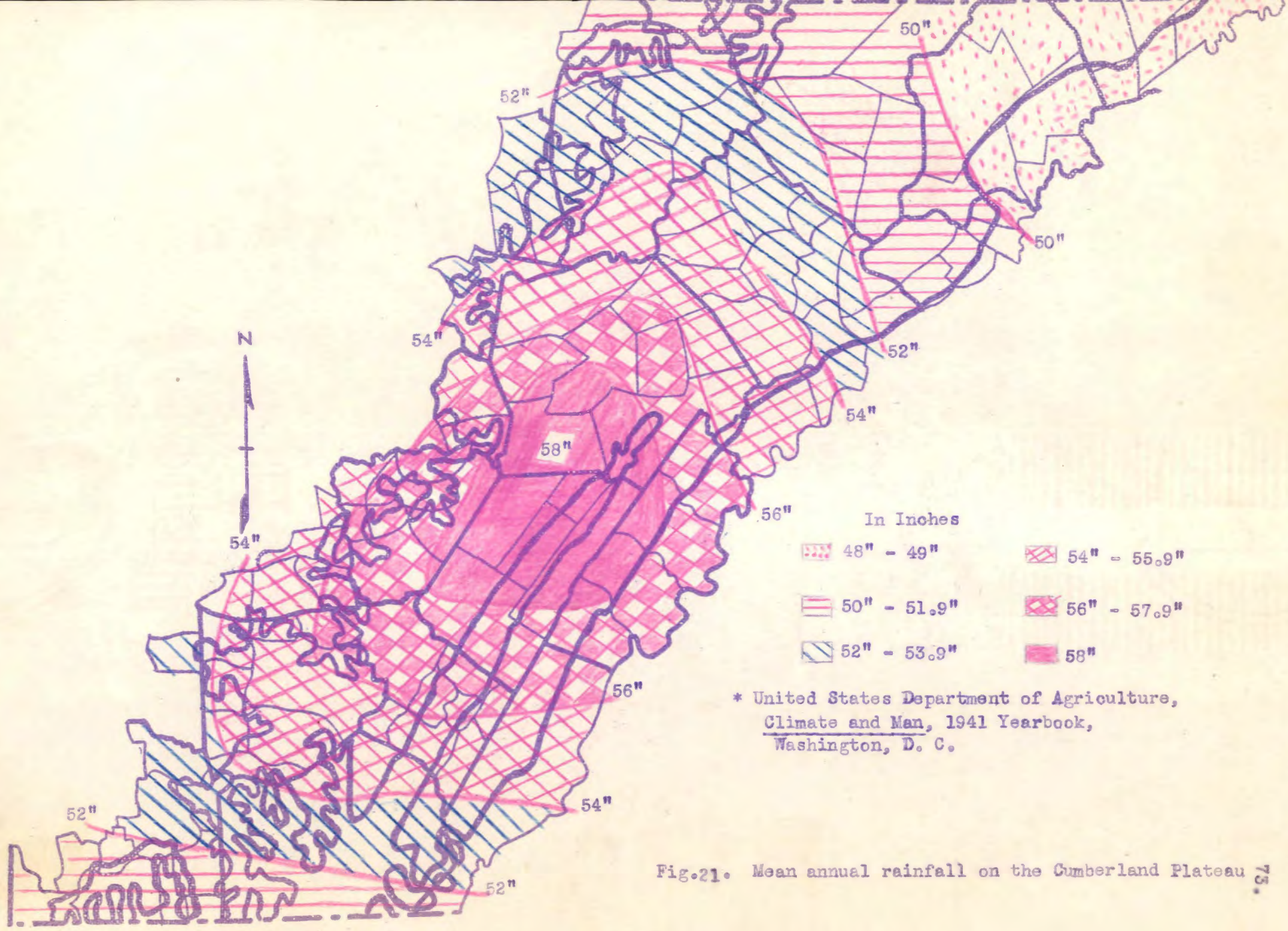
## CHAPTER IV

## CLIMATE AND SOIL CONDITIONS

The climatic conditions prevailing in the Cumberland Plateau are distinct from those found in the other sections of Tennessee, due largely to a higher altitude.

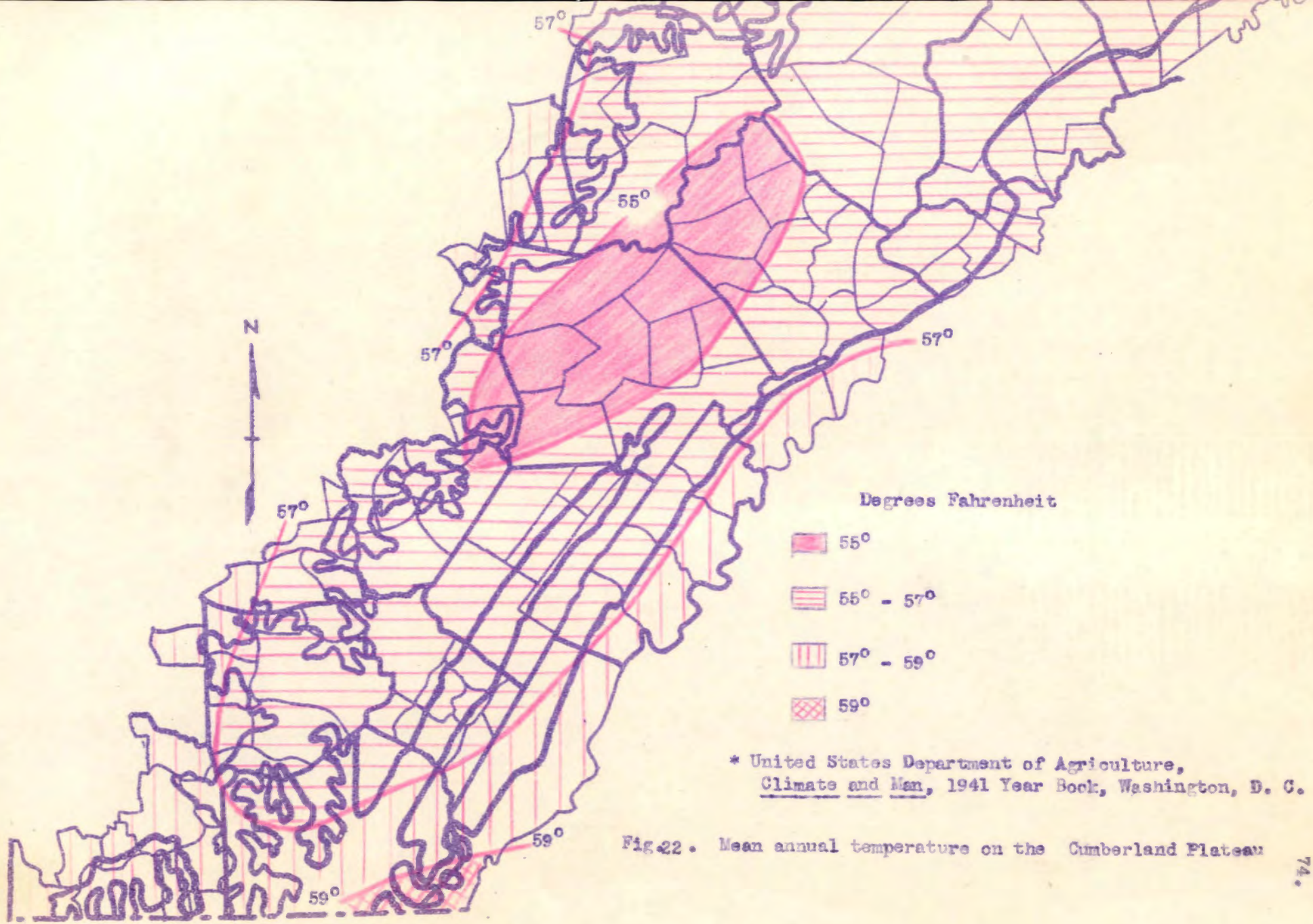
Rainfall: This area has an annual rainfall of from 48 to 58 inches, the highest of any region found in Tennessee. Table XVI shows the annual precipitation. The heaviest annual rainfall recorded, 58 inches, is in Cumberland, Bledsoe, and Van Buren counties. Precipitation decreases farther away from the center of the region until in the northeastern section the mean annual rainfall is 48 inches (Figure 21).

More rain falls during the spring and summer months than in any other area of the state. The rainfall reaches a peak in March with 5.81 inches and a summer peak in July with 5.34 inches. The seasonal distribution of rainfall is fairly well distributed, although the autumn months, as a rule, are dryer than the spring. About 50 percent of the precipitation falls during the growing season. In the area as




* United States Department of Agriculture, Climate and Man, 1941 Yearbook, Washington, D. C.

Fig.21. Mean annual rainfall on the Cumberland Plateau




* United States Department of Agriculture, Climate and Man, 1941 Year Book, Washington, D. C.

Fig. 22. Mean annual temperature on the Cumberland Plateau

a whole, rainfall is adequate for production of crops, and also ample to sustain a relatively dense forest growth.

Snowfall is included in annual amount of precipitation, but it may be of interest to note that this area has a snowfall that is slightly heavier than the average for Tennessee. The snow cover over most of the area is not deep nor does it last very long.

Temperature: Temperature exerts a greater influence than precipitation over plant and animal life. In agriculture, summer temperature and the length of frost-free seasons largely determine the kind of crops that can be successfully grown with available moisture supply and existing soils.

The mean annual temperature is from 55° found in the north central part of the area; namely, parts of Morgan, Fentress, and Cumberland counties, to 59° in the extreme southeastern section.(1) (Figure 22). The Plateau is one of the coolest areas of the state, due largely to the average elevation being about 1,774 feet above sea level, which is higher than the average for Tennessee.

The maximum temperature recorded was 104° found both in Grundy and in Morgan, while the minimum temperature recorded was -30° in Cumberland. The July average temperature was from 72.1° in Cumberland to 75.3° in Franklin as found on the Plateau, while January average

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(1) All temperature measurements in degrees Fahrenheit.

TABLE XV. TEMPERATURE SUMMARY IN FIVE PLATEAU COUNTIES

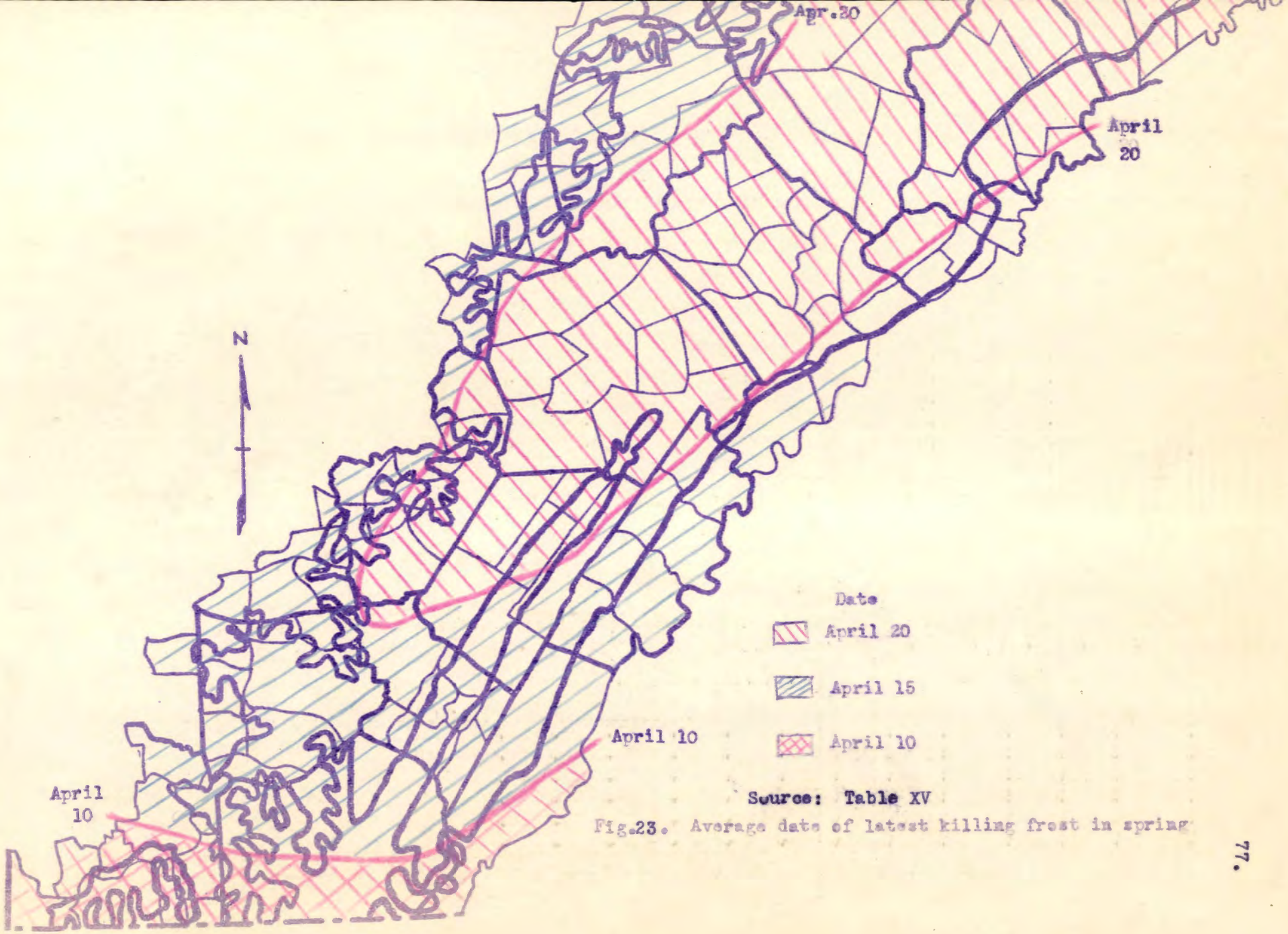
| County | Station | Temperature | | | | | Killing Frost Average Date | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Length of Record (Yr.) | Jan. Ave. (°F.) | July Ave. (°F.) | Maximum (°F.) | Minimum (°F.) | Length of Record (Yr.) | Last in Spring | First in Fall | Growing Season (Days) |
| Cumberland | Crossville | 25 | 38.2 | 73.6 | 103 | -14 | 26 | Apr. 20 | Oct. 12 | 175 |
| | Erasmus | 20 | 37.2 | 72.1 | 97 | -30 | 20 | Apr. 23 | Oct. 11 | 171 |
| Franklin | Sewanee | 40 | 39.2 | 75.3 | 103 | -11 | 37 | Apr. 13 | Oct. 31 | 201 |
| Grundy | Tracy City | 10 | 37.4 | 73.9 | 104 | -18 | 10 | Apr. 20 | Oct. 18 | 181 |
| Morgan | Rugby | 40 | 37.0 | 74.4 | 104 | -19 | 39 | Apr. 24 | Oct. 12 | 171 |
| Scott | New River | - | - | - | - | - | - | - | - | - |

Source: U. S. Department of Agriculture, Climate and Man, 1941 Yearbook, p. 119.

TABLE XVI. SUMMARY OF PRECIPITATION IN FIVE PLATEAU COUNTIES

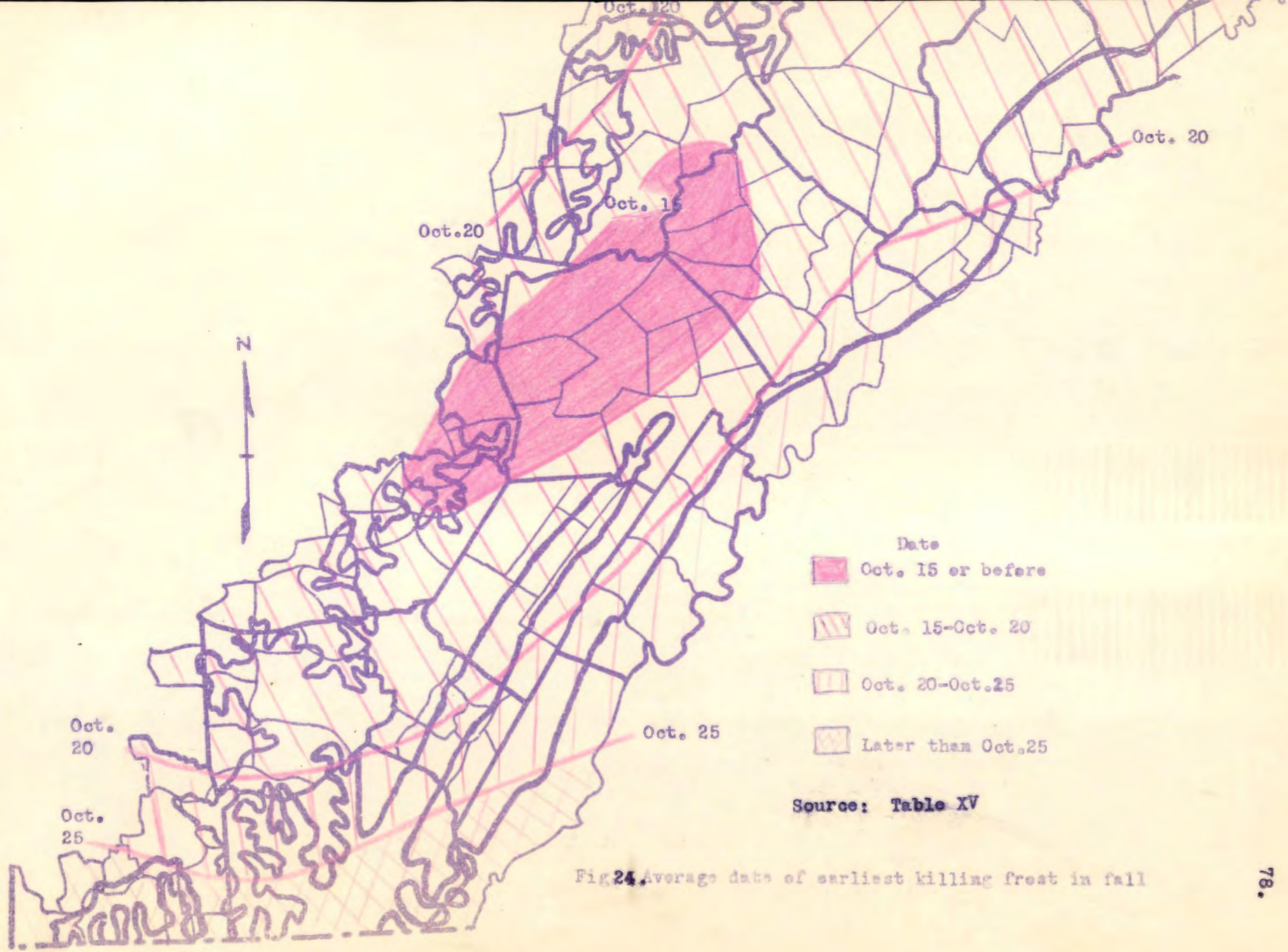
| County | Station | Length of Record (Yrs.) | Jan. In. | Feb. In. | March In. | April In. | May In. | June In. | July In. | Aug. In. | Sept. In. | Oct. In. | Nov. In. | Dec. In. | Annual In. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cumberland | Crossville | 27 | 5.36 | 4.32 | 5.72 | 4.64 | 4.10 | 4.44 | 5.39 | 5.17 | 3.01 | 3.48 | 3.43 | 5.08 | 54.17 |
| | Erasmus | 20 | 5.72 | 4.80 | 6.52 | 5.42 | 4.48 | 5.69 | 5.91 | 5.13 | 3.90 | 3.57 | 3.20 | 5.48 | 59.82 |
| Franklin | Sewanee | 40 | 4.91 | 4.40 | 5.89 | 5.00 | 4.71 | 5.08 | 5.41 | 4.95 | 3.12 | 3.28 | 3.92 | 5.09 | 55.76 |
| Grundy | Tracy City | 10 | 4.28 | 5.47 | 6.03 | 4.83 | 4.05 | 4.68 | 4.27 | 5.23 | 3.21 | 2.81 | 3.74 | 3.00 | 54.60 |
| Morgan | Rugby | 40 | 5.24 | 4.42 | 6.06 | 4.86 | 4.28 | 5.10 | 5.39 | 4.78 | 3.49 | 3.15 | 4.00 | 5.19 | 55.96 |
| Scott | New River | 31 | 5.37 | 4.00 | 5.35 | 4.82 | 4.29 | 4.59 | 4.25 | 4.65 | 2.71 | 2.68 | 3.16 | 4.46 | 50.33 |

Source: U. S. Department of Agriculture, Climate and Man, 1941 Yearbook, p. 119.



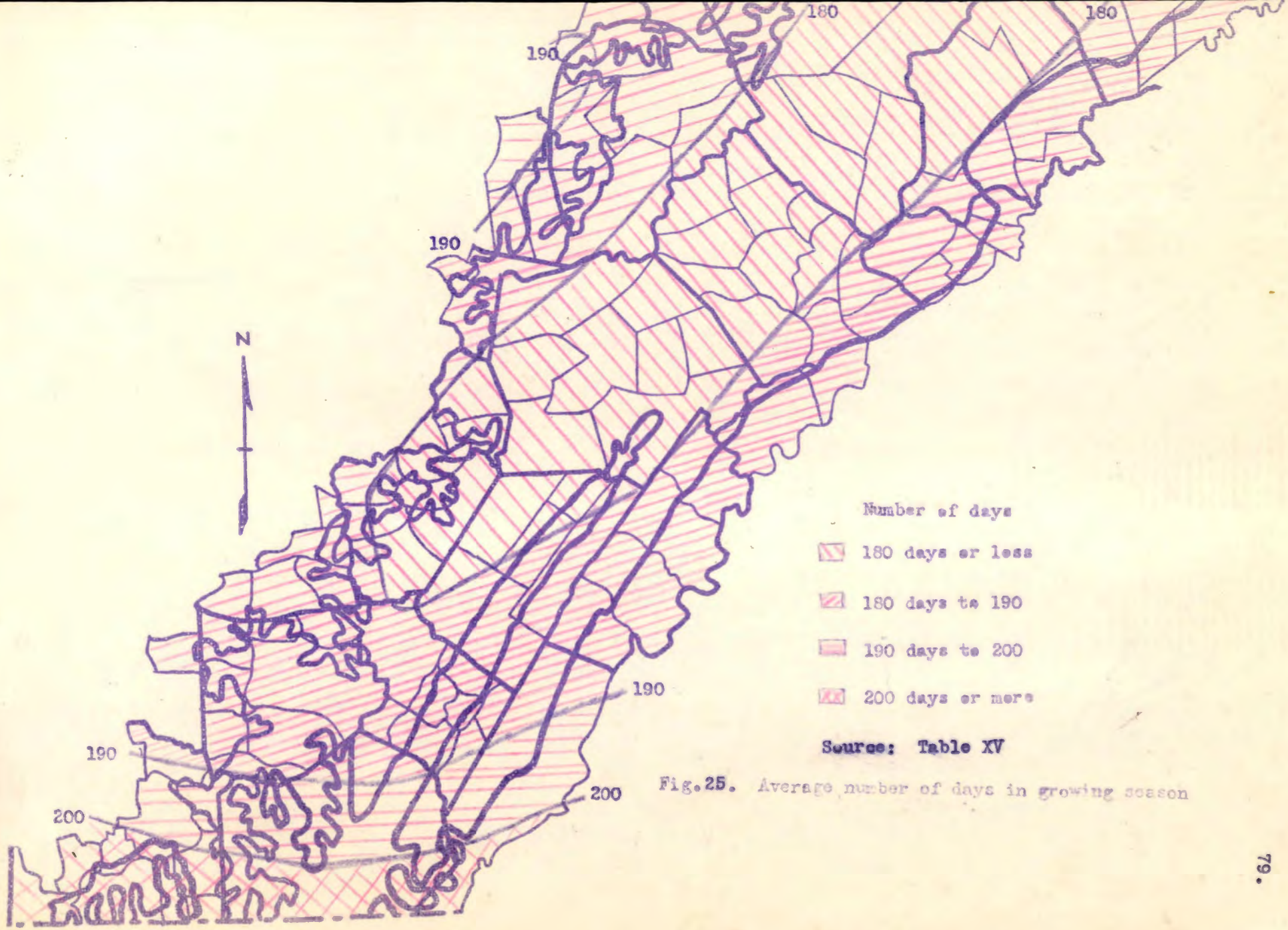

Source: Table XV

Fig.23. Average date of latest killing frost in spring




Source: Table XV

Fig. 24. Average date of earliest killing frost in fall




**Source: Table XV**

Fig.25. Average number of days in growing season

temperature was 37.2° in Cumberland and 39.2° at Sewanee, Franklin County. The higher temperature in the southern section of the region is due, in part, to lower elevations and partly to latitude.

Length of Growing Season: The average date for the last killing frost ranges from April 13 in Franklin to April 24 in Morgan; and the average date of first killing frost in the fall ranges from October 11 in Cumberland to October 31 at Sewanee, Franklin. The average length of growing season is from 171 days in Cumberland to 201 days at Sewanee, Franklin County.

Summer temperature, and the number of days in the frost-free growing season determine the kind of crops that can be successfully grown with the available moisture supply and determines the number of crops that can be harvested in one year on the same fields.

## Soil

Soil Classification: Most of the soil of the Cumberland Plateau is classified in the Hartsells-Muskingum Association.(2) These soils are dominantly fine sandy loams to silt loams, with parent materials consisting of interbedded sandstones and shales of "coal measures",

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(2) U. S. Department of Agriculture, Soils and Men, Yearbook of Agriculture, 1938.

the highest portions capped with sandstone. The Hartselle soils are well-drained uplands, low in mineral plant nutrients and organic matter, and medium to strongly acid in reaction. They have a gray to grayish-yellow surface soil, pale-yellow to grayish-yellow subsurface layers with yellow to brownish-yellow friable fine sandy clay to silt clay loam subsoils extending to a depth of about 28 to 30 inches where they are underlain by disintegrated sandstone or shale.(3)

On the large areas, especially on the broad-topped hills, medium to heavy sandy loam is found ranging from 8 to 20 inches deep underlain by a heavy yellow loam or clay loam. This sandy loam occupies nearly all of the upland portion. The tops of the higher elevation may in some cases be strewn with rock fragments, but more often their surface is free from stones.

The occurrence of solid ledge of sandstone bed rock at a depth varying from 6 to 36 inches is general, though most often it is found between 18 and 30 inches. In such cases, the surface soil, which is about 10 inches deep, is underlain by yellow clay or heavy loam to within 6 inches or slightly less of the bed rock, where it grades into medium and coarse sand derived directly from the underlying rock.

The Hartselle sandy loam is well drained, and on the level and more gently rolling areas where the soil has accumulated to a considerable depth, the retentive nature of the subsoil enables it to resist drought.

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(3) Ibid.

The soil is very thin at the high elevations and on the escarpment, with small areas of sandstone outcroppings showing in many places. The agricultural value of these shallow soil areas is largely dependent upon a plentiful supply of rainfall.

The Hartsells sandy loam is derived from coarse-grained sandstone, and the true value of this soil in many cases for the production of potatoes, early truck, and small fruit growing is overlooked.

Many small hills and knobs are found on the surface of the Plateau consisting of a very light sandy loam which contains from 40 to 70 percent broken masses of sandstone. Agricultural production is questionable on these scattered areas, and very little tree growth of any value is found here. The slopes of these hills tend to be steep and often have outcroppings of sandstone. About the only type of tree growing on these slopes is scrub oak with trunks seldom over 5 inches in diameter.

In the valleys and occasionally on the slopes of the lowest hills rising from the general level of the Plateau, there is found a fine sandy or silty loam from 10 to 18 inches deep, with a subsoil varying from a silty loam to a clay loam and known as Hartsells clay loam. The proportion of silt present is variable, but is usually sufficient to determine largely the character of the type. The deep yellow color which is natural to both the soil and the subsoil is changed to a yellowish brown for a few inches at the surface by the accumulation of organic material. This soil is usually covered with tall grass instead of timber

and the areas are known as "glades".

Much of this soil where it is deepest in the valleys has accumulated from the wash of the slopes.

This land, especially the lower lying parts of it, in its natural condition, is too wet and soggy for profitable crop production due to insufficient natural drainage. The land could be brought under profitable cultivation in many cases by proper drainage and management. Clay loam is derived in part from sandstone, the particles of which are bound together with a cement like substance containing much argillaceous material. Not over 2 percent of this soil has ever been drained, leaving 98 percent of it supporting a rank growth of sedge grass.

Besides the Hartsells soils, there are a few areas of brownish surface soil with red friable subsoils known as Hanceville soils. Also there are scattered areas of Lickdale soil which are poorly drained and have a grayish surface with a gray subsoil mottled with yellow or brown. On slopes, extensive areas of Muskingum soil are developed, with a very thin subsoil or no subsoil in some cases but having the sandstone and shale coming near the surface and with frequent outcrops.

A sample of soil said to be fairly representative of four-fifths of the mountain land, as checked by digging 3 to 5 feet deep in the Cumberland Plateau from Scott to Bledsoe County reported:(4)

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(4) University of Tennessee, The Soils of Tennessee, Agricultural Experiment Station, Knoxville, Tennessee, Volume X, No. 3, 1897, p. 67.

soil: 0 - 5 inches
subsoil: 5 - 10 inches
underlying rock - sandstone at depth of 2 to 5 feet
forest growth - scrub oak and pine.

This report also stated that soil found between the Kentucky state line and the Emory river is greater in depth to the underlying sandstone than is the soil southwestward from Crossville.

Plateau Soil in Cumberland County:(5) The soil survey of Cumberland County indicates that there are 391,866 acres of Plateau soil in the county (Table XVII). There are 142,354 acres of Hartsells soils, about 36.3 percent of the Plateau soil in this area. Of the soils in the area in the Hartsells type: 50 percent is fine sandy loam; 39.1 percent is fine sandy loam, deep phase; 2.5 percent is silt loam, slope phase; and 0.5 percent is fine sandy loam, shallow phase.

The Muskingum soil type covered 209,610 acres, about 53.5 percent of the Plateau area. This soil type covered more acreage and was composed mostly of stony fine sandy loam, 95.3 percent of the soil type. Fine sandy loam is 4.4 percent of Muskingum area, while only 0.3 percent of it is smooth stony land.

Crossville loam covered 29,811 acres or 7.6 percent of the area. This acreage is composed largely of stony loam, 49.8 percent. Loam, slope

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(5) Soil survey of Cumberland County conducted as a joint effort of U. S. Department of Agriculture, Tennessee Valley Authority, and Tennessee Agricultural Experiment Station.

phase, is 25.8 percent, while loam, shallow phase, is 4.7 percent.

Other soils are found in the area covering 10,091 acres or 2.6 percent of the Plateau in the county. These soils in order of

TABLE XVII. SOIL NAME, ACREAGE, AND PERCENT OF EACH SOIL TYPE ON CUMBERLAND PLATEAU, CUMBERLAND COUNTY

| Soil Name | Acreage (Estimated) | Percent of Type |
|---|---|---|
| Hartsells | 142,354 | 36.5 |
| Fine sandy loam | 71,142 | |
| Fine sandy loam, slope phase | 55,657 | |
| Find sandy loam, deep phase | 8,391 | |
| Silt loam, slope phase | 3,540 | |
| Fine sandy loam, shallow phase | 808 | |
| Whitwell | 209,610 | 53.5 |
| Stony fine sandy loam | 199,355 | |
| Fine sandy loam | 9,290 | |
| Smooth stony land | 465 | |
| Crossville | 29,811 | 7.6 |
| Stony loam | 14,843 | |
| Loam, slope phase | 7,687 | |
| Loam | 5,881 | |
| Loam, shallow phase | 1,400 | |
| Other Soils | 10,091 | 2.6 |
| Atkins very fine sandy loam | 3,430 | 34.0 |
| Pope fine sandy loam | 2,439 | 24.2 |
| Philo very fine sandy loam | 1,511 | 15.0 |
| Hector stony fine sandy loam | 680 | 6.7 |
| Lickdale silt loam | 582 | 5.7 |
| Johnsburg very fine sandy loam | 532 | 5.3 |
| Jefferson sandy loam | 489 | 4.9 |
| Holston fine sandy loam | 428 | 4.2 |
| Total | 391,866 | 100.0 |

Source: Soil survey of Cumberland County, Tennessee.

rank of acreage are: Atkins very fine sandy loam, 34.0 percent; Pope fine sandy loam, 24.2 percent; Philo very fine sandy loam, 15.0 percent; Hector stony fine sandy loam, 6.7 percent; Lickdale silt loam, 5.7 percent; Johnsburg very fine sandy loam, 5.3 percent; Jefferson sandy loam, 4.9 percent; and Hector fine sandy loam, 4.2 percent.

This soil survey is for Cumberland County which is considered one of the more agriculturally developed counties on the Plateau. However, the survey gives some information on the kind of soil in this area of the Plateau and the proportion of each type.

Land Class, Plateau, Cumberland County: The soil of the county has been divided into five classes. The main characteristics used for land classification were: soil type, slope, erosion, stoniness, and depth. Soil type includes the physical, chemical, and biological internal characteristics of soils. In the first three classes, the soils were allocated according to degree of natural productivity and adaption to important prevailing crops of the region.

Soils of Land Class I have hardly any objectionable characteristics.

Soils of Land Class II have one or more objectionable characteristics such as poverty of plant nutrients, scarcity of organic matter, severe leaching, unfavorable physical properties, and objectionable conditions of stoniness and erosion.

Soils of Land Class III are in this class due to greater development of one objectionable feature or some development of a greater number of objectionable features than in any soil of Class I or II, but less than any soil of the pasture or forest group.

Soils of Land Class IV have extreme development of one or more objectionable characteristics which make this land class best suited only for pasture or forest. These soils are allocated to pasture use rather than forest as they are characterized by a least moderate natural fertility and moderate to high moisture content.

Soils of Land Class V have low fertility, low moisture content and many other extremely objectionable characteristics which make the land suited only to forest.

TABLE XVIII. NUMBER OF ACRES IN EACH LAND CLASS AND PERCENT OF SOIL IN EACH CLASS ON PLATEAU, CUMBERLAND COUNTY

| Land Class | Acres | Percent of Total Acreage |
|---|---|---|
| I | - | - |
| II | 92,118 | 23.5 |
| III | 68,395 | 17.5 |
| IV | 46,142 | 11.8 |
| V | 185,211 | 47.2 |

Source: Soil survey of Cumberland County, Tennessee. Joint effort of U. S. Bureau of Agriculture, Tennessee Valley Authority, and the Tennessee Agricultural Experiment Station.

There is no Land Class I found on the Plateau in Cumberland County (Table XVIII). There are 92,118 acres or 23.5 percent of the Plateau area in Cumberland County classified as Land Class II. The number of acres in Land Class V is 185,211, or 47.2 percent of the area.

The soil types in the area in Land Class II are the Hartsells that are not on steep slopes, the Holston fine sandy loam, Pope fine sandy loam, Cressville loam, and Jefferson fine sandy loam. All of the soil types in this area are on slopes of less than 7 percent.

Land Class III includes the Hartsells, Cressville, and Philo soil types that are found on slopes ranging from 7 to 15 percent. Land Class IV includes Muskingum that is found on slopes of 2 to 7 percent, Hartsells that tends to be shallow, and Cressville loam that is stony.

Land Class V includes the rough and more stony Muskingum and the soil types that are on slopes ranging from 15 to 30 percent and over.

Soil Slope, Cumberland County: Soils were divided into five different slopes, A, B, C, D, and E. The limits of the various slopes classes were based on the relative rate of surface run-off, and the degree of resistance offered by slope to the uses of farm machinery used in tillage and harvesting operations.

TABLE XIX. NUMBER OF ACRES AND PERCENT OF AREA IN THE DIFFERENT DEGREE OF SLOPES, CUMBERLAND PLATEAU, CUMBERLAND COUNTY, TENNESSEE

| Slope Class | Acres in Slope Class | Percent of Area in Slope Class |
|---|---|---|
| A (0 - 2 %) | 8,922 | 2.3 |
| B (2 - 7 %) | 121,518 | 31.0 |
| C (7 - 15 %) | 67,373 | 17.2 |
| D (15 - 30 %) | 161,087 | 41.1 |
| E (Over 30 %) | 32,966 | 8.4 |

Source: Soil survey of Cumberland County.

Muskingum stony fine sandy loam, steep phase, comprises the greater part of the soil on Slope E land which is 8.4 percent of the area. Muskingum stony fine loam is the type most commonly found on Slope D land of which there is 41.4 percent in the area. The Hartsells and Cressville soils are found on the Slope B and C land of which there is 31.0 percent and 17.2 percent respectively. The soil type that is usually found on Slope A is Pope fine sandy loam, Johnsburg very fine sandy loam, and Philo very fine sandy loam. The percent of Slope A land is only 2.3 percent.

Plateau Soil in Pikeville Area: The Pikeville area lies in the east central part of Tennessee, approximately 50 miles north of Chattanooga. It is included between the parallels of 35° 30' and 35° 50' north latitude, and meridians 85° and 85° 20' west longitude. In all, 440 square miles were surveyed and this area comprises the chief part of Bledsoe and lesser parts of Van Buren, Cumberland, and Rhea counties.

TABLE XX. NUMBER OF ACRES AND PERCENT OF AREA IN SOIL TYPE, CUMBERLAND PLATEAU, PIKEVILLE AREA, TENNESSEE

| Soil Type * | Area | Percent of Area |
|---|---|---|
| Hartsells sandy loam | 163,392 | 58.1 |
| Hartsells stony loam | 32,128 | 11.4 |
| Hartsells clay loam | 17,024 | 6.0 |
| Rock outcrop | 14,016 | 4.8 |

Source: Henry J. Wilder and W. J. Geilis, Soil Survey of Pikeville Area, U. S. Department of Agriculture, Bureau of Soils, 1904.

* Only soil type on Plateau listed.

The Hartsells sandy loam covered 163,392 acres, about 58.1 percent of the Pikeville area. The area is marked by many small hills and knobs which are classed as Hartsells stony area and encludes 11.4 percent of the area. Rock outcrop is found on 4.8 percent of the area, especially along the escarpment of the Sequatchie Valley.

Soil Analysis: Chemical analysis of the soil of the Plateau has shown repeatedly that it is naturally very poor in two of the six essential minerals, phosphoric acid, and lime.

According to chemical analysis made at the University of Tennessee Experiment Station, an average acre of Cumberland County soil to the depth of one foot contains only 1,600 pounds of phosphoric acid and

TABLE XXI. CHEMICAL ANALYSIS OF SOILS FROM CUMBERLAND COUNTY

(See Appendix Table XXVI for Classification.)

| County | Farm of | Phosphoric Acid ($P_2O_5$) | Lime (CaO) | Potash ($K_2O$) | Nitrogen (N) | Remarks - (Quality based on average expectancy when unfertilized.) |
|---|---|---|---|---|---|---|
| | | Pct. | Pct. | Pct. | Pct. | |
| Cumberland | Crossville, (Walden sandstone) | 0.06 | 0.07 | 0.19 | 0.161 | Uncleared pastured, best type of Plateau soil-sandy loam |
| Cumberland | A. E. Payne, Crossville | 0.03 | 0.10 | 0.07 | 0.279 | A creek bottom soil - very acid |
| Cumberland | R. W. Powell, Westel | 0.03 | 0.05 | 0.08 | 0.085 | Forest land average - very poor |
| Cumberland | R. W. Powell, Westel | 0.03 | 0.05 | 0.06 | 0.069 | Sub soil to above |

Source: C. A. Mooers, The Soils of Tennessee, Agricultural Experiment Station, University of Tennessee, 1906, p. 66.

3,100 pounds of lime that can be dissolved out by the aid of strong, hot hydrochloric acid, as compared with 8,000 pounds of phosphoric acid and 11,000 pounds of lime found in the same size sample of soil from the Central Basin of Tennessee.(6)

Repeated results showing that the Cumberland Plateau soil greatly needs the addition of these two minerals also showed that there is a greater need of phosphoric acid than of lime.

Potash is not needed as badly by the Plateau soil, and if the major part of the crops grown is fed on the farm and the manure returned to the land, little attention need be given to this element. However,

TABLE XXII. A COMPARISON BETWEEN THE RESULTS OF CHEMICAL ANALYSIS AND OF FIELD EXPERIMENTS WITH REGARD TO SOIL PLANT-FOOD SUPPLY

| Soil | Phosphoric Acid | | Lime | | Potash | | Nitrogen | |
|---|---|---|---|---|---|---|---|---|
| | By Analysis | By Experiment | By Analysis | By Experiment | By Analysis | By Experiment | By Analysis | By Experiment |
| Cumberland Plateau | Very poor | Responds markedly to Phosphating | Very poor | Soil frequently in great need of lime | Poor | Little response from potash | Poor | Responds markedly to nitrogen |

Source: Charles A. Mooers, Experiments With Soils, Fertilizer and Farm Crops, Agricultural Experiment Station, Knoxville, Tennessee, No. 86, 1909.

(6) C. A. Mooers, Experiments With Soils, Fertilizers, and Farm Crops, Agricultural Experiment Station, University of Tennessee, 1909.

if extensive cropping is practiced with the aid of lime and phosphorus applications, then potash salts should be used in moderate quantities with acid phosphate.

## Fertility (7)

The response of field experiments over several years time at Cumberland County on the response of plants to certain elements showed on the whole that there is a marked response of the Plateau soil to phosphoric acid, lime, and nitrogen, as reported by the Agricultural Experiment Station at Erasmus, Cumberland County.

Response to a Complete Fertilizer: Table XXIII gives the results obtained in nine series of experiments conducted on soils of varying fertility. The complete fertilizer used was one recommended as a good, practical fertilizer mixture per acre for potatoes and is as follows:

300 pounds high grade phosphate
50 pounds muriate of potash
400 pounds cottonseed meal

The experiment reported in Table XXIII shows that 750 pounds of complete fertilizer increased the yield about 75 bushels over the unfertilized check plot. The approximate cost of the 750 pounds of complete fertilizer was $9.90. In one-third of the trials 750 pounds proved more

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(7) Charles A. Mooers, The Rational Improvement of Cumberland Plateau Soils, Agricultural Experiment Station, Knoxville, Tennessee, No. 101, 1913.

profitable than did twice the quantity, and is recommended as a conservative application. However, fifteen hundred pounds per acre proved to be more profitable on the average, and would have a larger residue for the benefit of the succeeding crop.

TABLE XXIII. FERTILITY RESPONSE AS INDICATED BY INCREASE YIELDS WITH IRISH POTATOES - RESULTS OF NINE SERIES, EACH CONDUCTED ON A DIFFERENT FARM, CUMBERLAND PLATEAU

| Series | Yield per Acre Without Fertilizer | | Yield per Acre With 750 Pounds Complete Fertilizer | | Yield per Acre With 1500 Pounds, Complete Fertilizer | |
|---|---|---|---|---|---|---|
| | Total Bu. | Salable Bu. | Total Bu. | Salable Bu. | Total Bu. | Salable Bu. |
| 1 | 61 | 52 | 140 | 81 | 136 | 122 |
| 2 | 57 | 56 | 101 | 80 | 109 | 92 |
| 3 | 37 | 17 | 96 | 76 | 108 | 88 |
| 4 | 24 | 4 | 109 | 54 | 158 | 91 |
| 5 | 32 | 20 | 142 | 131 | 191 | 180 |
| 6 | 73 | 63 | 123 | 110 | 136 | 121 |
| 7 | 54 | 46 | 164 | 147 | 198 | 177 |
| 8 | 156 | 139 | 193 | 180 | 221 | 205 |
| 9 | 110 | 90 | 167 | 151 | 228 | 199 |
| Average | 67 | 52 | 133 | 112 | 165 | 142 |

Source: Charles A. Mooers, The Rational Improvement of Cumberland Plateau Soil, No. 101, Knoxville, Tennessee, 1913.

Response to Manure Alone vs. Manure Plus Commercial Fertilizer: Farmyard manure may be used profitably in building up the fertility of the soil, but it has proven to be a complete and well balanced fertilizer only

for a soil that is fairly well supplied with the mineral elements, phosphoric acid and potash.

TABLE XXIV. FERTILIZER EXPERIMENTS WITH IRISH POTATOES. MANURE ALONE VERSUS MANURE REINFORCED WITH COMMERCIAL FERTILIZER - SIX SERIES CONDUCTED ON SIX DIFFERENT FARMS, CUMBERLAND PLATEAU

| Series | Yield per Acre Without Fertilizer | | Yield per Acre with 12 Tons of Manure | | Yield per Acre With 12 Tons Manure and 600 Pounds Acid Phosphate | |
|---|---|---|---|---|---|---|
| | Total Bu. | Salable Bu. | Total Bu. | Salable Bu. | Total Bu. | Salable Bu. |
| 1 | 50 | 45 | 153 | 126 | 212 | 179 |
| 2 | 42 | 22 | 195 | 150 | - | - |
| 3 | 24 | 4 | 196 | 140 | 248 | 208 |
| 4 | 32 | 20 | 128 | 116 | 209 | 201 |
| 5 | 110 | 90 | 212 | 193 | 237 | 213 |
| 6 | 83 | 62 | 109 | 76 | 139 | 111 |
| Series 1-6 averaged | 57 | 41 | 166 | 135 | - | - |
| Series 1, 3-6 averaged | 60 | 44 | 160 | 130 | 209 | 182 |
| Series 2-6 averaged | 58 | 40 | 168 | 135 | - | - |
| Series 3,5,6 averaged | 72 | 52 | 172 | 136 | 208 | 177 |

Source: Charles A. Mooers, The Rational Improvement of Cumberland Plateau Soil, No. 101, Knoxville, Tennessee, 1913.

As shown in Table XXIV the average of five series of experiments gave an increase of 138 bushels of salable potatoes from the application

of 12 tons of manure, reinforced with 600 pounds of acid phosphate as compared with an increase of only 86 bushels from 12 tons of manure alone. In the same experiment on three additional trials, when an application of 320 pounds of nitrate of soda, in addition to 12 tons of manure and 600 pounds of acid phosphate, resulted in a further increase of 20 bushels of salable potatoes per acre. Further experiments were conducted by the Station and they reported that the experiments in which 100 pounds of muriate of potash per acre were used in connection with 600 pounds of acid phosphate and 320 pounds of nitrate of soda the results were not favorable to the use of the potash salt.

Response to Nitrogen: If the soil, as is the case on the Plateau, is poor in phosphoric acid, nitrate of soda should not be used until the deficiency of this mineral element is corrected. According to numerous trials, 300 pounds of acid phosphate and 50 pounds of muriate of potash are ample to reinforce 160 pounds of nitrate applied to the soil in this area.

Table XXV gives the results of the response on seven different farms where experiments were made to compare the effect of nitrogen on the yield of Irish potatoes.

In addition to the experiment reported in Table XXV, work was reported by the Station in which the response to cottonseed meal were compared with the response from nitrate of soda when each of them were used as a source of nitrogen. The results reported were that nitrate

of soda was only slightly more efficient than cottonseed meal, the average total yield being 145 bushels when the nitrate was used, as compared with 140 bushels where meal was used; but the average quantity

TABLE XXV. FERTILIZER EXPERIMENTS WITH IRISH POTATOES TO DETERMINE THE RESPONSE TO NITROGEN - RESULTS OF SEVEN SERIES, EACH CONDUCTED ON A DIFFERENT CUMBERLAND PLATEAU FARM

| Series | Yield per Acre Without Fertilizer | | Yield per Acre With Phosphoric Acid and Potash, No Nitrogen | | Yield per Acre With Phosphoric Acid, Potash, and Nitrate of Soda | |
|---|---|---|---|---|---|---|
| | Total Bu. | Salable Bu. | Total Bu. | Salable Bu. | Total Bu. | Salable Bu. |
| 1 | 24 | 4 | 33 | 6 | 105 | 59 |
| 2 | 32 | 20 | 93 | 82 | 156 | 146 |
| 3 | 81 | 64 | 150 | 127 | 157 | 148 |
| 4 | 73 | 63 | 96 | 84 | 129 | 116 |
| 5 | 89 | 79 | 93 | 83 | 102 | 89 |
| 6 | 155 | 137 | 167 | 152 | 190 | 177 |
| 7 | 110 | 90 | 153 | 131 | 173 | 153 |
| Average | 81 | 65 | 112 | 95 | 145 | 127 |

Source: Charles A. Mooers, The Rational Improvement of Cumberland Plateau Soil, No. 101, Knoxville, Tennessee, 1913.

of salable potatoes was the same for each. The nitrate of soda has the advantage of being somewhat cheaper than cottonseed meal, but the disadvantages that it cannot be so generally obtained, is apt to be lumpy and needs pulverizing, and is preferably applied separately from the phosphate and potash as a surface dressing. However, the outstanding

point about the experiment is that regardless of which two are chosen as the source of nitrogen, the application of it will tend to increase the yield by 62 bushels per acre when combined with phosphoric acid and potash as compared to the yield where no fertilizer is used. When the nitrate for the cottonseed meal is applied with phosphoric acid and potash there was an increase of 32 bushels on the average per acre as compared to the yield where no nitrogen was supplied but just phosphoric acid and potash were applied.

The nitrogen supply in the soil may be also built up in the soil by the use of legumes, but only if the proper bacteria organisms are in the soil through previous inoculation.

Humus: One of the soil constituents which are well known to decrease under usual cultivation is humus, as the dark colored organic substances resulting from the decay of vegetable matter are called. The Plateau soils tend to be deficient in humus content and respond markedly when the organic material of the soil is built up. As reported recently in the Knoxville newspaper a successful potato farmer of Morgan County bought land on which it was claimed "nothing would grow" but by offering to clean out the neighborhood barns in exchange for the manure, he secured many tons of manure which he applied to his land.(8) He now has the distinction of raising the highest yields of potatoes per acre

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(8) Knoxville Journal, Knoxville, Tennessee, May 26, 1942.

in the county, and attributes it to the manure applied to his land.

Unfortunately manure is not so plentiful now, and it must be remembered that while manure from the farm when returned to the land is very beneficial, it is only returning the elements taken from the farm land in the course of the farm enterprise. The reason for many of the success stories cited from the benefits years ago in the application of manure was that they were applying the elements secured from other farms in the manure and not just returning the elements to the farm land. All the manure that can be obtained should be used, but to get the crops that can be fed to get the manure, both lime and phosphate are very important.

Another method of building up the humus content of the soil is in green-manure farming. Crimson clover is being grown in various parts of Tennessee and may be used to advantage on the Plateau as soon as the soil is built up as many of the soils are too poor in vegetative matter for any of the clovers, in which case cowpeas followed by rye may be used as a green manure crop at first.

## Erosion

Up until the present time erosion has not been a serious problem as the land has had the advantage of a covering of timber growth, and the soil, for the most part, is porous and spongy allowing it to absorb

the rainfall without excessive runoff. However since much of the timber is being cut off, and an increasing amount of land is being subjected to cultivation erosion may become a problem, especially on the steep slopes that are under cultivation. At the present time sheet and gully erosion are becoming severe on the more clayey soils. In the mountain and hilly sections, the surface run-off of matter is very rapid and erosion is active on exposed slopes.

Very little terracing is being done, and there are some indications that the practice of contour planting, terracing, strip cropping and drainage would avoid a serious problem of the future.

## CHAPTER V

## FARMS, FARM VALUES, TYPE OF FARMING

The following data pertaining to number of farms, size of farms, farm values, and type of farming give a picture of the more important characteristics of the prevailing farm organization found in the area.

### Farms

Number of Farms: It is estimated, on the assumption that there are 2,727,402 acres of Plateau land, that in 1935 there were 10,615 farms on the Plateau proper. On the same basis of calculation there were, in 1930, 7,088 farms, or 3,527 less than in 1935.

Farms are more densely concentrated in civil districts having some of their land in valleys, or along the main highways running through the Plateau. Farms also tend to be more numerous near the coal mining centers, where farm operators can secure part-time work in addition to running a small farm.

Change in Number of Farms: In the ten Plateau counties in 1940, there were 12,600 farms.(1) The number increased by 5,277 from 1880 to

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(1) The ten counties used were: Campbell, Cumberland, Fentress, Morgan, Scott, Marion, Bledsoe, Grundy, Van Buren, and Sequatchie.

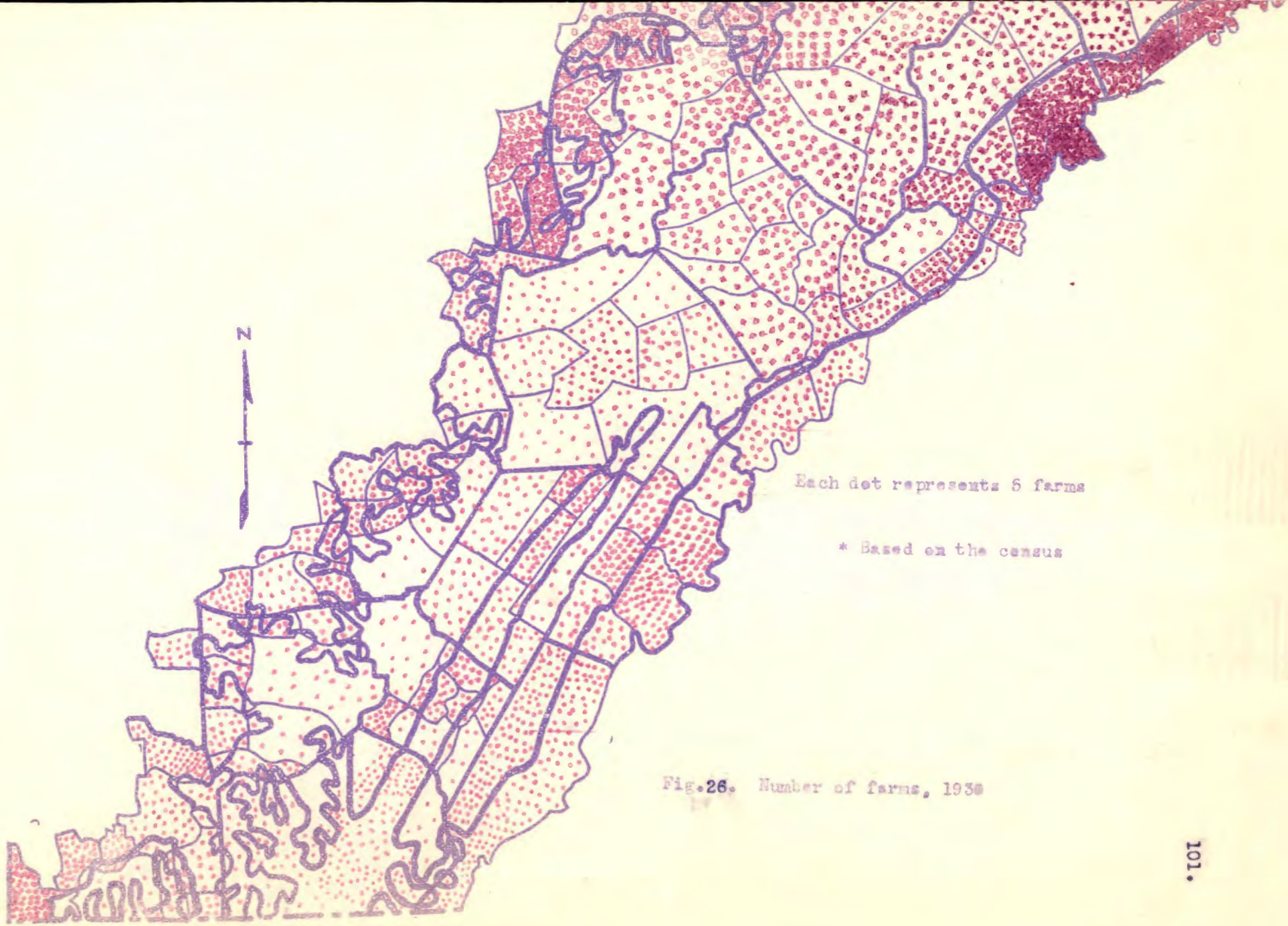



Fig.26. Number of farms, 1938

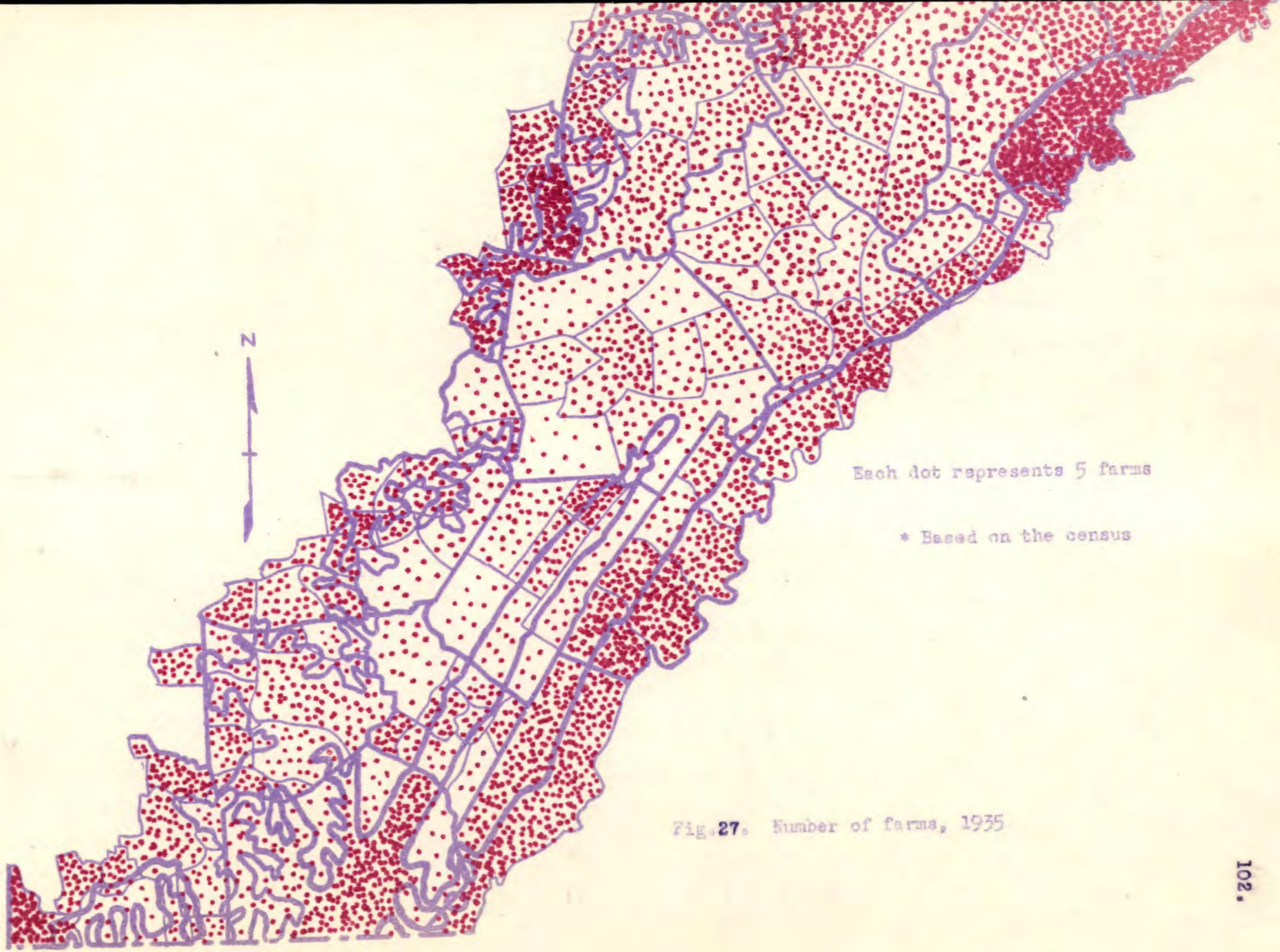



Fig. 27. Number of farms, 1935

1940. There was an increase of 3,187 farms from 1880 to 1910, but from 1910 to 1930 the number decreased by 1017 (Table XXVI). From 1930 to 1935, however, the number again increased by 3,282, then decreased 175 farms between 1935 and 1940.(2) Thus over a 60-year period, farms increased 72 percent in number or an average of 1.2 percent per year.

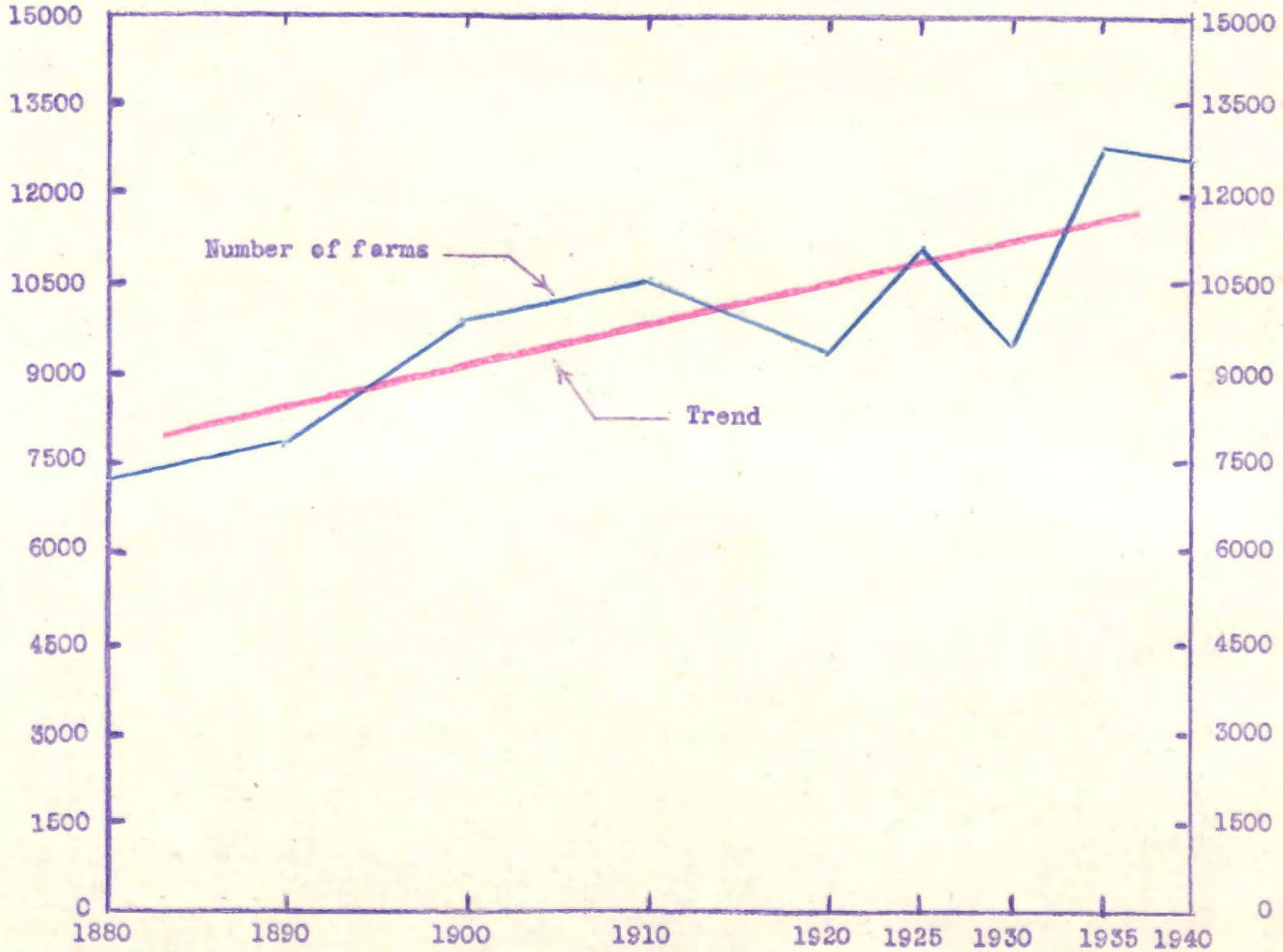
Most of the counties have shown the same general trend during the 60-year period. However, while the other counties reported decreases

TABLE XXVI. NUMBER OF FARMS, TEN PLATEAU COUNTIES, 1880 - 1940

| County | 1880 | 1890 | 1900 | 1910 | 1920 | 1925 | 1930 | 1935 | 1940 |
|---|---|---|---|---|---|---|---|---|---|
| Campbell | 1375 | 1479 | 1834 | 2180 | 1892 | 2035 | 1754 | 2343 | 2031 |
| Scott | 925 | 1056 | 1389 | 1490 | 1344 | 1432 | 1124 | 1848 | 1507 |
| Fentress | 974 | 836 | 972 | 1019 | 1214 | 1145 | 987 | 1488 | 1740 |
| Morgan | 619 | 906 | 1143 | 1184 | 1251 | 1243 | 1074 | 1449 | 1632 |
| Cumberland | 715 | 800 | 1035 | 1198 | 1267 | 1397 | 1034 | 1128 | 2063 |
| Van Buren | 358 | 336 | 482 | 384 | 432 | 427 | 488 | 567 | 488 |
| Bledsoe | 663 | 817 | 984 | 932 | 1060 | 820 | 927 | 1108 | 1009 |
| Grundy | 456 | 406 | 534 | 558 | 563 | 640 | 524 | 964 | 623 |
| Sequatchie | 404 | 328 | 383 | 504 | 339 | 739 | 537 | 574 | 665 |
| Marion | 834 | 834 | 1186 | 1061 | 1037 | 1197 | 1044 | 1306 | 842 |
| Total | 7323 | 7848 | 9942 | 10510 | 10399 | 11075 | 9493 | 12775 | 12600 |

Source: Census of Agriculture, 1880 - 1940.

(2) This decrease in number of farms is probably more apparent than real inasmuch as the method of taking census was different in the two periods.




Source: Census of Agriculture, 1880-1940

Fig.28. Number of farms, ten Plateau Counties, 1880-1940

in number of farms from 1925 to 1930, Van Buren reported an increase of 61 farms, and Bledsoe 127.

Four of the ten counties showed an increase in number of farms from 1935 to 1940, namely: Cumberland, Fentress, Morgan, and Sequatchie. Those counties showing decreases for the same years were Marion, Grundy, Scott, Campbell, Bledsoe, and Van Buren.

Although each of the ten counties showed a net increase in number of farms in the period from 1930 to 1935, there were 16 civil districts scattered throughout these counties having a decrease in number of farms. (Figure 29). This decrease was not great, however, amounting to only 282 farms in the 16 districts. Sequatchie had three civil districts out of a total of eight reporting a decrease of 9 farms in this period, and Van Buren had one district with a loss of 21 farms. Other sections that have part of their land lying in the area had increases while others had decreases (Figure 29). It is unfortunate that due to revision of civil district lines, changes on a civil district basis cannot be shown for Bledsoe and Marion counties. However, Marion County as a whole had a net increase of 262 farms and Bledsoe, 181 farms, from 1930 to 1935.

The reason for the relatively large increase in number of farms in 1935 as compared to 1930 with a decrease in six of the counties in 1940 with 1935 may be explained largely by rapid return of families to farms during the national economic depression of 1930 to 1935 and partly by the natural increase in population.

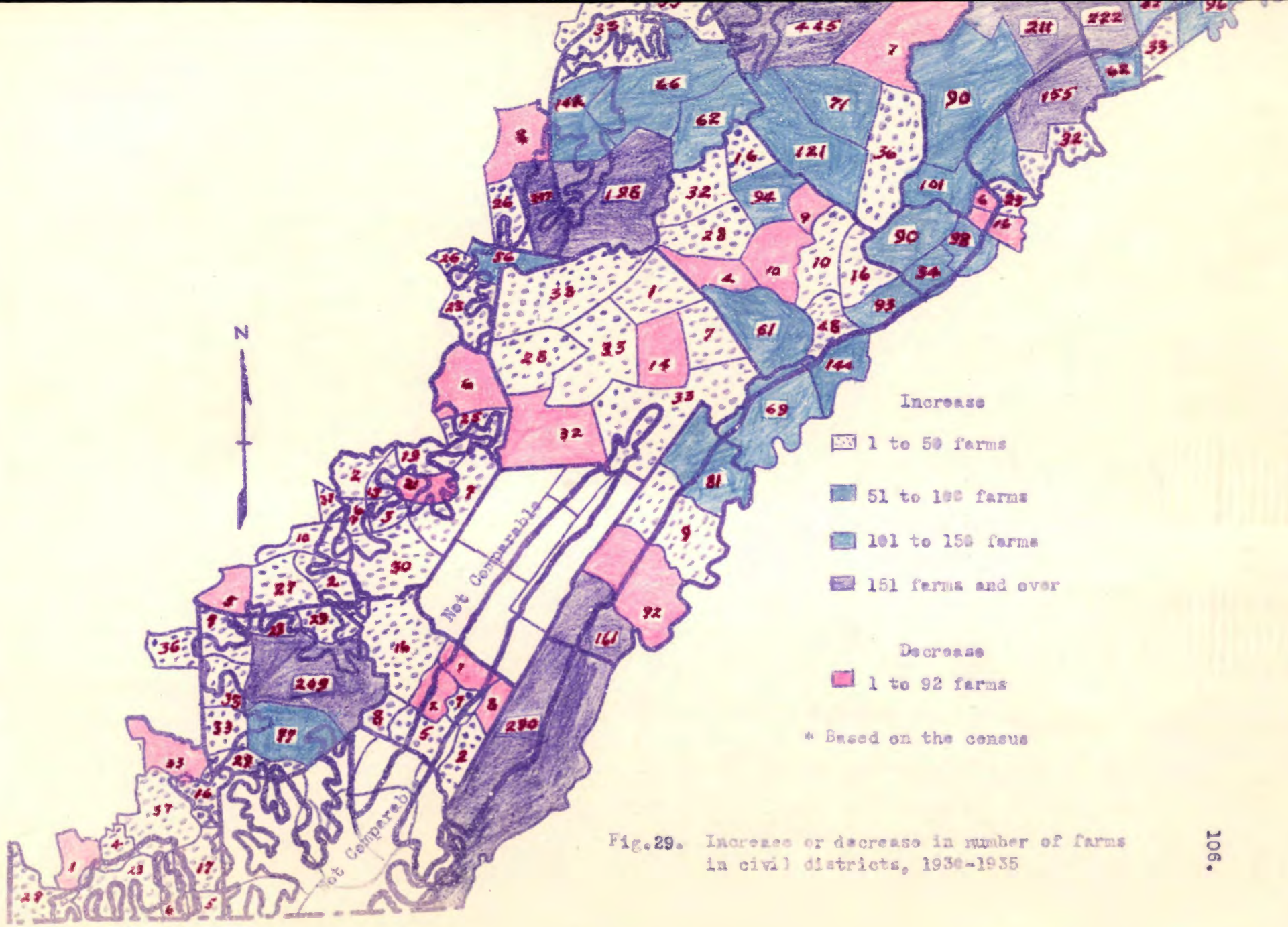



Fig.29. Increase or decrease in number of farms in civil districts, 1930-1935

## Value of Farms (Land and Buildings)

Value of Farms: The average value per farm in ten Plateau counties for the year 1940 was $1,503. This is approximately two-thirds the state average. In 1935, the average value of a Plateau farm was $853, while in 1930 the value was $1,492. Thus farms in 1940 were valued 76 percent higher per farm than in 1935, and 1.0 percent above 1930. The lowest average value per farm for land and buildings in 1940 was $672 in Scott County. Other counties having a per farm value for land and buildings below $1,000 were: Fentress, $934; and Morgan, $966. The highest values of land and buildings per farm were $3,100 in Marion County, and $2,277 in Bledsoe. Farms having higher values were generally found in the valleys and along the main highways (Figure 31).

Value per Acre:(3) The value per acre of farm land in 1934 was $19.26. In 1930 the value was $23.69, a decrease in value of $4.43 per acre in 1934 as compared to the value in 1930. Land along the highways and in the valleys was valued higher per acre than in the more isolated uplands. The effect of the main highway running across the region through Cumberland County is shown in Figure 32. Farm lands near towns also have higher values per acre. The land in the eastern half of Morgan County had a higher value per acre than did that in the northwestern section of

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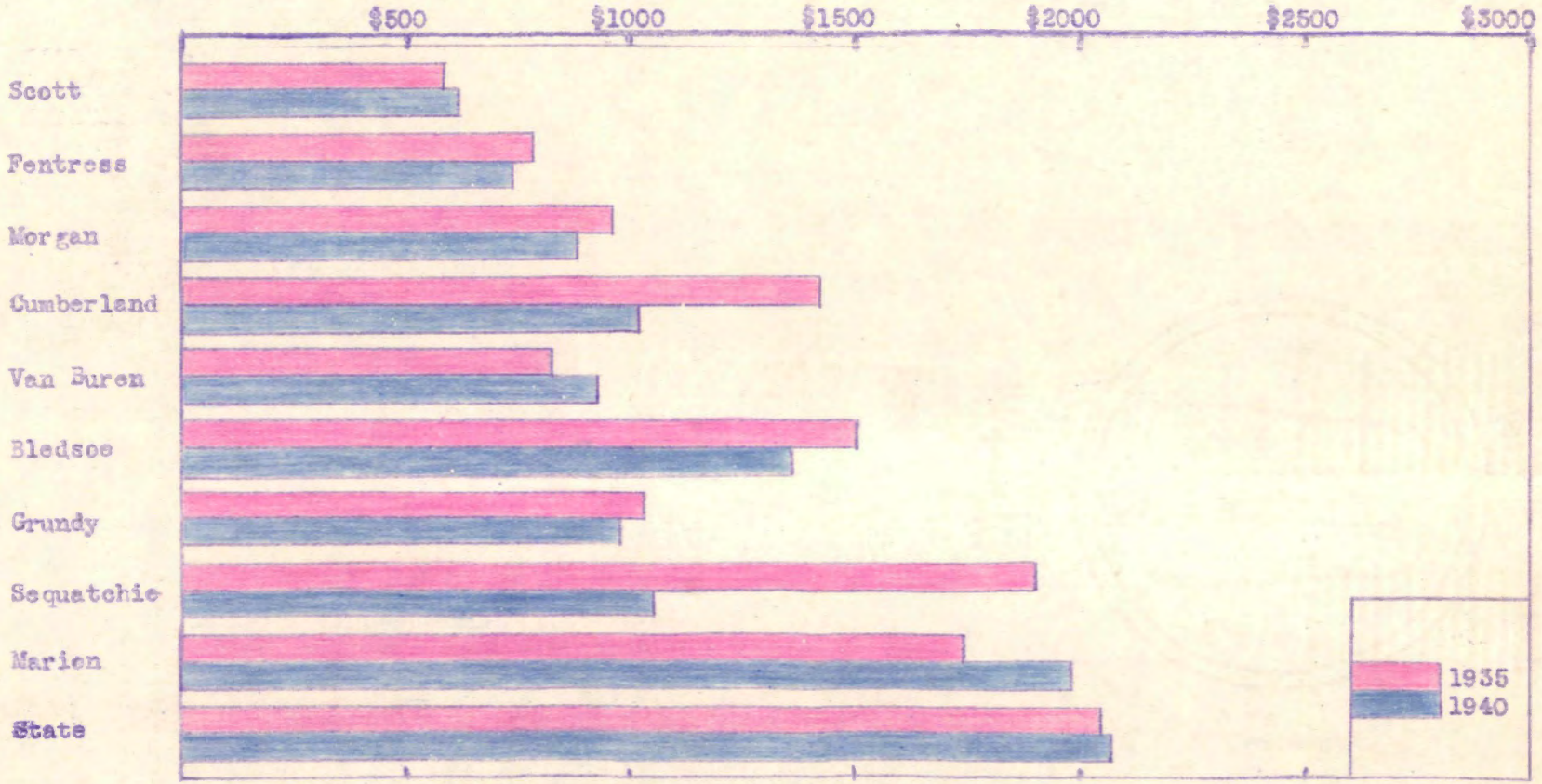
(3) Value based on data for civil districts having all of their land on the Plateau.




Source: Appendix table IV; Census, 1940

Fig.30. Comparison of average value of land and buildings per farm in nine Plateau counties and in the State, 1935-1940

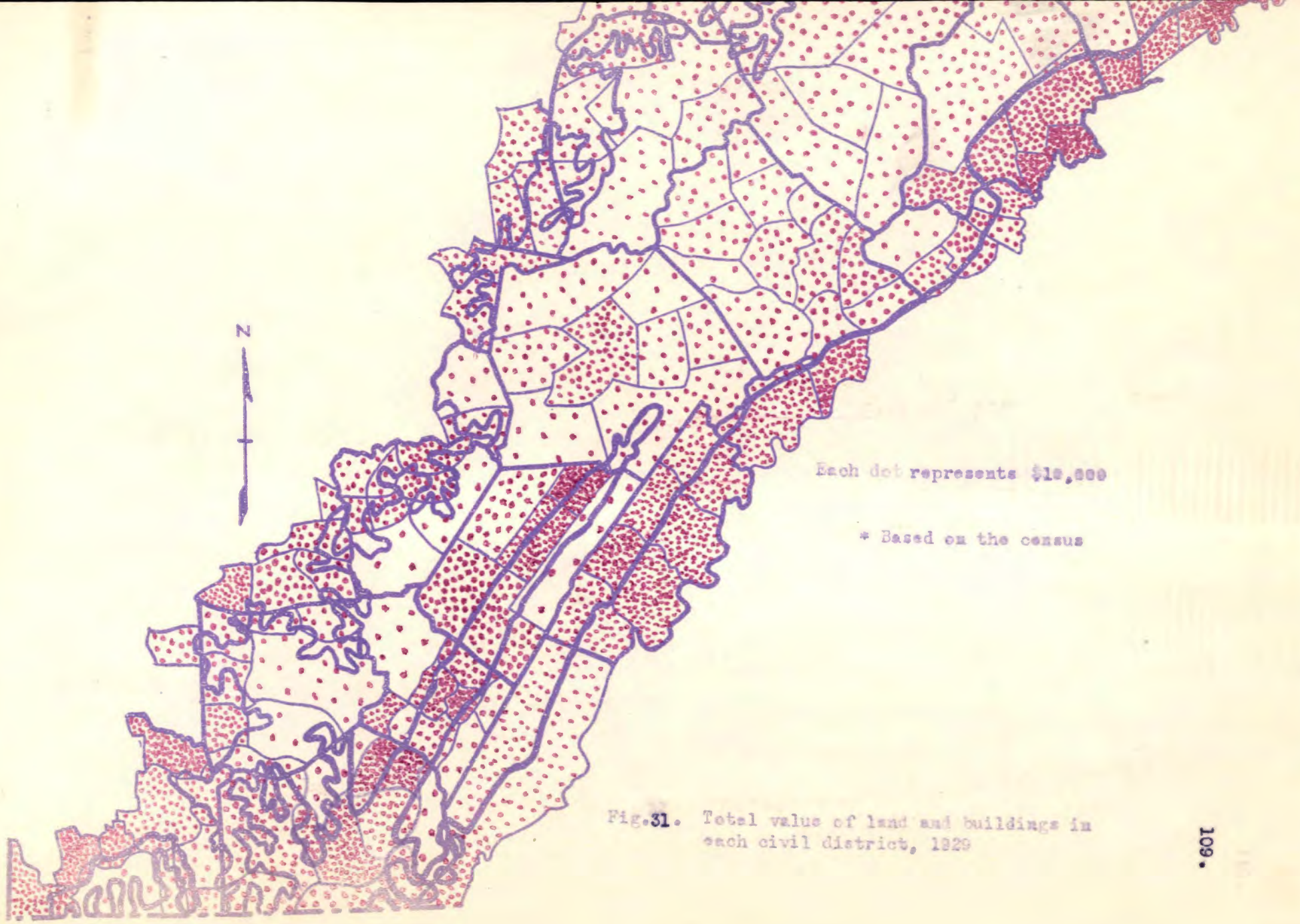



Fig.31. Total value of land and buildings in each civil district, 1929

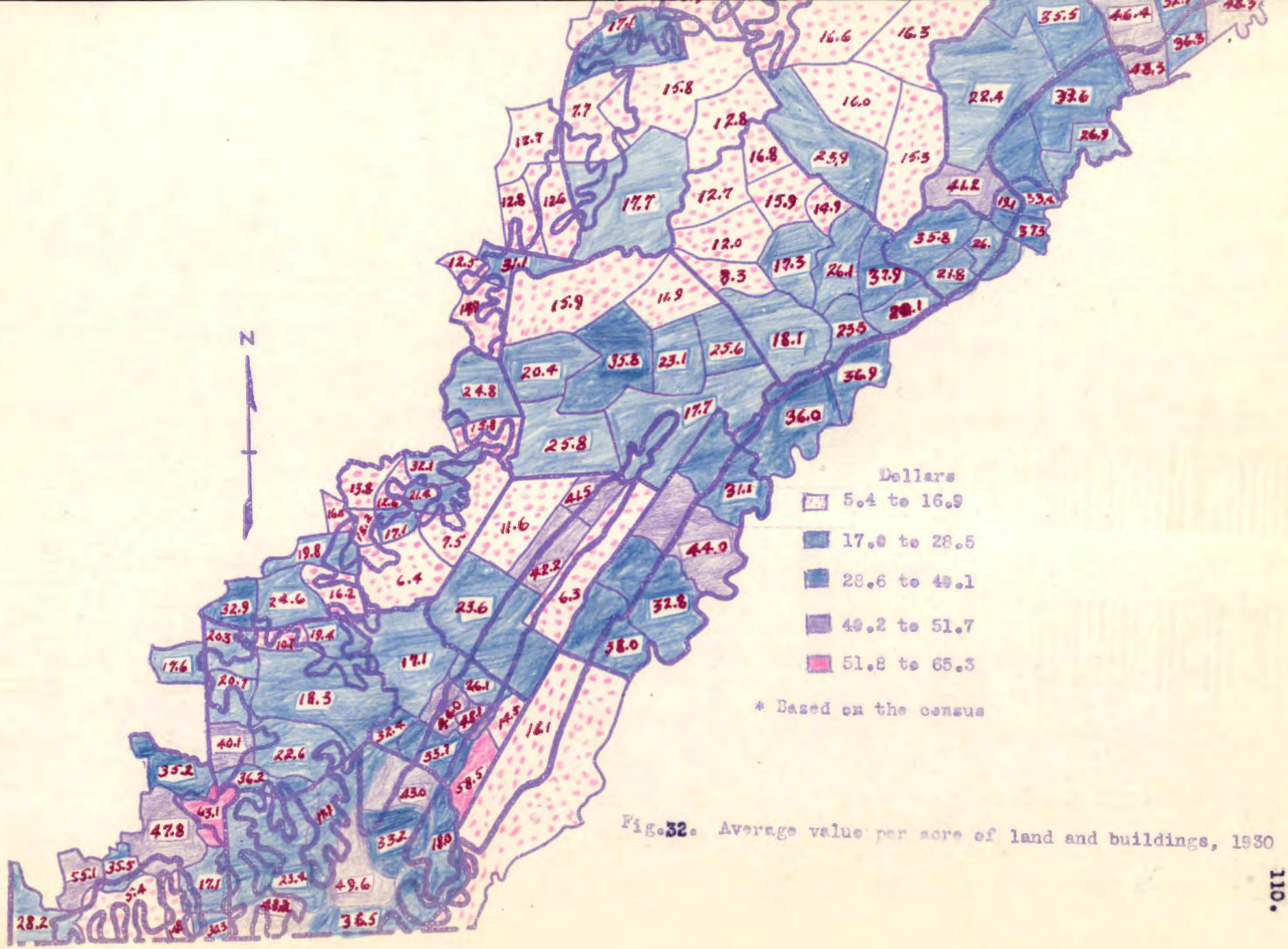



Fig.32. Average value per acre of land and buildings, 1930

the county due in part to its accessibility to the towns found near it.

The range of value per acre was from $5 for land on the Plateau in the southern part of Franklin to $65 per acre in the same county near Sewanee. For the most part, land in the northeastern part of the Plateau, namely: Scott, Fentress, and the northern parts of Morgan and Cumberland counties, was lower in value than the average for the region. The same is true for those districts of Van Buren and Bledsoe lying on the Plateau. On the other hand, land values were higher along the entire eastern portion as far south as Hamilton County; in that part of Cumberland County bordering the East-West State Highway; and in the southern portion including those parts of Sequatchie, Marion, and Grundy lying on the Plateau.

Value of Farm Dwellings:(4) The value of farm dwellings in 1930 was $408 per farm in those civil districts lying largely on the Plateau. This was approximately two-thirds the state average of $601. The values varied from $148 each in Van Buren to $800 in that district of Putnam County lying on the Plateau. The value of farm dwellings per farm was also low in Bledsoe, $172; and Marion, $229.

Most of the houses are of frame construction with many log houses in various states of repair being used. In many sections only a small proportion of the houses are painted, most of which are found near the

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(4) Data on value of dwelling are for civil districts lying largely on the Plateau.

towns. Many of the lower valued farm dwellings are badly in need of repairs, both inside and out. The lower valued houses are generally

TABLE XXVII. VALUE OF FARM DWELLING, 53 CIVIL DISTRICTS ON THE CUMBERLAND PLATEAU, TENNESSEE, 1929

| County | No. of Civil Districts | No. of Farms, 1930 | Value of Farm Dwellings | |
|---|---|---|---|---|
| | | | Total | Per Farm |
| Anderson | 4 | 273 | $103,040 | $377.4 |
| Bledsoe | 2 | 284 | 48,960 | 172.4 |
| Campbell | 2 | 465 | 192,855 | 414.7 |
| Claiborne | 2 | 88 | 32,150 | 365.3 |
| Cumberland | 8 | 1034 | 549,468 | 531.4 |
| Fentress | 2 | 403 | 141,695 | 351.6 |
| Franklin | 2 | 86 | 39,975 | 464.8 |
| Grundy | 3 | 228 | 108,120 | 474.2 |
| Marion | 2 | 99 | 22,700 | 229.3 |
| Morgan | 12 | 1074 | 558,291 | 519.8 |
| Overton | 1 | 310 | 67,997 | 219.3 |
| Putnam | 1 | 129 | 103,230 | 800.2 |
| Scott | 5 | 1124 | 374,783 | 333.4 |
| Sequatchie | 4 | 264 | 90,250 | 341.9 |
| Van Buren | 2 | 103 | 15,240 | 148.0 |
| White | 1 | 74 | 19,085 | 257.9 |
| Total | 53 | 6038 | $2,467,839 | $408.7 |

Source: Census of Agriculture, 1930

heated by fire places, with the higher valued homes being heated with stoves, or a combination of the two. Practically none of the farm homes have central heating systems.

Figure 33 shows the farm expenditure for electric light and power

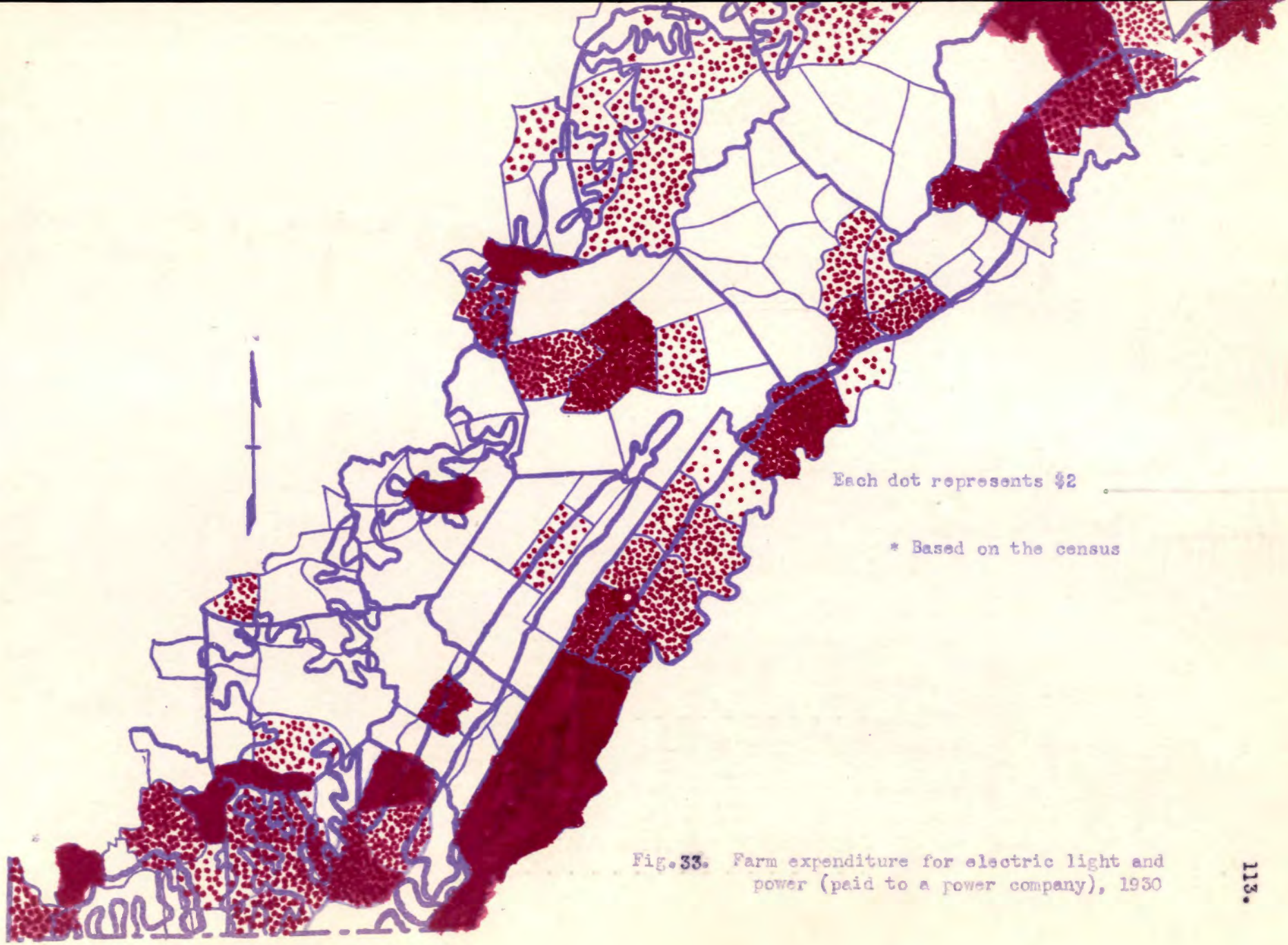



Fig.33. Farm expenditure for electric light and power (paid to a power company), 1930

by civil districts in 1930. The greater farm expenditures are found in those civil districts located near towns or on the borders of the Plateau.

Farm dwellings in 1940, in the ten Plateau counties, lighted by electricity numbered 11.2 percent of the total in this area. This is below the state average of 15.7 percent. However, on the Plateau there was .9 percent of the farms lighted by electricity generated by home plants which was slightly higher than the .7 percent average for the state in 1940 (TableXXVIII).

TABLE XXVIII. NUMBER AND PERCENT OF FARM DWELLINGS LIGHTED BY ELECTRICITY, TEN PLATEAU COUNTIES, 1940

| County | All Farms | Dwellings Lighted by Electricity | | | | Farms Having Telephones | |
|---|---|---|---|---|---|---|---|
| | | Farms Having Current from Power Line | | Farms Having Current from Home Plant | | Number | Pct. |
| | | Number | Pct. | Number | Pct. | | |
| Bledsoe | 1,009 | 22 | 2.2 | 9 | .9 | 70 | 6.9 |
| Sequatchie | 665 | 33 | 5.0 | 4 | .6 | 94 | 14.1 |
| Van Buren | 488 | 13 | 2.7 | | | 9 | 1.8 |
| Cumberland | 2,063 | 458 | 22.2 | 5 | .2 | 96 | 4.7 |
| Fentress | 1,740 | 94 | 5.4 | 28 | 1.6 | 52 | 3.0 |
| Scott | 1,507 | 137 | 9.1 | 9 | .6 | 30 | .2 |
| Morgan | 1,632 | 187 | 11.5 | 28 | 1.7 | 66 | 4.0 |
| Campbell | 2,031 | 321 | 15.8 | 13 | .6 | 81 | 4.0 |
| Marion | 842 | 103 | 12.2 | 9 | 1.1 | 97 | 11.5 |
| Grundy | 623 | 45 | 7.2 | 7 | 1.1 | 34 | 5.5 |
| Total | 12,600 | 1,413 | 11.2 | 112 | .9 | 629 | 5.0 |
| State | 247,617 | 38,884 | 15.7 | 1,635 | .7 | 32,468 | 13.1 |

Source: Census of Agriculture, 1940.

In 1930, the farms in this area reported less than 5 percent with water piped into the house, and less than 5 percent lighted by electricity.

It must be realized that there are exceptions to the average values presented here; however, many of these higher valued farms are owned by families having other sources of incomes or those having been more successful in their farming practice than the average. These better farms may also be taken, in some cases, as indications of what could be done in the way of improving farm conditions in the area.

Value of Farm Machinery: The average value of farm machinery per farm in 1930 in those civil districts having land largely on the Plteau was $116. The range was from $88 in Van Buren County to $147 in Morgan County. The value of farm machinery is lower in this area than for the state as a whole which had $186 worth of machinery per farm for the same year. Although the value of farm machinery could be increased by the addition of some new implements and the repairing of that on the farm at present, it should be realized that this is not an area where the extensive use of farm machinery would be profitable under the present farming system. There is little doubt, however, that better care could be taken of the present farm equipment used, with additional equipment profitably used in some of the more developed areas.

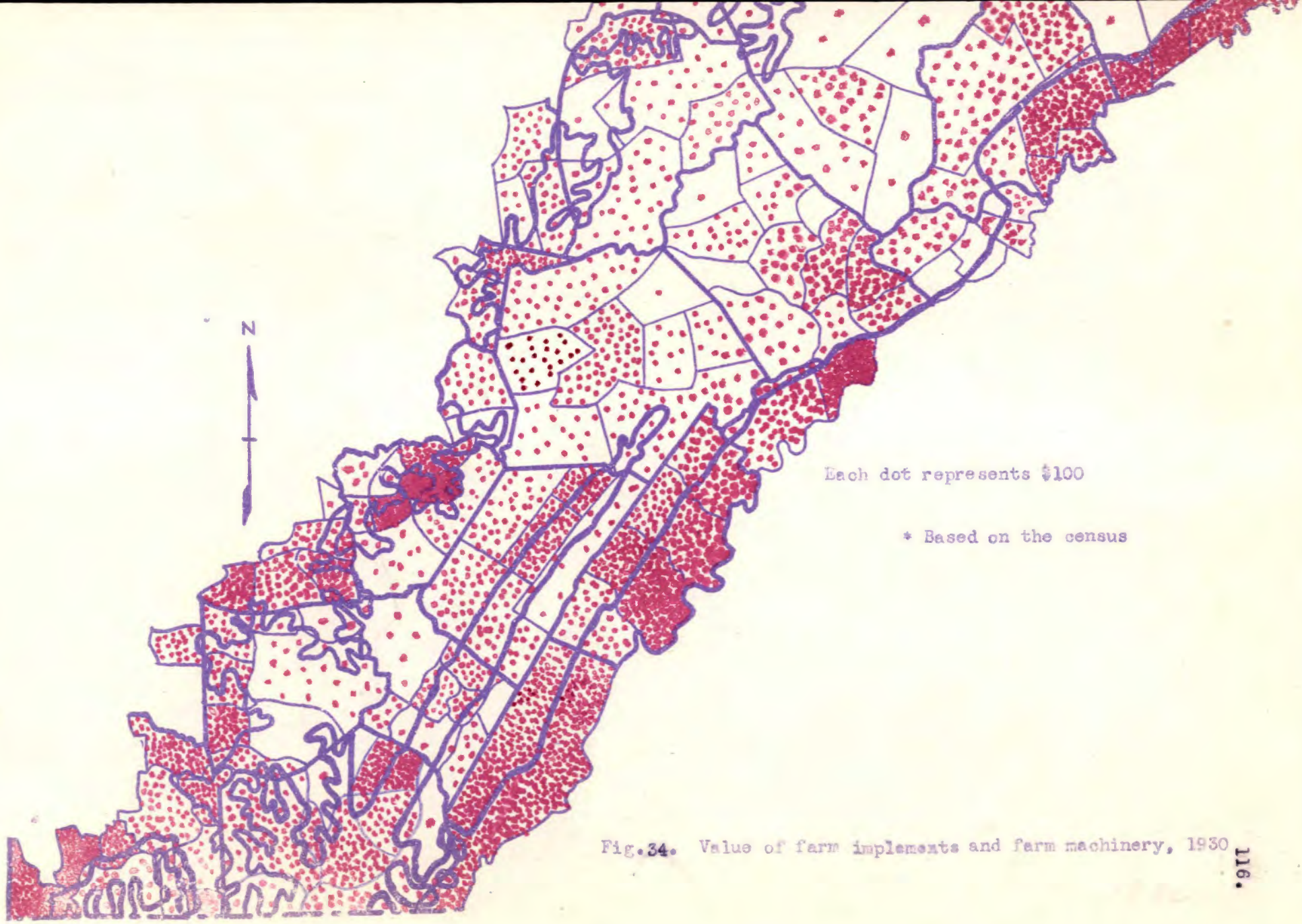



Fig.34. Value of farm implements and farm machinery, 1930

Farm Taxes: Data on farm taxes for the Plateau are presented briefly in an effort to clarify the values of farms.

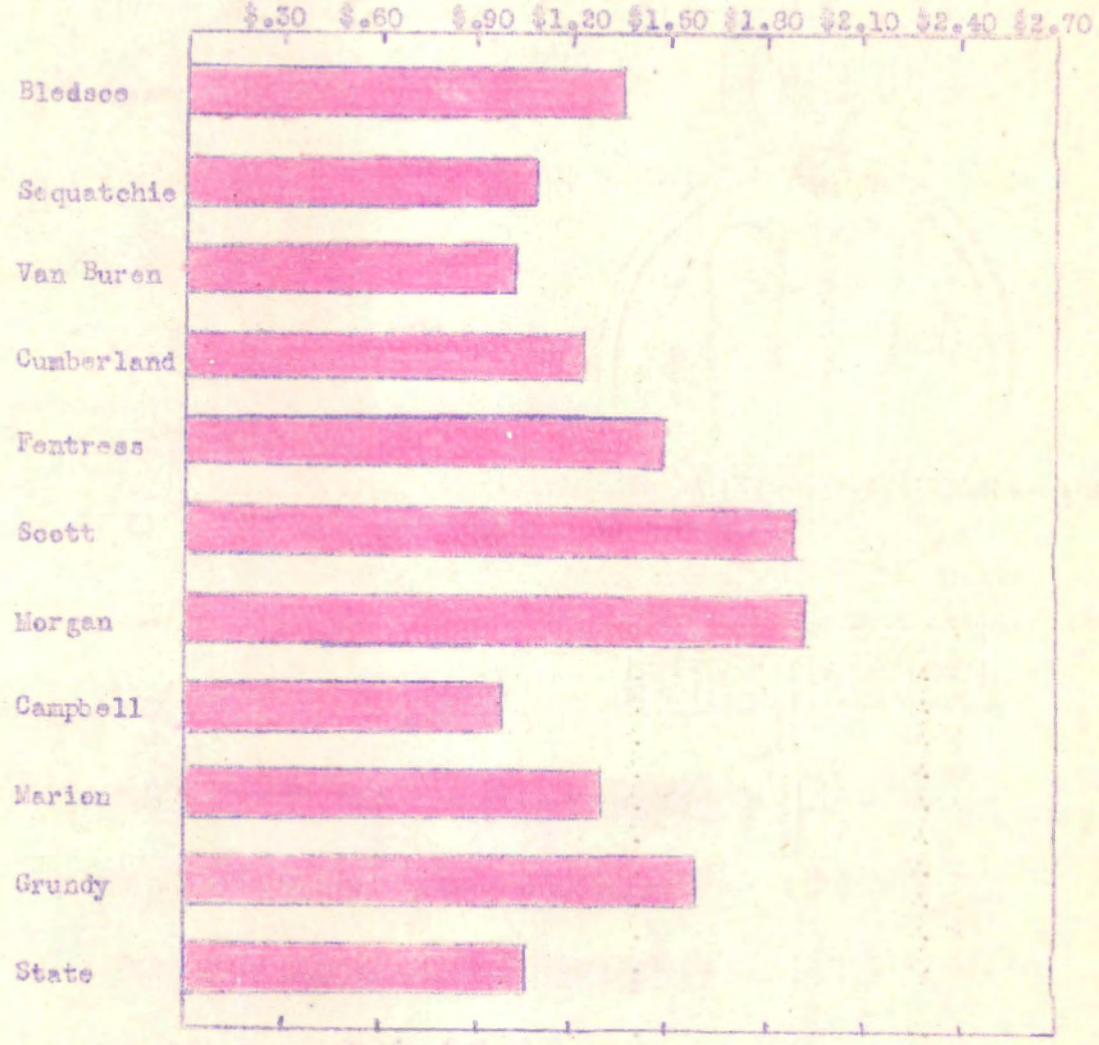
Since 1913, the tax per acre on real estate on the Plateau, and the tax per acre in the counties of which the Plateau is a part have been lower than the tax rates of Tennessee as a whole.(5) This has been due mainly to lower values per acre for farm land in these counties.

TABLE XXIX. COMPARISON OF FARM TAXES LEVIED IN TEN PLATEAU COUNTIES AND THE STATE, 1939

| County | Farms Reporting Tax | Average Tax per Acre of Farm Land | Tax per $100 Value |
|---|---|---|---|
| Bledsoe | 518 | .25 | 1.36 |
| Sequatchie | 205 | .21 | 1.08 |
| Van Buren | 214 | .11 | 1.01 |
| Cumberland | 922 | .22 | 1.23 |
| Fentress | 1025 | .22 | 1.49 |
| Scott | 871 | .27 | 1.89 |
| Morgan | 972 | .32 | 1.93 |
| Campbell | 1133 | .47 | .98 |
| Marion | 270 | .41 | 1.29 |
| Grundy | 267 | .28 | 1.55 |
| Average | 6397 | .28 | 1.38 |
| State | | .38 | 1.05 |

Source: Census of Agriculture, 1940.

(5) Census of Agriculture, 1913 - 1940.




Source: **Table XXVIII**

Fig. **35.** Comparison of farm taxes per $100 value in ten Plateau counties and in the State, 1940

The average tax paid per $100 value in 1939 was from $.98 in Campbell County to $1.93 in Morgan. Van Buren had a relatively low tax of $1.01 per $100 farm value. Table XXX shows the percent that farm real estate tax assessment is of property value for Plateau counties together with their rank among the 95 Tennessee counties in this report. Generally speaking assessors are supposed to assess at about 60 percent of the actual value of the property. Morgan was the only county having an assessment ratio above 60 percent. The average for the state was 54.3 percent. Thus on the average the farm real estate in nine out of ten Plateau counties was assessed in 1939 at a just percentage of the owners' value.

TABLE XXX. APPROXIMATE RATIO OF THE ASSESSMENT OF FARM REAL ESTATE TO OWNER'S ESTIMATE OF THE VALUE OF LAND AND BUILDINGS AND RANK IN STATE, TEN PLATEAU COUNTIES, 1929

| County | Rank in State (From lowest to highest) | Percent Assessment Is of Value |
|---|---|---|
| Cumberland | 10 | 39.22 |
| Sequatchie | 16 | 45.73 |
| Van Buren | 23 | 49.03 |
| Campbell | 30 | 49.95 |
| Grundy | 33 | 51.80 |
| Marion | 36 | 53.45 |
| Scott | 41 | 55.67 |
| Bledsoe | 42 | 55.90 |
| Fentress | 55 | 59.79 |
| Morgan | 65 | 64.93 |

Source: C. E. Allred, P. B. Boyer, M. M. Reed, Farm Tax Incidence, Agricultural Experiment Station, University of Tennessee, 1933.

In 1932 there was a greater percent of taxes delinquent in the area than in 1929, but this was also the case throughout Tennessee. Scott County was the only county having a lower percent of taxes delinquent in 1932 as compared to its percent delinquent in 1929. Van Buren County had the greatest percent rise in taxes delinquent for 1932 as compared to its taxes delinquent for 1929.

## Types of Farming

Farms in the 1930 census were classified by types on the basis of value of product sold.(6) The types distinguished in this classification were: cash-grain, cotton, crop-specialty, fruit, truck, dairy, animal-specialty, stock-ranch, poultry, general, self-sufficing, and abnormal farms. Due to many of these types being very small in this area, only four of these types were used: self-sufficing, part-time,(7) general, and animal specialty. The other types were included under the classification of other types.

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(6) Value of products includes the value of crops sold or to be sold; livestock and livestock products sold or traded; forest products sold; and products used by the operator's family, but excludes receipts from boarders, lodgers, etc.

(7) Part-time farms were listed as a sub-type under abnormal farms in the 1930 census.

TABLE XXXI. PERCENT OF FARMS SELF-SUFFICING, PART-TIME, GENERAL, AND ANIMAL SPECIALTY, 50 CIVIL DISTRICTS LYING ENTIRELY ON THE PLATEAU, 1929

| County | Number of Civil Districts | Number of Farms | Percent of Farms | | | | |
|---|---|---|---|---|---|---|---|
| | | | Self-Sufficing | Part-Time | General | Animal Specialty | Other Types |
| Anderson | 4 | 273 | 44.6 | 26.0 | 15.0 | 5.3 | 14.4 |
| Bledsoe | 2 | 284 | 36.9 | 3.1 | 46.8 | 3.0 | 10.2 |
| Campbell | 2 | 465 | 55.8 | 18.0 | 14.6 | 3.0 | 8.6 |
| Claiborne | 2 | 88 | 52.3 | 23.9 | 5.6 | - | 18.2 |
| Cumberland | 8 | 1034 | 57.7 | 19.7 | 11.3 | 5.2 | 6.1 |
| Fentress | 2 | 403 | 61.8 | 21.8 | 6.6 | 1.0 | 8.8 |
| Franklin | 2 | 86 | 52.3 | 23.2 | 10.4 | 1.0 | 13.1 |
| Grundy | (3) | (228) | (41.2) | * | * | * | * |
| Marion | 2 | 99 | 60.6 | 36.4 | 3.4 | 1.5 | .4 |
| Morgan | 12 | 1074 | 50.6 | 28.3 | 9.6 | 2.5 | 9.0 |
| Overton | 1 | 310 | 55.1 | 28.7 | 5.1 | 2.9 | 8.2 |
| Putnam | 1 | 129 | 45.7 | 35.6 | 6.9 | 2.3 | 9.5 |
| Scott | 5 | 1124 | 58.1 | 29.6 | 7.3 | .3 | 4.7 |
| Sequatchie | 4 | 264 | 55.6 | 27.7 | 6.4 | 1.0 | 9.3 |
| Van Buren | 2 | 103 | 44.7 | 20.3 | 6.8 | 13.0 | 15.2 |
| White | 1 | 74 | 18.9 | 47.2 | 12.2 | 1.3 | 20.4 |
| Total | 50 | 5810 | 50.0 | 26.0 | 10.8 | 3.1 | 10.9 |

* Data not available.

Source: Census of Agriculture, 1930.

Due to many of the farms being small in this area, classification into definite groups according to farm income is not always possible. However, an attempt is made to present the proportion of farms in the area group according to the farm income.

The size of business on many of these more commercial farms is sufficiently large to provide an income adequate for at least a fairly good family living. The larger farm businesses were closely associated with farms above the average in size and with those that were operated intensively.

Farms Self-Sufficing: In 1929, there were 50.0 percent of the farms self-sufficing (Table XXXI). These farms have been designated as self-sufficing as the value of the farm products used by the farm operator and his family was 50 percent or more of the total value of the products produced on the farm.

Sections of the counties having a high percentage of self-sufficing farms in 1929 were: the northeastern corner of the Plateau, 88.8 percent; the southwestern section of Cumberland County, 85.2 percent; and the western part of Fentress, 83.4 percent. There were three districts in Morgan having percentages of 90.0 percent, 86.5 percent, and 82.1 percent of the total farms self-sufficing (Figure 37). The eastern part of Marion and Sequatchie had an average of 77.9 percent of the farms self-sufficing.

Many of these farms might have been classed as part-time farms even though the farmer worked off the farm less than 150 days. In many cases, if the income from the entire family had been included in the classing of the farms, many of the farms would have been placed in another group.

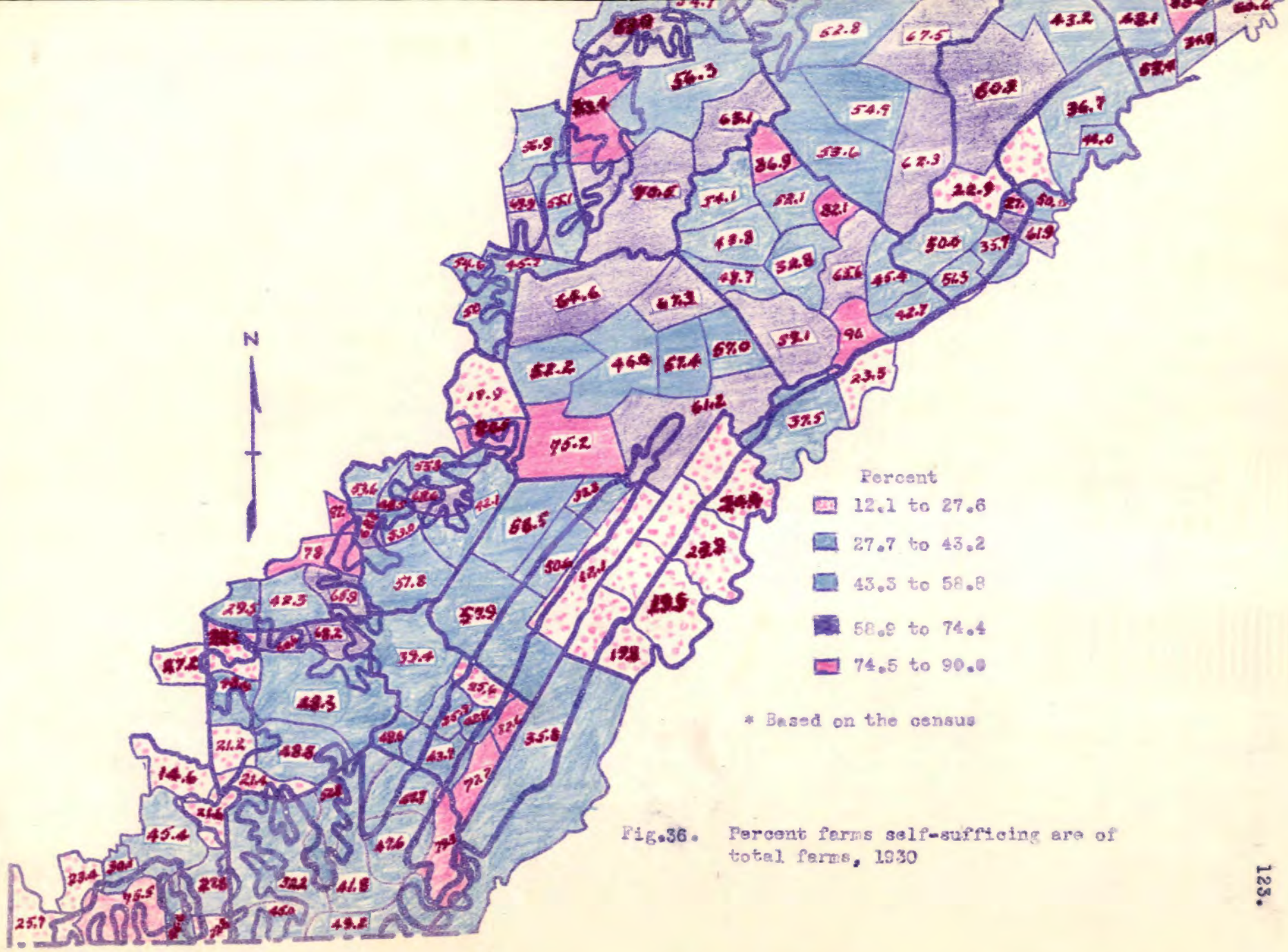



Fig.36. Percent farms self-sufficing are of total farms, 1930

Part-Time Farms: The farms in this classification are those on which the operator spent 150 days or more in work off the farm for pay or reported an occupation other than farmer.

The greater concentration of part-time farms is found in the northern sections of the Plateau where there is an opportunity for the men to work in the coal mines.

In 1929, there was 26.0 percent of the farms in the region classed as part-time farms. The sections having the lowest percent in this group were in Bledsoe County, 3.1 percent, while the eastern part of White County had 47.2 percent part-time farms.

From the standpoint of farming many of the part-time farms were much like the self-sufficing farms in that the value of products used by the family was more than the value of products sold. The distinction, in this region, between farms that are self-sufficing and those that are part-time is not recognizable for the most part.

It is unfortunate that data were not available on the percent of part-time farms in that part of Grundy County lying on the Plateau. For the country as a whole, however, 21.4 percent of the farms were part-time.

General Farms: In 1929, there was 10.8 percent of the farms in this area classed as general. Farms classed as general farms where those whose value of products sold or traded from any one source were less than 40 percent of the total value of all products from the farm. General farms in the Plateau districts of Bledsoe County constituted 46.8 percent of the total farms while in the Plateau section in Marion they were 3.4

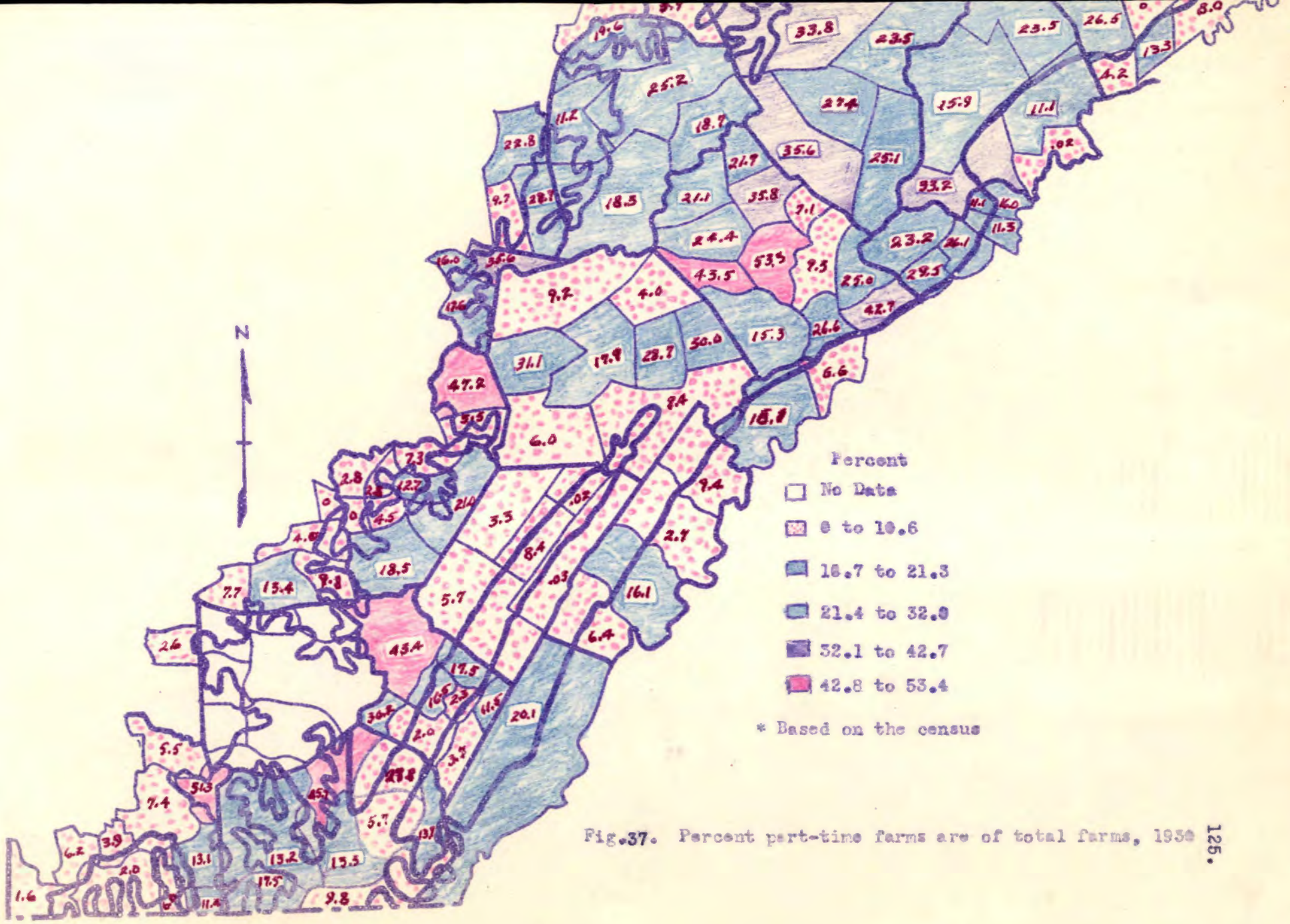



Fig.37. Percent part-time farms are of total farms, 1930

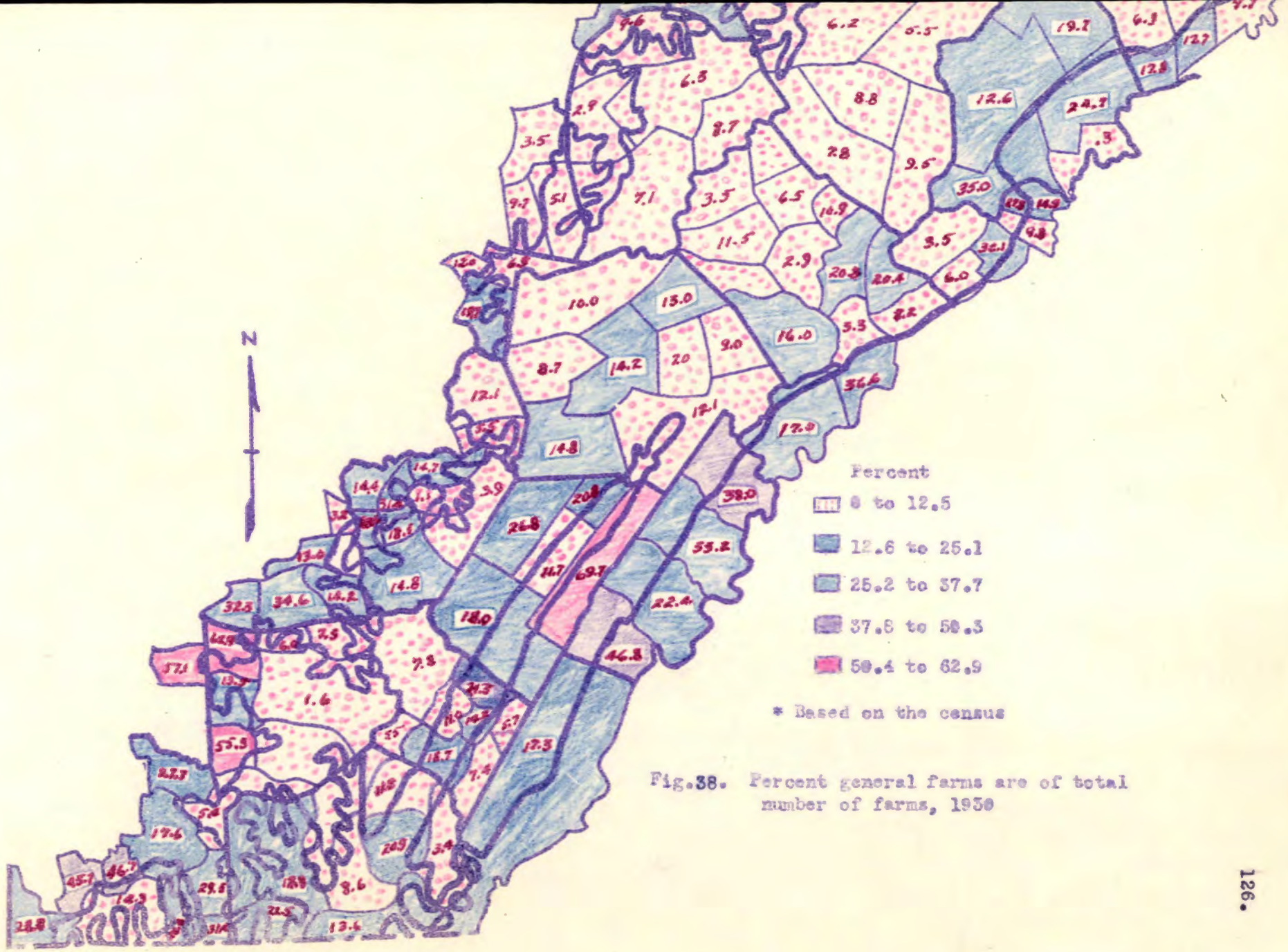



Fig.38. Percent general farms are of total number of farms, 1930

percent of the total farms. For the most part, there were more farms in the southern portion of the Plateau classed as general farms than in the northern half of the area, except in Campbell County.

Other Types: The percent of farms that were classified in other groups, in 1929, than these discussed was 10.9 percent. Of this there were 270 farms, or 4.4 percent of the total farms unclassified in the area. Thirty farms were classed as dairy, about .4 percent of the total farms. There were 29 farms classed as crop specialty farms, about .4 percent of the total farms. The number of other farms and class were: poultry, 12 farms; truck, 10 farms; fruit, 4 farms; cash-grain, 3 farms; and cotton, 1 farm.

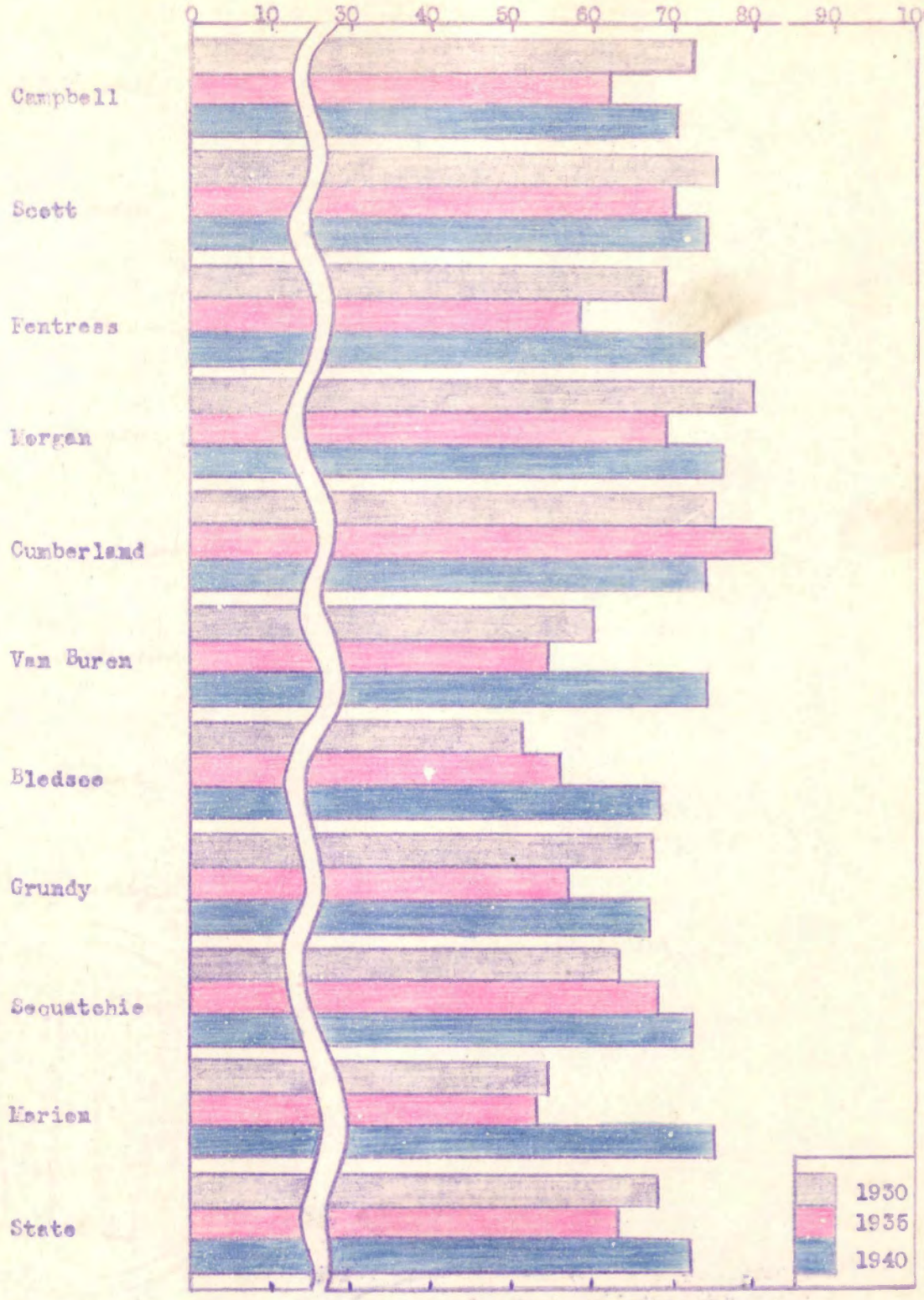
## Owner-Operated Farms

Owner-operated farms in 1940 for the Plateau were 75 percent of the total number while in 1935 they were 65 percent, and 1930, 70 percent.

The percentage of tenancy is low on the Plateau, and many of the problems associated with tenancy do not affect farming conditions in this area.

The percent of owner operated farms throughout the counties was fairly near the same except that Marion County had a lower percent of owner operated farms in 1930 and in 1935 (Figure 39).

In 1940, there were 22 percent of the farms operated by tenants, and 3.0 percent of all farms operated by croppers. These percentages were lower than in 1930 for there were 23 percent tenancy and 5.9 percent croppers in 1930.




Source: Census of Agriculture, 1940, 1935

Fig. 39. Percent owner operated farms are of all farms in ten Plateau counties and State, 1930, 1935, 1940

## CHAPTER VI

## MAJOR USES OF LAND

### Land in Farms

A knowledge of changes in major type of land use that have accompanied economic development is essential to an understanding of why land is used in the manner it is, and of what trend its future use may be. The following is a discussion of land use in 1930 and in 1935 with some data for 1940.(1)

Much of the land is still in large forest tracts owned by corporations. The area was first important for exploitation of minerals, coal, and timber, and in terms of value of product this use of the land was more important in the region before 1929 than for agriculture. Although in terms of persons gainfully employed, agriculture was more than three times as important.

Within the last 30 years, the Plateau has had a decided change with highways and other means of communication leading to more sections

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(1) No data were available for land use on a civil district basis for 1940 at the time of this writing. 1940 figures are for 10 representative counties.

being settled.[2]

## Farm Acreage

In 1934, there were 589,118 acres of land in farms, 21.6 percent of the total land area. There were 531,843 acres of land in farms in 1929, 19.5 percent of the total land area. There was a net increase of 2.1 percent of land in farms during the five-year period.

TABLE XXXII. NUMBER OF ACRES OF LAND IN FARMS AND PERCENT OF TOTAL AREA, 53 CIVIL DISTRICTS LYING ENTIRELY ON PLATEAU, 1929 AND 1934

| Year | Total Land Area (Acres) | Land in Farms (Acres) | Percent of Land in Farms | Average Number of Acres per Farms |
|---|---|---|---|---|
| 1929 | 2,727,402 | 531,843 | 19.6 | 75.4 |
| 1934 | 2,727,402 | 589,118 | 21.7 | 55.5 |

Source: Census of Agriculture, 1930, 1935.

The greatest acreage in farms is found along the borders of the area and in the valleys (Figure 44).

Percent of Land in Farms: The range in percent of total land area in farms in 1929 was from 4.3 percent in the western part of Anderson to 53.9 percent in the extreme northeast corner of the region. The lower percentage is found in the interior and more isolated areas of the region (Appendix Table I). Sections of the area through which the main highways

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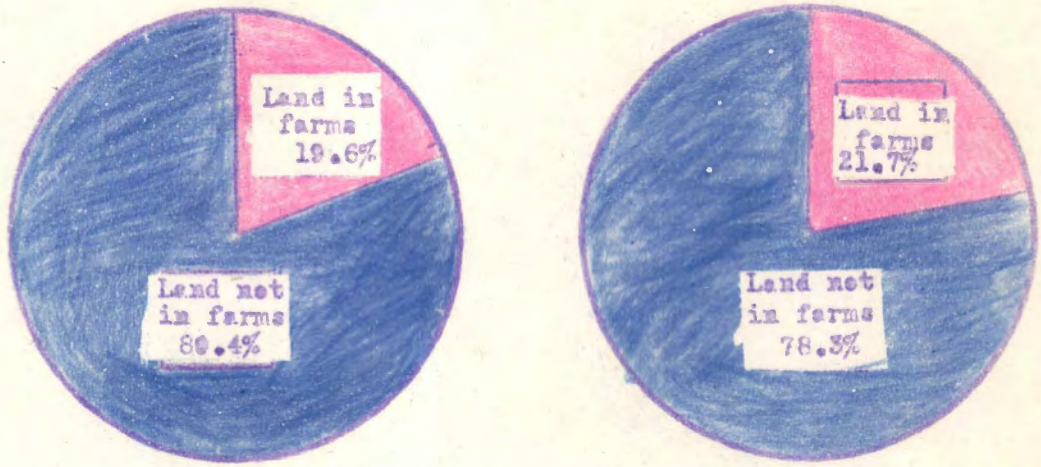
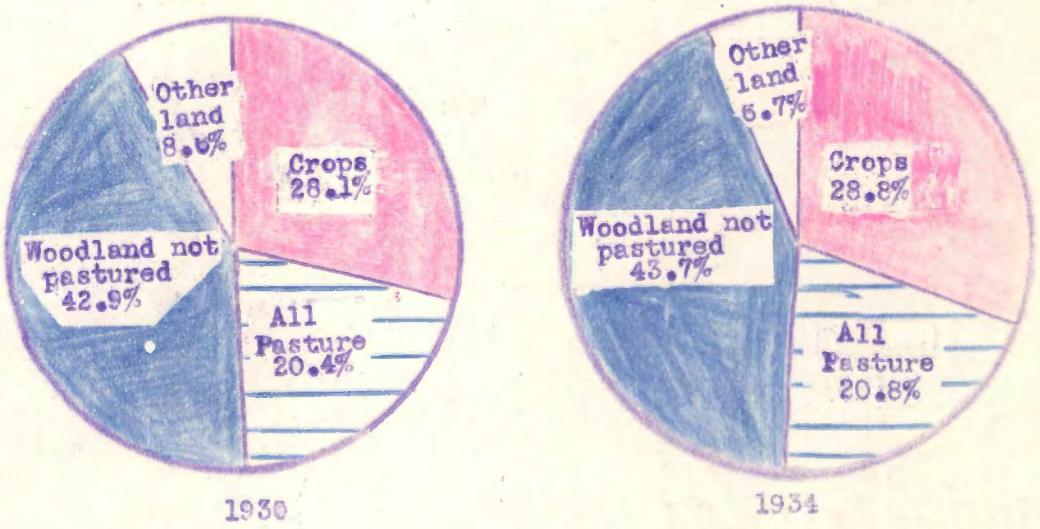
(2) C. E. Allred, University of Tennessee, interview.




Source: Census of Agriculture, 1930, 1935

Fig.40. Proportion of total land on Plateau in farms, 1930-1934



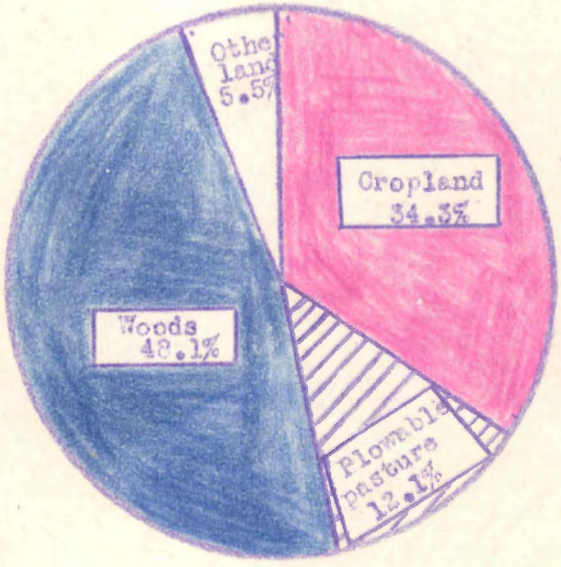

Source: Census of Agriculture, 1930, 1935

Fig.41. Relative use of farm land on Plateau, 1930-1934




Source: Census of Agriculture, 1940

Fig.42. Proportion of total land on Plateau in farms, 1940




Source: Census of Agriculture, 1940

Fig.43. Relative use of farm land on Plateau, 1940

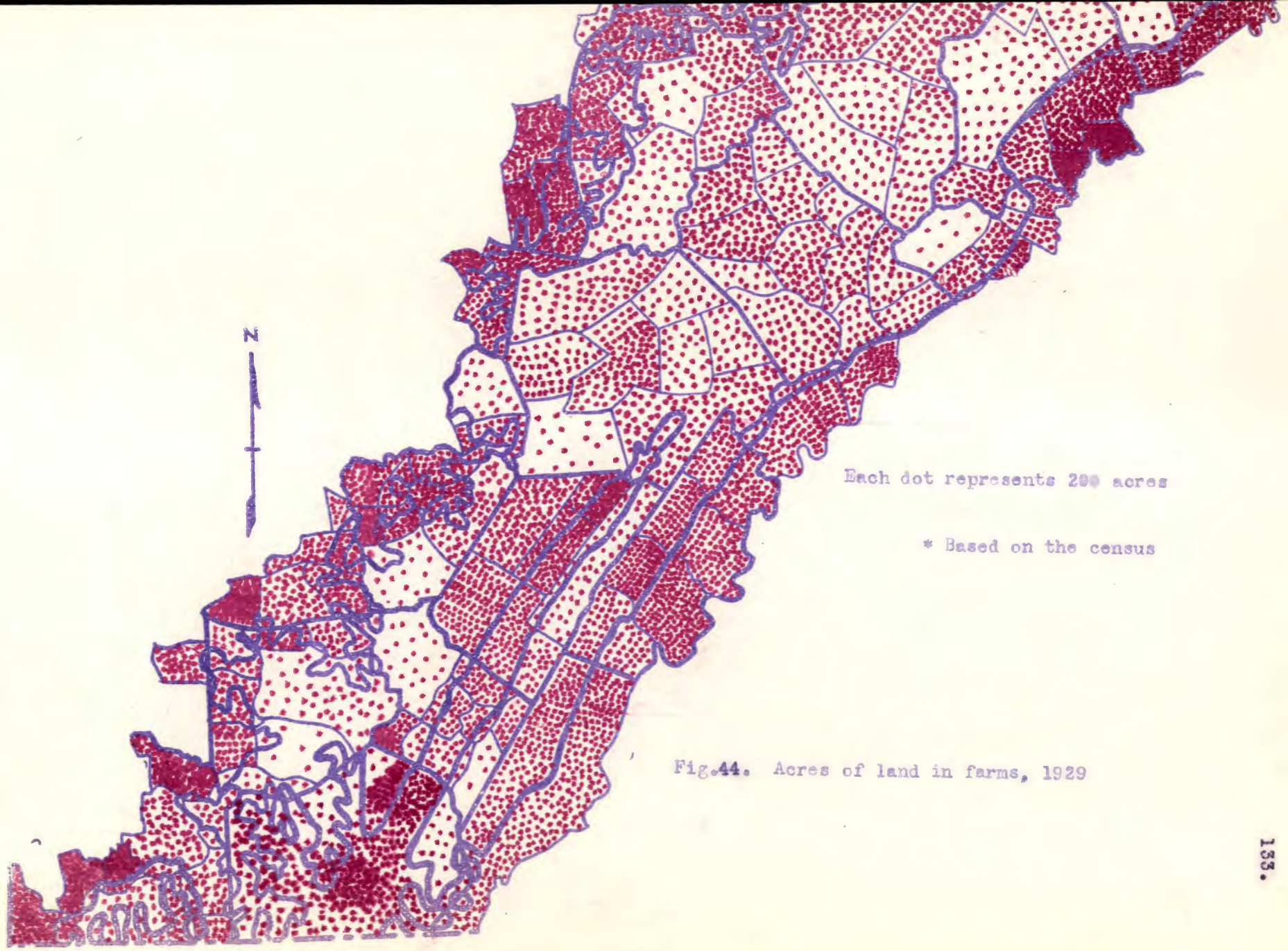



Fig.44. Acres of land in farms, 1929

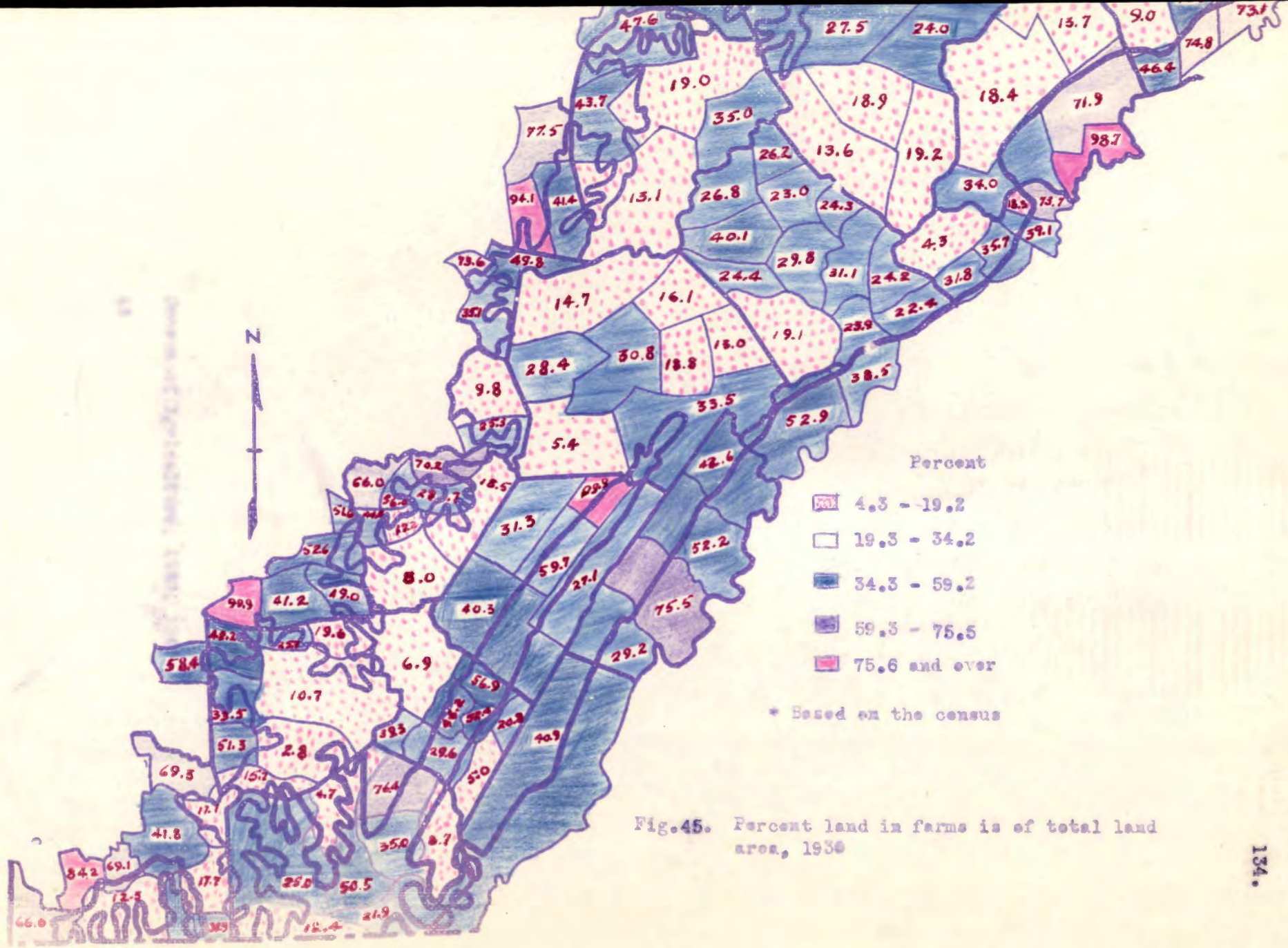
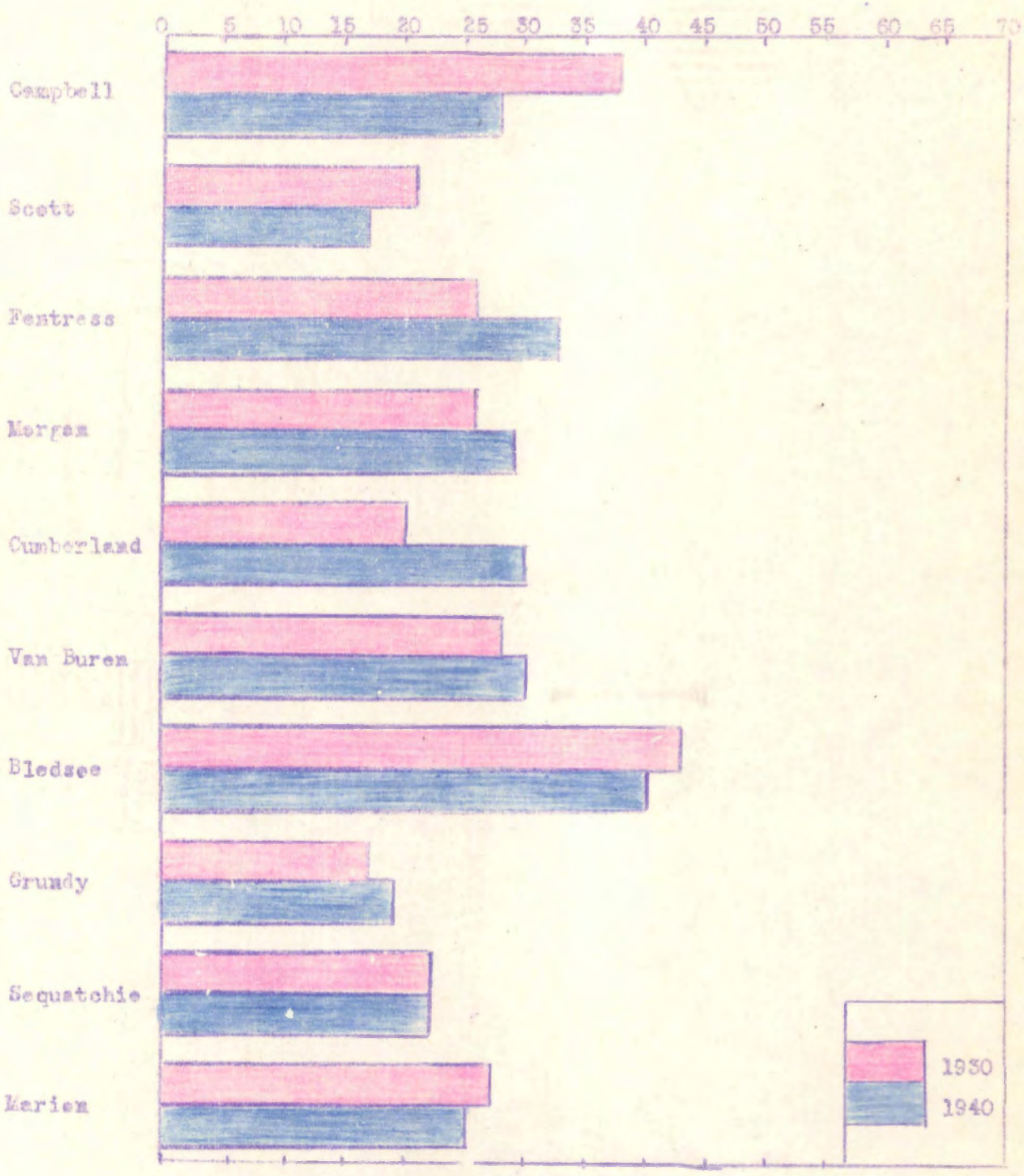



Fig.45. Percent land in farms is of total land area, 1930




Source: **Census of Agriculture, 1930, 1940**

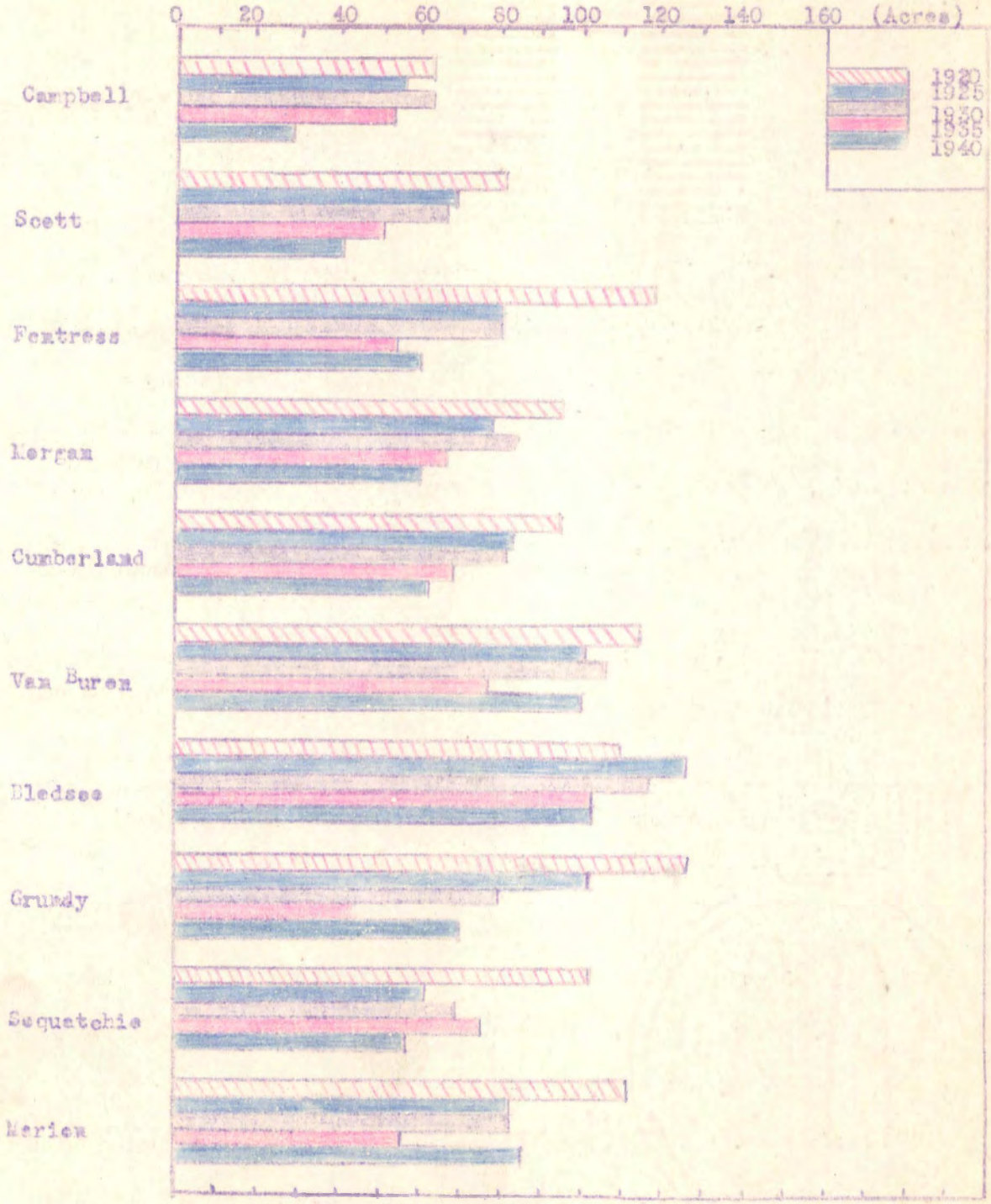
Fig. 46. Percent of land in farms in ten Plateau counties, Tennessee, 1930-1940

travel and in which the towns are located had higher proportions of land in farms. Both Van Buren and Grundy counties averaged 10.9 percent, a relatively low percentage. Fentress, the southern half of Scott, and Campbell also had low percents of land in farms, 16.2 percent. Morgan, with 26.4 percent, and Bledsoe with 29.2 percent, had more of their land in farms than did other counties.

Figure 41 shows the comparison of land in farms in 1939 with that in 1929 for the ten Plateau counties. Counties having an increase in percent of farm land from 1929 to 1939 were: Cumberland, 10 percent; Fentress, 7 percent; Morgan, 3 percent; Grundy, 2 percent; and Van Buren, 2 percent. Those counties having decreases in percent of farm land from 1930 to 1940 were: Campbell, 10 percent; Scott, 4 percent; Bledsoe, 3 percent; and Marion, 2 percent. Sequatchie had no change in percent of farm land 1930 to 1940 (Figure 46).

Size of Farm: The average size of farms for the Plateau area exclusive of Sequatchie Valley was 75.4 acres in 1929 and 55.5 acres in 1934; a decrease of 19.9 acres per farm. As shown by Figure 47, the number of acres per farm was greater in each of the counties in 1920 than in any other year since then, except in the case of Bledsoe.

During the five-year period from 1935 to 1940, four of the ten Plateau counties showed an increase in acres per farm. The counties and their increase were: Marion, 41 acres; Grundy, 25 acres; Van Buren, 23 acres; and Fentress, 6 acres.




Source: **Census of Agriculture, 1920, 1940**

Fig. 47. Comparison of average number of acres per farm by 5 year periods in ten Plateau counties, Tennessee, 1920-1940

TABLE XXXIII. AVERAGE NUMBER OF ACRES PER FARM, CUMBERLAND PLATEAU, 53 CIVIL DISTRICTS LYING LARGELY ON PLATEAU, 1920 - 1940

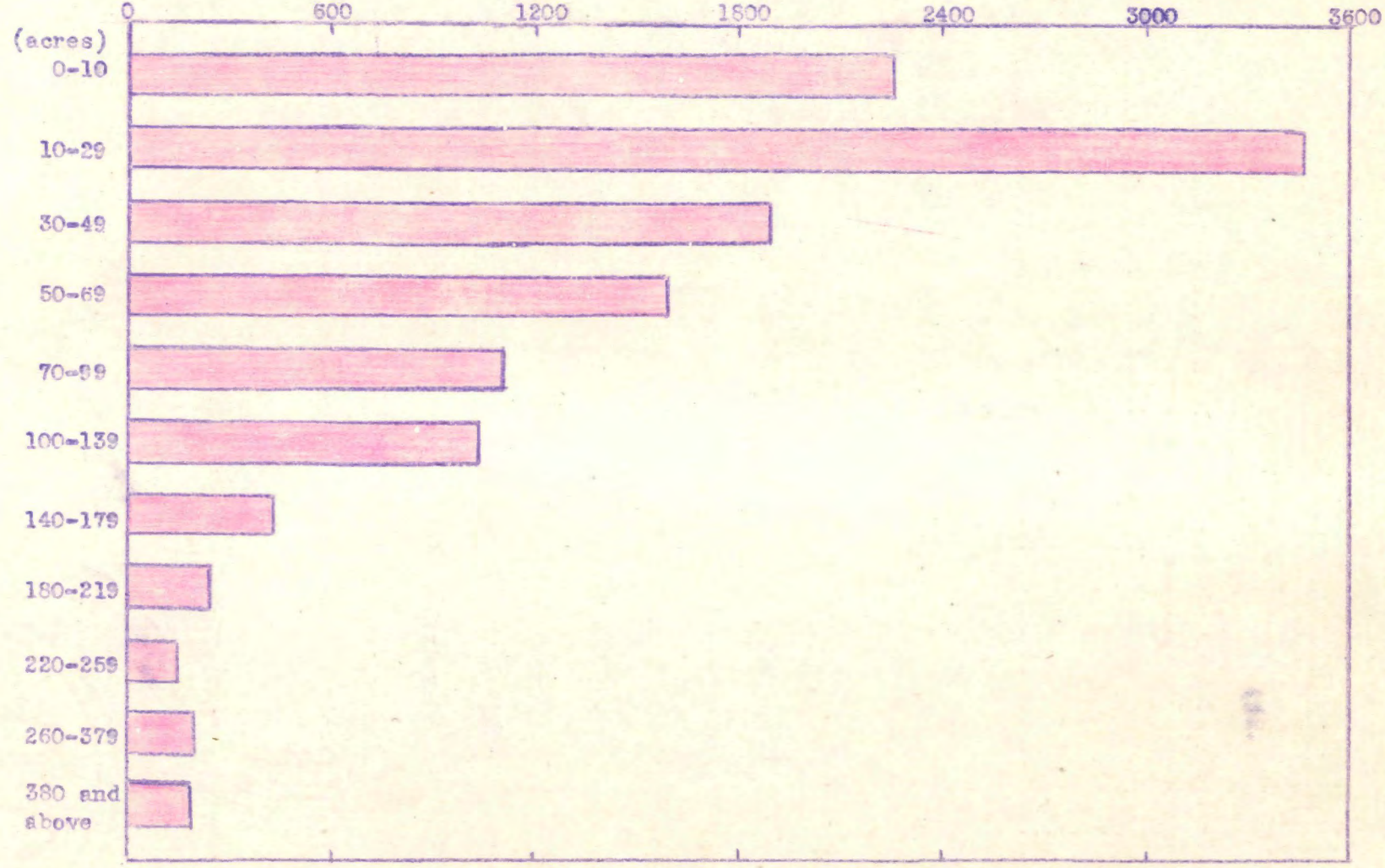
| | Year | | | | |
|---|---|---|---|---|---|
| | 1920 | 1925 | 1930 | 1935 | 1940 |
| Average number of acres per farm | 102.5 | 83.7 | 75.4 | 55.5 | 60.0* |

* Average for ten Plateau counties.

Source: Census of Agriculture, 1920 - 1940.

Counties showing a decrease in acres per farm, 1935 to 1940, were: Sequatchie, 19 acres; Campbell, 13 acres, Scott, 10 acres; Morgan, 6 acres; and Cumberland, 6 acres. The average size of farms in the ten Plateau counties in 1940 was 60 acres and in 1935 the average size was 55.5 acres, an increase in size of 4.5 acres per farm.

The size of farms tend to be small in number of acres in this area, with only a few large size farms, as compared with other regions. Figure 48 shows the number of farms in each size-of-farm group in ten Plateau counties for the year 1940. There were 3,475 farms having from 10 to 29 acres. This was the largest group and constituted 27.7 percent of the total. Farms having less than 10 acres were the second largest in number with 2,265 farms, 18.1 percent of the total. Thus nearly one half the farms had less than 30 acres.




* Census of Agriculture, 1940

Fig. 46. Number of farms in each size-of-farm group in ten Plateau Counties, 1940

TABLE XXXIV. NUMBER OF FARMS BY SIZE, TEN CUMBERLAND PLATEAU COUNTIES, 1940

| Number of Acres | Number of Farms | Percent of Total Number of Farms |
|---|---|---|
| Under 10 | 2,266 | 18.1 |
| 10 to 29 | 3,475 | 27.7 |
| 30 to 49 | 1,892 | 15.1 |
| 50 to 69 | 1,596 | 12.8 |
| 70 to 99 | 1,113 | 8.8 |
| 100 to 139 | 1,049 | 8.3 |
| 140 to 179 | 422 | 3.4 |
| 180 to 219 | 242 | 2.0 |
| 220 to 259 | 157 | 1.3 |
| 260 to 379 | 198 | 1.6 |
| Above 380 | 119 | .9 |

Source: Census of Agriculture, 1940.

There were 1,210 farms or 9.6 percent of the total that had above 139 acres. The number above 380 acres each was 119 or .9 percent of the total.

There has been a tendency for farms to decrease in size from 1920 to 1935 with a slight increase from 1935 to 1940. The tendency of farms to decrease in size may be explained in part by the following forces: (1) purchase of parts of farms for the timber or minerals, thereby reducing the acreage of land in farms; (2) purchase of entire farms for the timber or mineral, with the subsequent exclusion (a) of all land in those farms purchased, or (b) all land not actually operated by operator; (3) division of farms among heirs, resulting (a) in an increase in number of farms without an increase in the land area in farms, and (b) in a further loss of land in farms whenever an heir's share of

the farm was not operated.

## Relative Use of Farm Land

Land in farms is divided into four classes for this report: cropland, tillable pasture, woodland, and all other land. Cropland includes cropland harvested, cropland that is idle, or on which the crop for that year failed. Tillable pasture includes pasture that is plowable and can be put into crops without additional clearing or improving. Woodland includes the land in woods on the farm. This land includes woods that has or will have value as wood or timber. All other land includes all rough, swamp, or waste land not in forest or crops; open non-tillable pasture; and land occupied by buildings, barnyard, feed lots, roads and ditches.

TABLE XXXV. RELATIVE USE OF FARM LAND, TEN COUNTIES, CUMBERLAND PLATEAU, 1940

| | Percent of Total Farm Land | | | | | |
|---|---|---|---|---|---|---|
| | All Farm Land | Cropland | | Plowable Pasture | Woodland | Other Land |
| | | Harvested | Idle or Failure | | | |
| Bledsoe | 100 | 30 | 3 | 21 | 40 | 6 |
| Cumberland | 100 | 24 | 7 | 8 | 56 | 5 |
| Fentress | 100 | 24 | 5 | 9 | 56 | 6 |
| Grundy | 100 | 30 | 6 | 7 | 46 | 11 |
| Morgan | 100 | 20 | 10 | 7 | 60 | 3 |
| Scott | 100 | 24 | 9 | 9 | 51 | 7 |
| Sequatchie | 100 | 33 | 13 | 18 | 28 | 8 |
| Van Buren | 100 | 21 | 9 | 13 | 52 | 5 |
| Marion | 100 | 37 | 6 | 12 | 41 | 4 |
| Campbell | 100 | 34 | 10 | 17 | 33 | 6 |

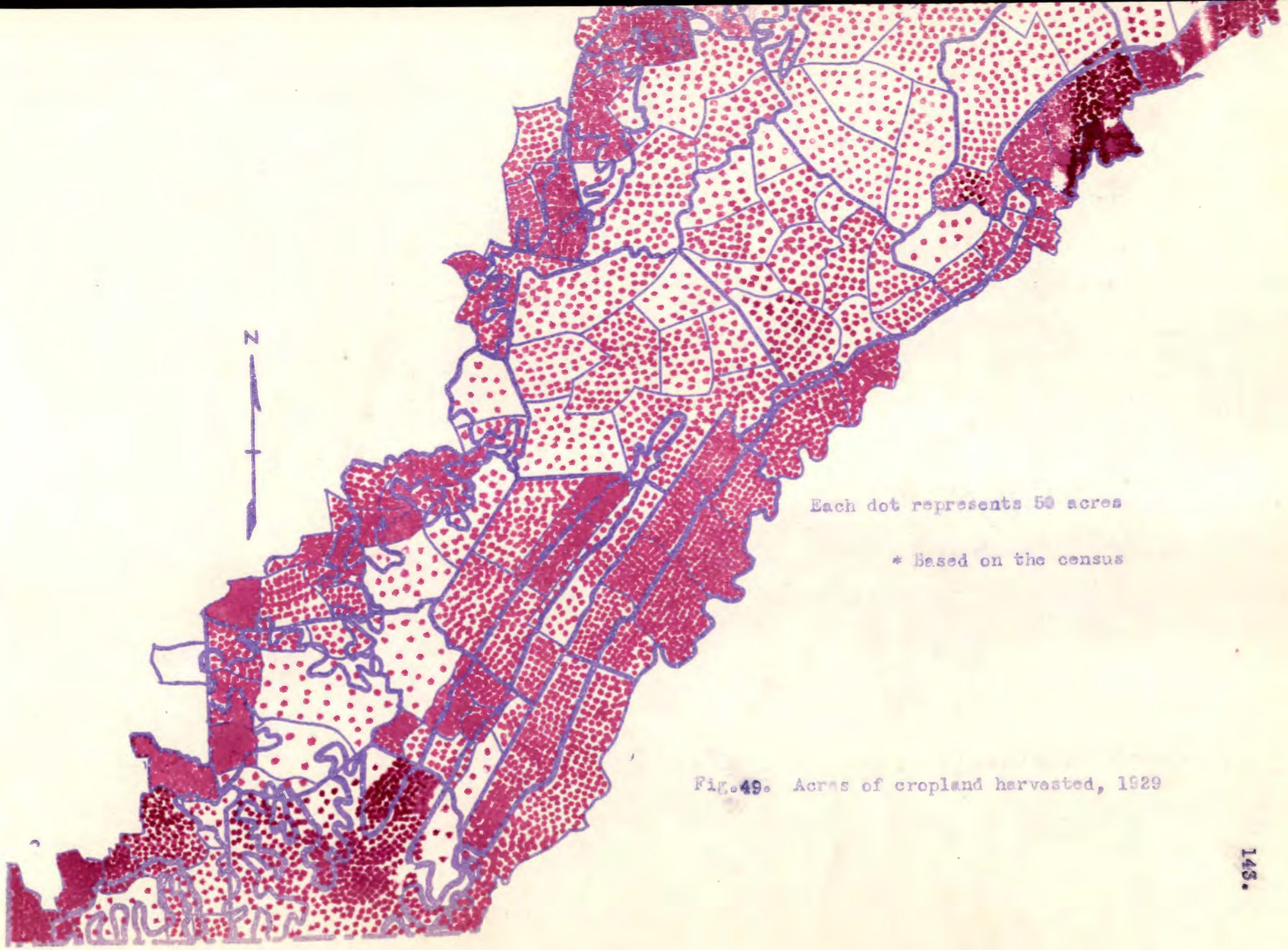
Source: Agricultural Census, 1940.

As shown by Table XXXV about one half of the farms, except Morgan County, was in cleared land. Cumberland and Fentress, both with 56 percent of the farm land woods, did have slightly less than one half of the farm in cleared land. Grundy had a relatively high percentage of land classed as other land, 11 percent.

Cropland: Land in harvested crops, idle cropland, and land on which crop failure occurred in 1935 was approximately 169,666 acres, or 28.8 percent of the total farm land. In 1930, cropland was 28.1 percent of the total land or 149,448 acres. There was an increase of .7 percent in cropland from 1930 to 1935 and an even greater increase from 1930 to 1940, 4.2 percent.

Figure 49 shows the distribution of cropland for 1929. Sections having the lowest percent of cropland in 1930 were the northeast portion of the region with .7 percent, and the northeastern part of Marion, 14 percent. The Plateau area in Grundy and Van Buren counties had an average of 22.1 percent. The section in Campbell had the highest amount of cropland in proportion to farm land, 38.5 percent. Other areas having high proportions of cropland were: Sequatchie, 35 percent; Overton, 34 percent; and Cumberland, 31 percent.

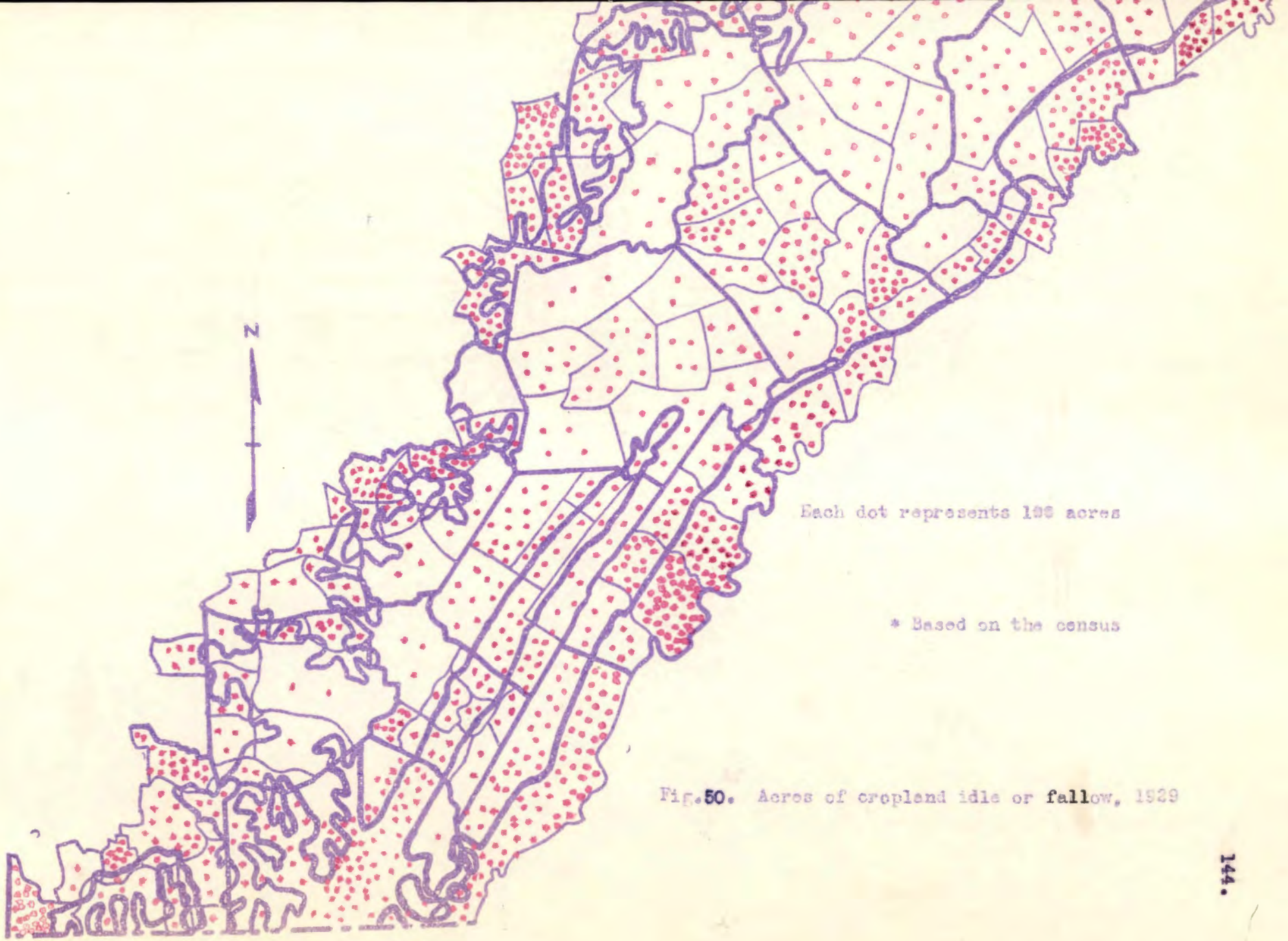
Cropland harvested was 22.7 percent of the total farm land in 1940; while cropland idle or fallow was 7.8 percent of the farm land. The average number of acres of crops harvested per farm in the region for 1940 was 17.0 acres. Bledsoe had an average of 30 acres per farm




Each dot represents 50 acres

* Based on the census

Fig. 49. Acres of cropland harvested, 1929




Each dot represents 100 acres

* Based on the census

Fig.50. Acres of cropland idle or fallow, 1929

in crops harvested, while Scott had only 10 acres per farm. Grundy had 21 acres per farm as did Van Buren. The average for the southern half of the Plateau in acres of crops harvested was 25.5 acres per farm while in the northern half of the region the average was 12.8 acres per farm. This may be explained in part by climatic conditions, and by the fact that more of the general farms are found in the southern part of the region and more of the self-sufficient farms in the northern part of the area.

When farms are grouped according to size, cropland harvested for farms of from 10 to 29 acres was 45.0 percent. On farms that are less than ten acres in size, crops harvested amounted to 54.4 percent of the total acreage. As farms increased in size, the percent of cropland harvested tended to decrease (Table XXXVI).

TABLE XXXVI. AVERAGE NUMBER OF ACRES OF CROPLAND HARVESTED IN EACH SIZE-OF-FARM GROUP, TEN PLATEAU COUNTIES, 1940

| Group | Acres of Cropland | Percent in Cropland |
|---|---|---|
| Under 10 acres | 3.0 | 54.4 |
| 10 - 29 acres | 7.8 | 45.0 |
| 30 - 49 acres | 13.8 | 36.5 |
| 50 - 69 acres | 17.7 | 31.7 |
| 70 - 99 acres | 24.1 | 29.8 |
| 100 - 139 acres | 29.6 | 26.6 |
| 140 - 179 acres | 39.2 | 25.3 |
| 180 - 219 acres | 47.1 | 23.8 |
| 220 - 259 acres | 57.1 | 23.9 |
| 260 - 379 acres | 69.2 | 22.8 |
| 380 acres and above | 89.4 | 12.4 |

Source: Census of Agriculture, 1940.

The counties in the southern portion of the region had, on farms 10 to 29 acres, higher average acreages per farm in cropland harvested than did northern counties.

Tillable Pasture: There were approximately 94,624 acres of tillable pasture, 12.1 percent of the farm land, in ten Plateau counties in 1939. In 1929 there were approximately 77,177 acres of plowable pasture, about 10.0 percent of the farm land.

One civil district in the north central part of Morgan reported only 10 acres of plowable pasture as a total for the district. This district had .5 percent of its farm land in plowable pasture in 1929 (Figure 51). The average percentage of plowable pasture was low in Cumberland County, 4.1 percent, and in Morgan, 3.8 percent of the farm land. Fentress also had a low proportion of plowable pasture, 4.9 percent.

Figure 51 shows the distribution of acres of plowable pasture for 1929. Bledsoe County showed a heavy concentration of plowable pasture, but much of it is in the Sequatchie Valley. The average proportion of plowable pasture was 20.2 percent. Scott had 6,423 acres of plowable pasture, 8.5 percent of farm land; Campbell section of the region had 5,296 acres or 11.2 percent of farm land. The average percent of plowable pasture in Morgan was 3.8, but the percentage of farm land in plowable pasture was not equally distributed over the county. The southwestern half had an average percentage of 12.1 percent, while the northern sections of the county had an average of 3.8 percent of

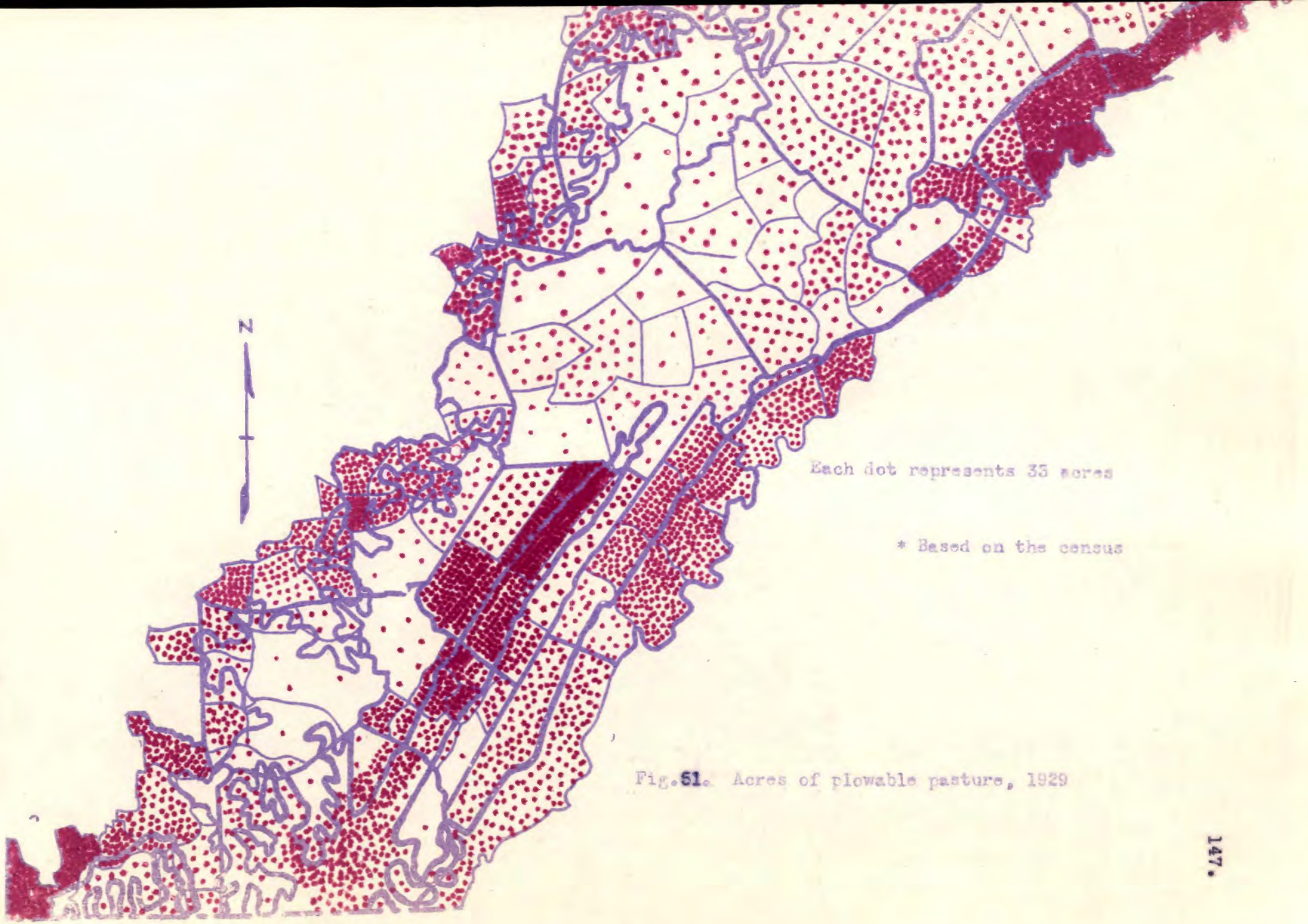



Fig. 61. Acres of plowable pasture, 1929

farm land in plowable pasture.

There is every indication that the amount of plowable pasture is increasing in the area. For the most part, the pastures can be used in wet weather without great detriment to the land except in the case of soils containing above average quantities of clay.

Waste Land: There were, in 1940, 43,495 acres of land not included in cropland, plowable pasture or in woodland. This acreage includes the cleared land that is not tillable and constitutes about 6 percent of the farm land. This land is not all waste in the true sense but land taken up in barnyard lanes, ditches, and such use to facilitate the carrying on of farming.

## Woodland and Forest

Farm Woodland: In 1940 in ten Plateau counties there were approximately 378,451 acres of farm woodland, about 46.3 percent of all farm land, or 38.1 acres per farm. Farm woodland in Scott County was 21 acres per farm, while in Van Buren it was 52 acres. Counties having high percentages of their farms in woodland were: Morgan, 60 percent; Cumberland, 56 percent; and Fentress, 56 percent. In 1930 there were 343,861 acres of farm woodland, 43.6 percent of the land in farms.

The Plateau sections having the highest percent of the farm land in woodland in 1930 were: Claiborne, 80.6 percent; White, 64.8 percent; Overton, 58.1 percent; and Putnam, 58.2 percent. Figure 52 shows the

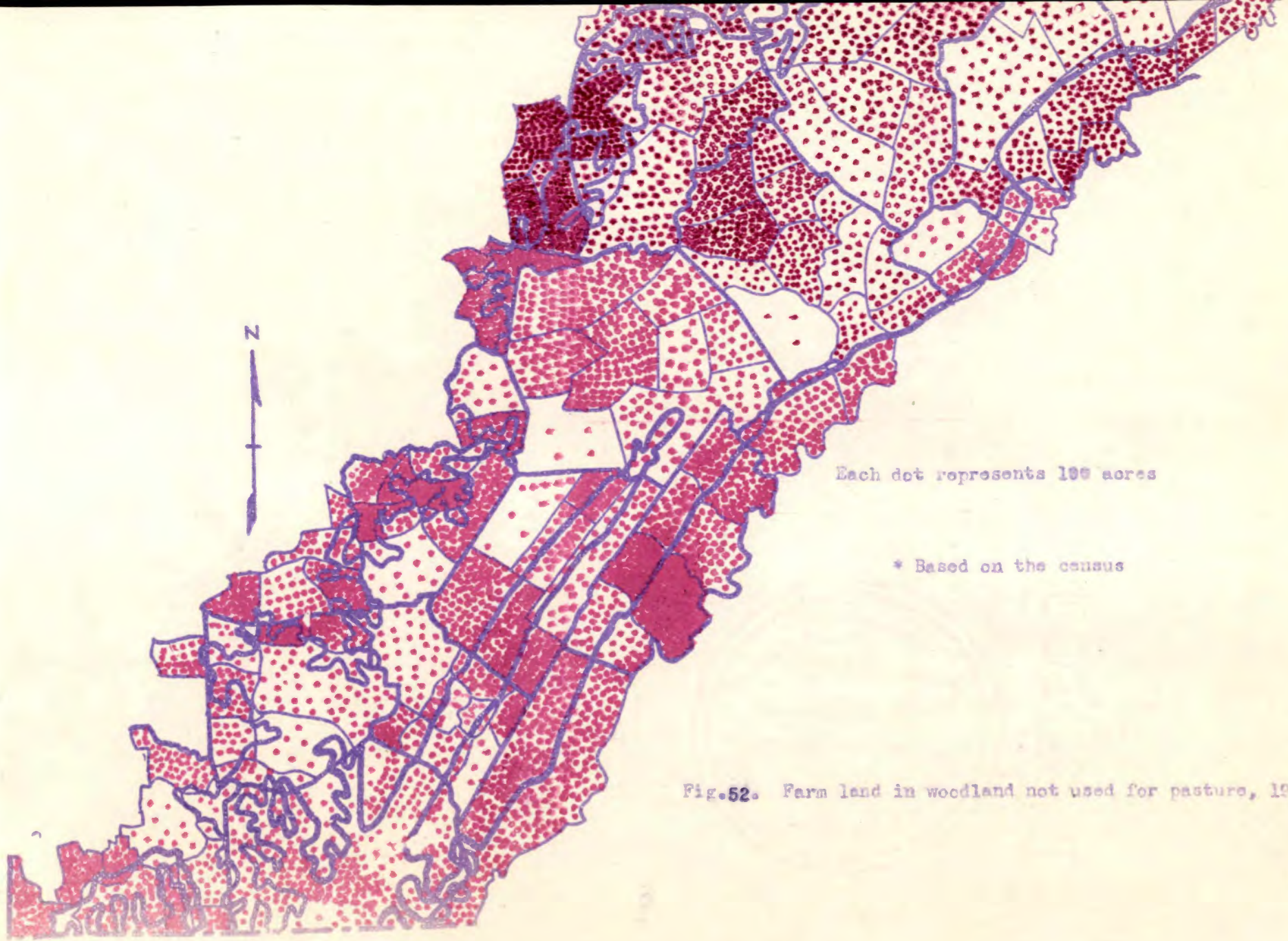



Fig.52. Farm land in woodland not used for pasture, 1929

distribution of acres of farm woodland not used for pasture in 1930. There are no dots shown for the civil districts in the northeast section of the Plateau due to the fact that only nine farms were reported here with less than 100 acres of woodland by the census in 1930. For the most part, however, the acreage of farm woodland is fairly well distributed throughout the area.

The outstanding fact on farm woodland in this region is the percent of farm woodland is about one half the total farm land. Also the percent of woodland on farms is decreasing, and while it is doubtful if much can be done by the farmers individually to improve this newly cleared land, much can be done through cooperation with such agencies as Tennessee Valley Authority and the Department of Agriculture.

Non-Farm Forest: Uses of land not in farms are of particular importance in the region, both because of the importance of such uses where the ratio of good agricultural land to population is small, and because of the danger that these uses may not be carried out in the best interest of the people.

The Plateau may be important in future lumbering activities, but only if proper timber maintenance and logging practices are carried on. In the past, and to a large extent at present, the cutting of timber, and development of other natural resources have not always been done with due regard to the future; resulting in economic losses.

Extensive lumbering began in this area later than in other regions of the state. It has grown in response to an increasing demand for hardwood products which could be obtained here in great variety and high quality. The development of railroad systems through the area made accessible the timberlands away from the rivers, and at the same time brought an active demand for cross ties, timber, and poles. Consequently, logging gradually became important in this area.

In 1939, 72.7 percent of the total area was in non-farm forest land, about 1,982,821 acres. While this forest area does not include woodland in farms, it does include all land that is not in farms, hence subject to slight error.

TABLE XXXVII. ESTIMATED PERCENT OF TOTAL LAND AREA IN WOODLAND, TEN PLATEAU COUNTIES, 1939

| County | Percent of County Area | |
|---|---|---|
| | All Woodland | Non-Farm Woodland |
| Scott | 92 | 83 |
| Grundy | 90 | 81 |
| Sequatchie | 84 | 78 |
| Marion | 85 | 75 |
| Campbell | 81 | 72 |
| Morgan | 88 | 71 |
| Van Buren | 86 | 70 |
| Cumberland | 87 | 70 |
| Fentress | 85 | 67 |
| Bledsoe | 76 | 60 |
| Average | 85.4 | 72.7 |

Source: U. S. Census of Agriculture, 1940.

The percent of non-farm woodland in the ten Plateau counties in 1930 was 84 percent, about 2,291,017 acres. While the percent of non-farm woodland in 1940 and in 1930 was higher for this area than other geographic divisions of the state, the amount of non-farm woodland is decreasing in this area.

Condition Classes of Timber: The Tennessee Valley Authority divides timber into classes of sawtimber, cordwood, and below cordwood depending on condition of the stand.

Sawtimber stands are those containing at least 500 board feet, gross volume, to the acre in sawtimber-size trees that are 13 inches in diameter and over. In the area covered by the Tennessee Valley there was 36 percent of the total timber acreage both farm and non-farm in the sawtimber class (Table XXXVIII). The five counties having the greater percent of timber in this class were: Marion, 67 percent; Sequatchie, 56 percent; Campbell, 54 percent; Grundy, 53 percent; and Van Buren, 53 percent. Morgan had 8 percent of its timber area in this class; the lowest percent in the area.

Cordwood stands are those containing less than 500 board feet gross volume, per acre in sawtimber size trees and four cords or more to the acre in cordwood size trees that are 5 to 13 inches in diameter. There was 45 percent of the timber land in this class in 1941 for the area. Four counties having percentages above the average percent for the region were: Morgan, 84 percent; Bledsoe, 66 percent; Cumberland, 58 percent; and Fentress, 54 percent. In the area, this class of timber had the highest percent of the total.

Below cordwood stands were those containing less than 500 board feet, gross volume, to the acre in sawtimber-size trees and less than four cords to the acre in cordwood-size trees. There was 19 percent of the total number of acres in this class in 1941 in the area. Four counties having percentages higher than the average for the whole area were: Fentress, 37 percent; Cumberland, 31 percent; Grundy, 24 percent; and Bledsoe, 23 percent.

TABLE XXXVIII. FOREST ACREAGE AND PERCENT OF ACREAGE BY CONDITION CLASS, CUMBERLAND PLATEAU SECTION OF TENNESSEE VALLEY, 1941

| | Acres of Forest* | Percent of Acreage in | | |
|---|---|---|---|---|
| | | Sawtimber | Cordwood | Below Cordwood |
| Marion | 267,790 | 67 | 17 | 16 |
| Sequatchie | 119,120 | 56 | 36 | 8 |
| Campbell | 75,140 | 54 | 38 | 8 |
| Van Buren | 920 | 53 | 31 | 16 |
| Grundy | 79,780 | 53 | 23 | 24 |
| Bledsoe | 128,160 | 11 | 66 | 23 |
| Cumberland | 282,370 | 11 | 58 | 31 |
| Fentress | 9,540 | 9 | 54 | 37 |
| Morgan | 228,030 | 8 | 84 | 8 |
| Total | 1,190,850 | 36 | 45 | 19 |

* Includes only that part of the counties lying in the Tennessee River Basin.

Source: Tennessee Valley Authority, Forestry Data for the Tennessee Valley, Department of Forest Relations, Forestry Bulletin No. 5, Norris, Tennessee, 1941.

Forest Tree Type: Forest tree types for this report are divided into three groups, hardwood, softwood, and mixed. Hardwood type consists of pure or stands of hardwood species and stands of mixed hardwood and coniferous species in which more than 75 percent of the number of dominant and co-dominant trees are hardwood species. Softwood type is stands composed of coniferous species which make up 75 percent or more of the number of dominant and co-dominant trees. Mixed type is stands in which hardwoods and coniferous are mixed, with conifers composing between 25 and 75 percent of the number of dominant and co-dominant trees.

In 1941 the type of tree found in the area is as given in Table XXXIX with the percent of type in the county is of the total area of the type.

The upland hardwoods are found in the more mountainous or hilly areas on moist sites, usually on loamy, well drained soils. These upland hardwoods are principally mixed oaks, hickories, yellow poplar, black gum basswood and occasionally yellow pines.(3) The county having the highest percent of acres in upland hardwood was Marion, 34.5 percent.

Bottomland hardwoods found usually along streams and in swamps are not found to any extent on the Plateau.

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(3) Basswood and yellow pine, although soft woods, were included in upland hardwoods in report by Tennessee Valley Authority, Forestry Data for the Tennessee Valley.

TABLE XXXIX. NUMBER OF ACRES OF FOREST LAND AND PERCENT OF AREA IN FOREST TYPE, CUMBERLAND PLATEAU SECTION OF TENNESSEE RIVER BASIN, 1941

| Forest Type | Acres of Forest Land * | Percent Type Is of Total Area of Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Cum. | Mor. | Pent. | Mar. | Camp. | Grun. | Bled. | V.Bur. | Seq. |
| Hardwood Type | | | | | | | | | | |
| Upland Hardwood | 392,730 | 11.8 | 10.4 | 0.2 | 34.5 | 5.8 | 11.9 | 10.5 | | 14.9 |
| Bottomland Hardwoods | 4,400 | | | | 66.4 | | 29.8 | | | 3.8 |
| Oak - Chestnut | 48,600 | .2 | 64.2 | | 21.7 | 13.7 | | | | 0.2 |
| Blackjack Oak - Hardwood | 286,120 | 51.3 | 2.7 | 1.3 | 8.2 | | 6.1 | 21.0 | .3 | 9.1 |
| Softwood Type | | | | | | | | | | |
| Hemlock - White Pine | 13,390 | 52.0 | 40.2 | | | | | 7.8 | | |
| Yellow Pine | 27,400 | 14.1 | 14.6 | | 43.1 | 2.6 | 12.7 | .4 | | 12.5 |
| Hemlock | 760 | 58.0 | | 42.0 | | | | | | |
| Mixed Types | | | | | | | | | | |
| Hemlock - Hardwood | 4,480 | 38.8 | 2.5 | 11.8 | 21.0 | | 2.2 | | | 23.7 |
| White Pine - Hardwood | 40,480 | 19.1 | 75.0 | | | | | 5.9 | | |
| Yellow Pine - Hardwood | 360,910 | 18.7 | 30.0 | 1.1 | 21.5 | 12.0 | 2.5 | 6.0 | | 8.2 |
| Cedar - Hardwood | 11,580 | 8.2 | | | 43.8 | 15.5 | 15.0 | 17.5 | | |

* Includes only that part of those counties lying within the Tennessee River Basin.

Source: Tennessee Valley Authority, Data for the Tennessee Valley, Department of Forestry Relations, Forestry Bulletin No. 3, Norris, Tennessee, 1941.

The hardwoods are by far the more important in this area as in the state. In 1931, there was 80.3 percent of the total board feet of sawtimber in hardwood, and 19.7 percent in softwood. Those counties having percentages above the average were: Bledsoe, 98.5 percent; Van Buren, 97.0 percent; Grundy, 95.0 percent; Sequatchie, 95 percent; and Campbell 92.9 percent. The percent of hardwood that was in sawtimber in 1931 in the state was 88.0 percent, and the percent of softwood in sawtimber was 12.0 percent.(4)

Oak chestnut type of which there was 64.2 percent in Morgan occur chiefly in the mountainous or hilly areas on fairly moist, well-drained soils. Fifty-one percent of the blackjack oak hardwood was found in Cumberland County and 0.3 percent in Van Buren County. This type occurs on dry sites, and the quality of timber is generally not acceptable for sawtimber. The timber making up this stand are principally post oak, blackjack oak, scarlet oak, hickories, black gum, white oak, shortleaf pine, maple, and dogwood.

Not only is the Plateau important from the standpoint of quantity of hardwoods, but the distribution of softwood timber in Tennessee is confined chiefly to counties along northern part of the region, as in Fentress and Morgan counties. Yellow pine which has dominated Tennessee's softwood lumber production since 1900 is confined almost entirely to the eastern central portion of the state with Fentress County supplying about

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(4) C. E. Allred, F. M. Fitzgerald, Forest Production Areas, Tennessee and United States, Department of Agricultural Economics and Rural Sociology, University of Tennessee, Monograph 93, 1939.

20 percent, an estimated stand of 737,909,000 board feet.(5)

Thirty percent of the yellow pine hardwoods were found in Morgan, and 21.5 percent in Marion. This type is made up of mixed yellow pines and hardwoods in which the percentage of all pines lies between 25 and 75 percent of the total dominant and co-dominant trunks.

TABLE XL. BOARD FEET OF SAWTIMBER AND PERCENT BY TYPE, TEN PLATEAU COUNTIES, 1931

| | Board Feet of Sawtimber | | | | |
|---|---|---|---|---|---|
| | Softwood | | | Hardwood | |
| | Total | Board Feet (000) | Per-cent | Board Feet (000) | Per-cent |
| Campbell | 432,000 | 30,300 | 7.1 | 401,700 | 92.9 |
| Scott | 282,562 | 66,612 | 23.6 | 215,950 | 76.4 |
| Fentress | 482,200 | 158,200 | 32.8 | 324,000 | 67.2 |
| Morgan | 333,620 | 118,672 | 35.6 | 214,948 | 64.4 |
| Cumberland | 274,020 | 65,200 | 23.8 | 208,820 | 76.2 |
| Van Buren | 80,000 | 2,400 | 3.0 | 77,600 | 97.0 |
| Bledsoe | 139,301 | 2,075 | 1.5 | 137,226 | 98.5 |
| Grundy | 105,000 | 5,250 | 5.0 | 99,750 | 95.0 |
| Sequatchie | 75,000 | 3,750 | 5.0 | 71,250 | 95.0 |
| Marion | 224,500 | 25,080 | 11.1 | 199,420 | 88.9 |
| Total and average | 2,428,203 | 477,539 | 19.7 | 1,950,664 | 80.3 |
| State | - | - | 12.0 | - | 88.0 |

Source: C. E. Allred, F. M. Fitzgerald, Forest Production Areas, Tennessee and United States, Department of Agricultural Economics and Rural Sociology, University of Tennessee, Monograph 93, 1939.

(5) C. E. Allred, F. M. Fitzgerald, Forest Production Areas, Tennessee and United States, Department of Agricultural Economics and Rural Sociology, University of Tennessee, 1939.

Hemlock, white pines, and cedars were found in a few of the counties as shown by Table XXXIX, but they were relatively unimportant.

## Range

This section takes into consideration woodland that is on the farm and much of the woodland adjacent to farms. It also includes all cleared land not fenced.

Use of Range: The method of raising cattle on the Plateau has been that of ranging them. The cattle were formerly produced and wintered in the valleys. In the spring they were driven to the uplands, herded and salted during the beginning of the summer pasture season until they became accustomed to a locality, after which they would range within fairly definite areas.(6) As the region became settled, many cattle were produced, as it was found that a livelihood could be more readily gained through the grazing of cattle on range than by other methods of farming.

From the early days of settlement to the present, this region has offered advantages for the grazing of cattle, as the law allows open ranging of livestock, and it is the owner of crops who must fence out his neighbor's animals. In this manner cattle are grazed with little cost during the summer months.

About 72.7 percent of the total land area is in non-farm woodland, while 12.7 percent is in farm woodland, making a total of 85.4 percent

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(6) C. A. Wilson, Stocker and Cattle Problems on the Cumberland Plateau, Agricultural Experiment Station, University of Tennessee, Bulletin No. 125, 1921.

of the total area in woods. Most of the farm woodland and the non-farm woodland has been utilized as range both by valley farms and by those living on the Plateau. There is little attempt to control grazing, and as permits are not required, no fees are collected by land owners. The cattlemen have been able in the past to use this range without worry of taxes and large investment costs; consequently, the return has been a cash income of considerable profit. The general practice has been to allow stock to graze in the woodland from about April 15 to November 1. Few have allowed their stock to graze practically all year.

However, due to many risks that have developed in recent years, the use of free range is not as profitable as it formerly was. More and more, the farmers are beginning to make use of pasture land close to the main farm unit instead of allowing their stock to wander through the woods. This is due in part to improved farm practices, the great losses of livestock in the woods, and the loss of feed and effort in producing animals that later wander off.

Feed Produced by Range: Originally there was a heavier stand of timber, mostly hardwood, but this has been largely depleted leaving a sparse growth of timber with much brush and numerous open spaces where ferns and native grasses grow. The grass, when mature, is somewhat wiry, coarse, tough, and hard to digest. At its best it is considered

to be about one-half as valuable as cultivated grasses. Young leaves and tree sprouts are also eaten by the stock in the early spring. Calves and yearlings have at times died, when fed exclusively upon this feed, probably from digestive disorders.

Carrying Capacity of Range: Estimated figures by the Division of Land Utilization of the U. S. Department of Agriculture on the carrying capacity of the range as secured from interviews with farmers, county agents and assistant county agents have indicated that 9.4 acres

TABLE XLI. PASTURE ACREAGE NEEDED PER ANIMAL, LENGTH OF GRAZING SEASON, GAIN PER SEASON, AND PERCENT OF FARMERS REPORTING PASTURE AS GOOD AS 10 OR 20 YEARS AGO, TEN CUMBERLAND PLATEAU COUNTIES, 1937

| | Area Needed per Animal (Acres) | Length of Grazing Season | | Average Gain per Season (Lbs.) | Percent Reporting Pasture as Good Now as 10 or 20 Years Ago | |
|---|---|---|---|---|---|---|
| | | From | To | | Yes | No |
| Bledsoe | 7.0 | Apr. 20 | Oct. 13 | 225 | 33 | 67 |
| Cumberland | 15.2 | Apr. 17 | Oct. 9 | 232 | 12 | 88 |
| Fentress | 6.0 | May 11 | Nov. 19 | 200 | | 100 |
| Franklin | 12.3 | Apr. 15 | Oct. 30 | 208 | | 100 |
| Grundy | 8.5 | Apr. 17 | Oct. 19 | 231 | 12 | 88 |
| Marion | 9.4 | Apr. 15 | Oct. 20 | 238 | | 100 |
| Morgan | 10.0 | Apr. 11 | Oct. 31 | 183 | | 100 |
| Scott | 6.9 | Apr. 18 | Nov. 2 | 241 | 28 | 72 |
| Sequatchie | 5.8 | Apr. 7 | Oct. 26 | 219 | 28 | 72 |
| Van Buren | 7.0 | Apr. 5 | Nov. 1 | 225 | | 100 |
| Average | 9.4 | Apr. 15 | Nov. 1 | 227 | | |

Source: John E. Mason, E. K. Gruehn, Present Range Practice and Land Use Recommendations for Cumberland Plateau, Division of Land Utilization, Region IV, U.S.D.A., Raleigh, North Carolina, 1937.

of range will support one animal unit during the grazing season (7) (Table XLI). It was also estimated that 5 acres will support one animal unit where several open places or abandoned fields are found. About 10 to 15 acres are necessary where tree growth is relatively dense. However, much of this dense woodland is not being used as it formerly was for grazing. Reproductive vegetation is being allowed to grow in the better stands of timber.

If grazing is continued in the better stands of timber, future lumber incomes will be diminished considerably inasmuch as hardwoods have difficulty in reproducing in competition with cattle. It was recommended that only the areas in woodland where growth is not dense, due to having been cut over or burned, be cleared and grazed.(8) There could be fire lanes connecting these areas throughout the woods, seeded to native grasses, so there would be little incentive for livestock to wander into the woods in search of food.

Burning the Range: In the early days it was customary to run fires through the woods each spring to clear the brush and to give grasses a chance to grow. There is little doubt that the practice does clear out undergrowth and gives access to young, more tender grasses in most instances, but there is considerable question as to the long term benefit.

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(7) John E. Mason, E. K. Gruehn, Present Range Practice and Land Use Recommendations for Cumberland Plateau, Division of Land Utilization, Region IV, U.S.D.A., Raleigh, North Carolina, 1937.

(8) Ibid.

Burning has destroyed much of the organic matter in the soil and killed off the reproductive growth of trees, resulting in seared, stunted timber stands throughout the area. Not only have fires destroyed much of the timber, but their effect on the soil is detrimental in that with the protective cover of the forest destroyed, soil erosion is becoming a serious threat.

Farmers are not responsible for all the fires in this area. Many of them are caused by careless timber workers who set fires in order to clear the brush in their logging operations. The fact remains, in spite of educational and legislative efforts, that this practice has not ceased altogether. The native grasses are being killed, whereas more effort should be exerted to introduce grasses to replace those destroyed. A strenuous effort should be made to protect this area from fire losses in the future.

## CHAPTER VII

## AGRICULTURAL PRODUCTION

Farm production on the Plateau is primarily for family use with a small proportion for market. When producing for sale, regardless of volume sold, some farms depend largely on one or more crops, some on one or more classes of livestock production, and others on both crops and livestock or livestock products.

The farms being small have in the past returned little more than a bare living for the farm family. This has not been the fault of the farm in all cases, but the fault of the farm management to some degree.

Agricultural production in this chapter is discussed from the standpoint of farms reporting, the number of acres per farm, and the yield per acre. The horizontal bar graphs in this chapter represent the value or amount per farm reporting.

### Crop Production

On nearly every farm there is at least a small garden or "truck patch" as well as a few fruit trees. A few of the farms have small acreages along the larger streams, or small acreages of relatively level

land which permit easy cultivation. Farms of this type often have larger acreages and frequently more diversity of crops.

Distribution of Crop Acreage: In 1939, there were 214,194 acres of cropland harvested in 10 Plateau counties. Of this total there were 92,574 acres, or 43.3 percent planted to corn.(1) Hays of all kinds were harvested on 40.4 percent of the cropland harvested. Acreages harvested in corn and in hay constituted 40.8 percent of the total number of acres of cropland harvested in 1939 in ten Plateau counties.

Small grains were sown on 6.4 percent of the harvested acreage, Irish potatoes grown on 3.1 percent, sweet potatoes 1.1 percent, and fruit of various kinds 2.9 percent. No other single crop occupied as much as 1 percent of the crop acreage harvested.

## Corn

Corn is the principal field crop grown in the area, both from the standpoint of acreage and number of farms on which it is grown. About 43.3 percent of the crop acreage harvested in 1939 was in corn. The crop is used by the family for food as well as stock feed. The stover is also fed. Although the soil is not too well adapted to corn production, it is still considered the best crop to grow.

In 1939, a total of 92,574 acres of corn was reported on 10,734 farms. This was 85.2 percent of all the farms in the ten Plateau

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(1) Ten Plateau counties used were: Bledsoe, Cumberland, Fentress, Grundy, Morgan, Scott, Sequatchie, Van Buren, Marion, Campbell.

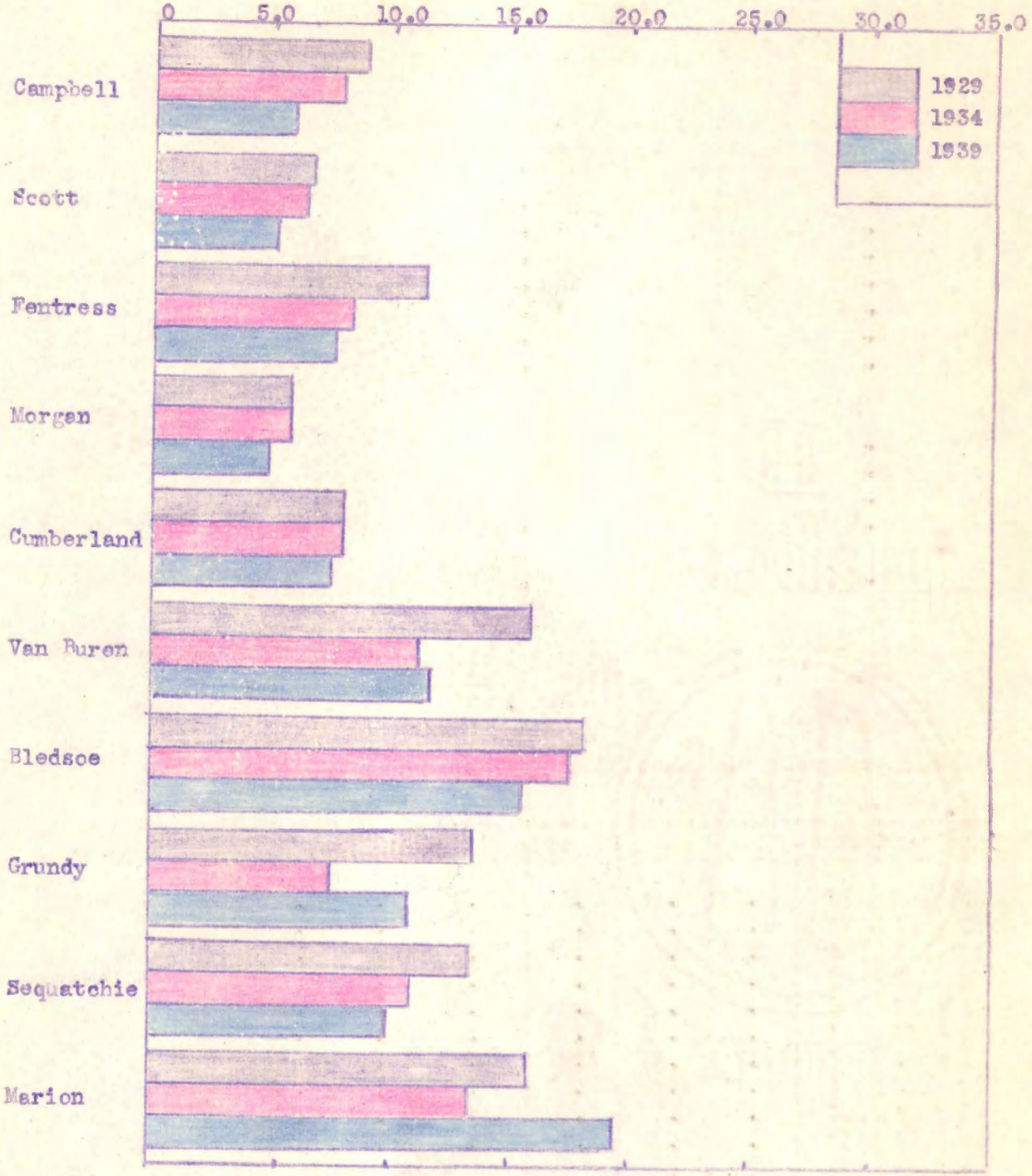
TABLE XLII. DISTRIBUTION OF CROP ACREAGE HARVESTED, TEN PLATEAU COUNTIES, 1939

| | Total Number of Acres | Percent |
|---|---|---|
| Corn | 92,574 | 43.3 |
| Hay | 86,390 | 40.4 |
| Small grains | 13,654 | 6.4 |
| Irish potatoes | 6,720 | 3.1 |
| Fruit | 6,270 | 2.9 |
| Sweet potatoes | 2,333 | 1.1 |
| Sorghums | 1,073 | .5 |
| Truck crops (excluding Irish and sweet potatoes) | 868 | .4 |
| Cotton | 926 | .4 |
| Tobacco | 489 | .2 |
| Other crops | 2,897 | 1.3 |
| Total | 214,194 | 100.0 |

TABLE XLIII. PERCENT OF FARMS REPORTING CORN, ACRES PER FARM, AND YIELD PER ACRE, TEN PLATEAU COUNTIES, 1929, 1934, 1939

| | Percent of Farms Reporting | | | Acres per Farm Reporting | | | Yield per Acre (Bu.) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1929 | 1934 | 1939 | 1929 | 1934 | 1939 | 1929 | 1934 | 1939 |
| Van Buren | 91.0 | 96.3 | 92.2 | 15.9 | 11.2 | 11.6 | 16 | 15 | 15 |
| Scott | 94.3 | 86.3 | 90.1 | 6.7 | 6.3 | 5.2 | 17 | 15 | 20 |
| Bledsoe | 91.0 | 93.1 | 89.5 | 18.2 | 17.5 | 15.5 | 23 | 23 | 23 |
| Marion | 85.3 | 88.6 | 88.6 | 15.9 | 13.4 | 19.6 | 18 | 21 | 21 |
| Campbell | 92.0 | 90.8 | 86.2 | 8.9 | 7.9 | 5.9 | 20 | 19 | 19 |
| Sequatchie | 86.2 | 92.0 | 84.8 | 13.3 | 10.8 | 9.9 | 18 | 21 | 20 |
| Fentress | 93.5 | 95.0 | 84.6 | 8.3 | 8.3 | 7.6 | 16 | 14 | 15 |
| Grundy | 85.5 | 84.8 | 83.8 | 13.5 | 7.6 | 10.8 | 16 | 22 | 21 |
| Morgan | 84.2 | 85.5 | 81.7 | 5.8 | 5.8 | 4.9 | 18 | 16 | 16 |
| Cumberland | 90.6 | 88.3 | 79.3 | 8.0 | 8.0 | 7.5 | 21 | 19 | 20 |
| Average | 89.8 | 89.5 | 85.2 | 11.5 | 9.7 | 9.9 | 18 | 18 | 19 |

Source: Census of Agriculture.




* Appendix table XV; Census 1930, 1940

Fig. 53. Comparison of number of acres of corn per farm in ten Plateau Counties, 1929, 1934, 1939

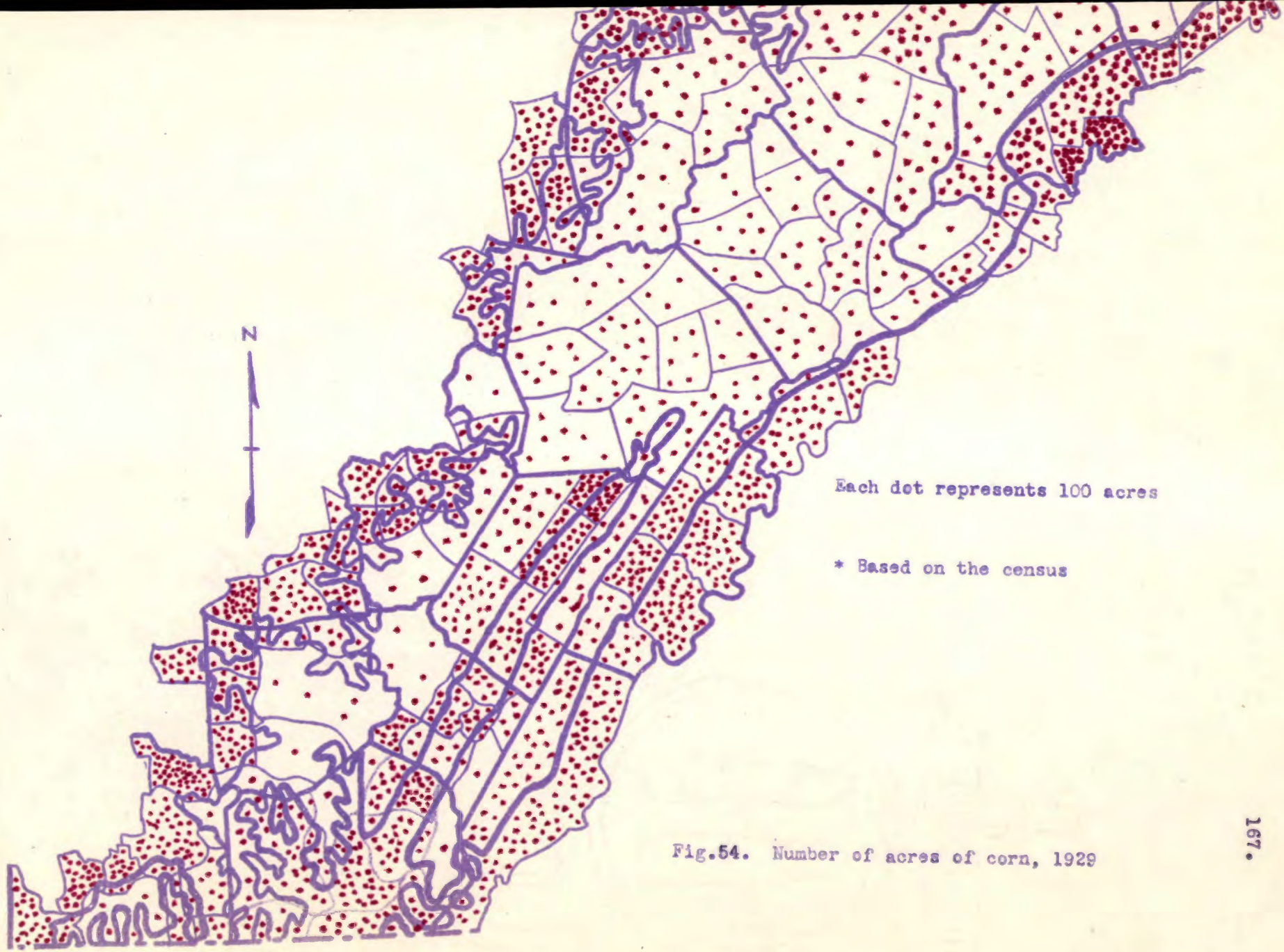



Fig.54. Number of acres of corn, 1929

counties (Table XLIII). Farmers growing corn in the southern half of the region averaged 13.5 acres while in the northern half they averaged only 6.2 acres. In 1934, in the same ten counties, there were approximately 11,434 acres of corn growing. There were 89.5 percent of the farmers growing the crop and averaging 9.7 acres per farm. The yield per acre in 1934 was 18 bushels, an average of 180 bushels per farm.

The corn acreage on farms growing the crop was greater in each county in 1929 than in 1934 or in 1939. All of the five northern counties showed less corn acreage per farm in 1939 than in either 1929 or in 1934 (Figure 54).

In 1929, the lowest acreage in corn per farm was 1 acre found in the southern part of Grundy County. The east central part of Grundy County reported 3 acres per farm as did the southeastern part of Sequatchie County. Another section reporting a low acreage per farm in corn was the eastern part of White County.

The acres of corn per farm has decreased from 1929 to 1939, while the average yield per acre has increased slightly. However, although the corn area in relation to total crop acreage is large, the yield is about two-thirds the state average.

Not much of the corn produced in this area is fed as silage. The cost of building and maintaining silos has discouraged their use. However, repeated experiments have shown conclusively that cattle in the region wintered on a small amount of silage plus a small amount of cotton

seed meal will come through the winter in better condition, and will make more gains for the entire year than will cattle that have been roughed through by methods common to the Plateau.(2) While it is not recommended that silos be built, it is believed that on some of the larger farms trench silos may be profitable. Silos would not be profitable on the smaller farms due to the silage not being used rapidly enough to prevent spoilage.

## All Hay

Hay of all kinds is next in importance in acreage. About 40.4 percent of the crop acreage harvested in the ten counties was in hay in 1939. However, to get successful crops of hay a rather heavy application of manure is needed, and in making the soil conditions favorable for clovers, phosphoric acid and lime are usually needed also.

In 1939, there were 59 percent of the farms in ten Plateau counties reporting an average of 13.2 acres per farm in hays of all kinds. Marion led the ten counties in 1939 with 70.5 percent of the farms reporting hay, and having an average of 17.5 acres per farm (Table XLIV). There was 64.2 percent of the farms in the ten counties reporting hay grown in 1929. The average number of acres of corn on these farms in the same year was 10.8 acres.

A yield of .9 tons per acre was reported in 1934, and a yield of 1.0 tons per acre in 1929. Although only 49.8 percent of the farms in

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(2) C. A. Wilson, Stocker Cattle Problems on the Cumberland Plateau, University of Tennessee Experiment Station, Knoxville, Tenn., 1921.

Bledsoe in 1939 reported acreages of all hays, there was an average of 24.8 acres per farm reporting and an average yield of 1.1 tons per acre.

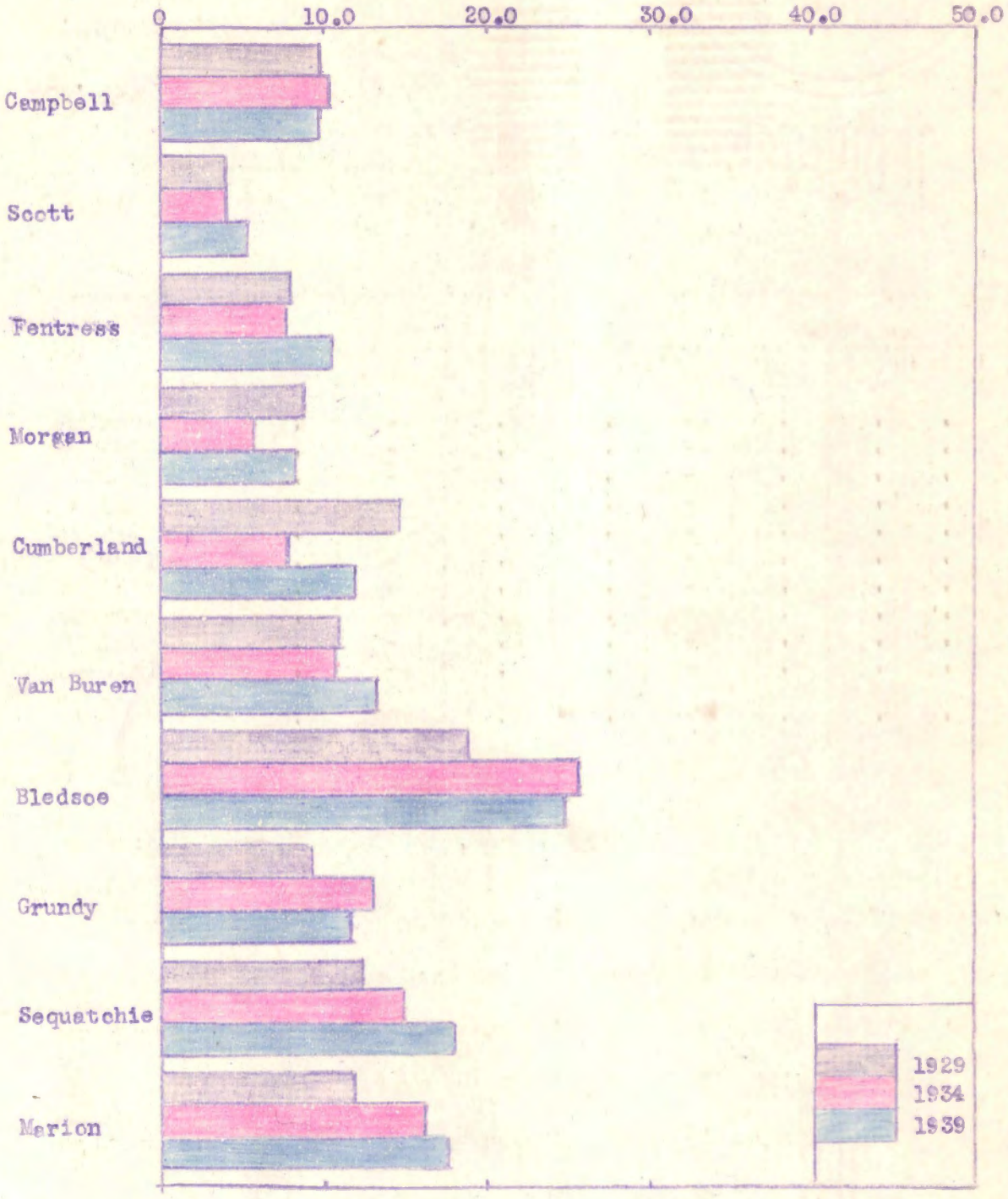
TABLE XLIV. PERCENT OF FARMS REPORTING HAY, ACRES PER FARM, AND YIELD PER ACRE, TEN PLATEAU COUNTIES, 1929, 1934, 1939

| | Percent of Farms Reporting | | | Acres per Farm Reporting | | | Yield per Acre (Tons) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1929 | 1934* | 1939 | 1929 | 1934* | 1939 | 1929 | 1934 | 1939 |
| Marion | 40.9 | - | 70.5 | 11.7 | - | 17.5 | 1.0 | .9 | 1.1 |
| Grundy | 69.1 | - | 69.2 | 9.4 | - | 11.7 | 1.1 | 1.1 | 1.1 |
| Scott | 68.8 | - | 69.1 | 4.7 | - | 5.3 | 1.1 | 1.1 | 1.1 |
| Morgan | 80.9 | - | 68.4 | 8.9 | - | 8.4 | .9 | .9 | .9 |
| Cumberland | 82.1 | - | 58.7 | 13.2 | - | 12.3 | .9 | .8 | 1.0 |
| Van Buren | 46.1 | - | 58.2 | 11.2 | - | 13.4 | 1.0 | .8 | 1.1 |
| Campbell | 68.2 | - | 54.3 | 9.7 | - | 9.8 | 1.0 | 1.0 | .9 |
| Fentress | 69.0 | - | 50.7 | 8.1 | - | 10.5 | 1.0 | .9 | 1.0 |
| Bledsoe | 50.6 | - | 49.8 | 19.0 | - | 24.8 | .8 | 1.1 | .9 |
| Sequatchie | 45.3 | - | 41.1 | 12.6 | - | 18.1 | .8 | .9 | .9 |
| Average | 64.2 | - | 59.0 | 10.8 | - | 13.2 | 1.0 | .9 | 1.0 |

* Data not available.

Source: Census of Agriculture, 1940.

Farms growing hay have increased their acreage from 1929 to 1939, but the average yield per acre has not increased. Larger hay acreages per farm are found in the southern half of the area than are found in the northern half. There was no outstanding change in yield per acre in the southern part, however, as compared with the northern portion.




* Census of Agriculture, 1930, 1935, 1940

Fig.55. Comparison of number of acres of hay per farm in ten Plateau Counties, 1929, 1934, 1939

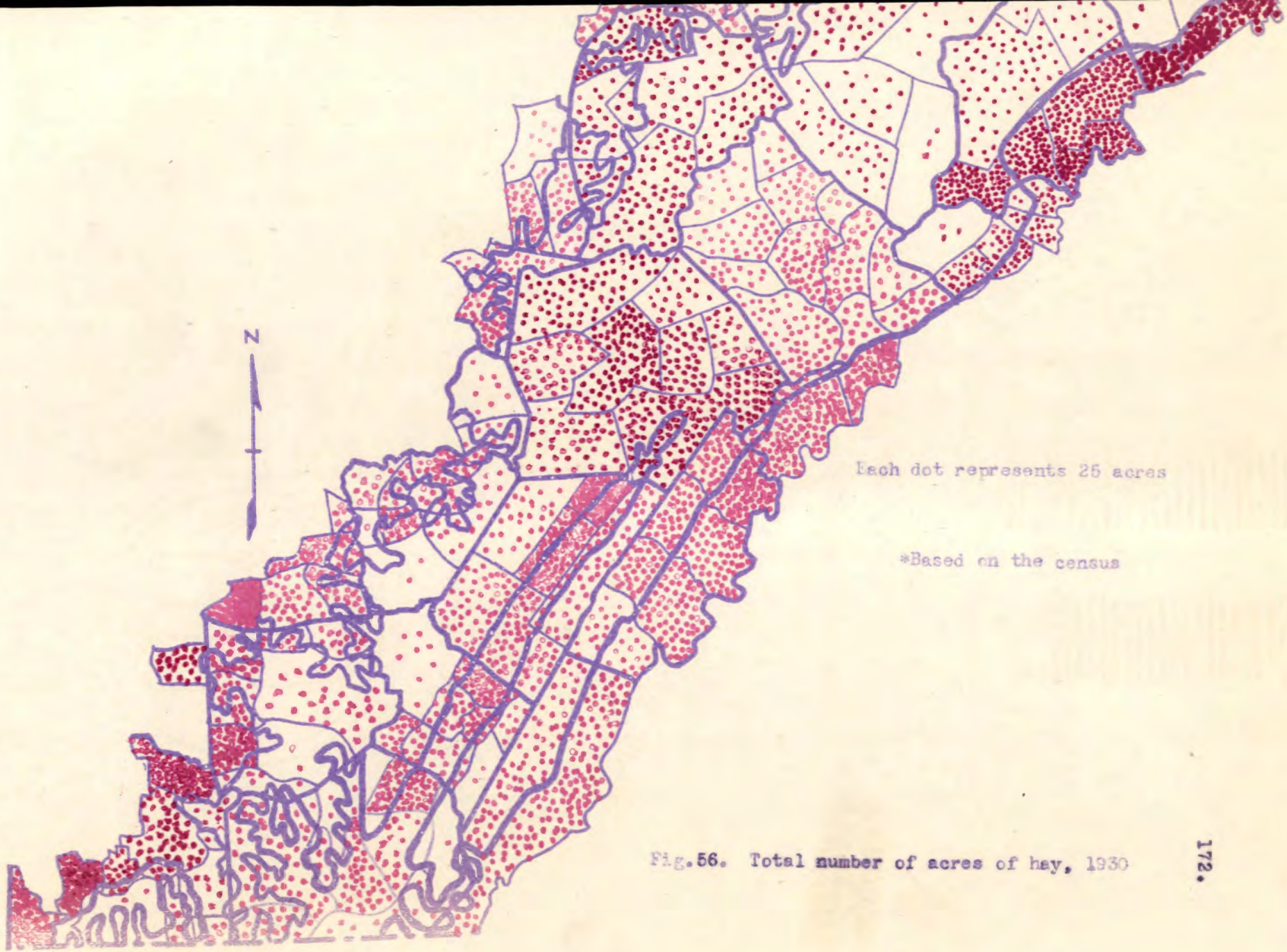



Fig.56. Total number of acres of hay, 1930

Considering hay acreage on a civil district basis, those civil districts lying west of the Sequatchie Valley and a strip running along the eastern part of Scott County were low in hay production (Figure 56). The lowest total acreage of hay reported in 1930 was in the eastern part of Marion County, about 25 acres. The extreme eastern part of the region, in Claiborne County, reported low total acreages as did the southern part of both Van Buren and Grundy counties. A heavier concentration of hay acreage is found in districts with considerable valley land.

Lespedeza: Lespedeza has become the most important hay crop in this area. It does well as an addition to the pasture and is a good means of improving the soil.

TABLE XLV. CHANGES IN LESPEDEZA ACREAGE, TEN COUNTIES, CUMBERLAND PLATEAU, 1930-1940

| | 1930 | 1935 | 1940 | |
|---|---|---|---|---|
| | Lespedeza Sw. Clover Cr. Clover | Lespedeza Sw. Clover | Lespedeza | Sweet Clover |
| Bledsoe | 85 | 6602 | 8267 | * |
| Campbell | 109 | 2612 | 5328 | 143 |
| Cumberland | 74 | 2505 | 6304 | 30 |
| Fentress | 29 | 3071 | 6422 | 111 |
| Grundy | 22 | 1864 | 1925 | 0 |
| Marion | 34 | 3798 | 5745 | 149 |
| Morgan | 27 | 1666 | 4245 | 60 |
| Scott | 9 | 304 | 1811 | 94 |
| Sequatchie | 105 | 2429 | 3198 | 97 |
| Van Buren | 46 | 1043 | 1503 | 65 |
| Total | 540 | 25,894 | 44,748 | 749 |

* Sweet clover in Bledsoe County not reported inasmuch as less than 3 farmers grew the crop.

Source: Census of Agriculture.

Changes in lespedeza acreage are difficult to show inasmuch as in the 1935 census it was grouped with sweet clover, and in 1930 with both sweet and crimson clovers. Inasmuch, however, as neither sweet nor crimson clover have been grown extensively on the Plateau it appears that most of the combinations have been lespedeza hays grown in the area.

In 1930 the combined acreage of lespedeza, sweet clover, and crimson clover was only 540 acres in ten Plateau counties. By 1935 lespedeza and sweet clover acres increased to 25,894 acres; and in 1939 there were 44,748 acres of lespedeza grown for hay. There were 35.8 percent of the farms producing the crop. These farms averaged 10.0 acres each in lespedeza. Scott reported 414 farms with an average of 4.4 acres in lespedeza for hay. Morgan reported 645 farms with 6.6 acres per farm reporting. Cumberland County reported 702 farms in 1939 growing an average of 9.0 acres per farm in lespedeza. The farms found in the southern half of the region reported larger acreages per farm reporting than the northern half.

In the civil districts in the area in 1930, 27.5 percent of the farms reported growing lespedeza and sweet clover, an average of 9.8 acres per farm. The extreme northeast corner of the Plateau, in Claiborne, reported 8 farms with 6.5 acres per farm. The lowest acreage per farm, 4.3 acres, were reported for 53 farms in the western part

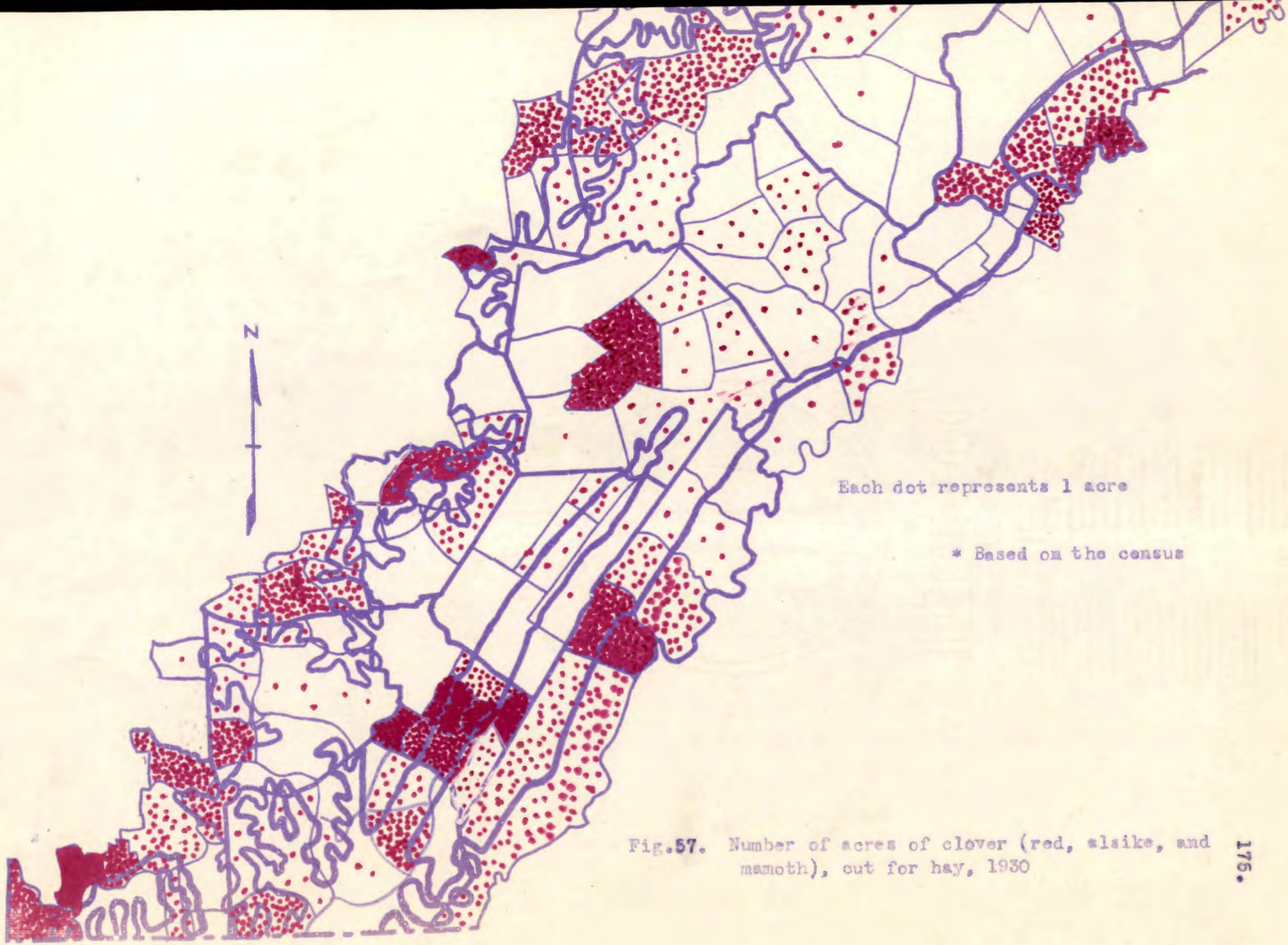



Fig.57. Number of acres of clover (red, alsike, and mamoth), cut for hay, 1930

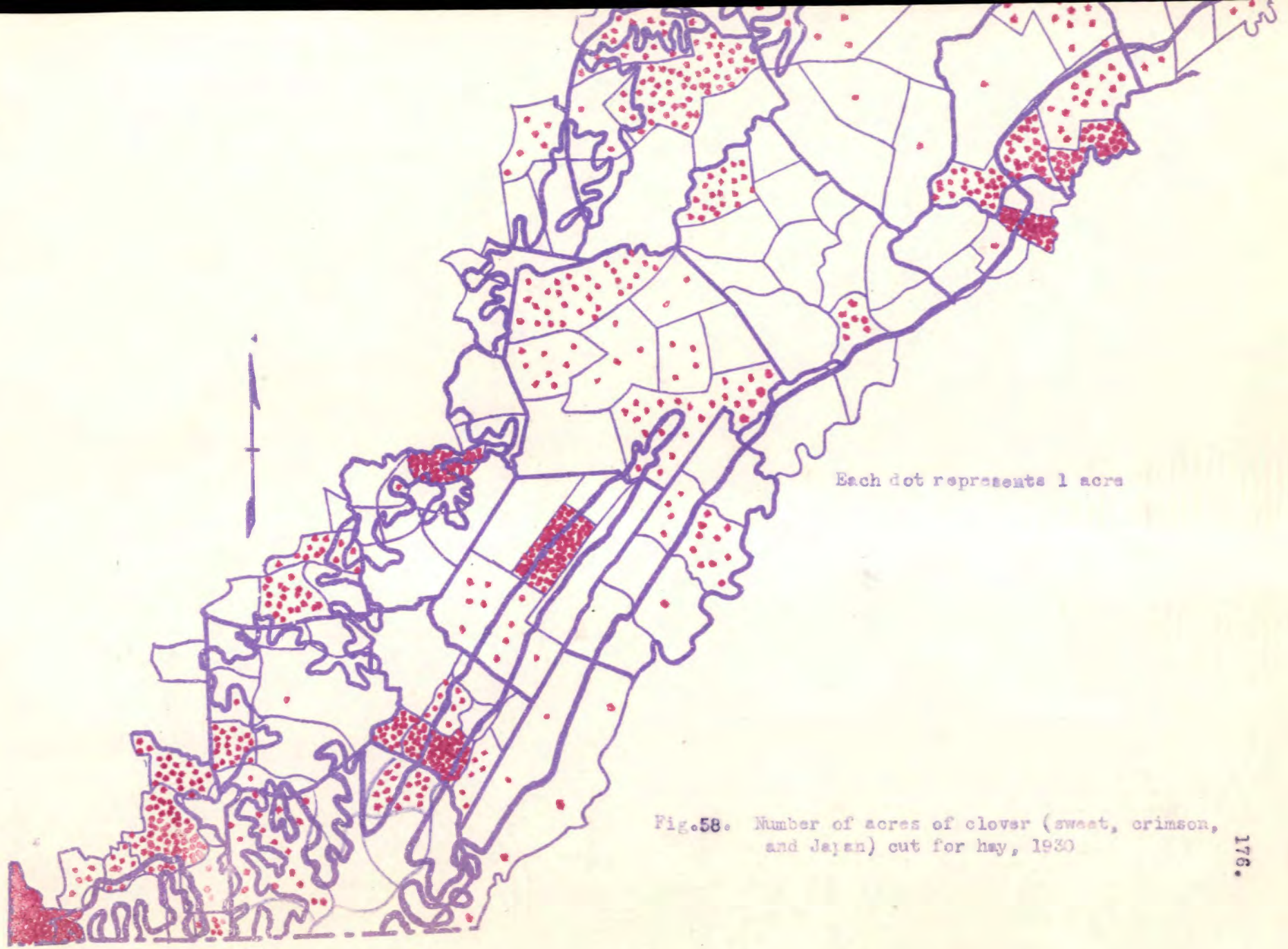



Fig.58. Number of acres of clover (sweet, crimson, and Japan) cut for hay, 1930

of Anderson County. Scott County reported 68 farms with an average of 4.5 acres per farm. Fentress had 516 farms with 6.0 acres per farm. Cumberland County with 234 farms reporting lespedeza and sweet clover had a relatively large acreage per farm, 107 acres.

The average production of lespedeza and sweet clover on farms growing the crop in civil districts lying largely on the Plateau was 9.9 tons per farm in 1935. The western part of Anderson had the lowest production per farm, 3.6 tons. Fentress and Morgan both reported having produced 5.7 tons per farm and Cumberland reported 9.2 tons per farm in 1935.

Cowpeas and Soybeans: The crops included under annual legumes that may be grown on the Plateau are: cowpeas, soybeans, vetch, mungbeans, and beggarweed. Cowpeas and soybeans, those more commonly grown, are both adapted to the soil in this area and appear to be a profitable hay crop when grown alone or with other hay crops.

In 1939, 5.3 percent of the farms reported an average of 2.9 acres of cowpeas grown alone for hay in the ten Plateau counties. In 1934 there was an average of 3.8 acres per farm in cowpeas grown alone for hay. Cowpeas grown alone showed a decrease in number of acres per farm, but an increase in number of acres per farm when grown with another crop in 1929 to 1939.

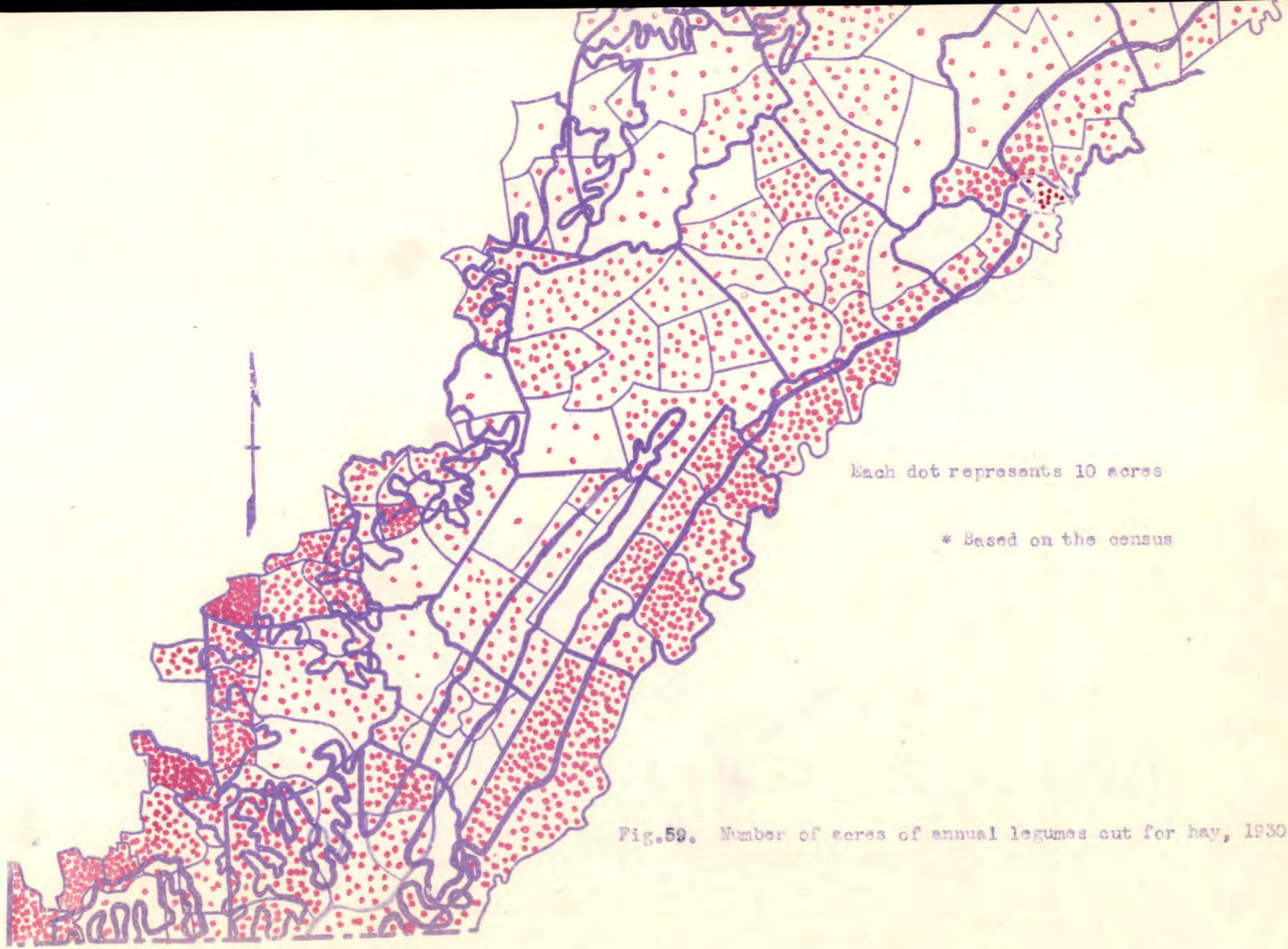



Fig.59. Number of acres of annual legumes cut for hay, 1930*

In 1934, 0.8 percent of the farms reported a total of 397 acres of cowpeas grown with other crops, an average of 2.3 acres per farm. In 1939, 5 percent of the farms reported 1889 acres of cowpeas grown with other crops, an average of 5.1 acres per farm.

In 1939, soybeans were reported on 15.6 percent of the total farms in the ten Plateau counties. The average number of acres per farm was 3.8 acres.

Alfalfa: Another legume grown in the area is alfalfa, but it is not naturally suited to this section. The soil in most sections is not deep enough for proper root development, but on the deeper soils with proper attention to the requirements there appears to be no reason why it cannot be grown to a limited extent. In 1935, 526 farms reported growing alfalfa on an average of 7.6 acres per farm.

Small Grain for Hay: In 1939, there was 5.6 percent of the farms reporting small grains grown for hay. The percent of farms saving it for hay in 1934 was 5.0 percent. Campbell led the other counties in the percent of farms reporting in 1939, while Marion had the smallest, 4.0 percent of farms.

Three of the counties, Morgan, Cumberland, and Scott, as shown in Table XLVI led in increases in number of farms reporting small grains for hay, while Fentress and Grundy counties reported decreases in number of farms from 1934 to 1939.

TABLE XLVI. PERCENT OF FARMS REPORTING SMALL GRAINS SAVED FOR HAY, AND NUMBER OF ACRES PER FARM, TEN PLATEAU COUNTIES, 1934, 1939

| | Percent of Farms Reporting | | Acres per Farm Reporting | |
|---|---|---|---|---|
| | 1934 | 1939 | 1934 | 1939 |
| Campbell | 5.0 | 6.2 | 3.8 | 3.5 |
| Scott | 1.5 | 5.6 | 6.3 | 3.6 |
| Fentress | 7.1 | 4.1 | 3.9 | 4.3 |
| Morgan | 4.6 | 9.4 | 3.8 | 4.2 |
| Cumberland | 4.5 | 5.9 | 5.6 | 5.2 |
| Van Buren | 6.2 | 9.4 | 6.7 | 5.1 |
| Bledsoe | 4.4 | 2.0 | 11.4 | 13.5 |
| Grundy | 10.2 | 4.8 | 3.0 | 4.4 |
| Sequatchie | 4.7 | 2.6 | 6.4 | 6.8 |
| Marion | 4.8 | 4.0 | 7.2 | 8.9 |
| Average | 5.0 | 5.6 | 5.1 | 4.8 |

Source: Census of Agriculture, 1940.

Scott reported 5.2 tons per farm while Fentress reported only 2.1 tons per farm in 1935. The average amount produced per farm in the area was 3.9 tons in 1935.

Figure 60 shows the number of acres of small grains cut for hay in 1930. The greater concentration is in Cumberland, Fentress, and the northwestern half of Morgan counties. The Plateau section of Campbell showed a relatively large acreage of small grains grown for hay in 1935. In Bledsoe the acres of small grains for hay was confined almost

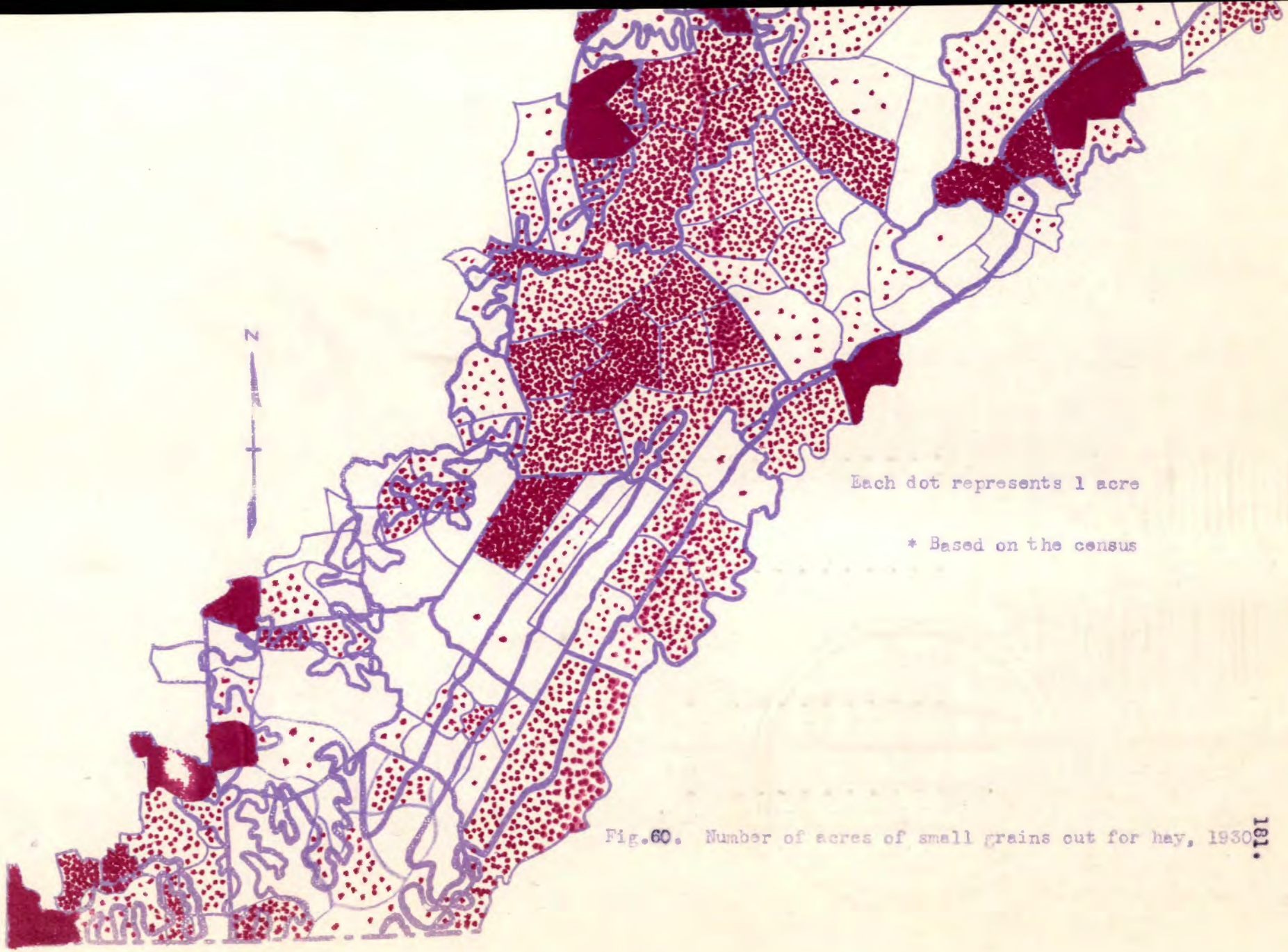



Fig.60. Number of acres of small grains cut for hay, 1930*.

entirely to the northwest section of the county. In the main, the distribution of small grains grown for hay was greater in the Plateau sections than in the valleys.

Grasses: The newly cleared lands of the region are rather easily set in such grasses as red top and timothy. Mixture of timothy and clover do fairly well on properly prepared soil and advantage should be taken of this opportunity before the continued growing of such crops as corn which seriously impoverish the soil.

In 1935 there was 32.6 percent of the total farms in the civil districts reported as cutting grass hay both cultivated and wild. The average amount was 6.6 acres per farm, and the average production 5.5 tons.

In 1930, every civil district except three reported at least 10 acres of tame or cultivated grass cut for hay. Both Bledsoe and Morgan reported large acreages of cultivated grasses cut for hay in 1930 (Figure 61).

Timothy and clover were reported on 8 percent of all farms by districts in 1935. The average acreage per farm was 8.7 acres, and the average production per farm was 8.7 tons. The Plateau section of Anderson reported 4.3 acres per farm on 33 farms, the lowest figures for number of farms growing timothy and clover and the lowest acreages per farm. No timothy and clover was reported in Scott County in 1930.




Fig. 61. Number of acres of tame or cultivated grass cut for hay excluding timothy, 1930

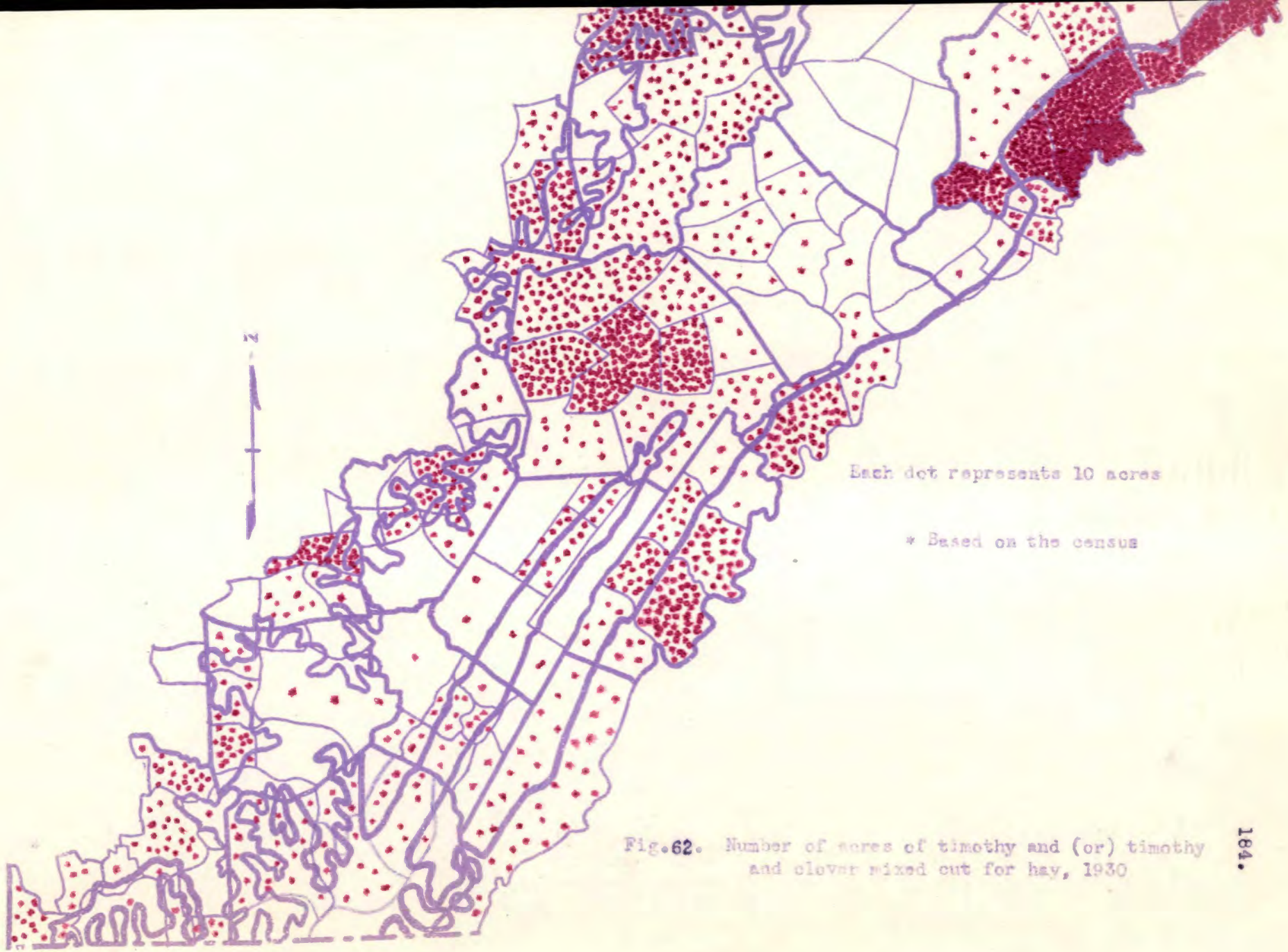



Fig.62. Number of acres of timothy and (or) timothy and clover mixed cut for hay, 1930

In 1939 there was 9 percent of the farms in ten Plateau counties that were reported as cutting native hay. This was an average of 4.2 acres per farm. Scott reported the greater number of farms, 329, cutting this hay and had an average of 2.5 acres per farm. Morgan reported 286 farms with an average of 2.8 acres per farm, and Campbell reported 159 farms with an average of 3.8 acres per farm cutting wild hay.

A good description of native hay on the Plateau is that it is composed of grasses that are similar to sedge grass, except that they are finer in texture. It generally contains enough waste material to bed any livestock fed heavily upon it. The hay may contain some ferns, small brush, and some "nimble will". It does not contain sufficient food value to winter calves or short yearlings without the use of grain in addition. When cattle can get other feed they prefer it to wild hay. However, much of this hay is used by the Plateau farmers in spite of the fact that it is known to be about one-half as valuable as average cultivated hay. The main reason for its use is the fact that it is the only hay found on some of the farms.

Summary of Hay Acreage: Of the 86,390 acres of hays of all kinds reported on farms in the ten Plateau counties, lespedeza grown alone constituted 51.8 percent in 1939 (Table XLVII). Clover or timothy alone or mixed constituted 9,798 acres, about 11.4 percent of the total acreage of hay. Soybeans were grown on 7,508 acres, about 8.7 percent

of the total acreage. Alfalfa constituted the smallest amount of acreage, 1.9 percent.

TABLE XLVII. NUMBER OF ACRES OF ALL HAY, AND PERCENT DISTRIBUTION, TEN PLATEAU COUNTIES, 1939

| | Number of Acres | Acres per Farm | Percent of Total Hay Acres |
|---|---|---|---|
| All hay | 86,390 | 6.9 | 100.0 |
| Lespedeza | 44,748 | 3.6 | 51.8 |
| Clover or timothy alone or mixed | 9,798 | .8 | 11.4 |
| Soybeans | 7,508 | .6 | 8.7 |
| Wild hay | 4,849 | .4 | 5.6 |
| Small grains | 3,295 | .3 | 3.8 |
| Cowpeas | 2,144 | .2 | 2.5 |
| Alfalfa | 1,679 | .1 | 1.9 |
| All other tame hay | 12,369 | .9 | 14.3 |

Source: Census of Agriculture, 1940.

## Small Grains

Small grains may be grown on the Plateau, but soils being low in plant food and light are not naturally adapted to them. However, if soil fertility is increased, there is nothing to prevent the raising of profitable crops of all the grains including winter barley, which requires a richer soil than the others.

In 1939 there were 1.9 percent of the farms in the ten Plateau

counties reporting the growing of small grains. Wheat was reported on 6.2 percent of the farms; oats cut and fed unthreshed on 1.7 percent; oats threshed on 1.2 percent; and barley on .9 percent (Table XLVIII).

TABLE XLVIII. PERCENT OF FARMS REPORTING SMALL GRAINS, ACRES PER FARM REPORTING, AND YIELD PER ACRE, TEN PLATEAU COUNTIES, 1939

| | Percent Farms Reporting | Acres per Farm Reporting | Yield per Acre (Bu.) |
|---|---|---|---|
| Oats threshed | 1.2 | .1 | 15.5 |
| Oats cut and fed unthreshed | 1.7 | .1 | |
| Barley | .9 | .1 | 16.8 |
| Rye | 1.5 | .1 | 7.7 |
| Winter wheat | 6.2 | .6 | 11.0 |
| Buckwheat | .1 | 0 | 5.7 |

Source: Census of Agriculture, 1940.

In 1930, there were about 2,072 acres of small grains grown in the civil districts lying largely on the Plateau. Of this total, 1,565 acres, or 75.6 percent, were in oats cut when ripe and fed unthreshed. The other acreages of small grains were insignificant. Rye acreage was 7.9 percent of the total; winter wheat was 7.8 percent; oats threshed was 4.0 percent; buckwheat was 2.4 percent; other small grains not separated out in harvest was 1.6 percent; and barley was

0.7 percent.

The acreage of all small grains harvested including oats fed unthreshed was greatest in Morgan County, 619 acres; Campbell section had 386 acres in small grain; and the section in Overton had 300 acres (Figure 63).

TABLE XLIX. NUMBER OF ACRES OF SMALL GRAINS, 53 CIVIL DISTRICTS, CUMBERLAND PLATEAU, 1929

| County | No. C.D. | Winter Wheat Acres | Oats Acres | Barley Acres | Rye Acres | Buckwheat Acres | Other Mixed Grains Not Separated in Harvest Acres | Oats Cut for Grain When Ripe and Fed Unthreshed Acres |
|---|---|---|---|---|---|---|---|---|
| Anderson | 4 | 48 | 8 | 3 | | | | 35 |
| Bledsoe | 2 | | | | | | | 25 |
| Campbell | 2 | | | | | | 12 | 374 |
| Claiborne | 2 | | | | | | | 19 |
| Cumberland | 8 | 59 | 26 | | | 40 | 1 | 101 |
| Fentress | 2 | 5 | | | 55 | | 8 | 45 |
| Franklin | 2 | | | | | | | |
| Grundy | 3 | | | | | | | 3 |
| Marion | 2 | | | | | | | |
| Morgan | 12 | 50 | 24 | | 90 | 10 | 4 | 513 |
| Overton | 1 | | | | 17 | | | 293 |
| Putnam | 1 | | | | | | | 10 |
| Scott | 5 | | 21 | 10 | | | | 94 |
| Sequatchie | 4 | | 3 | | | | 10 | 53 |
| V.Buren | 2 | | | | | | | 1 |
| White | 1 | | | | 3 | | | 19 |
| Total | 53 | 162 | 82 | 13 | 165 | 50 | 35 | 1565 |

Source: Census of Agriculture, 1930.




Fig.63. Number of acres of all small grains harvested including oats fed unthreshed, 1930

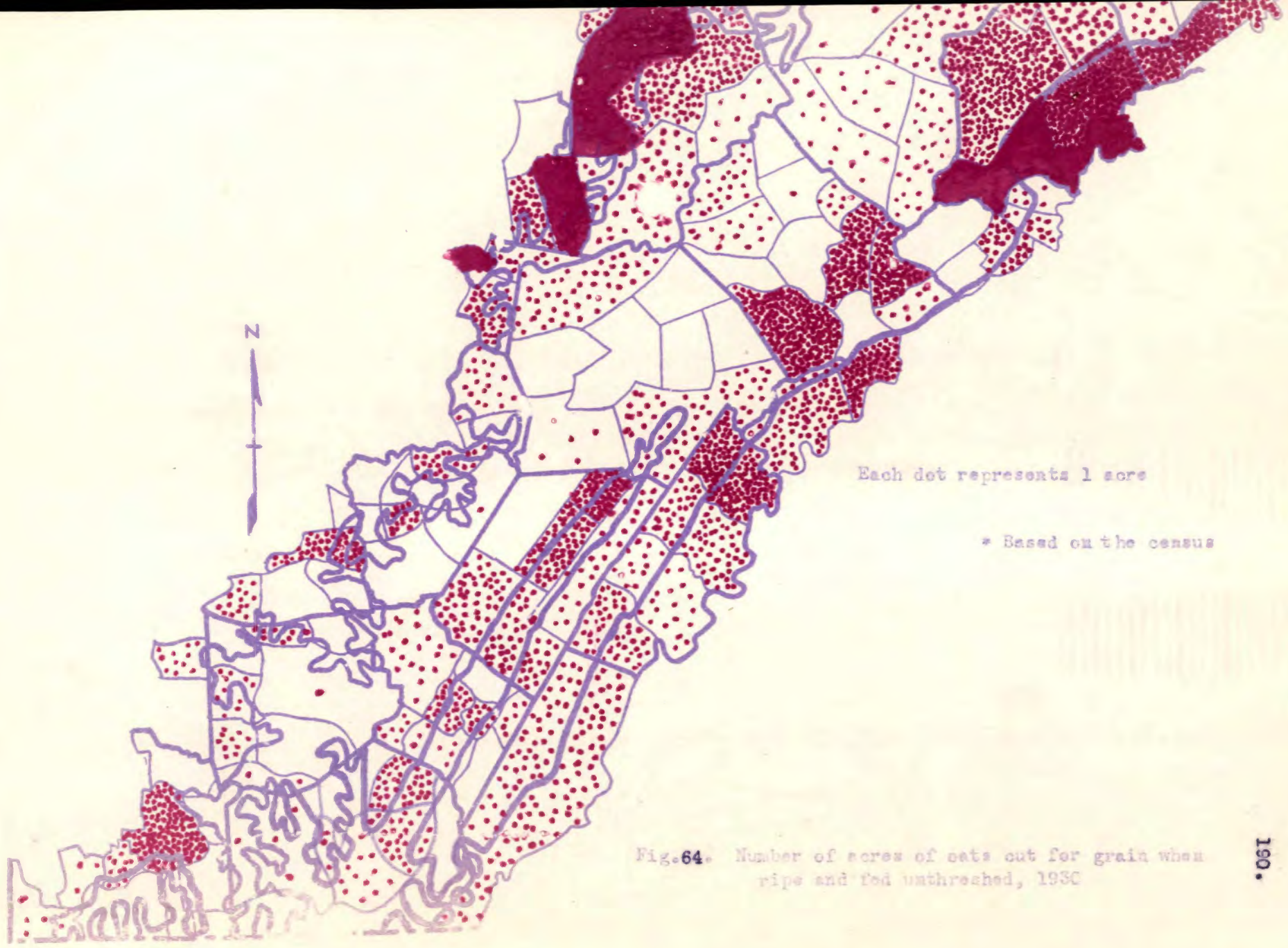



Fig.64. Number of acres of oats cut for grain when ripe and fed unthreshed, 1930

## Sweet and Grain Sorghums

In 1935 there were 900 farms reporting an average of 2.2 acres per farm in sweet and grain sorghums used for silage, hay, and for fodder in 53 civil districts lying largely on the Plateau. The production was 3.1 tons per farm. The greatest number of farms was reported in Fentress, 160 farms, with an average of 2.1 acres per farm and 3.3 tons per farm produced. Morgan County reported 119 farms having an average of 2.7 acres per farm and an average production of 2.7 tons per farm. The greatest production, 8.2 tons per farm, was reported for 6 farms on the Plateau section of Franklin. Sequatchie reported 5.3 tons per farm for 22 farms having an average of 2.6 acres per farm.

## Tobacco

Tobacco is not an important crop in this area, its being produced on only 0.1 percent of the cleared land. In 1935 there were about 246 farms, or 1.9 percent of all farms in the civil districts lying entirely on the Plateau, growing tobacco with an average of .22 acres per farm reporting. The Plateau districts of Overton County had the greatest average number of acres per farm with 0.5 acres per farm reporting, and produced 275 pounds per farm. This is double the average

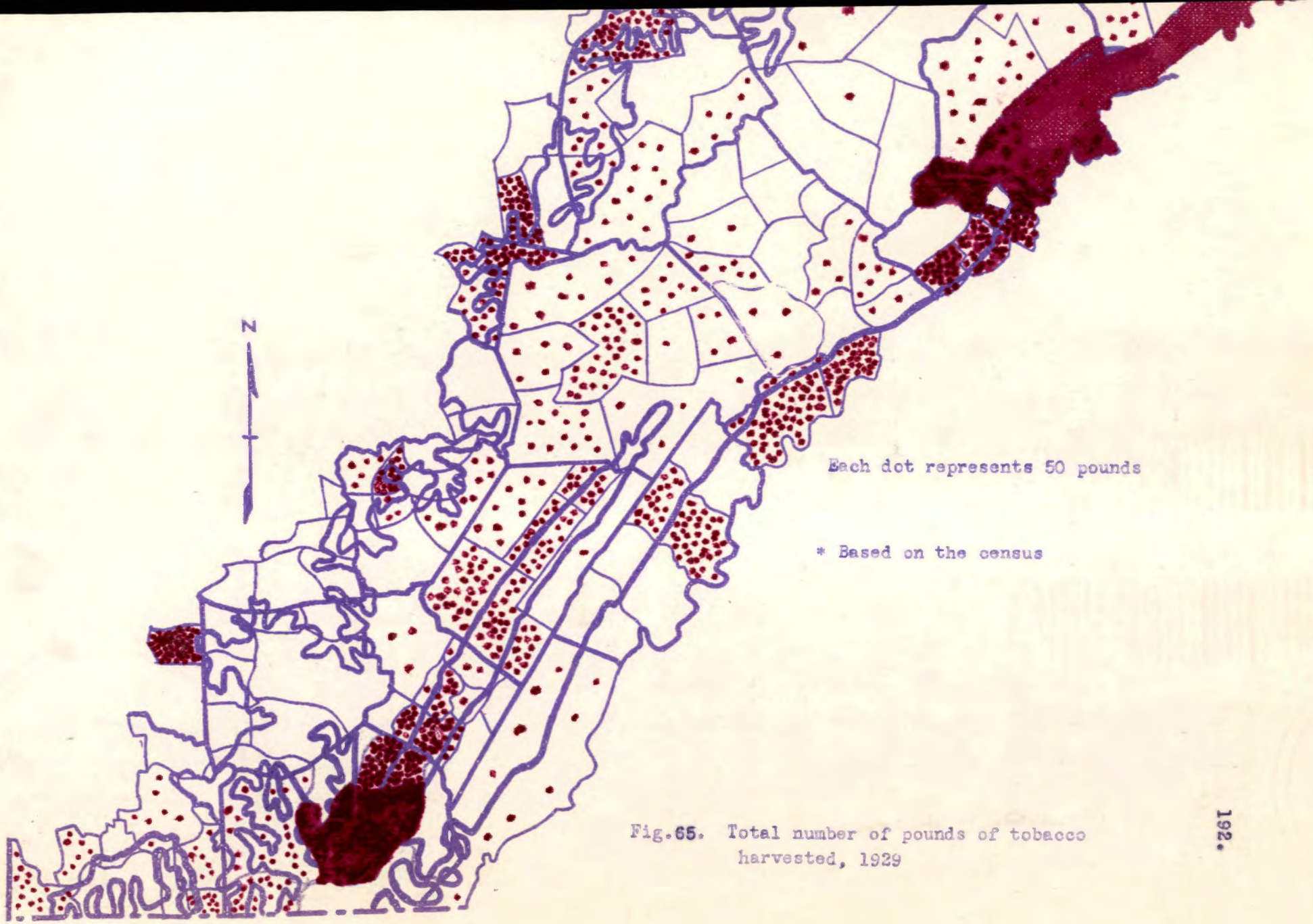



Fig.65. Total number of pounds of tobacco harvested, 1929

for the region which was only 117.3 pounds per farm. Scott, Campbell, Bledsoe, Cumberland, and Grundy all had an average of .33 acres per farm reporting, but the yields per farm differed. The yields per farm reporting for these counties in order of highest were: Campbell, 215.7 pounds; Cumberland, 159.6 pounds; Scott, 109.9 pounds; Bledsoe, 77.5 pounds; and Grundy, 71.7 pounds. Van Buren County in 1935 had the lowest average per farm reporting, .23 acres, in tobacco and the yield per farm was 91.5 acres.

Figure 65 shows the number of pounds produced per farm in 1930. The sections lying off the Plateau produced more tobacco per farm on the average. Scott had no civil districts having at least 1 pound per farm reporting.

## Truck Crops

Much of the truck crops grown in this area, except Irish potatoes, are consumed locally. Truck crops constitute about 4 percent of the total acreages harvested.

Irish Potatoes: The Irish potato crop is one of the most promising crops grown in the area. The climatic conditions here are more suited to the production of this crop than in other sections of Tennessee. The crop also has an advantage from the standpoint of markets inasmuch as it supplies northern markets following the early crops from Florida and Georgia up until the eastern shore of Maryland and Virginia come into

production. Later the tubers are shipped south. Part of the crop can be marketed as seed potatoes.

In 1939 there were 84.3 percent of the farms reporting the growing of Irish potatoes (Table L). The average acreage per farm growing the crop was .61 acres in 1939, and the yields produced were 87 bushels per acre. Scott County had 92.6 percent of its farms in 1939 reporting the growing of Irish potatoes, while Campbell County had 73.8 percent of its farms reporting.

In 1935, there were 82.1 percent of the farms reported growing Irish potatoes. Morgan County in 1935 was the leading county in the area with 82.5 percent of the farms growing the crop with .98 acres per farm reporting and had the highest yield per acre, 113 bushels. Bledsoe, in 1939, had 82.3 percent of its farms reporting the production of Irish potatoes. The average yield per acre was 67 bushels, while only .51 acres per farm were reported. Campbell County reported the lowest number of acres per farm, .61 acres, in 1939, and 80 bushels being produced per acre.

Figure 67 shows the distribution of number of acres of Irish potatoes in 1935 by civil districts. Unlike other agricultural items in this report by dot maps, the number of acres of Irish potatoes does not tend to be greater in the valleys. When it is realized that the proportion of cleared land is greater in the valleys than on the Plateau it can be seen that the growing of Irish potatoes in this area is rather an important part of the farm enterprise. Irish potatoes

are grown on about 5 percent of the acres harvested and it ranks third in importance in proportion of crop acreages harvested.

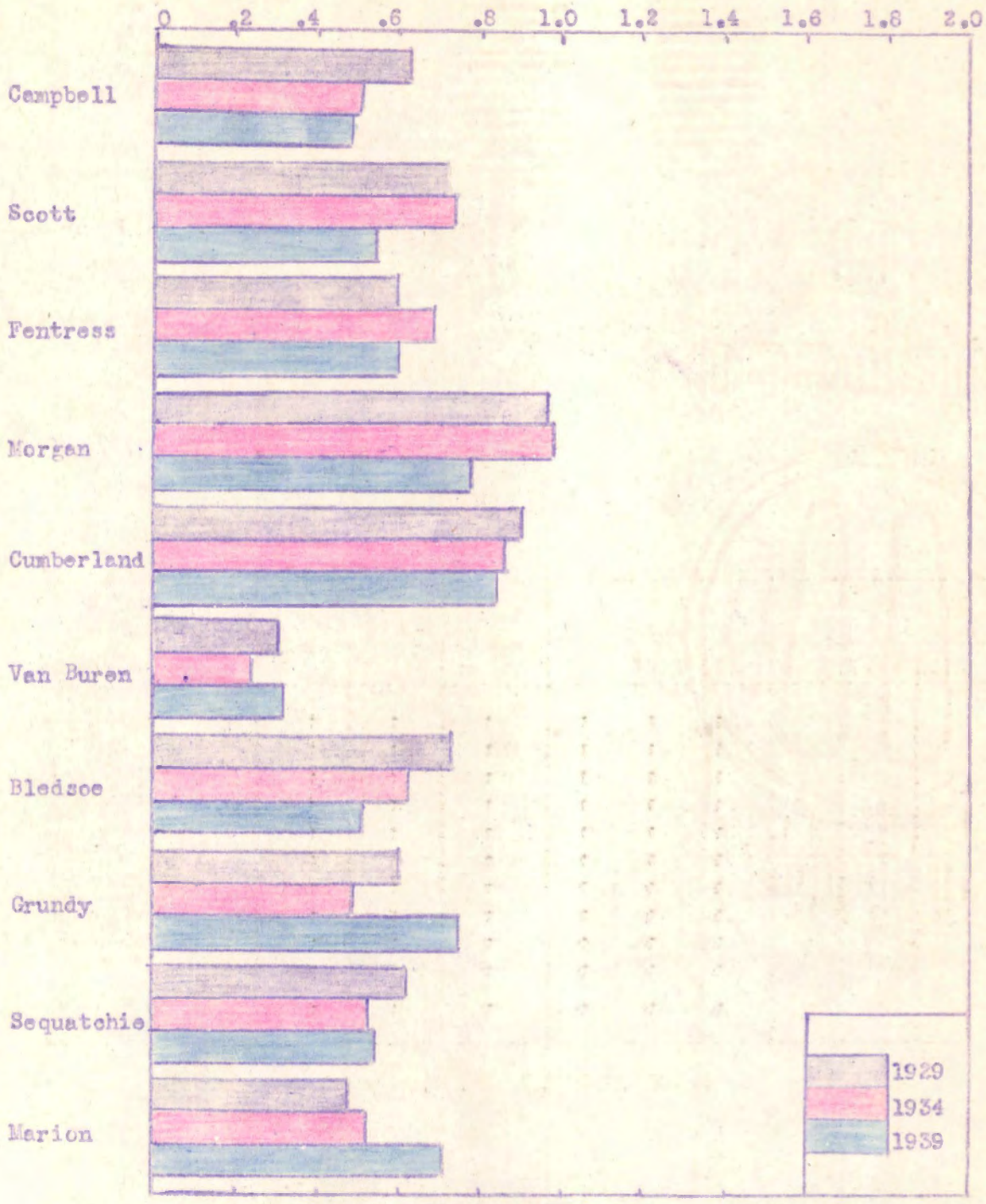
There is a decided lack of storage facilities for keeping Irish potatoes and only a few of the farms have the proper machinery for digging. While lack of machinery is often not important as most of the acreages are small, there should be some potato storage facilities provided for the use of the farms individually or cooperatively.

TABLE L. PERCENT OF FARMS REPORTING IRISH POTATOES, ACRES PER FARM, AND YIELD PER ACRE, TEN PLATEAU COUNTIES, 1929 - 1940

| | Percent of Farms Reporting | | | Acres per Farm Reporting | | | Yield per Acre (Bushels) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1929 | 1934 | 1939 | 1929 | 1934 | 1939 | 1929 | 1934 | 1939 |
| Scott | 94.8 | 77.1 | 92.6 | .72 | .74 | .55 | 89 | 70 | 91 |
| Grundy | 84.5 | 91.9 | 89.9 | .60 | .49 | .75 | 74 | 94 | 91 |
| Van Buren | 87.9 | 82.2 | 89.8 | .31 | .24 | .32 | 88 | 103 | 86 |
| Fentress | 93.4 | 91.9 | 87.4 | .60 | .69 | .60 | 90 | 91 | 89 |
| Morgan | 88.5 | 82.5 | 87.3 | .97 | .98 | .78 | 101 | 113 | 93 |
| Marion | 65.0 | 80.2 | 87.1 | .48 | .52 | .71 | 92 | 96 | 94 |
| Sequatchie | 79.5 | 86.9 | 86.0 | .62 | .52 | .54 | 77 | 98 | 71 |
| Bledsoe | 84.7 | 78.0 | 82.3 | .73 | .62 | .51 | 61 | 64 | 67 |
| Cumberland | 90.5 | 77.2 | 79.9 | .90 | .86 | .84 | 84 | 80 | 91 |
| Campbell | 84.4 | 79.8 | 73.8 | .63 | .51 | .49 | 79 | 78 | 80 |
| Average | 85.5 | 82.1 | 84.3 | .65 | .61 | .61 | 83 | 89 | 87 |

Source: Census of Agriculture, 1930, 1935, 1940.

The varieties that yield the best and are the most popular in the area are Green Mountain as a late variety with Irish cobblers and Early Rose as the best medium early. Bliss Triumph is grown but has




Source: Appendix table XVI; Census 1930-1940

Fig. 66. Comparison of number of acres of Irish potatoes harvested per farm in ten Plateau counties, 1929, 1934, 1939

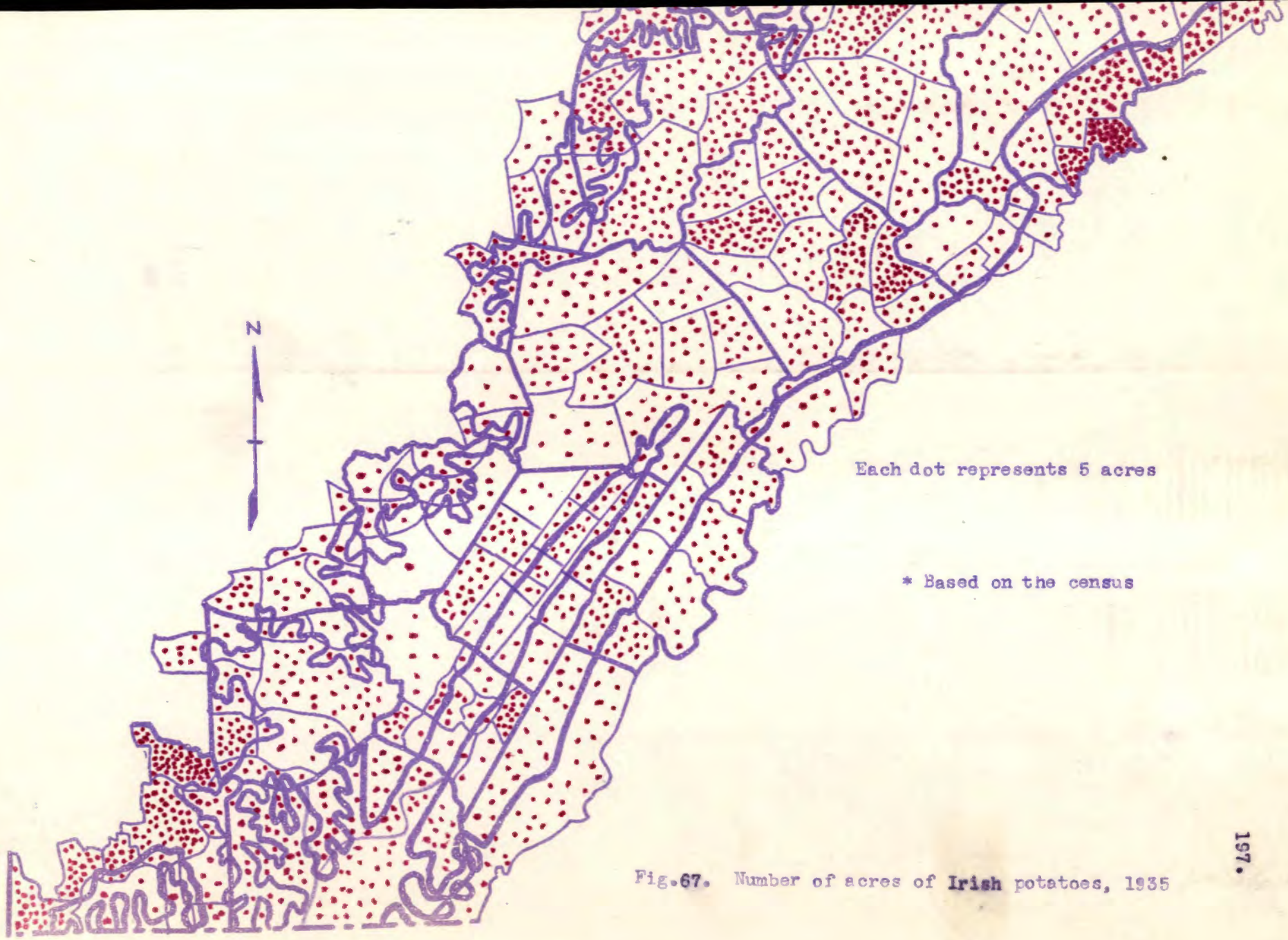



Fig.67. Number of acres of Irish potatoes, 1935

been found to be a poor yielder.

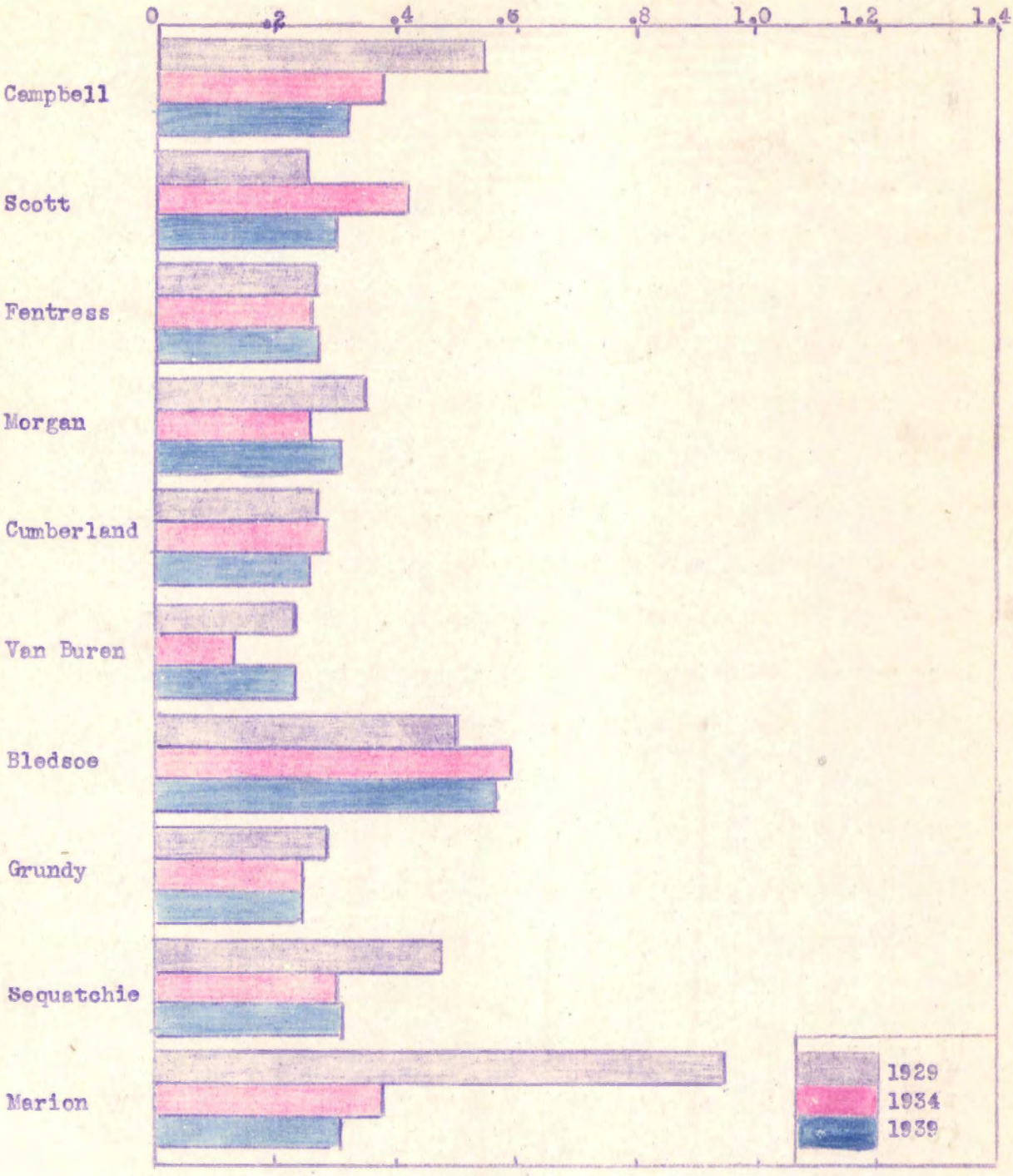
Sweet Potatoes: Sweet potatoes ranked sixth in crop acreages in the area. This crop was grown on 56.2 percent of the farms in 1939 in the ten Plateau counties. In 1939, the average acreage per farm in sweet potatoes was 0.31 acres, and the average yield per acre, 87 bushels. Van Buren in 1939 had 74.2 percent of its farms reporting the growing of sweet potatoes. There were 0.24 acres per farm in this county with a yield of 93 bushels per acre. This county led in percent of farms reporting in 1939. The county having the lowest percent of farms reporting was Campbell, 43.9 percent.

The percent of farms reporting the growing of sweet potatoes in this area in 1934 was 68.3 percent, and the average number of acres per farm was 0.33. The yield per acre for 1934 was 113 bushels per acre. Sweet potato production in the area in 1934 was greater than was the production in either 1929 or 1939.

Although the three counties, Bledsoe, Marion, and Sequatchie, found in the southern part of the area led in yields per acre in 1929, Cumberland, Morgan, and Fentress which are in the northern part of the area led in yields per acre in 1939 (Table LI).

In 1935, Van Buren had the lowest number of acres per farm in sweet potatoes, but had the highest yields per acre, 156 bushels.

Figure 69 shows the distribution of sweet potatoes in 1935. The acreage is fairly well distributed throught the region, and, as in the case of Irish potatoes, there is no pronounced concentration in




* Appendix table XVI; Census 1930, 1940

Fig.68. Comparison of number of acres of sweet potatoes harvested per farm in ten Plateau Counties, 1929, 1934, 1939

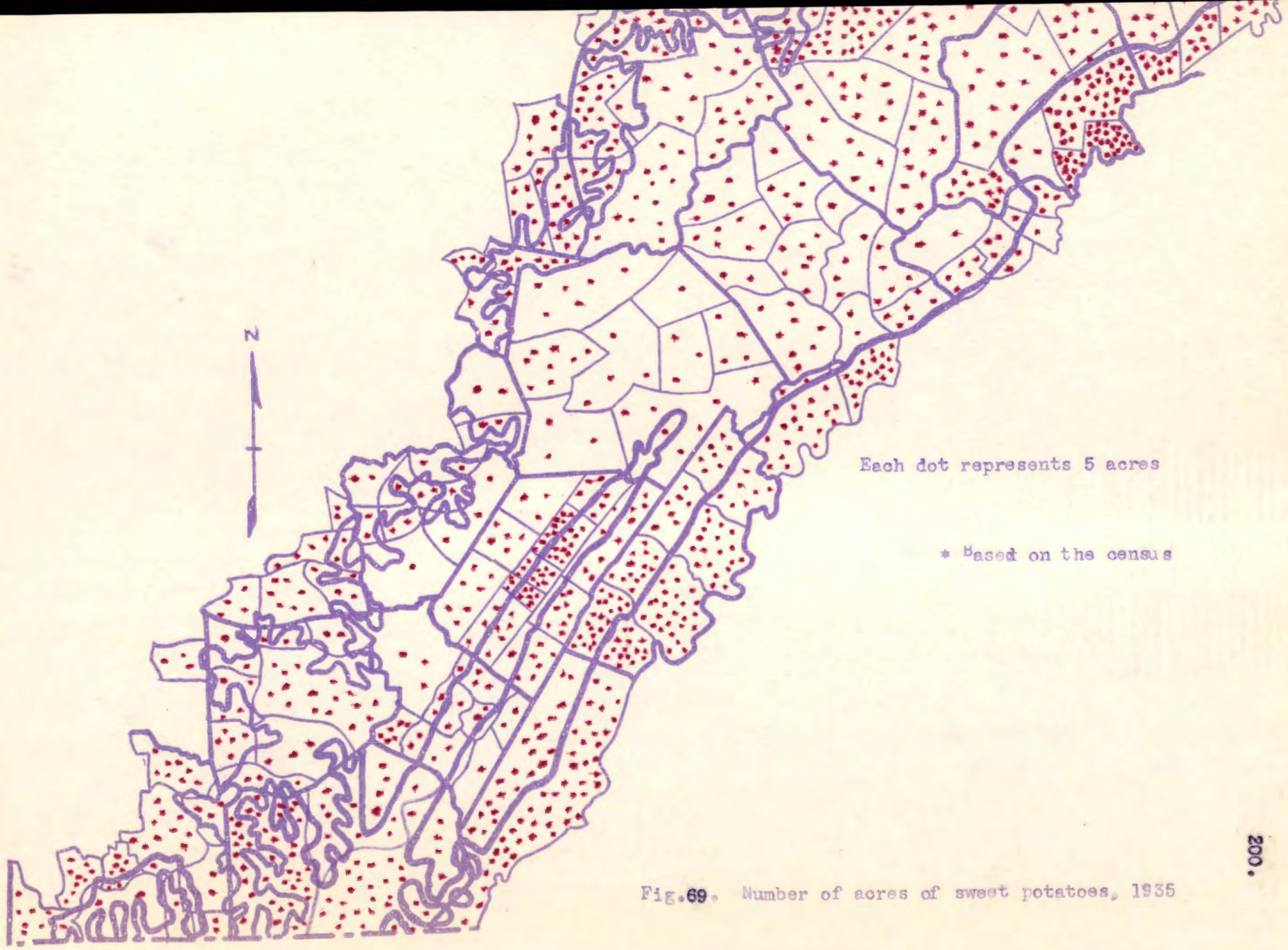



Fig.69. Number of acres of sweet potatoes, 1935

the valleys. Sweet potatoes are found on many of the farms growing Irish potatoes, but the acreage of sweet potatoes is usually smaller than that of Irish potatoes.

TABLE LI. PERCENT OF FARMS REPORTING SWEET POTATOES, ACRES PER FARM, AND YIELD PER ACRE, TEN CUMBERLAND PLATEAU FARMS, 1929, 1934, 1939

| | Percent of Farms Reporting | | | Acres per Farm Reporting | | | Yield per Acre (Bushels) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1929 | 1934 | 1939 | 1929 | 1934 | 1939 | 1929 | 1934 | 1939 |
| Van Buren | 77.9 | 78.0 | 74.2 | .24 | .18 | .24 | 100 | 156 | 93 |
| Marion | 49.7 | 65.8 | 69.4 | .47 | .46 | .51 | 97 | 105 | 81 |
| Bledsoe | 70.8 | 72.8 | 66.6 | .50 | .59 | .57 | 102 | 112 | 86 |
| Sequatchie | 60.3 | 74.7 | 66.5 | .48 | .30 | .31 | 92 | 125 | 72 |
| Fentress | 76.0 | 62.6 | 56.9 | .28 | .27 | .28 | 98 | 117 | 78 |
| Scott | 68.5 | 59.4 | 56.2 | .27 | .41 | .30 | 93 | 66 | 89 |
| Grundy | 61.6 | 80.0 | 55.5 | .29 | .25 | .25 | 96 | 106 | 92 |
| Morgan | 60.9 | 66.7 | 52.6 | .36 | .27 | .31 | 90 | 130 | 94 |
| Cumberland | 60.0 | 58.0 | 52.5 | .28 | .29 | .26 | 96 | 108 | 93 |
| Campbell | 54.3 | 62.7 | 43.9 | .55 | .38 | .31 | 92 | 107 | 89 |
| Average | 62.7 | 68.3 | 56.2 | .42 | .33 | .31 | 96 | 113 | 87 |

Other Truck Crops: On nearly every farm there is at least a half acre on which is grown vegetables for family use. Very little of these truck crops are marketed.

On Plateau farms where soils are suitable and markets are available, one or more of the truck crops are produced in limited quantities as sources of cash income. Small acreages devoted to the production of these vegetables for sale, especially on farms with low incomes and with limited

acreages of cropland often have an important bearing on the cash farm income and the amount of money available for family living expenses.

Tomatoes led in this group of other vegetables with a total acreage of 156.9 acres in 1935. Of this total of 156.9 acres, there were 51.0 acres in the northeast part of Bledsoe on Walden Ridge, and 60 acres in the southeast part of Bledsoe also on Walden Ridge. The acreage of tomatoes in 1935, on the Plateau, was 11 acres in Marion. The acreage of tomatoes in other sections was very low.

TABLE LII. NUMBER OF ACRES OF OTHER VEGETABLES, 53 CIVIL DISTRICTS LYING LARGELY ON THE CUMBERLAND PLATEAU, 1935

| Number of Civil Districts | Acres | | | | | Total |
|---|---|---|---|---|---|---|
| | Beans, Snap and String | Cabbage | Tomatoes | Watermelons | All Other Vegetables | |
| 53 | 88.5 | 101.8 | 156.9 | 120.2 | 114.9 | 584.6 |

Source: Census of Agriculture, 1935.

Watermelons were second to tomatoes in acreage in the region in 1935 with a total of 122.5 acres. Cumberland County led in acreage in 1935 with 26 acres in watermelons. There were 13 acres produced in the east central part of the county, and 8.2 acres in the southeastern part of the county. In Campbell, 17 acres of watermelons were produced in the southern section. Bledsoe had 9 acres in watermelons, and Morgan

had 7 acres in 1935.

Cabbage was produced on 101.8 acres in the region in 1935. Bledsoe led in the number of acres with a total of 35.7 acres. Most of the cabbage produced in this county was in the eastern section on Walden Ridge; the northeast section had 14.5 acres and the southeastern section had 19.4 acres. Grundy had 29 acres in cabbage. The bulk of this acreage was in the east central part of the county where 16.2 acres were reported in cabbage in 1935.

Beans were reported on 88.5 acres in the region in 1935. Bledsoe had the largest amount in beans, with 37.3 acres. In the northeastern part of the county on Walden Ridge there were 24.2 acres of beans and in the southeastern part there were 8 acres. Cumberland had 10 acres in beans, and Grundy had 9 acres.

There were 114.9 acres of other vegetables produced in the area on very small acreages per farm.

## Fruit Production

Fruit production is not important in this area and the fruit for the most part is consumed by the farm operator's family.

Tree Fruit: Apples. In 1935 apple trees were reported on 4,069 farms, or 45.6 percent of the total in 54 civil districts lying largely on the Plateau.(3) There were about 29.0 apple trees of bearing

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(3) In 1935 there were 54 civil districts lying largely on the Plateau.

age per farm reporting, and 9.6 non-bearing trees. Grundy County Plateau section had 84.7 percent of its farms reporting apples grown, the highest percent of farms reporting, while the lowest percent was 21.3 in Claiborne County section of the Plateau. There were 15.2 trees of bearing age per farm reporting in 1935 in Grundy, with production of 18.2 bushels per farm.

TABLE LIII. PERCENT OF FARMS REPORTING APPLE TREES, TREES OF BEARING AGE PER FARM REPORTING, AND PRODUCTION PER FARM REPORTING, 54 CIVIL DISTRICTS LYING LARGELY ON PLATEAU, 1935

| County | Number of Civil Districts | Percent of Farms Reporting | Trees of Bearing Age per Farm Reporting | Bushels per Farm Reporting |
|---|---|---|---|---|
| Grundy | 3 | 84.7 | 15.2 | 18.2 |
| Sequatchie | 4 | 78.8 | 14.7 | 22.0 |
| Franklin | 2 | 69.6 | 18.5 | 15.3 |
| Bledsoe | 4 | 67.3 | 33.3 | 44.5 |
| Putnam | 1 | 64.3 | 13.2 | 11.0 |
| White | 1 | 63.2 | 19.8 | 10.6 |
| Campbell | 7 | 56.4 | 27.0 | 26.2 |
| Van Buren | 2 | 52.1 | 15.9 | 7.9 |
| Fentress | 22 | 47.9 | 19.3 | 5.2 |
| Overton | 1 | 39.4 | 18.5 | 21.4 |
| Anderson | 4 | 35.3 | 21.1 | 40.1 |
| Morgan | 12 | 34.4 | 65.4 | 19.3 |
| Cumberland | 8 | 31.3 | 19.3 | 14.6 |
| Scott | 6 | 28.5 | 43.9 | 24.4 |
| Claiborne | 2 | 21.3 | 15.4 | 41.8 |
| Average | 54 | 45.6 | 29.0 | 21.5 |

Source: Census of Agriculture, 1935.

Sequatchie was second with 78.8 percent of the farms on the Plateau reporting apples grown in 1935. This county reported 14.7 trees of bearing age per farm; a figure which was below the average of 29.0 trees of bearing age per farm reporting in 54 civil districts lying largely on the Plateau. The largest number of trees of bearing age, 13.6 trees per farm reporting, was in Fentress County as reported on 47.9 percent of the farms.

Bledsoe with 67.3 percent of the farms reporting produced 44.6 bushels of apples per farm on an average of 11.0 bearing trees per farm reporting. This production was above the average of 21.5 bushels per farm reporting in the 54 civil districts in 1935.

Peaches. There were 28.3 percent of the farms in 1935 in 54 civil districts lying largely on the Plateau reporting the growing of peaches. The average number of trees of bearing age in this area in 1935 was 11.9 trees per farm reporting. There was a production of 9.5 bushels of peaches produced per farm reporting. Sequatchie had 70.1 percent of its farms reporting peaches grown. There were 10.2 trees of bearing age per farm reporting in this county, with an average production of 12.7 bushels per farm reporting. Claiborne had 5.3 percent of its farms reporting peaches, the lowest percent in the area. There were 6.8 trees of bearing age per farm reporting in this section, and the production of peaches was 10.5 bushels per farm reporting.

The Plateau section of Anderson County had 23.7 trees of bearing age per farm reporting, and a production of 10.5 bushels per

farm reporting. Bledsoe with 47.7 percent of its farms reporting peaches had a production of 19.0 bushels per farm reporting in 1935.

TABLE LIV. PERCENT OF FARMS REPORTING THE GROWING OF PEACHES, NUMBER OF TREES OF BEARING AGE PER FARM REPORTING, AND PRODUCTION PER FARM REPORTING, 54 CIVIL DISTRICTS LYING LARGELY ON THE PLATEAU, 1935

| County | Number of Civil Districts | Pct. of Farms Reporting | Trees of Bearing Age per Farm Reporting | Bushels per Farm Reporting |
|---|---|---|---|---|
| Sequatchie | 4 | 70.1 | 10.2 | 12.7 |
| Franklin | 2 | 63.2 | 12.6 | 12.1 |
| Grundy | 3 | 56.7 | 6.7 | 5.5 |
| Van Buren | 2 | 48.5 | 15.7 | 15.8 |
| Bledsoe | 4 | 47.7 | 13.2 | 19.0 |
| Putnam | 1 | 46.4 | 9.4 | 7.9 |
| White | 1 | 45.5 | 12.9 | 7.0 |
| Fentress | 2 | 37.3 | 9.2 | 6.5 |
| Campbell | 2 | 33.5 | 14.3 | 10.1 |
| Overton | 1 | 28.2 | 12.8 | 14.1 |
| Cumberland | 8 | 19.4 | 11.3 | 5.8 |
| Morgan | 12 | 18.7 | 16.3 | 6.9 |
| Anderson | 4 | 12.9 | 23.7 | 10.5 |
| Scott | 6 | 10.3 | 11.7 | 7.9 |
| Claiborne | 2 | 5.3 | 6.3 | 10.5 |
| Average | 54 | 28.3 | 11.9 | 9.5 |

Source: Census of Agriculture, 1935.

The first five counties in percent of farms reporting peaches, namely: Sequatchie, Franklin, Grundy, Van Buren, and Bledsoe, are in the southern portion of the region. However, these sections did not

report more trees of bearing age per farm reporting, on the average, than did the northern portion of the Plateau in 1935. The production of peaches per farm reporting was slightly higher in the southern portion of the area than was the production in the northern portion.

Cherries. There were 4.5 percent of the farms in 1935 in 54 civil districts lying largely on the Plateau reporting cherry

TABLE LV. PERCENT OF FARMS REPORTING CHERRY TREES, NUMBER OF TREES OF BEARING AGE, AND PRODUCTION PER FARM REPORTING, 54 CIVIL DISTRICTS LYING LARGELY ON THE PLATEAU, 1935

| County | Number of Civil Districts | Percent of Farms Reporting | Trees of Bearing Age per Farm Reporting | Bushels per Farm Reporting |
|---|---|---|---|---|
| Grundy | 3 | 54.5 | 2.2 | .5 |
| Putnam | 1 | 54.0 | 2.7 | .7 |
| White | 1 | 45.5 | 2.8 | .5 |
| Sequatchie | 4 | 44.6 | 2.1 | 1.4 |
| Franklin | 2 | 31.2 | 2.1 | .6 |
| Campbell | 2 | 28.8 | 4.0 | .8 |
| Bledsoe | 4 | 25.4 | 4.7 | 5.1 |
| Fentress | 2 | 20.3 | 7.8 | .3 |
| Cumberland | 8 | 16.8 | 2.8 | .8 |
| Morgan | 12 | 15.0 | 4.2 | 1.2 |
| Van Buren | 2 | 14.2 | 1.9 | .5 |
| Anderson | 4 | 12.7 | 4.7 | 1.1 |
| Overton | 1 | 12.5 | 4.8 | 4.3 |
| Scott | 6 | 7.5 | 3.2 | .6 |
| Claiborne | 2 | 4.5 | 2.3 | 1.6 |

Source: Census of Agriculture, 1935.

trees. There were 2.3 trees of bearing age per farm reporting and 1.6 bushels of cherries produced per farm reporting. Grundy had 54.5 percent

of its farms reporting cherry trees in 1935. In this county there were 2.2 trees per farm reporting and .5 bushels per farm reporting produced. Claiborne had only 4.5 percent of its farms reporting cherry trees; an average of 2.3 trees of bearing age per farm reporting, and 1.6 bushels per farm reporting in 1935.

Bledsoe had the highest production, 5.1 bushels per farm reporting. This county had an average of 4.7 trees of bearing age per farm for the 25.4 percent of farms reporting.

Small Fruits: Grapes. There were 21.4 percent of the farms reporting grape vines in 1935 in 54 civil districts lying largely on the Plateau. There were 13.5 vines of bearing age per farm reporting producing 195.4 pounds of grapes per farm reporting in 1935. Grundy had 64.6 percent of its farms reporting grape vines in 1935. There were 9.5 vines of bearing age per farm reporting in this county, and 170.5 pounds of grapes were produced per farm reporting. Claiborne section had 21.4 percent of its farms reporting, and an average of 2.0 vines per farm reporting. There were 113.6 pounds of grapes per farm reporting produced in this county in 1935. Campbell had 75.2 vines per farm reporting, the highest average in the area, while Scott had 495.2 pounds of grapes produced per farm, the highest production per farm.

TABLE LVI. PERCENT OF FARMS REPORTING GRAPE VINES, NUMBER OF VINES OF BEARING AGE, AND PRODUCTION OF GRAPES, 54 CIVIL DISTRICTS LYING LARGELY ON THE PLATEAU, 1935

| County | Number of Civil Districts | Percent of Farms Reporting | Vines of Bearing Age per Farm Reporting | Pounds per Farm Reporting |
|---|---|---|---|---|
| Grundy | 3 | 64.6 | 9.5 | 170.5 |
| White | 1 | 57.3 | 5.8 | 233.2 |
| Sequatchie | 4 | 52.3 | 4.1 | 94.2 |
| Putnam | 1 | 50.2 | 4.2 | 80.4 |
| Franklin | 2 | 40.8 | 12.3 | 219.4 |
| Bledsoe | 4 | 38.7 | 7.5 | 284.7 |
| Fentress | 2 | 28.6 | 9.0 | 133.0 |
| Cumberland | 8 | 18.2 | 6.5 | 136.7 |
| Campbell | 2 | 16.0 | 75.2 | 307.7 |
| Morgan | 12 | 15.6 | 12.5 | 195.1 |
| Anderson | 4 | 10.4 | 25.0 | 107.6 |
| Scott | 6 | 6.6 | 15.8 | 496.2 |
| Overton | 1 | 5.6 | 4.7 | 229.3 |
| Van Buren | 2 | 2.2 | 2.0 | 10.0 |
| Claiborne | 2 | 1.7 | 2.0 | 113.6 |
| Average | 54 | 21.4 | 13.5 | 195.4 |

Source: Census of Agriculture, 1935.

Strawberries. Only 1.4 percent of the farms in the 54 civil districts lying largely on the Plateau reported the growing of strawberries in 1935. There were .27 acres per farm reporting in the area, and there were 155.6 quarts produced per farm reporting. Those counties not reporting strawberries in the civil districts found on the

Plateau were: Claiborne, Sequatchie, Van Buren, and White counties. Putnam County had 11.3 percent of its farms reporting strawberries in 1935. There were .14 acres per farm reporting in this county and 59.6 quarts produced per farm reporting. Bledsoe had 1.3 percent of its farms reporting, and had an average of .50 acres per farm reporting

TABLE LVII. PERCENT OF FARMS REPORTING THE GROWING OF STRAWBERRIES, ACRES PER FARM REPORTING, AND PRODUCTION PER FARM REPORTING, 54 CIVIL DISTRICTS LYING LARGELY ON THE PLATEAU, 1935

| County | Number of Civil Districts | Percent of Farms Reporting | Acres per Farm Reporting | Number of Quarts per Farm Reporting |
|---|---|---|---|---|
| Putnam | 1 | 11.3 | .14 | 59.6 |
| Grundy | 3 | 5.5 | .35 | 67.8 |
| Morgan | 12 | 2.2 | .28 | 236.7 |
| Fentress | 2 | 1.5 | .13 | 36.7 |
| Bledsoe | 4 | 1.3 | .50 | 783.3 |
| Campbell | 2 | 1.3 | .20 | 49.1 |
| Anderson | 4 | 1.3 | .14 | 59.1 |
| Cumberland | 8 | 1.2 | .43 | 179.6 |
| Franklin | 2 | .8 | .10 | 900.0 |
| Scott | 6 | .3 | .29 | 62.1 |
| Overton | 1 | .1 | .10 | 400.0 |
| Claiborne | 2 | - | - | - |
| Sequatchie | 4 | - | - | - |
| Van Buren | 2 | - | - | - |
| White | 1 | - | - | - |
| Average | 54 | 1.4 | .27 | 155.6 |

Source: Census of Agriculture, 1940.

in strawberries. Although Franklin had only .8 percent of the farms in two civil districts reporting strawberries, it produced 900 quarts per farm reporting on an average of .10 acre per farm in 1935.

Other Small Fruits. Other small fruits are produced in small family gardens in the area as bramble fruits, but their production is very insignificant.

## Crop Rotation

Crop rotation is practiced on very few of the farms. Those farms that do practice crop rotation are the larger and more progressive farms. About 15 percent of the farms in Morgan and Cumberland County use crop rotation while less than .5 percent practice crop rotation in Fentress.(4) There is a need of a systematic crop rotation plan on the farms in this area.

The crop rotation followed in Fentress County is: Irish potatoes; wheat, oats, or rye; hay, crimson clover, or corn. The crop rotation commonly found in Morgan is, potatoes the first year followed by lespedeza the second and third years. A suggested rotation for the area would be: (1) corn (rye cover crop); (2) rye (followed by lespedeza and red top pasture); (3) pasture; (4) potatoes (followed by crimson clover.

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(4) Tennessee Valley Authority, Agricultural - Industrial Survey, Industrial Division of Tennessee Valley Authority, reports on Morgan and Fentress, 1935. Knoxville, Tennessee.

## Livestock Production

The Cumberland Plateau is considered more favorable for livestock production than for cash crops. In livestock production, the range type predominates; beef cattle, sheep, and hogs being most important. In relation to all farm land, the number of beef cattle, sheep and hogs are about the State average. However, they are considerably above average in relation to improved land.(5)

In 1935, there were 4.86 animal units per farm for all farms in 54 civil districts lying largely on the Plateau.(6) Cattle were the most important with 2.79 per farm, followed in turn by horses and mules, swine, chickens, sheep, and goats. Goats were the least important with .03 animal units per farm.

Van Buren County had 7.62 animal units per farm, the largest number for any county section on the Plateau in 1935. Overton Plateau section had an average of 2.39 animal units, the smallest number per farm.

Cattle and Calves, All Ages: Feeder and stocker cattle are the principal classes of livestock produced in the area for market purposes, while dairy cattle are kept mainly to furnish milk and butter for home consumption and to raise calves.

In 1935, for 54 civil districts lying largely on the Plateau, there were 82.8 percent of the farms reporting cattle and calves all ages. There were 5.6 cattle and calves all ages per farm reporting.

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(5) B. H. Luebke, S. W. Atkins, and C. E. Allred, Types of Farming in Tennessee, Bulletin #169, Agricultural Experiment Station, University of Tennessee.

(6) One animal unit is the equivalent of one mature horse or cow. The following equal one animal unit: 2 colts, 2 heifers, 4 calves, 7 ewes or bucks, 14 lambs, 5 brood sows, 5 other hogs, 10 pigs, or 100 mature chickens.

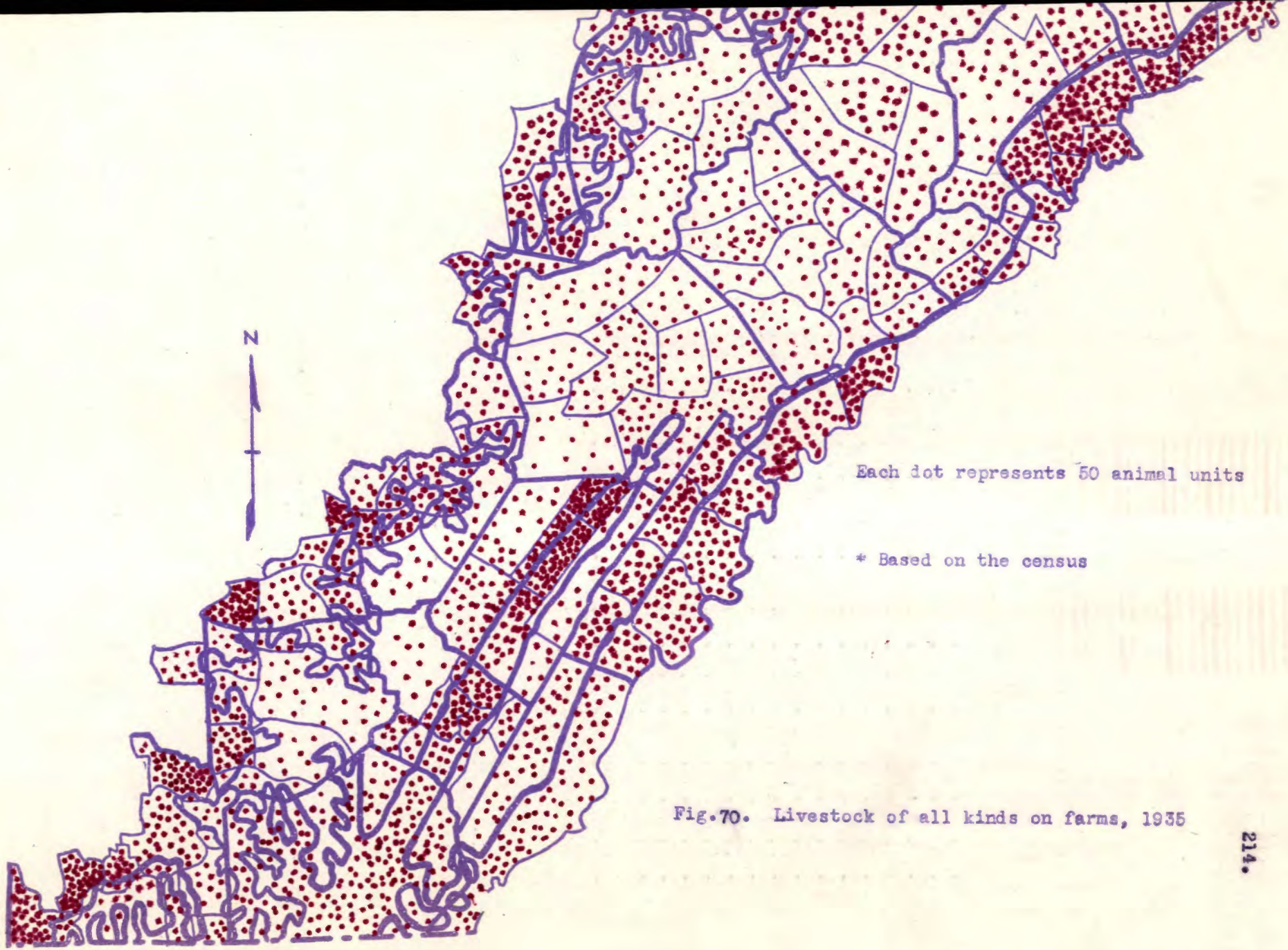
TABLE LVIII. NUMBER OF ANIMAL UNITS PER FARM (ALL FARMS), 54 CIVIL DISTRICTS LYING LARGELY ON THE PLATEAU, 1935

| County | No. C.D. | Horses and Mules | Cattle | Sheep | Swine | Goats | Chickens | Total |
|---|---|---|---|---|---|---|---|---|
| Anderson | 4 | .69 | 2.12 | .00 | .65 | .01 | .22 | 3.71 |
| Bledsoe | 4 | 1.24 | 4.19 | .40 | 1.84 | .11 | .30 | 8.11 |
| Campbell | 2 | .84 | 2.59 | .02 | .25 | .00 | .25 | 3.97 |
| Claiborne | 2 | .45 | 1.67 | .12 | 1.10 | .12 | .23 | 3.73 |
| Cumberland | 8 | 1.12 | 4.87 | .40 | 1.41 | .03 | .27 | 8.16 |
| Fentress | 2 | .83 | 2.85 | .16 | .83 | .02 | .22 | 4.98 |
| Franklin | 2 | .89 | 3.88 | .13 | 1.86 | .02 | .28 | 7.07 |
| Grundy | 3 | .68 | 2.37 | .22 | .71 | .11 | .19 | 4.09 |
| Morgan | 12 | .92 | 2.90 | .20 | .38 | .01 | .23 | 4.66 |
| Overton | 1 | .61 | 1.24 | .19 | .34 | .00 | .17 | 2.39 |
| Putnam | 1 | .73 | 1.67 | .32 | .34 | .04 | .20 | 3.02 |
| Scott | 6 | .68 | 1.98 | .15 | .58 | .02 | .21 | 3.64 |
| Sequatchie | 4 | .87 | 3.67 | .07 | .99 | .03 | .24 | 5.89 |
| Van Buren | 2 | .92 | 3.25 | .55 | 2.64 | .03 | .23 | 7.62 |
| White | 1 | .89 | 4.02 | .16 | 1.16 | .01 | .23 | 6.50 |
| Total | 54 | .83 | 2.79 | .17 | .79 | .03 | .23 | 4.86 |

Source: Census of Agriculture, 1935.

The lowest number of cattle and calves, 2.4, was reported for the Plateau section in Claiborne County. Counties reporting the highest number of cattle and calves of all ages per farm reporting were: Van Buren, 6.8; Grundy, 5.1; Fentress, 4.9; Morgan, 4.8; and Scott, 3.6.

Calves Under One Year Old: Calves under one year old were reported on 51.3 percent of the farms in 1935 in 54 civil districts lying largely on the Plateau. There was an average of 2.7 calves per herd.




Each dot represents 50 animal units

* Based on the census

Fig.70. Livestock of all kinds on farms, 1935

The highest average was 4.1 calves per herd in Warren County, while the lowest, 1.7 calves per farm, was found in Claiborne in 1935. The highest percent of farms reporting calves in 1935 in Plateau sections of the following were: Franklin, 66.1 percent; Sequatchie, 61.8 percent; Bledsoe, 59.7 percent; and Cumberland, 52.5 percent. The Plateau section reporting the lowest percent of farms raising calves was Claiborne with 29.2 percent.

Heifers: There were 31.5 percent of the farms in 1935 in the 54 civil districts lying largely on the Plateau reported as having heifers over one year old and under two years old. The average size of herd was 2.4 head in 1935. The Plateau farms in Warren had 3.5 heifers per farm reporting, the highest number per farm, while the lowest number of heifers per farm reporting for the same year was 1.4 on Plateau farms in Overton County.

Cows and Heifers 2 Years Old and Over: Cows and heifers 2 years old and over were reported in 1935 as kept on 97.4 percent of the farms in 54 civil districts lying largely on the Plateau. The average size herd was 2.9 animals per farm. The highest average per farm reporting was 4.8 cows and heifers per farm in Bledsoe in 1935.

Beef Cows and Heifers. In 1939 there was 8.9 percent of the farms reporting beef cows and heifers in the ten Plateau counties. There was 5.2 percent of the farms reporting beef cows and heifers in 1929 in the same counties. Bledsoe County led in number of

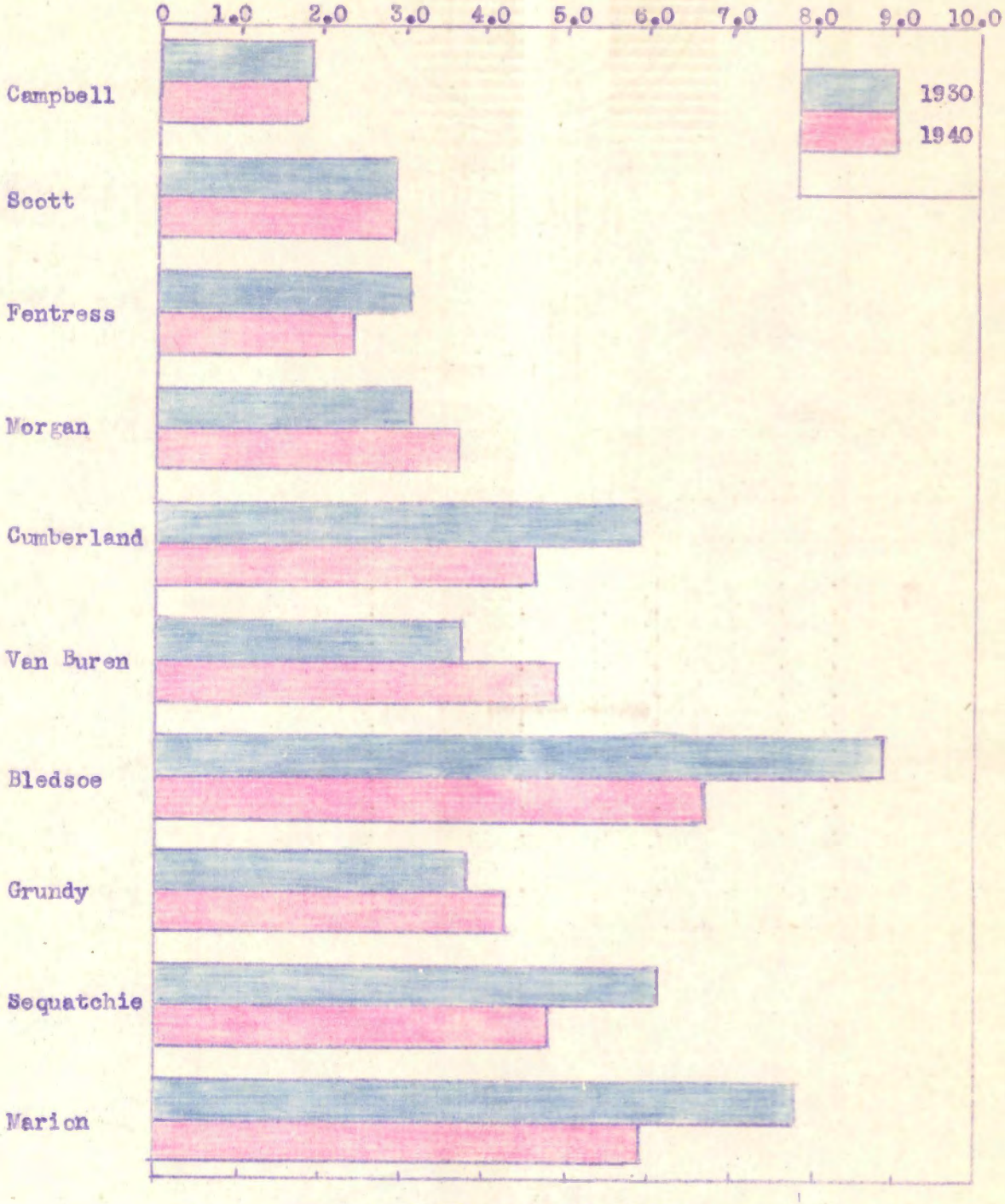
farms reporting with a percent of 31.7 of all farms. This county had a percent increase of 22.6 of farms reporting in 1939 as compared to farms reporting in 1929. Each county had an increase in percent of farms reporting except Cumberland, Campbell, and Scott Counties (Table LIX).

TABLE LIX. PERCENT OF FARMS REPORTING BEEF COWS AND HEIFERS AND NUMBER PER FARM REPORTING, TEN PLATEAU COUNTIES, 1929, 1939

| | Percent of Farms Reporting | | Number per Farm Reporting | |
|---|---|---|---|---|
| | 1929 | 1939 | 1929 | 1939 |
| Bledsoe | 9.1 | 31.7 | 8.9 | 6.7 |
| Sequatchie | 3.9 | 15.3 | 6.1 | 4.8 |
| Marion | 6.6 | 13.4 | 7.8 | 5.9 |
| Morgan | 2.7 | 12.6 | 3.1 | 3.7 |
| Grundy | 7.8 | 8.3 | 3.8 | 4.3 |
| Cumberland | 8.6 | 6.9 | 5.9 | 4.6 |
| Van Buren | 2.6 | 5.7 | 3.7 | 4.9 |
| Campbell | 4.6 | 3.9 | 1.9 | 1.8 |
| Fentress | 2.7 | 3.7 | 3.1 | 2.4 |
| Scott | 2.7 | 1.6 | 2.9 | 2.9 |
| Average | 5.2 | 8.9 | 4.7 | 4.2 |

Source: Census of Agriculture, 1940.

In 1939 there was an average of 4.2 beef cows and heifers per farm herd in the ten Plateau counties. Bledsoe had the highest average, 6.7 animals per farm herd in 1939, while Campbell had the lowest, 1.8 animals per farm herd. Those counties having an increase in number




* Census of Agriculture, 1930, 1940

Fig.71. Comparison of number of cows and heifers kept mainly for beef in ten Plateau Counties, 1930, 1940




Fig.72. Number of cows and heifers kept mainly for beef, 1930*

of cows and heifers per farm reporting in 1940 as compared to 1930 were: Van Buren, 1.2 animals per farm; Morgan, .6 animals per farm; and Grundy, .5 animals per farm. The counties found in the southern half of the area had a greater number of cows and heifers kept for beef than did those in the northern section of the region.

In 1930, the southeastern part of Cumberland County showed the heaviest concentration of cows or heifers kept mainly for beef (Figure 72). Several civil districts did not report any cows and heifers kept for beef in 1930. These civil districts are found in the northeast corner of the Plateau in Claiborne, the western part of the Franklin County, the northeast corner of Sequatchie, and the northwest corner of the same county, the northeast corner of Morgan and the western part of White County (Figure 72).

Dairy Cows and Heifers. There was 74.4 percent of the farms in ten Plateau counties in 1939 reported as keeping dairy cows and heifers. The percent of farms in 1935 for the same counties reporting dairy cows and heifers was 75.1 percent. Van Buren led the counties in 1939 with 82.9 percent of the farms reporting, while Morgan had the lowest, 68.4 percent reporting (Table LX).

Dairy animals were kept on more farms in this area than were beef animals, but the number of dairy cows and heifers was less per farm herd. There was an average of 2.0 dairy cows and heifers per farm reporting for the ten Plateau counties in 1939 (Table LX). In 1929 there were 2.1 dairy cows and heifers per farm herd in the area.

TABLE LX. PERCENT OF FARMS REPORTING DAIRY COWS AND HEIFERS AND NUMBER PER FARM REPORTING, TEN PLATEAU COUNTIES, 1929, 1939

| | Percent of Farms Reporting | | Number per Farm Reporting | |
|---|---|---|---|---|
| | 1929 | 1939 | 1929 | 1939 |
| Van Buren | 73.1 | 82.9 | 2.2 | 2.5 |
| Marion | 68.1 | 81.7 | 2.1 | 2.3 |
| Bledsoe | 71.8 | 79.7 | 3.0 | 2.4 |
| Scott | 80.3 | 79.7 | 1.6 | 1.5 |
| Grundy | 70.9 | 78.6 | 2.2 | 2.1 |
| Campbell | 83.8 | 74.4 | 11.8 | 1.7 |
| Fentress | 71.2 | 72.0 | 1.8 | 1.9 |
| Sequatchie | 59.0 | 71.4 | 3.0 | 2.3 |
| Cumberland | 78.3 | 68.9 | 2.0 | 1.8 |
| Morgan | 77.0 | 68.4 | 1.8 | 1.9 |
| Average | 75.1 | 74.4 | 2.1 | 2.0 |

Source: Census of Agriculture, 1940.

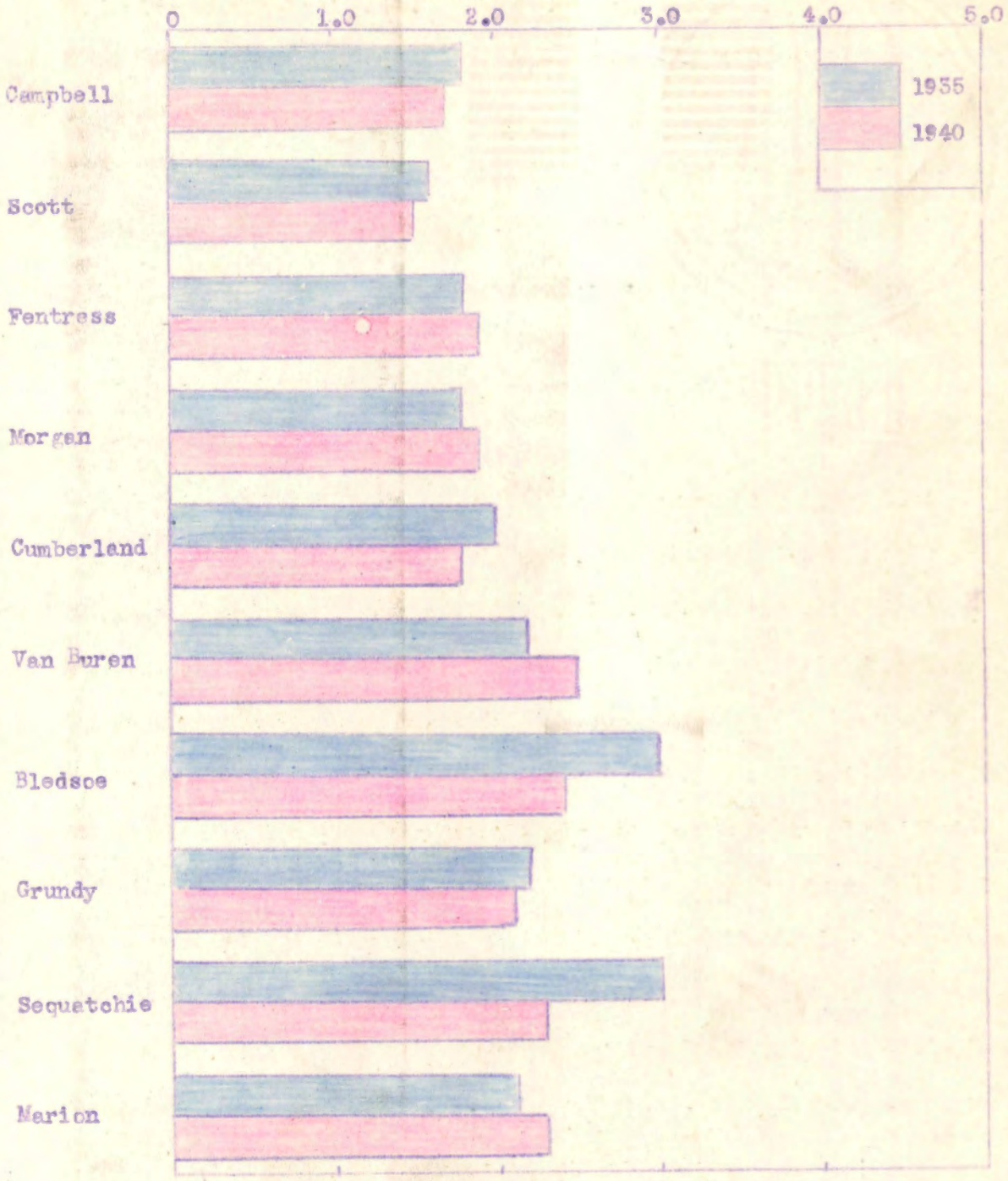
In 1935 there were 61 cows milked in this area per 1000 acres of cleared land. This was the second largest average for the State as a whole, but when it is realized that many of the cattle are raised on woodland range the explanation is clear. The number of cows milked in proportion to the size of population is relatively small and milk consumed is below normal.

The number of cows and heifers milked in 1940 as compared to the number milked in 1935 showed a decrease on a per farm reporting basis. The counties having decreases in number of cows and heifers milked per farm herd in 1939 as compared with 1929 and the decrease in number per farm herd were: Sequatchie, .7 animals; Bledsoe, .6

animals; and Cumberland, .2 animals. Grundy, Scott, and Campbell each had a decrease of .1 animals per farm reporting milked in 1939 as compared to 1929.

The average number of cows and heifers milked per farm reporting in 1935 was 1.9 animals. The section having the highest number of animals milked per farm herd, 2.9 cows and heifers, was in Franklin County. The lowest number of animals milked, 1.3 cows and heifers per farm reporting, was in the northeastern part of the region in Claiborne County.

Figure 74 shows the distribution of cows and heifers kept mainly for milk in 1930. In the main, the distribution was fairly equally distributed throughout the region. However, indications at the present time are that milk producing animals are being increased. Plans under the present war situation are stressing the production of milk. Many farms in the northeast section of the region in Morgan and Campbell counties are increasing their milk herds to supply milk to the industrial towns just off the Plateau in East Tennessee Valley that are progressing in industrial activity. The smallest size herds were 1.7 cows and heifers per farm in the Plateau section of Anderson County. The number of cows and heifers per farm herd in 1935 in the following counties were: Cumberland, 3.6; Van Buren, 3.4; Fentress, 2.7; Grundy, 2.5; Morgan, 2.4; and Scott, 1.8.




* Appendix table XII; Census 1940

Fig. 73. Comparison of number of cows and heifers milked per farm in ten Plateau Counties, 1935, 1940

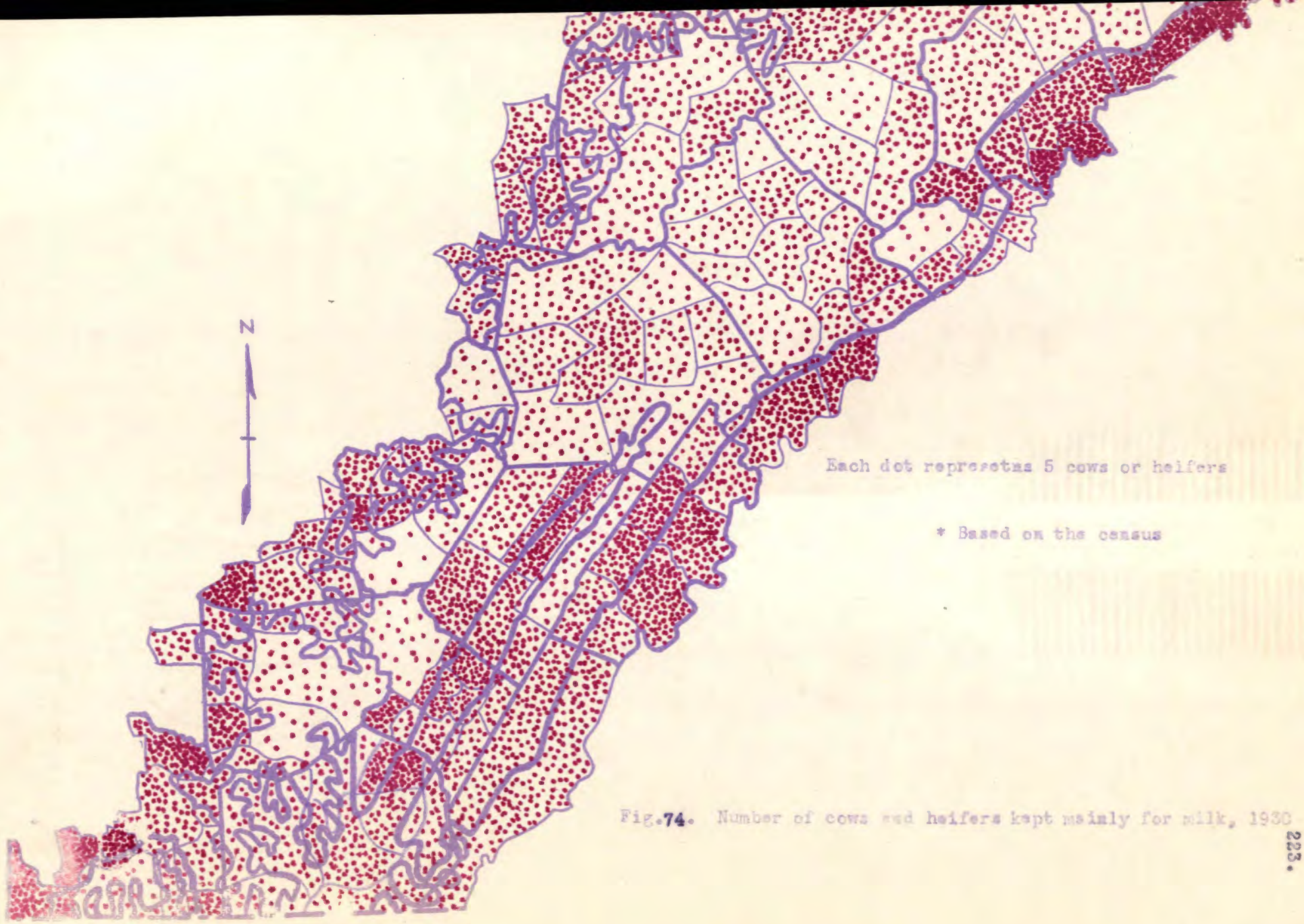



Fig.74. Number of cows and heifers kept mainly for milk, 1930

Steers and Bulls: In 1935 the number of steers and bulls per 1000 acres of cleared land was 22. Eighteen percent of the Plateau farms in 1935 reported the keeping of steers and bulls. There were 3.7 animals per farm herd in the 54 civil districts lying largely on the Plateau. Bledsoe County, in 1935, reported steers and bulls on 28.6 percent of the farms reporting and Cumberland County reported them on 22.2 percent of the farms reporting.

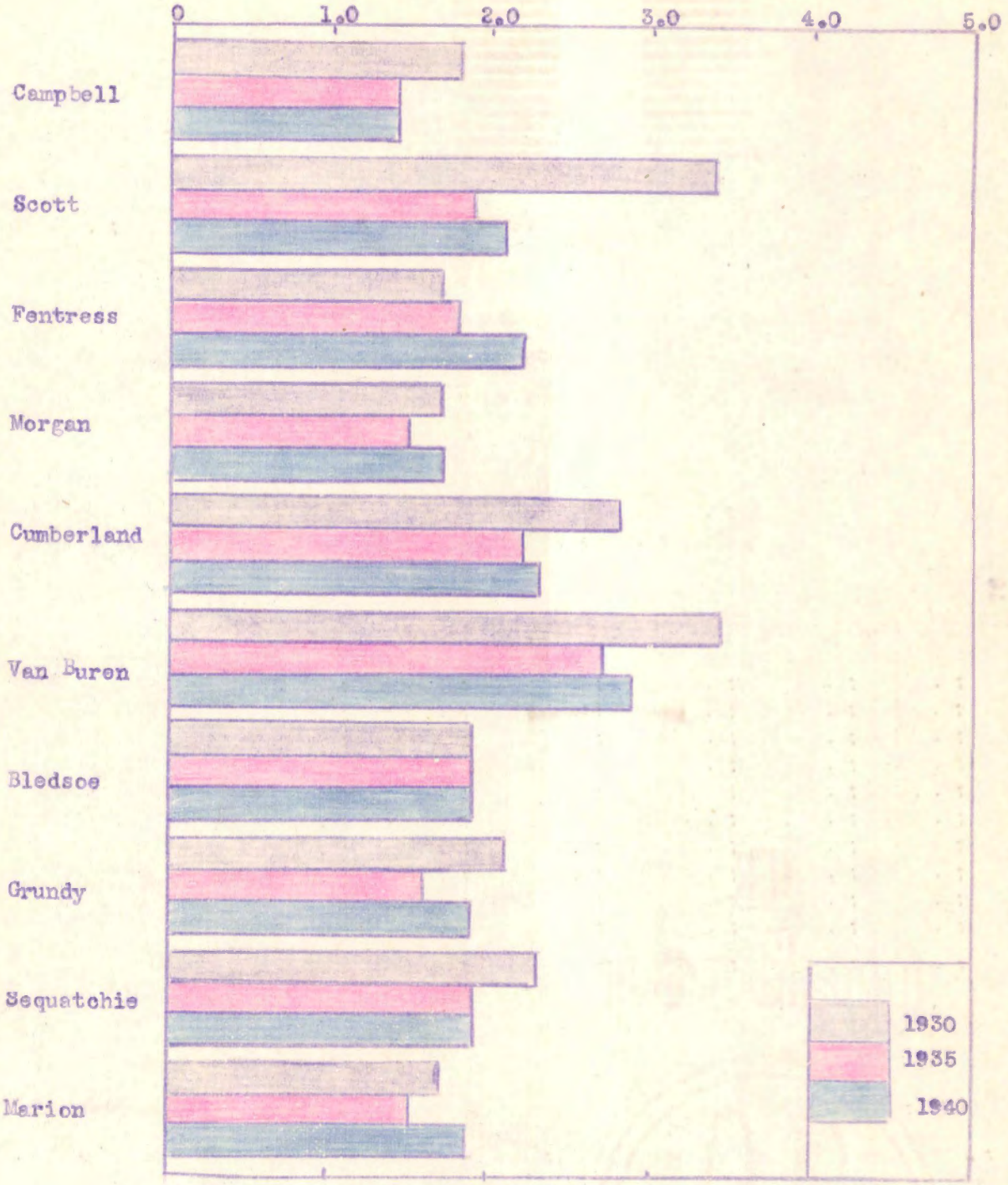
Swine: Swine production in this area is principally for home consumption with a small portion being sold off the farm. The hogs are raised mainly on mast gathered on range.

TABLE LXI. PERCENT OF FARMS REPORTING SOWS AND GILTS FARROWING, AND NUMBER PER FARM REPORTING, TEN PLATEAU COUNTIES, 1930, 1935, 1940

| County | Percent of Farm Reporting | | | Number per Farm Reporting | | |
|---|---|---|---|---|---|---|
| | 1930 | 1935 | 1940 | 1930 | 1935 | 1940 |
| Bledsoe | 20.7 | 53.6 | 51.6 | 1.9 | 1.9 | 1.9 |
| Van Buren | 25.4 | 42.5 | 44.7 | 3.4 | 2.7 | 2.9 |
| Grundy | 19.3 | 27.1 | 39.8 | 2.1 | 1.6 | 1.9 |
| Cumberland | 19.5 | 39.5 | 28.4 | 2.8 | 2.2 | 2.3 |
| Sequatchie | 18.2 | 32.6 | 27.2 | 2.3 | 1.9 | 1.9 |
| Marion | 21.2 | 28.6 | 22.6 | 1.7 | 1.5 | 1.9 |
| Fentress | 16.4 | 28.5 | 22.2 | 1.7 | 1.8 | 2.2 |
| Campbell | 8.2 | 10.7 | 10.6 | 1.8 | 1.4 | 1.4 |
| Scott | 7.9 | 10.7 | 9.5 | 3.4 | 1.9 | 2.1 |
| Morgan | 11.5 | 7.0 | 9.2 | 1.7 | 1.8 | 1.7 |
| Average | 15.3 | 24.1 | 22.5 | 2.3 | 1.9 | 2.0 |

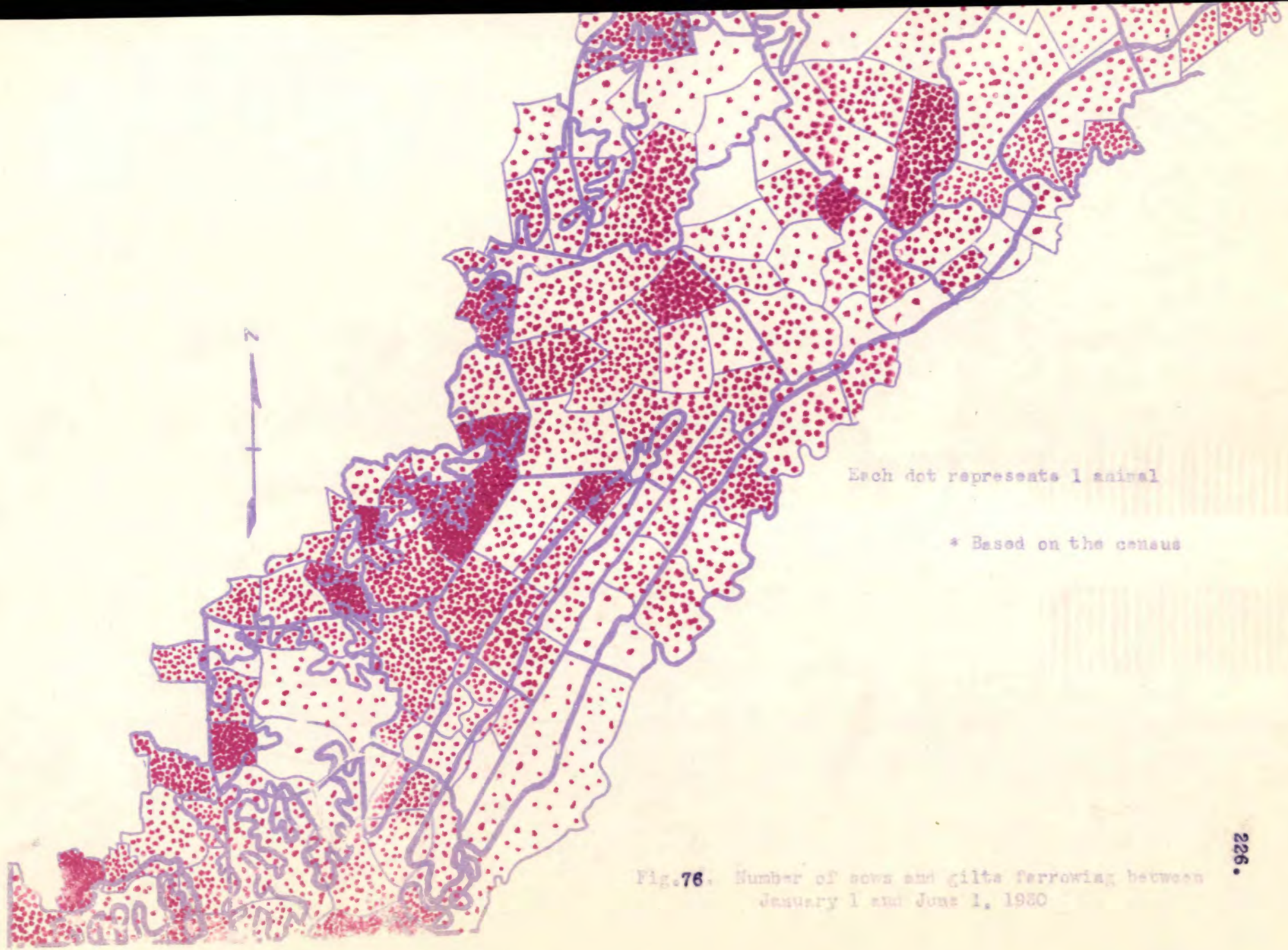
Source: Census of Agriculture, 1940.

There was 22.5 percent of the farms in the ten Plateau counties in 1940 reported as keeping sows and gilts farrowing (Table LXI). Bledsoe County led the other counties with 51.6 percent of the farms reporting, while Morgan was lowest with 9.2 percent of the farms reporting. The




* Appendix table XIV; Census, 1930, 1940

Fig. 75. Comparison of number of sows and gilts per farm in ten Plateau Counties, 1930, 1935, 1940



Each dot represents 1 animal

* Based on the census

Fig. 76. Number of sows and gilts farrowing between January 1 and June 1, 1930

percent of farms reporting in 1935 was higher than the percent of farms reporting in 1940.

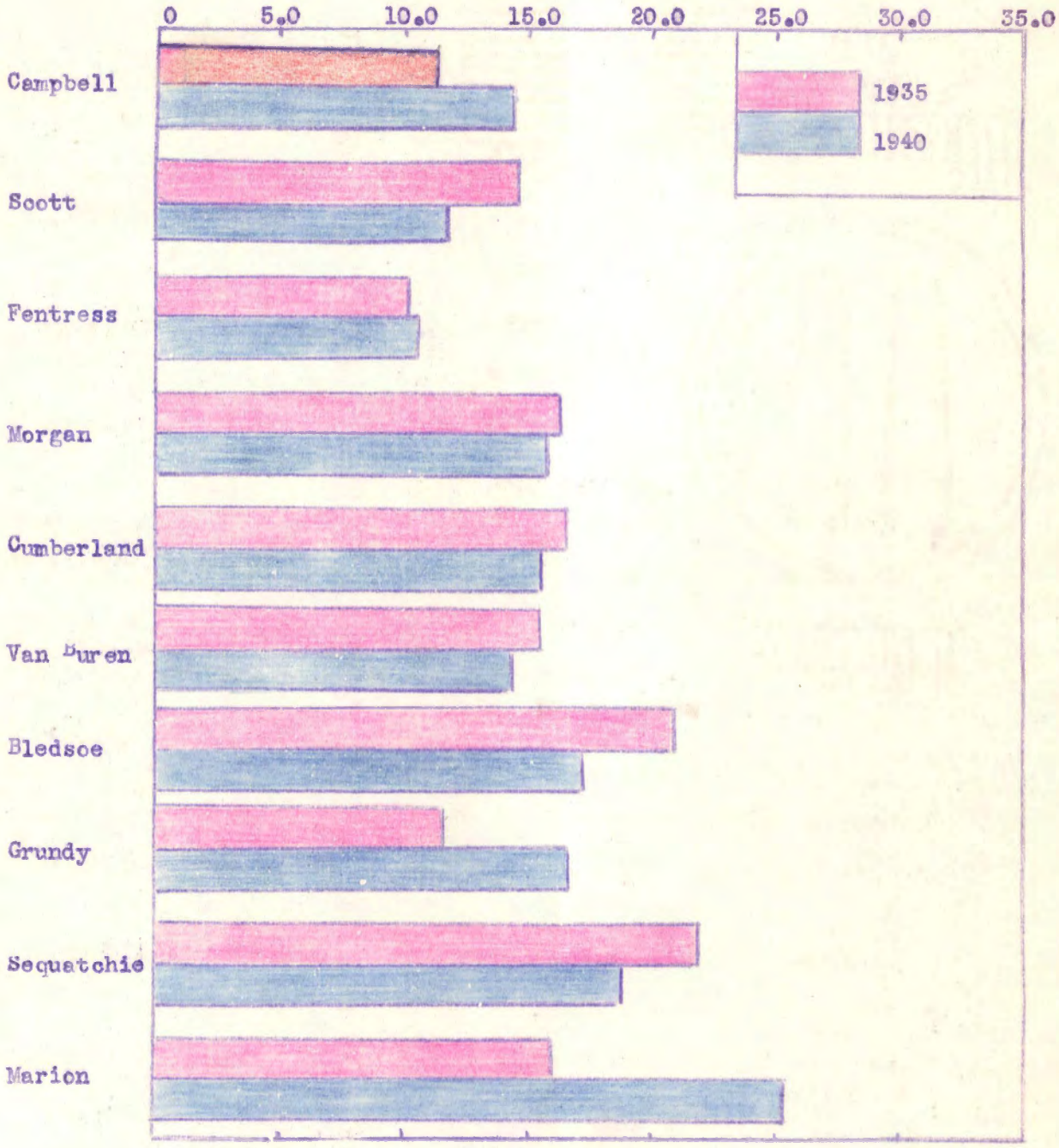
In 1940, the average number of sows and gilts farrowing was 2.0 animals per farm reporting in the ten Plateau counties. The number of sows and gilts farrowing in 1940 was lower than the 1930 average but greater than the 1935 average (Table LXI). Van Buren has consistently led since 1930 in the number of sows and gilts farrowing per farm herd. There was 24.1 percent of the farms reporting in 1935 with an average of 1.9 sows and gilts farrowing per farm reporting.

In 1935 there was an average of 7.2 swine, all ages, per farm reporting for the civil districts lying largely on the Plateau. Sections of the Plateau in 1935 having above average number of swine of all ages per farm herd were: Van Buren, 15.8 animals; Franklin, 13.9 animals; Bledsoe, 10.9 animals; Cumberland, 10.5 animals; Sequatchie, 7.9 animals; and White, 7.7 animals.

Figure 76 shows the number of sows and gilts farrowing between January 1 and June 1, 1930. The heaviest concentration of sows and gilts farrowing was in the northeastern part of Van Buren County. On the whole the distribution was fairly well spread throughout the area with a few civil districts having a concentration of animals.

Sheep and Lambs: There was 8.5 percent of the farms in 1940 in the ten Plateau counties reporting sheep and lambs; in 1935, there was 9.6 percent (Table LXII). Van Buren led the counties with 20.5 percent of its farms reporting, while only .2 percent of the farms reported sheep and lambs in Campbell.

The average number of sheep and lambs per farm herd in 1940 in the ten Plateau counties was 16.1 animals. The number per farm report-




* Appendix table XIII; Census, 1940

Fig.77. Comparison of number of sheep and lambs per farm in ten Plateau Counties, 1935, 1940

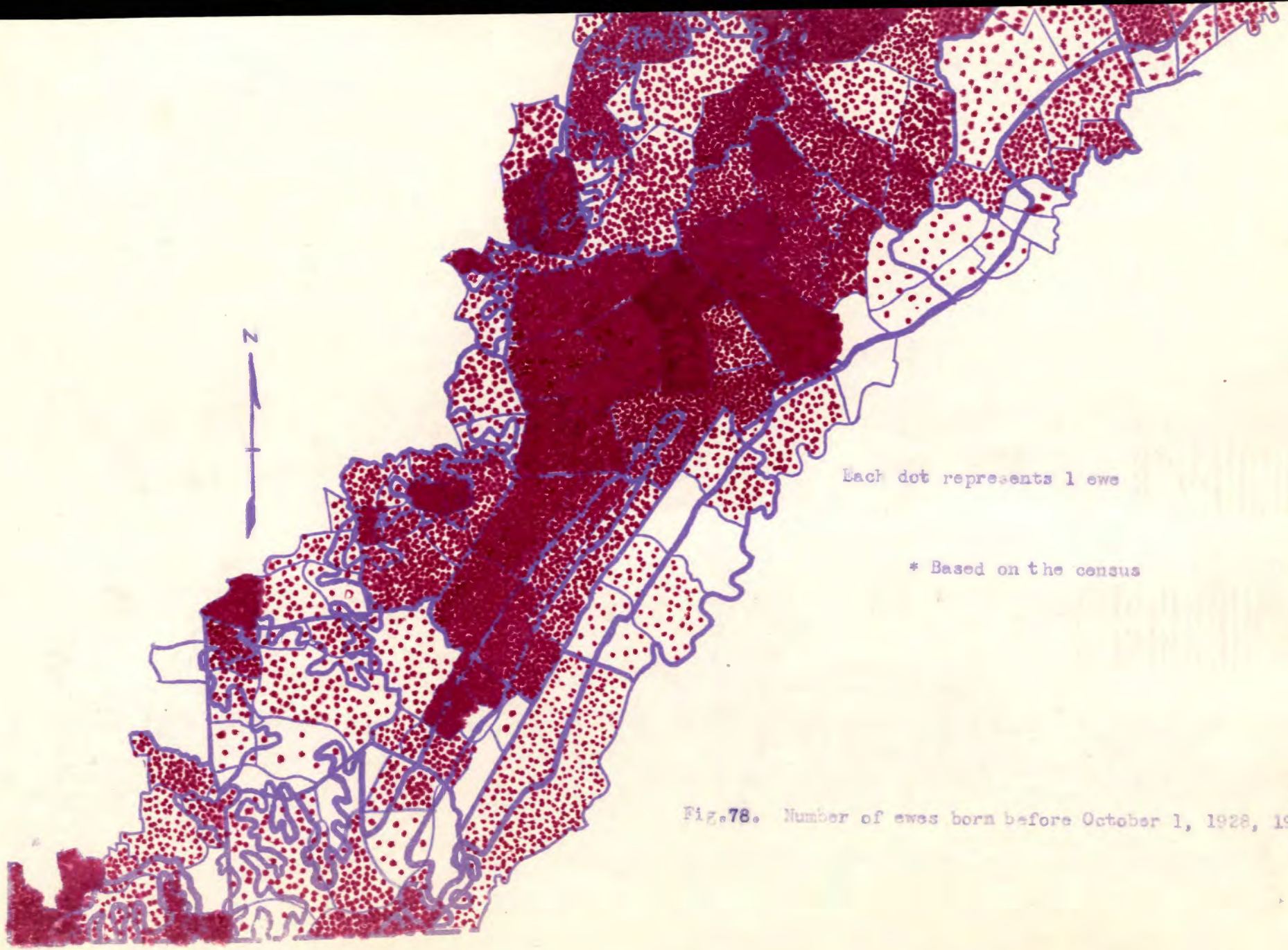



Fig.78. Number of ewes born before October 1, 1928, 1930*

ing in 1935 was 15.3 per farm; an increase of .8 sheep and lambs in 1940 as compared with 1935 (Table LXII). Marion, which led in number of sheep and lambs per farm herd in 1940, increased the number per farm in 1940 as compared to 1935 by 10.9 sheep and lambs. Marion County had nearly double the average per farm reporting for the ten counties in 1940. Other counties having increases in sheep and lambs per farm herd and the increases in 1940 as compared to 1935 were: Grundy, 5.1 animals; Campbell, 3.4 animals; and Fentress, .3 animals. The other seven counties had decreases in 1940 as compared with 1935 on a per farm herd basis (Figure 77).

TABLE LXII. PERCENT OF FARMS REPORTING SHEEP AND LAMBS, AND NUMBER PER FARM, TEN PLATEAU COUNTIES, 1935, 1940

| County | Percent of Farms Reporting | | Number per Farm Reporting | |
|---|---|---|---|---|
| | 1935 | 1940 | 1935 | 1940 |
| Van Buren | 16.4 | 20.5 | 15.6 | 14.4 |
| Cumberland | 21.8 | 18.5 | 16.7 | 15.6 |
| Morgan | 13.5 | 10.7 | 16.3 | 15.9 |
| Bledsoe | 14.9 | 10.0 | 20.9 | 17.2 |
| Scott | 10.3 | 7.8 | 14.6 | 11.7 |
| Fentress | 15.1 | 6.7 | 10.3 | 10.6 |
| Sequatchie | 7.0 | 6.2 | 21.9 | 18.9 |
| Grundy | 4.0 | 5.9 | 11.6 | 16.7 |
| Marion | 3.1 | 4.8 | 14.4 | 25.3 |
| Campbell | 1.5 | .2 | 11.1 | 14.5 |
| Average | 9.6 | 8.5 | 15.3 | 16.1 |

Source: Census of Agriculture, 1935, 1940.

In 1935 the number of ewes one year old and over per farm reporting was 12.3 animals per farm. Morgan County had 172 farms reporting an average of 12.2 ewes one year old and over per farm. Cumberland

in the same year had 213 farms reporting an average of 14.9 ewes per farm. The total number of ewes in Cumberland in 1935 was 3,171 and 2,103 ewes were in Morgan.

Figure 78 shows the number of ewes for 1930 that were born before October 1, 1928. The greatest number of ewes by far were found on farms in the central part of the region in Bledsoe, Cumberland, and in Morgan.

Poultry: Poultry for the most part consists of chickens. Although a small enterprise on individual farms, the number of chickens in the area is relatively great. In 1935 the number of chickens per 1000 acres of cleared land was 1,196 birds the highest average for the state.(7) On many farms the sale of poultry or eggs was a large factor in the source of income. However, poultry is raised mostly for consumption by the farm family. Chickens are kept in small farm flocks with the birds having the run of the farm and acquiring most of their feed in this way.

There was 87.0 percent of the farms in the ten Plateau counties in 1940 reporting chickens. The average size of flock in 1935 was 86.4 birds (Table LXIII). Scott County led the other counties with 91.0 percent of the farms reporting, while Bledsoe had the lowest, 81.6 percent of the farms reporting.

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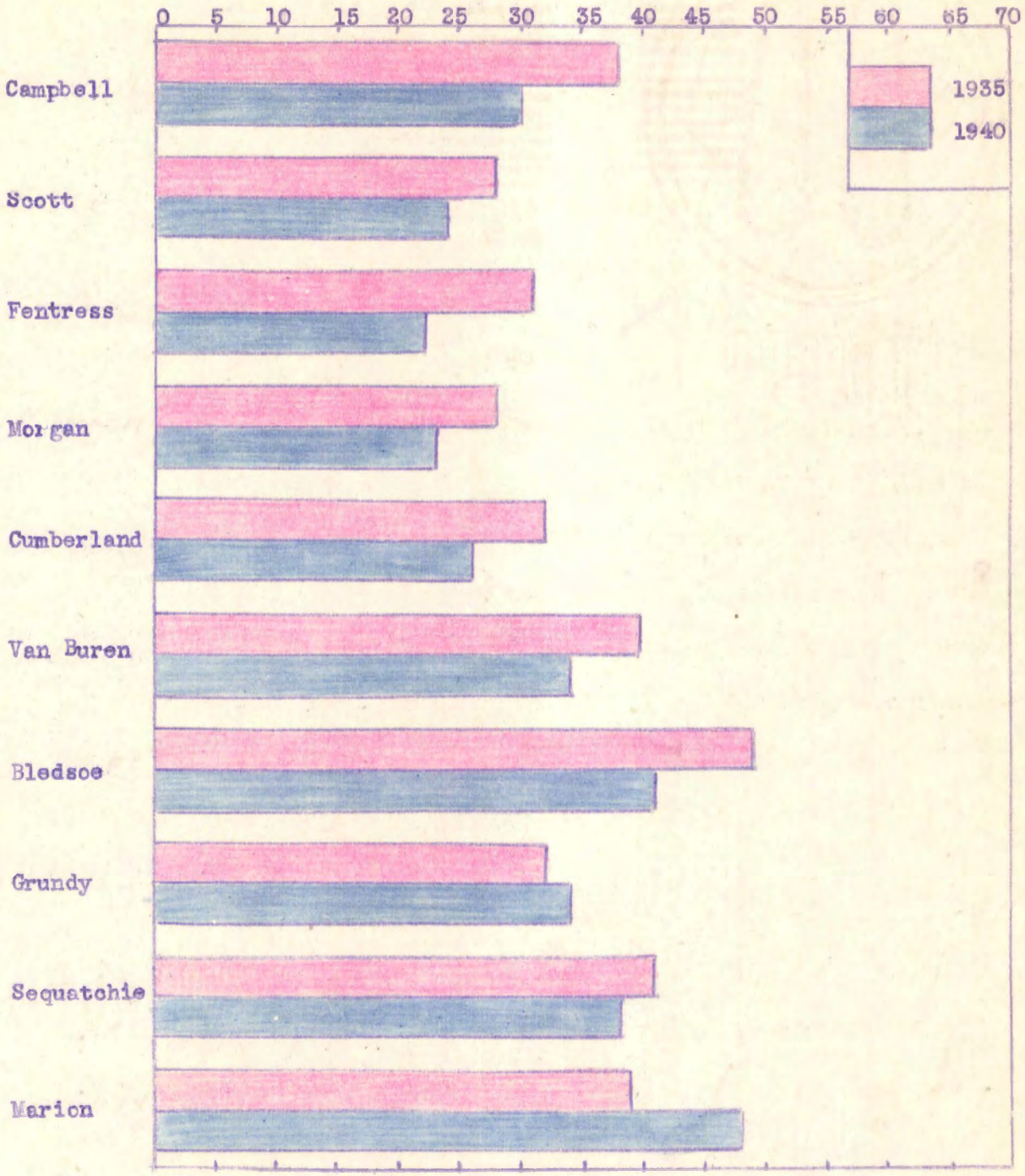
(7) B. H. Luebke, S. W. Atkins, Types of Farming in Tennessee, Bulletin #169, Agricultural Experiment Station, University of Tennessee, Knoxville, Tennessee, 1939.




* Census of Agriculture, 1935, 1940

Fig.79. Comparison of number of chickens per farm in ten Plateau Counties, 1935, 1940




Fig. 80. Number of chickens, over 3 months old, on farms, 1930

TABLE LXIII. PERCENT OF FARMS REPORTING CHICKENS AND NUMBER PER FARM, TEN PLATEAU COUNTIES, 1935, 1940

| County | Percent of Farms Reporting | | Number per Farm Reporting | |
|---|---|---|---|---|
| | 1935 | 1940 | 1935 | 1940 |
| Scott | 76.4 | 91.0 | 28.3 | 24.1 |
| Van Buren | 90.1 | 90.4 | 39.9 | 33.9 |
| Marion | 89.0 | 90.1 | 38.9 | 48.3 |
| Morgan | 82.5 | 88.6 | 28.2 | 23.4 |
| Grundy | 89.3 | 87.8 | 32.2 | 34.2 |
| Sequatchie | 94.8 | 85.9 | 41.2 | 37.5 |
| Fentress | 90.2 | 85.4 | 31.3 | 22.3 |
| Campbell | 85.0 | 85.0 | 38.3 | 30.2 |
| Cumberland | 86.0 | 82.5 | 31.8 | 26.2 |
| Bledsoe | 94.7 | 81.6 | 49.1 | 41.4 |
| Total | 86.4 | 87.0 | 35.9 | 32.2 |

Source: Census of Agriculture, 1940.

The average size of flock was 32.2 chickens in 1940 for the ten Plateau counties. In 1935 it was 35.9, a decrease of 3.7 birds per farm. Two of the ten counties had an increase in number of chickens per farm from 1935 to 1940. These counties and the increase per farm were: Marion, 9.4 chickens, and Grundy, 2.0 chickens. However, even though there was a decrease in number of chickens per farm flock, the total number of chickens in the area has increased from 1935 to

1940. In 1935 there were about 381,078 chickens on farms in the area, while in 1930 there were 260,929 chickens in the area.

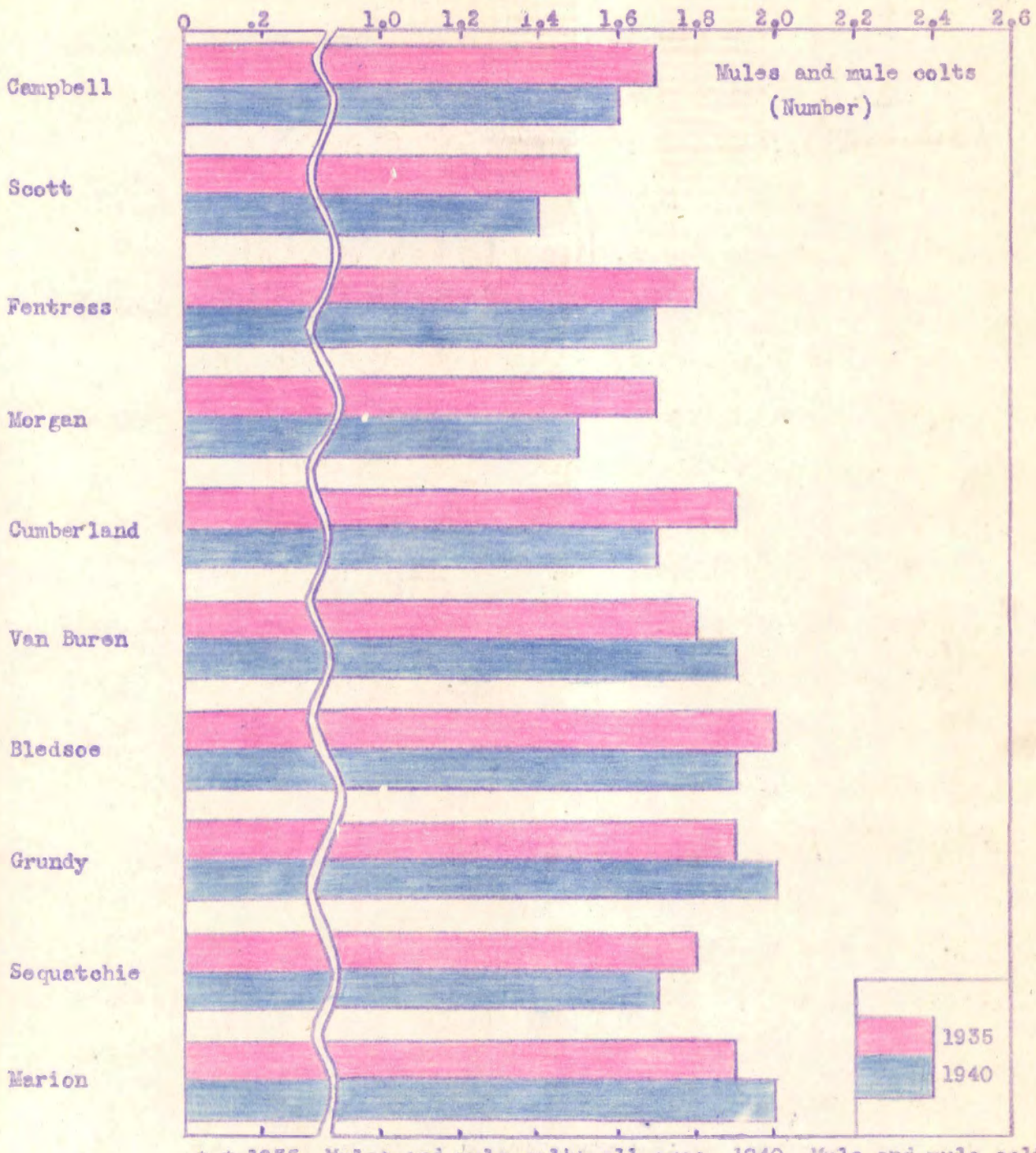
Goats and Kids: In 1935, only 212 farms, or 1.6 percent of all farms, reported raising goats. The number of goats and kids of all ages was 2,084, or an average of 9.8 goats and kids per farm reporting.

Workstock: Horses and mules were used for workstock and as there are comparatively few tractors in this region the use of work stock is an important part of the farm enterprise. On many of the farms all of the work is done by hand rather than by the use of teams.

Mules: There was 38.0 percent of the farms in the ten Plateau counties in 1940 reporting mules. The percent of farms reporting mules in 1935 was 40.1 percent (Table LXIV). The counties in the southern part of the area reported greater percentages of farms reporting than did the northern counties of the area. Marion County led the other counties with 64.0 percent of the farms reporting mules.

There was 1.7 mules per farm reporting in both 1940 and in 1935 (Table LXIV). Marion and Grundy counties both had an average of 2.0 mules per farm reporting in 1940. Scott County had the lowest number, 1.4 mules per farm reporting in 1940.

Figure 82 shows the number of mules one year old and over in 1930. Slightly more mules were found in the valleys.




* * 1935, Mules and mule colts-all ages ; 1940, Mule and mule colts over 3 mo.

Source: **Census of Agriculture, 1940**

Fig.81. Comparison of number of mules and mule colts per farm in ten Plateau counties, 1935-1940

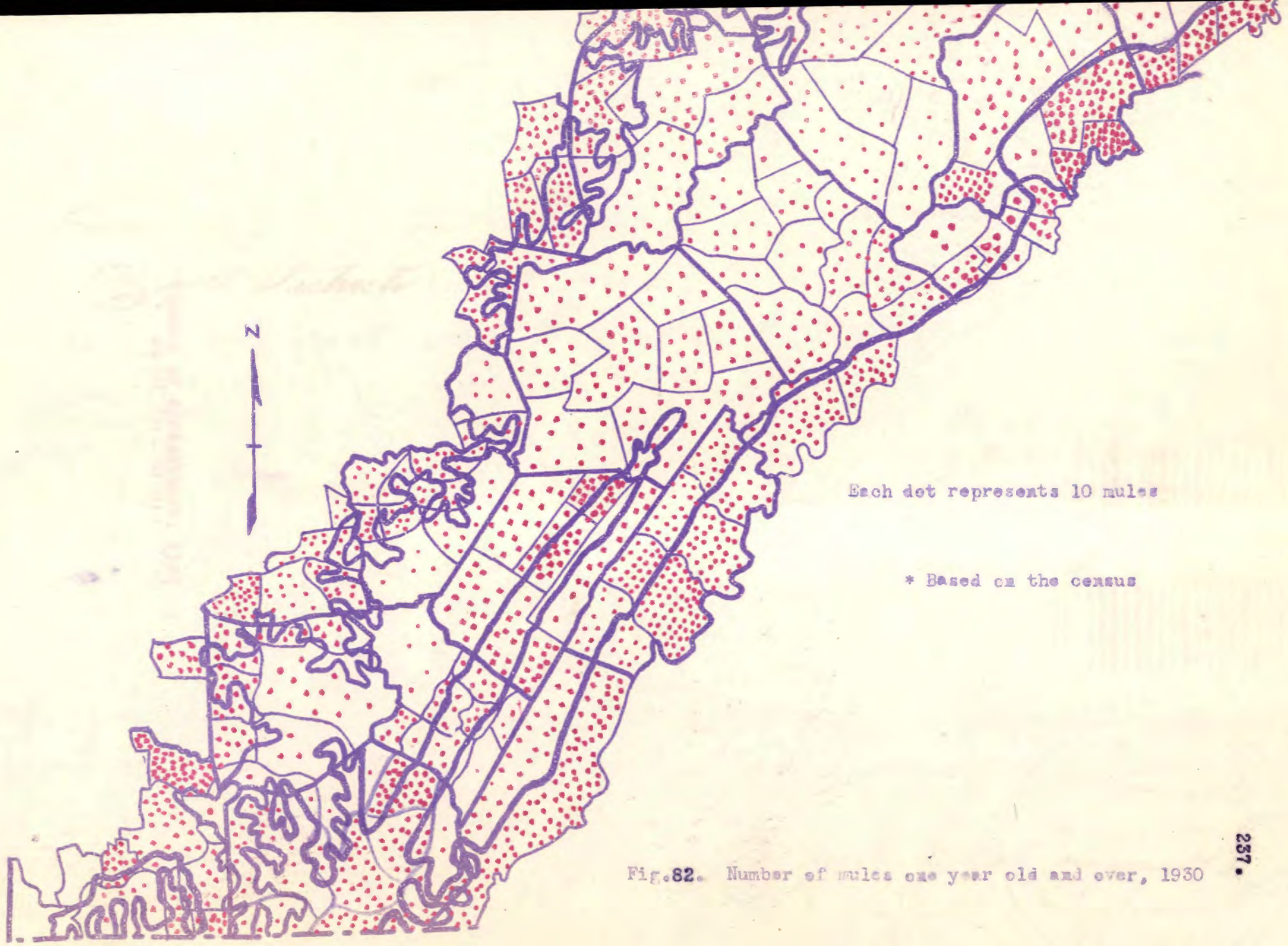



Fig.82. Number of mules one year old and over, 1930

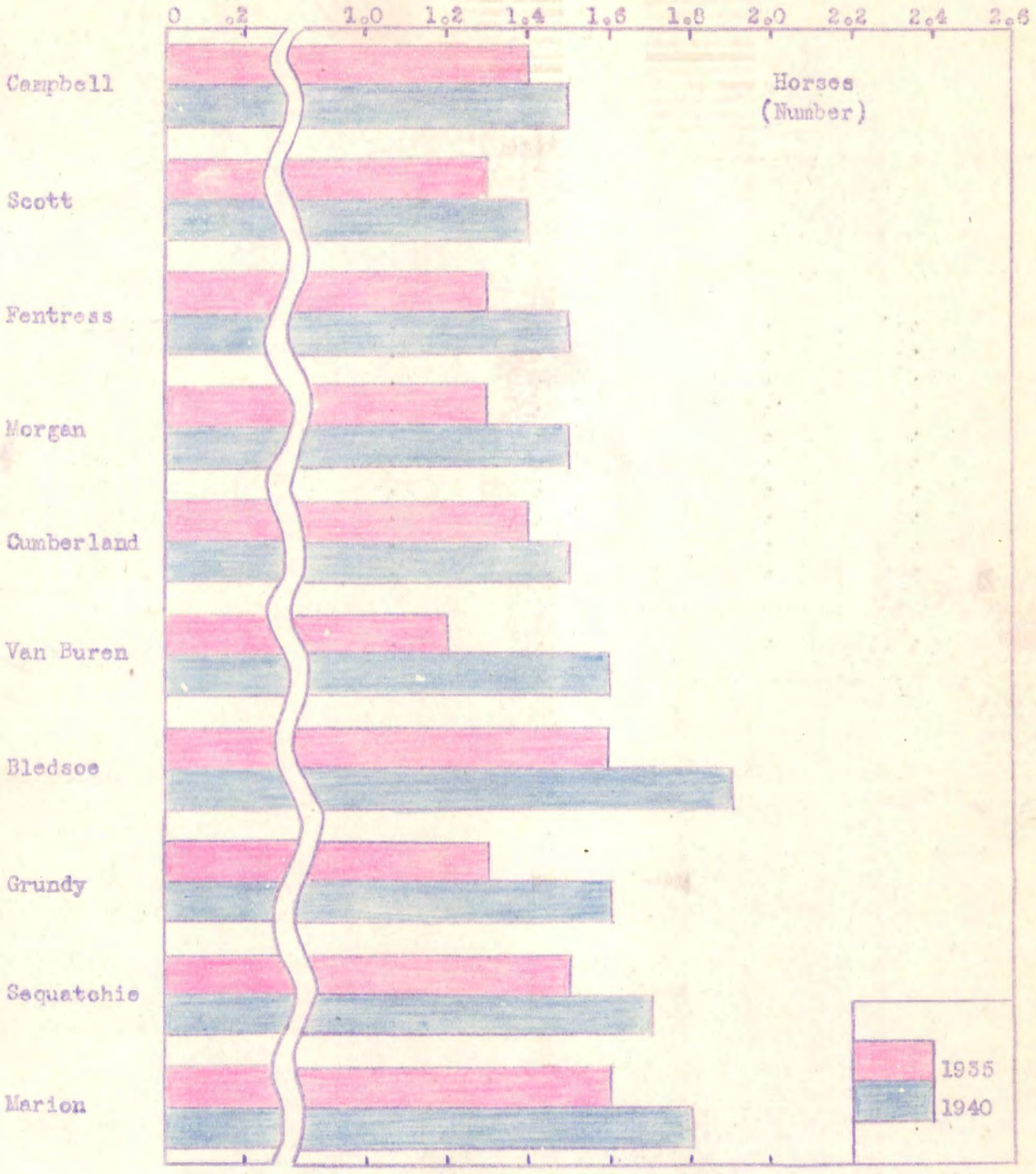
TABLE LXIV. PERCENT OF FARMS REPORTING MULES AND NUMBER PER FARM, TEN PLATEAU COUNTIES, 1935, 1940

| County | Percent of Farms Reporting | | Number per Farm Reporting | |
|---|---|---|---|---|
| | 1935 | 1940 | 1935 | 1940 |
| Marion | 54.4 | 64.0 | 1.9 | 2.0 |
| Van Buren | 47.1 | 56.4 | 1.2 | 1.6 |
| Grundy | 41.5 | 49.3 | 1.9 | 2.0 |
| Bledsoe | 47.9 | 44.2 | 2.0 | 1.9 |
| Fentress | 41.7 | 36.7 | 1.8 | 1.7 |
| Campbell | 38.9 | 36.3 | 1.7 | 1.6 |
| Cumberland | 40.3 | 34.3 | 1.9 | 1.7 |
| Sequatchie | 42.0 | 32.8 | 1.8 | 1.7 |
| Morgan | 31.0 | 30.6 | 1.7 | 1.5 |
| Scott | 29.3 | 27.6 | 1.5 | 1.4 |
| Total | 40.1 | 38.0 | 1.7 | 1.7 |

Source: Census of Agriculture, 1940.

Horses. There was 30.8 percent of the farms reporting horses in the ten Plateau counties in 1940 (Table LXV). The proportion of farms reporting in 1935 was 24.1 percent. Horses have shown a greater increase from 1935 to 1940 than have mules. Grundy County led the other counties with 39.2 percent of the farms reporting horses in 1940. Fentress County had the lowest, 23.8 percent of the farms reporting horses.

The average number of horses per farm reporting in 1940 was 1.6 animals, while in 1935 there were 1.4 horses per farm reporting. Both Bledsoe and Van Buren had an average of 1.9 horses per farm reporting in 1940, the highest average in the area.




** 1935, Horses and colts-all ages: 1940, Horses and colts over 3 mo.

Source: **Appendix table XIV, Census 1940**

Fig.**83**. Comparison of number of horses and colts per farm in ten Plateau counties, 1935-**1940**

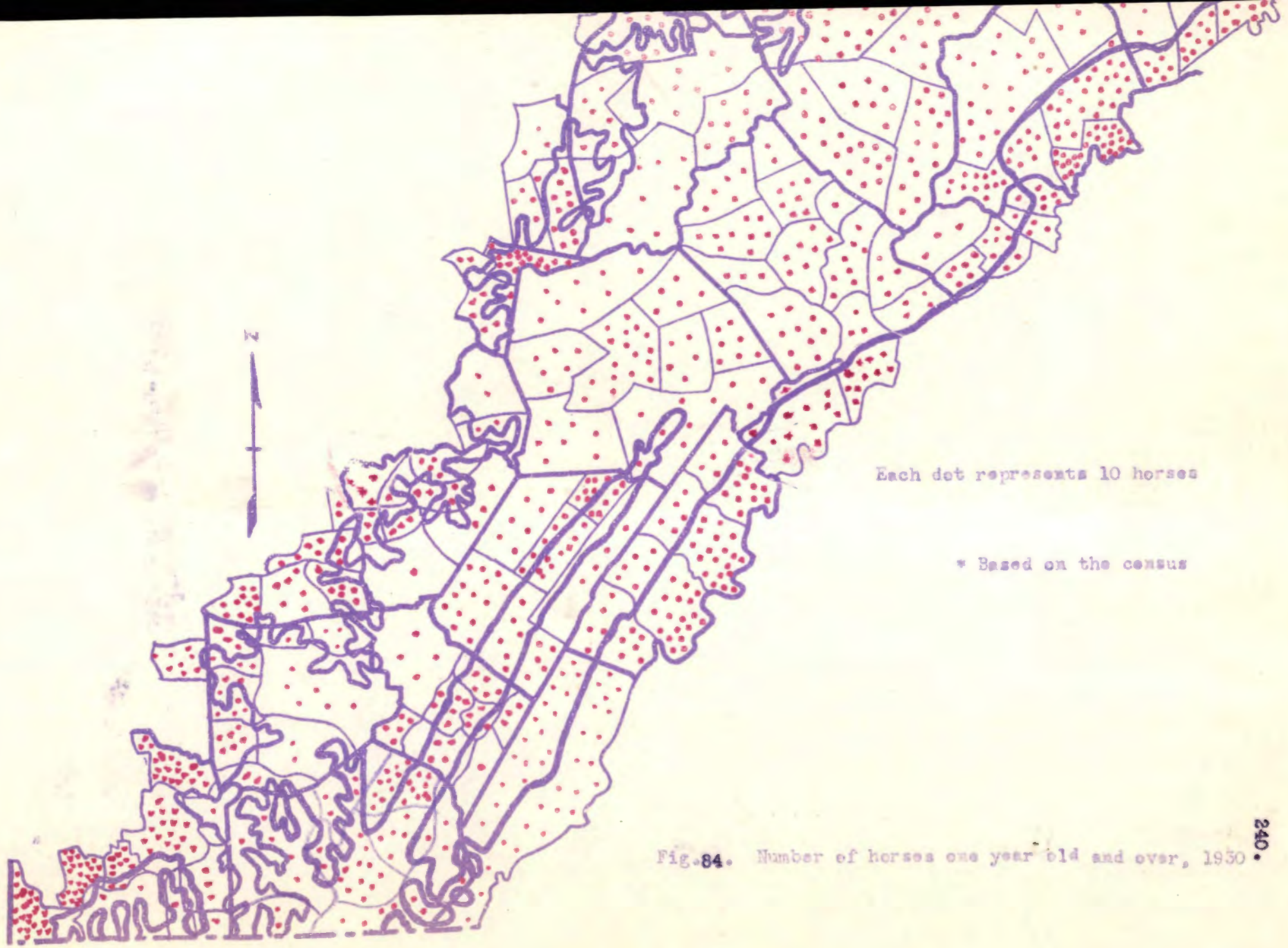



Fig. 84. Number of horses one year old and over, 1930.

TABLE LXV. PERCENT OF FARMS REPORTING HORSES, AND NUMBER PER FARM, TEN PLATEAU COUNTIES, 1935, 1940

| County | Percent of Farms Reporting | | Number per Farm Reporting | |
|---|---|---|---|---|
| | 1935 | 1940 | 1935 | 1940 |
| Grundy | 28.5 | 39.2 | 1.3 | 1.6 |
| Bledsoe | 31.7 | 38.9 | 1.6 | 1.9 |
| Scott | 20.1 | 36.4 | 1.3 | 1.4 |
| Sequatchie | 27.1 | 33.1 | 1.5 | 1.7 |
| Marion | 23.8 | 31.8 | 1.6 | 1.8 |
| Cumberland | 28.5 | 30.5 | 1.4 | 1.5 |
| Morgan | 25.4 | 29.8 | 1.3 | 1.5 |
| Campbell | 20.7 | 27.2 | 1.4 | 1.6 |
| Van Buren | 24.2 | 27.0 | 1.8 | 1.9 |
| Fentress | 18.5 | 23.8 | 1.3 | 1.5 |
| Total | 24.1 | 30.8 | 1.4 | 1.6 |

Source: Census of Agriculture, 1940.

Figure 84 shows the number of horses one year old and over in 1930. Horses were found distributed throughout the area and slightly less numerous than mules.

## CHAPTER VIII

## VALUE OF AGRICULTURAL PRODUCTS

The value of farm products sold in this region is small. The average gross income per farm in 1939 in the ten Plateau counties was less than two-thirds that of the state for the same year, and only slightly less than one-half the state average in 1929. Besides the income derived from the farm, family income is frequently supplemented by work off the farm.

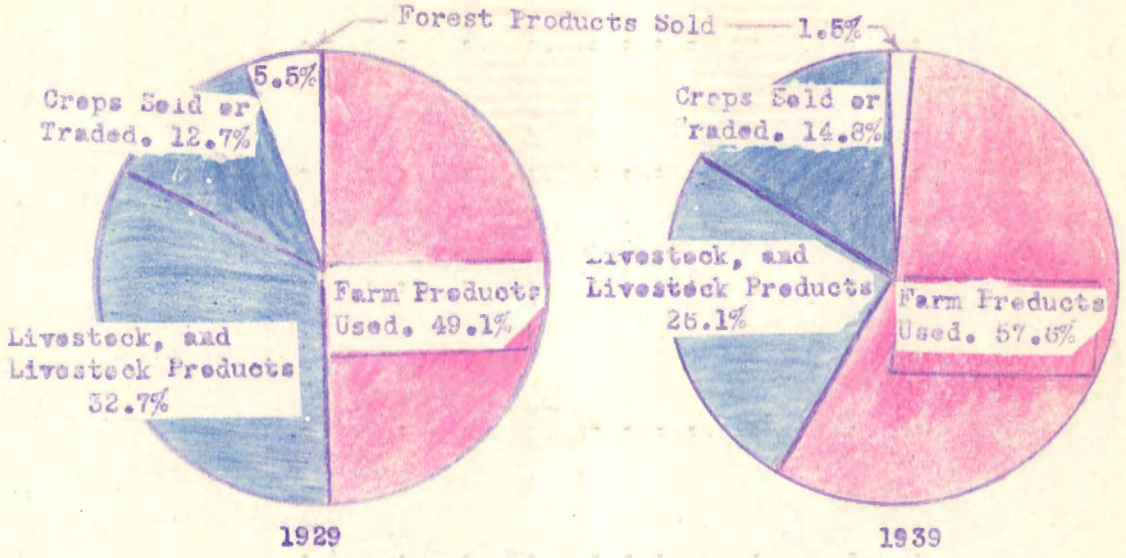
### Value of All Products Sold or Used

The total value of all farm products sold, traded, or used by the farm household in ten Plateau counties in 1939 was $525,867, an average of $417 per farm. This compares with $643 per farm for the State as a whole. The total value of farm products in 1929 for the same area was $3,383,729, an average of $506 per farm, and for the State as a whole, $945 per farm. The highest value of all farm produce in 1939 on a per farm basis was in Bledsoe, $810, and the lowest was $428 per farm in Van Buren County. Campbell County had a total value of $748 per farm for all products, and Grundy $656.

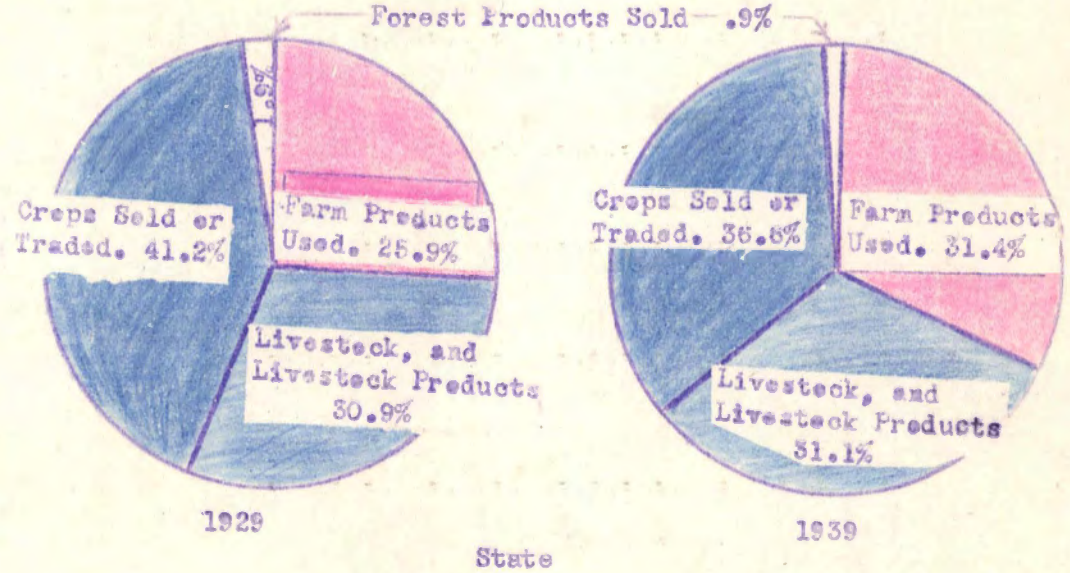
TABLE LXVI. PERCENTAGE DISTRIBUTION OF TOTAL VALUE OF FARM PRODUCTS SOLD, TRADED, OR USED BY THE HOUSEHOLD, BY SOURCE, TEN PLATEAU COUNTIES, 1939

| | State | Ten County Total | Bledsoe | Campbell | Cumberland | Fentress | Grundy | Marion | Morgan | Scott | Sequatchie | Van Buren |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Livestock | 17.1 | 16.3 | 29.5 | 11.7 | 14.5 | 11.2 | 22.6 | 12.9 | 9.1 | 8.0 | 21.5 | 21.7 |
| Livestock products | 13.9 | 9.8 | 11.5 | 11.3 | 6.9 | 5.4 | 10.8 | 11.0 | 8.4 | 6.6 | 13.9 | 11.7 |
| Dairy products | ( 8.6) | 4.0 | ( 6.1) | (5.6) | ( 2.1) | (1.3) | ( 3.6) | ( 6.5) | ( 3.9) | (2.2) | ( 7.2) | ( 1.7) |
| Poultry and poultry prods. | ( 4.8) | 4.9 | ( 4.6) | (5.5) | ( 3.8) | (3.7) | ( 5.4) | ( 4.0) | ( 3.6) | (3.5) | ( 6.2) | ( 8.6) |
| Other livestock products | ( 0.5) | .9 | ( 0.8) | (0.2) | ( 0.9) | (0.4) | ( 1.8) | ( 0.5) | ( 0.9) | (0.9) | ( 0.5) | ( 1.4) |
| Crops | 36.7 | 14.8 | 9.6 | 14.2 | 10.0 | 19.4 | 19.8 | 38.2 | 9.4 | 5.6 | 13.4 | 8.8 |
| Field crops | (33.1) | 13.4 | ( 7.5) | (11.4) | ( 9.4) | (18.4) | (18.3) | (35.8) | ( 7.9) | (4.8) | (12.3) | ( 8.4) |
| Vegetables | ( 1.2) | .6 | ( 1.5) | (1.3) | ( 0.2) | (0.5) | ( 0.6) | ( 1.0) | ( 0.4) | (0.1) | ( 0.3) | - |
| Fruit & nuts | ( 1.4) | .8 | ( 0.6) | (1.5) | ( 0.4) | (0.5) | (0.9) | ( 1.4) | ( 1.1) | (0.7) | ( 0.8) | ( 0.4) |
| Forest products | .9 | 1.5 | .4 | .9 | 1.5 | 1.8 | 2.4 | .7 | 2.7 | 1.5 | 1.8 | 1.6 |
| Farm prod. used by family | 31.4 | 57.6 | 49.0 | 61.9 | 67.1 | 62.2 | 44.4 | 37.2 | 70.4 | 78.3 | 49.4 | 56.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Census of Agriculture, 1940.



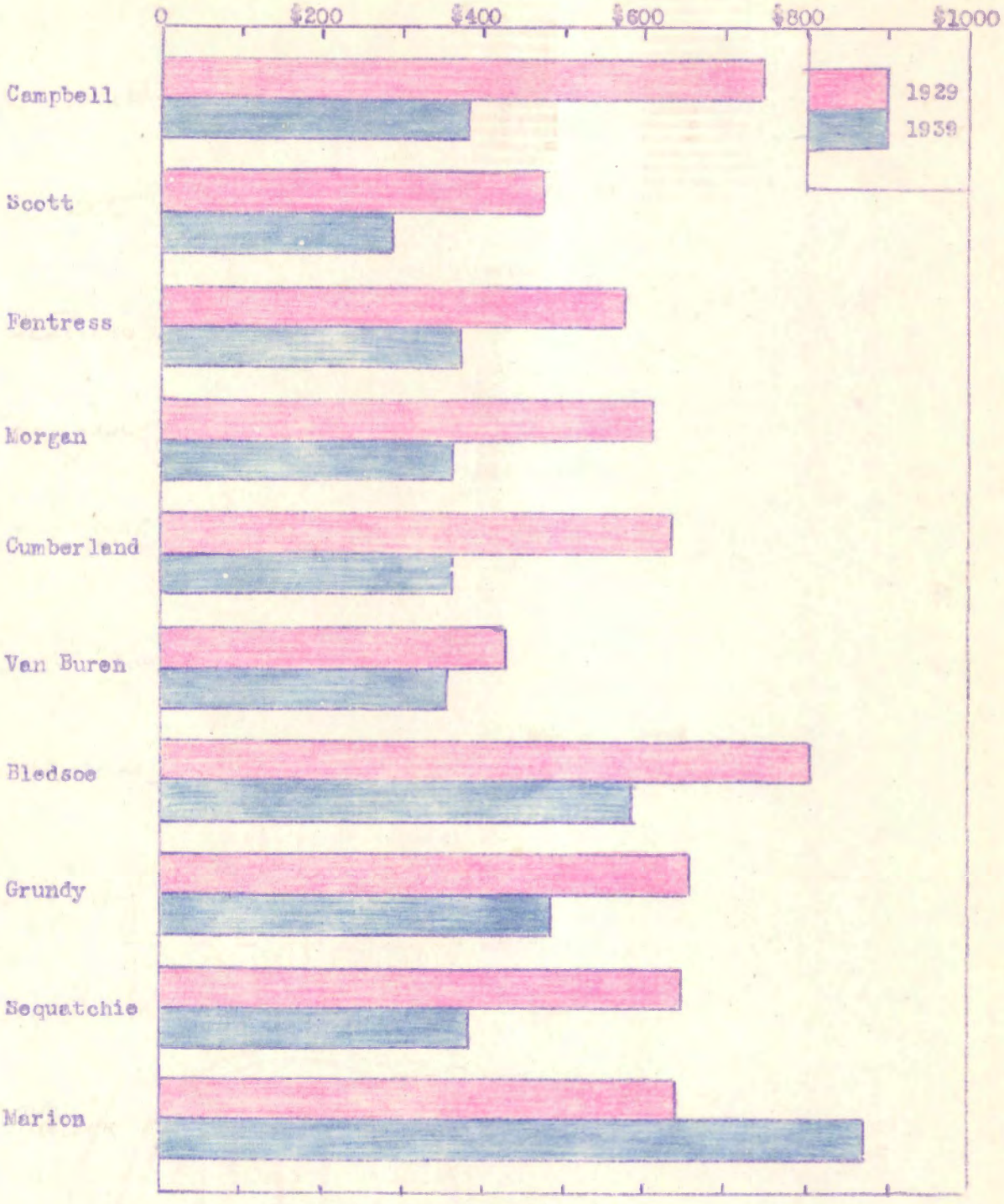

Ten Plateau Counties




State

* Appendix table IX; Census 1940

Fig. 85. Percent distribution of total value of farm products sold, traded, or used by farm household, in ten Plateau Counties and in the State, 1929 and 1939




* Census of Agriculture, 1940

Fig.86. Comparison of per farm value of all farm products produced on farms, ten Plateau Counties, 1929, 1939

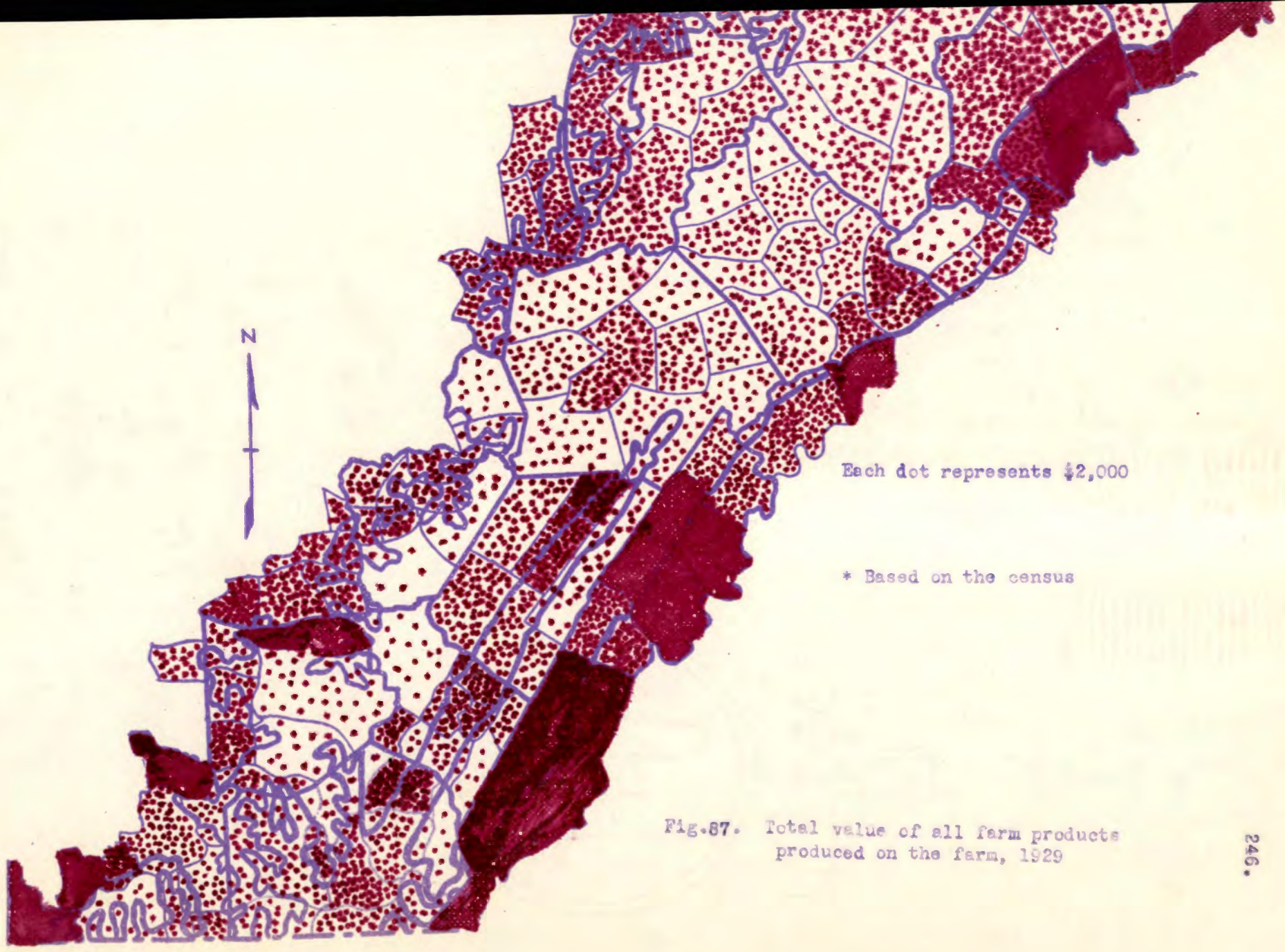



Fig.87. Total value of all farm products produced on the farm, 1929

In 1929, Campbell had the highest value, $839 per farm, for all products, and Van Buren the lowest with $476 per farm. Cumberland had a value of $631 for all farm products in 1929 and a value of $363 in 1939. Every county except Marion showed a decrease in 1939 as compared with 1929.

Figure 87 shows the distribution of value of all products produced on the farm in 1929. The heaviest concentration of dots representing the values are found off the Plateau. The lowest value for a civil district was the northeast corner of the Plateau in Claiborne County.

## Value of Farm Products Used

The value of farm products used by the farm family in 1939 in the ten Plateau counties was $243 per farm. This amounted to 57.6 percent of the total value of agricultural production. In 1929 farm families used $314 of farm grown produce per farm, or 49.1 percent of the total value of products produced on the farm.

The highest percent of farm products used on the farm, 78.2 percent, was in Scott County in 1939, and the lowest was in Marion with 37.2 percent. Every county showed a decrease in per farm value of farm products used by the farm household in 1939 as compared with 1929, except in Bledsoe and Marion counties where these were increases. The increases were $17 per farm in Bledsoe and $45 in Marion.

The percent of farm products used by the farm family in 1929 was




* Census of Agriculture, 1940

Fig. 88. Comparison of per farm value of farm products used by farm households, ten Plateau Counties, 1929, 1939

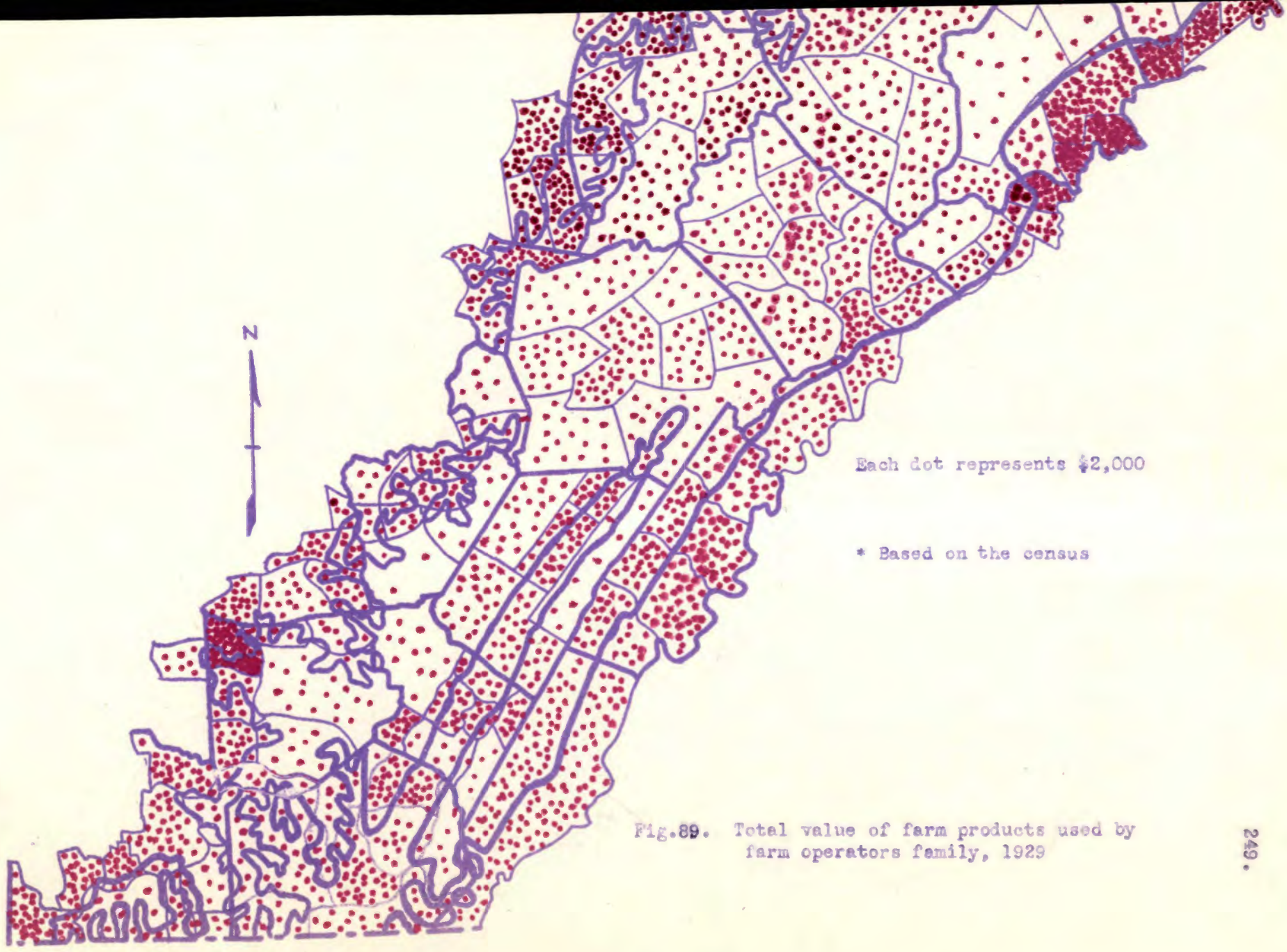



Fig.89. Total value of farm products used by farm operators family, 1929

15.2 percent greater than that for the state, while in 1939 the percent of farm products used by the farm was 26.2 percent greater than the average for the state.

## Livestock and Livestock Products Sold

Livestock and livestock products sold involves the sale or trade of cattle, calves, hogs, pigs, sheep, goats, and poultry; together with their products; but does not include bees and fur animals.

The value of livestock and livestock products sold or traded was $1,281,294, or an average of $102 per farm in 1939 in the ten Plateau counties.(1) In 1929 the value of livestock and livestock products sold or traded was $1,964,847, an average of $207 per farm in the same area. There has been a decrease of $105 per farm in value of livestock and livestock products sold or traded in 1939 as compared with 1929. Everyone of the ten counties has shown a decrease in value per farm from 1929 to 1939.

Bledsoe had the highest value, $240 per farm, for livestock and livestock products sold or traded, and Scott had the lowest value, $63 per farm in 1939.

In 1939, 26.1 percent of the farm income was gained by the value of these products, while in 1929, 32.7 percent of the farm income came from this source. Livestock and livestock products accounted for 41

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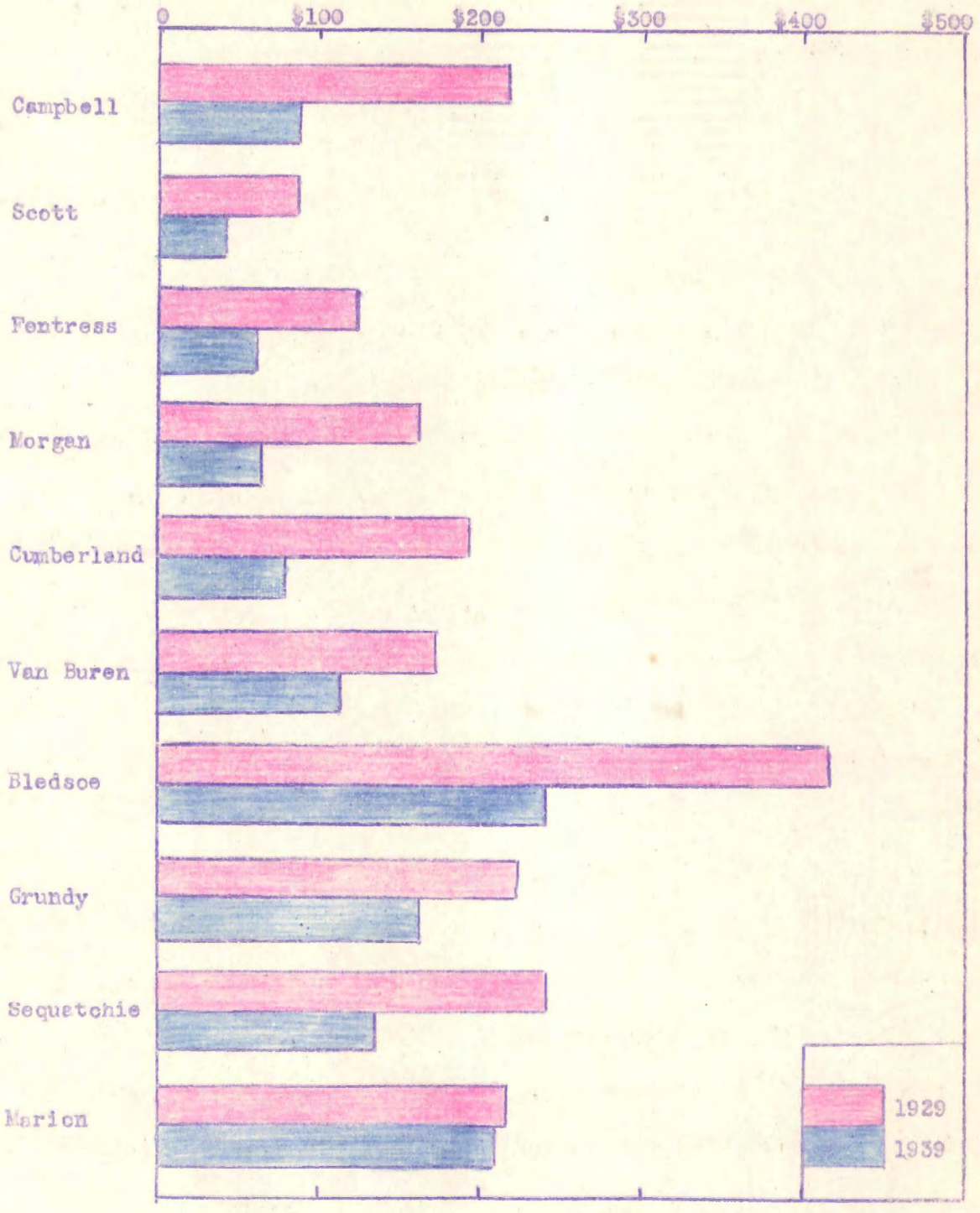
(1) Poultry is included with livestock products in the 1939 Census.




* Census of Agriculture, 1940

Fig.90. Comparison of per farm value of livestock and livestock products sold, ten Plateau Counties, 1929, 1939

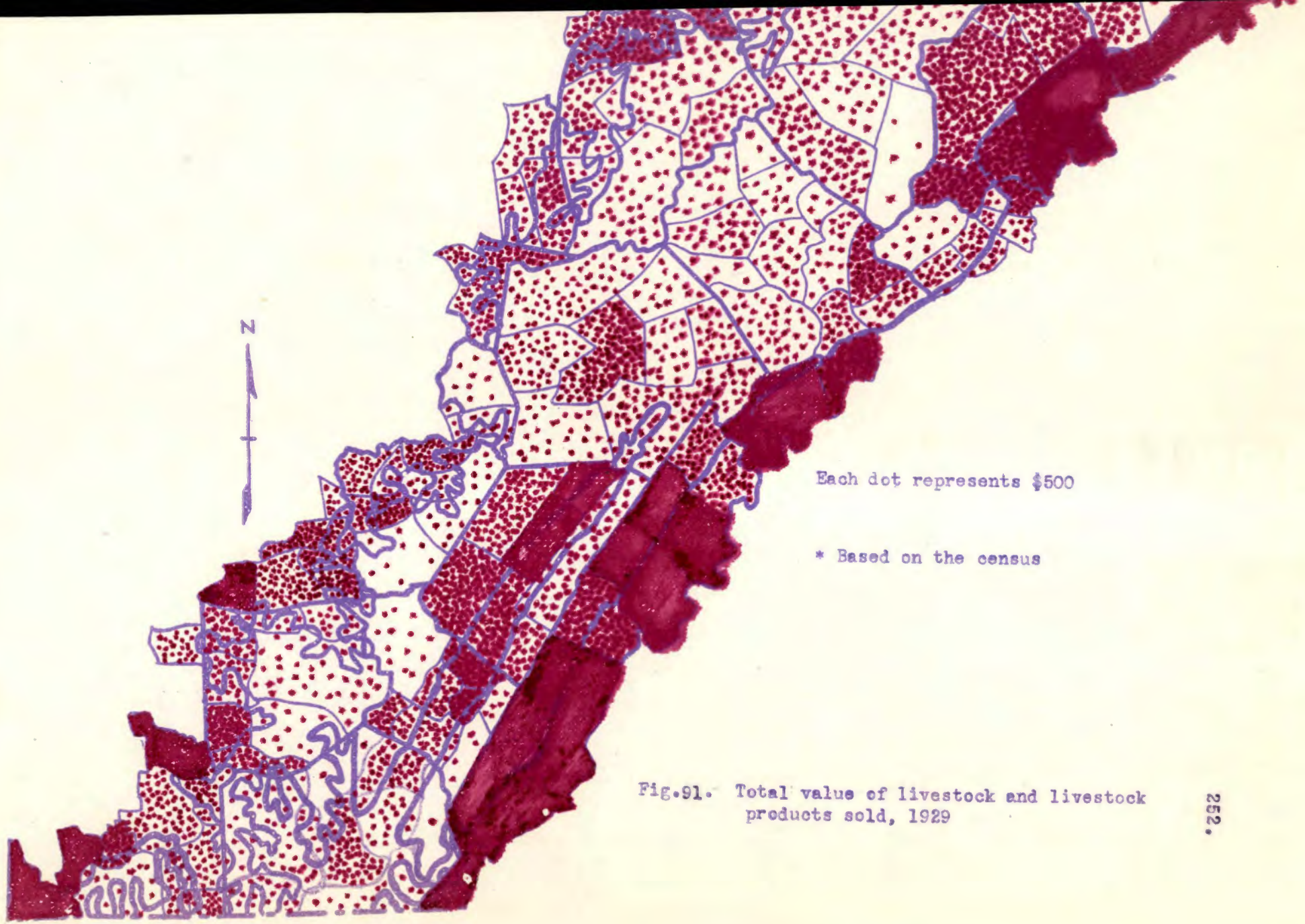



Fig.91. Total value of livestock and livestock products sold, 1929

percent of the farm income on farms in Bledsoe, and only 14.6 percent of the farm income in Scott in 1939.

When considering the total value of farm products sold, traded, or used by farm household, livestock and livestock products led in percent of income in 1939 in the following counties: Sequatchie, 35.4 percent; Grundy, 33.4 percent; Van Buren, 33.4 percent; Cumberland, 21.4 percent; Morgan, 17.5 percent; Fentress, 16.6 percent; and Scott, 14.6 percent.

The percent of the income from this source was 1.8 percent greater in this area in 1929 than was the percent of income for the state as a whole in 1929 from this source. However, in 1939 the state had 31.1 percent of their income from livestock and livestock products while in the Plateau the percent of income from this source was 26.1 percent, 5 percent lower.

In 1930, 60.1 percent of the total income from the sale of livestock and livestock products was from the sale of livestock. Plateau sections in 1930 receiving a greater proportion of income from the sale of livestock products than from livestock were: Sequatchie, Putnam, Grundy, Franklin, Claiborne, and Anderson. The other sections received the greater portion of the income from livestock.

The value of dairy products sold per farm reporting in ten Plateau counties in 1939 was $14. Bledsoe had an average value of $35

per farm, while Fentress only reported $4.70. Marion County had a value of $56.50 per farm for dairy products, a value much higher than the average for the Plateau.

The average value of whole milk, cream, and butter sold per farm decreased in each of the counties in 1939 as compared with 1929 except in the case of Marion. Not only have the values of livestock and livestock products decreased in the Plateau area but in the State as well. The decrease is not entirely due to decreased production, but partly due to price changes.

## Value of Crops Sold

In 1939 the value of crops sold or traded was $47 per farm. This compares with $86 per farm in 1929. The value of crops sold in Marion County in 1939 was $334 per farm. This was the highest value sold for the counties. The lowest was $16 in Scott County. Both Fentress and Scott counties reported increases in value of crops sold in 1939 as compared with that sold in 1929. The increase in value in Marion County was $184 and in Scott, $39.

Figure 92 shows the total value of crops sold in 1929. The heaviest concentration of dots representing the value sold were in the valleys off the Plateau. However the map shows that slightly more cash was received per district in the southern part of the area. Figure 93 shows the percent crop sales are of livestock, livestock products, and crop sales for 1929. The lowest percentages were found in the southeastern

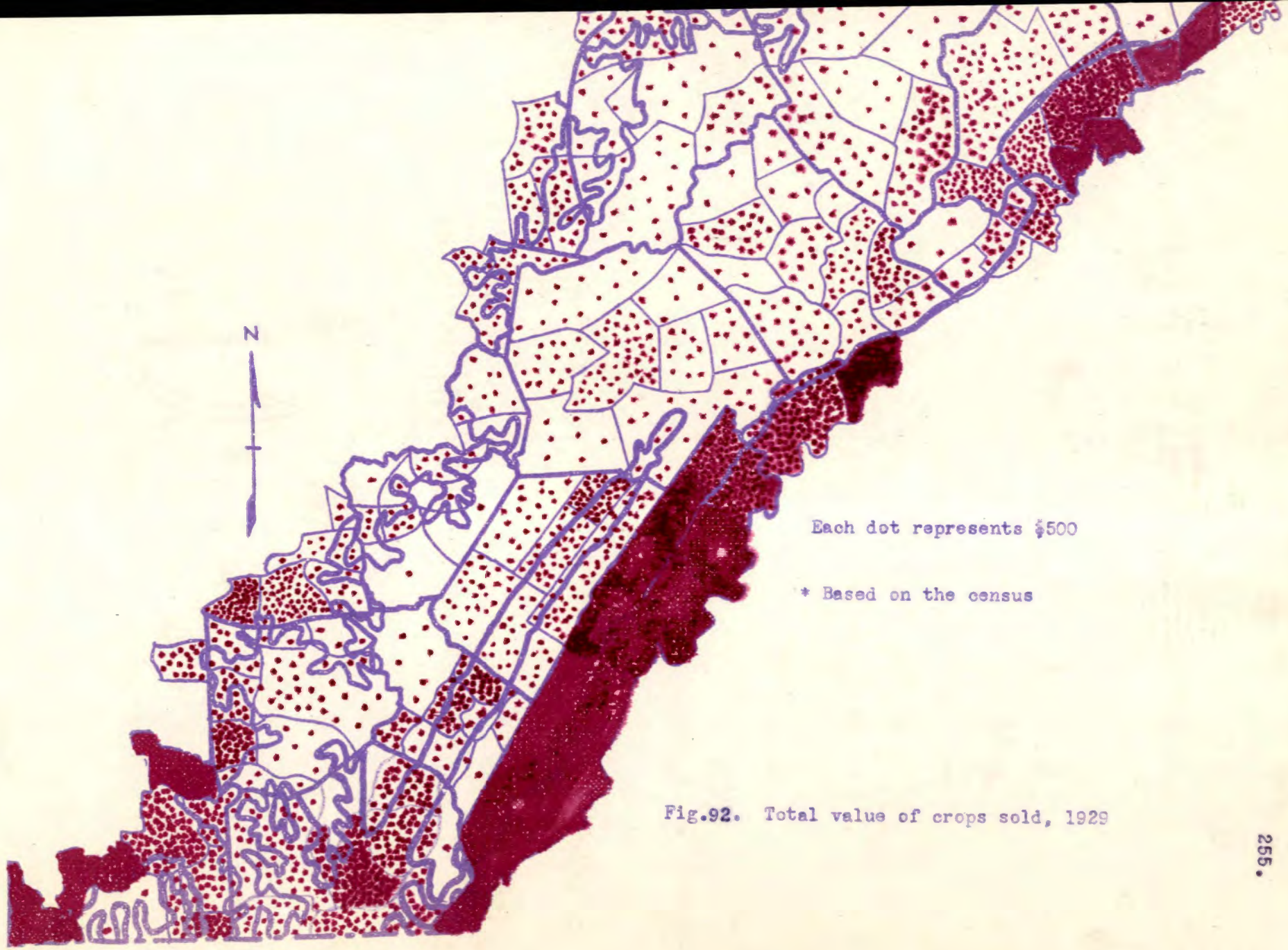



Fig.92. Total value of crops sold, 1929

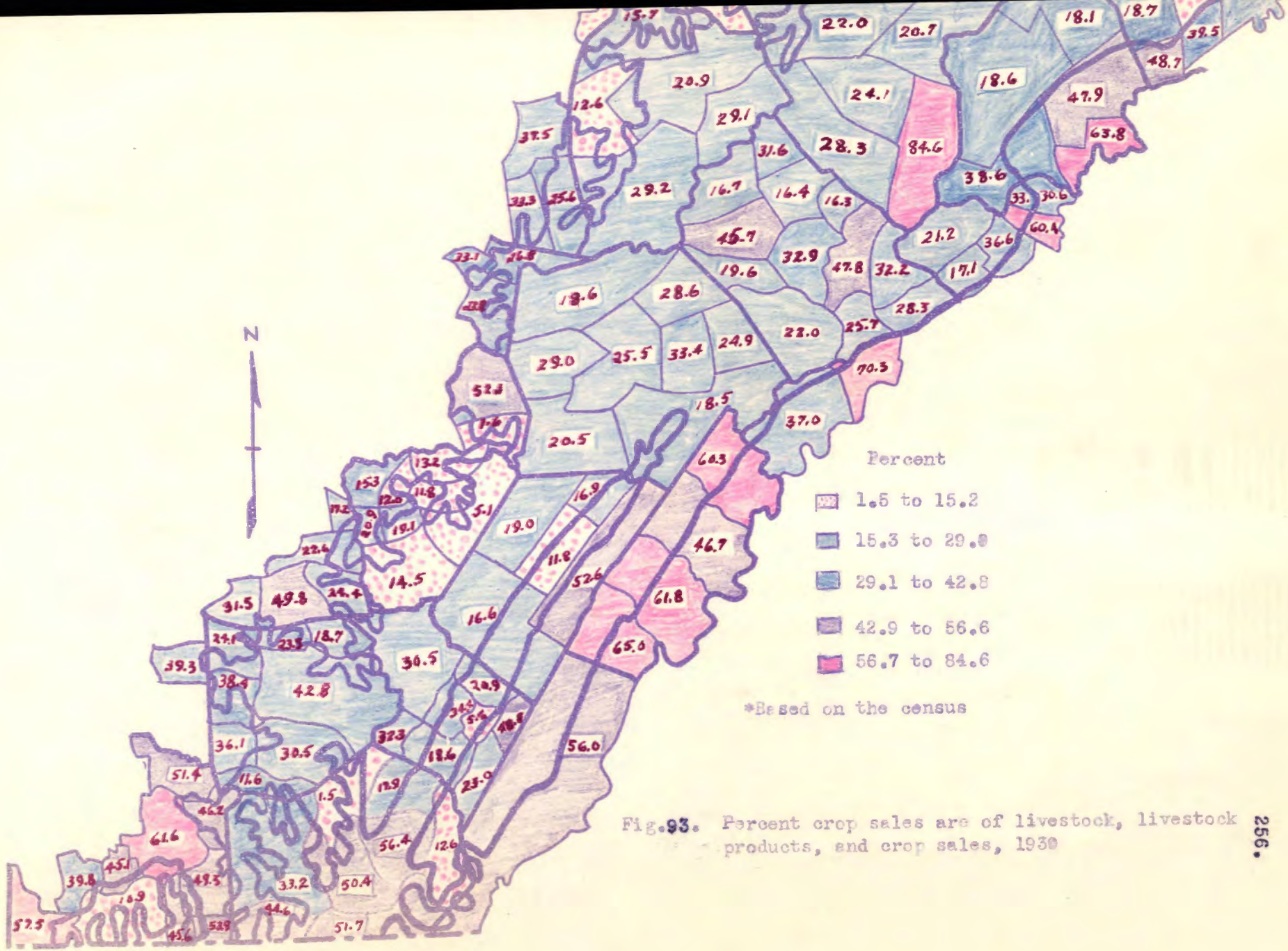



Fig.93. Percent crop sales are of livestock, livestock products, and crop sales, 1930

part of Van Buren, the northeastern part of the Plateau, in Claiborne County, the southern Plateau section in Franklin, the central part of Bledsoe, the Plateau sections on either side of Sequatchie Valley in Marion, the west central part of Overton, and the Plateau section in Pickett. The highest percent reported on the Plateau that crop sales were of all products sold, 84.6 percent, was found in the southeastern part of Scott County.

The percent of total gross income from crops sold or traded on the Plateau has increased from 12.7 percent in 1929 to 14.8 percent in 1939. This is an indication that crop production is becoming more important as a source of income in this region. The percent of income from crops sold in the State as a whole decreased 4.6 in 1939 as compared with 1929.

Field crops in 1939 accounted for the greater percent of the income being received from the sale of all crops. Irish potatoes were not included in field crops. In 1939 the sale of field crops in Marion County accounted for 35.8 percent of the farm income, and in Pentress 18.5 percent. The lowest percents of the income from field crops were 7.9 in Morgan and 7.6 in Bledsoe.

Irish and sweet potatoes sold amounted to $45 per farm (all farms). The sale of this crop, Irish and sweet potatoes, was 13.6 percent of the total value of all crops harvested in 1939.

## Value of Fruit and Nuts

The value from fruit and nuts sold was $3.10 per farm in 1939. This represented a range of from 1.5 percent of the income in Campbell

to .4 percent in each of Cumberland and Van Buren counties.

## Forest Products Sold

The percent of the farm income from forest products sold in 1939 in the region was 1.5 percent. In 1929, the percent from this source was 5.5 percent. The range in percent was from 2.7 percent in Morgan to .4 percent in Bledsoe in 1939.

## CHAPTER IX

## DELINEATION OF CUMBERLAND PLATEAU

The discussion thus far has dealt mainly with the physical, agricultural, and some of the economic forces that have influenced its past and present agricultural development of the Plateau as a whole. Differences in all of these factors formed the basis for delineating the different areas shown in Figure 94. Variation in physical factors such as soil, topography, elevation, and climate, which are relatively permanent, were given some consideration in this delineation. Differences in other factors such as the proportion of farm land in crops, population density, relative importance of crops and livestock, were sufficiently great within physically comparable areas to affect the location of the boundaries of the different areas. On the basis of these considerations the Cumberland Plateau was divided into five divisions and two sub-divisions.

Using civil district data from the census of agriculture for 1930,(1) tables were made up using figures for 115 civil districts having

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(1) Data for 1930 were used inasmuch as this was the year for which most civil district information was available.

some or all of their land on the Plateau. These tables were made up on factors that showed some correlation when compared to one factor, average value per acre of real estate. By selecting only those factors showing some correlation, twelve factors were chosen for delineation of the Plateau. Taking the figures for the twelve factors showing correlation, the civil districts were grouped into four quartiles according to the value of the factor for each civil district. The lowest quartile was given the unit value of 1; the highest quartile the unit value of 4. The next to lowest was given the unit value of 2; and the next to highest quartile was given the unit value of 3. Each civil district then had one quartile value for each of the twelve selected factors.(2) The arithmetic average of the quartile value was then determined along with the average deviation from the mean. Civil districts having the same mean and a deviation of less than .7 were then placed in the same group. There were still, however, civil districts lying outside of these clusters of like civil districts. These districts were next compared with each of the picked areas, and placed in that area with which it resembled most closely. In this manner, areas were found on the Plateau that contained similar agricultural characteristics.

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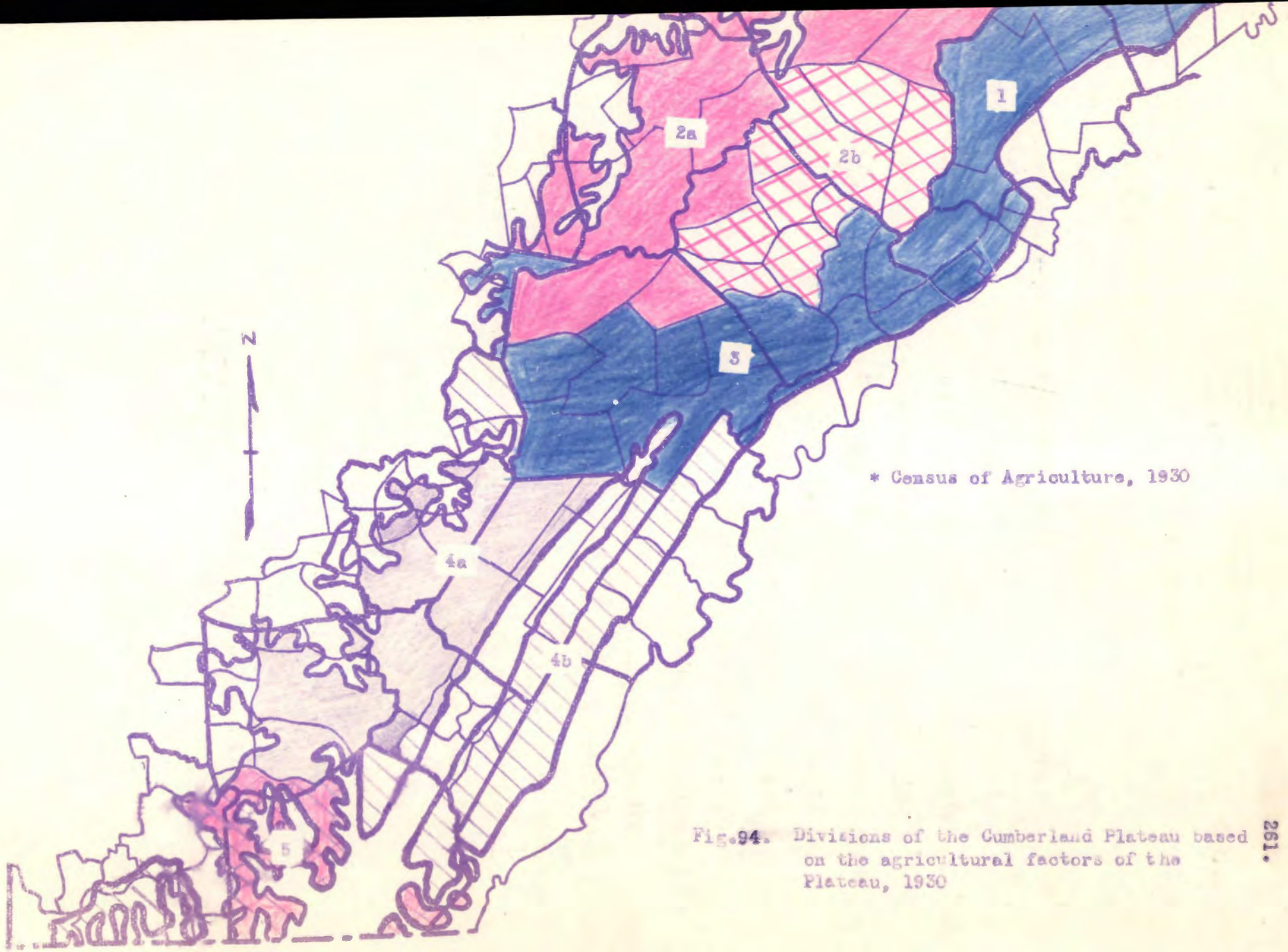
(2) See Mangus, A. R., "Rural Regions of the United States", Division of Research, W.P.A., 1940, for procedure in delineation, culture regions.




* Census of Agriculture, 1930

Fig.94. Divisions of the Cumberland Plateau based on the agricultural factors of the Plateau, 1930

TABLE LXVII. COMPARISON OF FIVE DIVISIONS AND TWO SUB-DIVISIONS OF THE CUMBERLAND PLATEAU IN AGRICULTURAL VALUES, PRODUCTION, AND PERCENTS, 1930

| Agricultural Factors | Divisions of Plateau | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2a | 2b | 3 | 4a | 4b | 5 |
| Number of farms | 693 | 2697 | 967 | 1765 | 640 | 433 | 368 |
| Acres cropland in farm ** | 21.6 | 23.2 | 19.9 | 24.2 | 22.6 | 18.8 | 29.0 |
| Percent of land in farms* | 17.4 | 28.3 | 22.4 | 24.6 | 15.2 | 12.4 | 22.7 |
| Percent of farm land: | | | | | | | |
| In crop land * | 30.8 | 27.8 | 27.7 | 32.7 | 23.6 | 27.3 | 30.9 |
| In plowable pasture* | 8.8 | 5.1 | 6.6 | 6.6 | 5.1 | 8.9 | 7.9 |
| In woodland * | 53.8 | 55.9 | 60.4 | 46.0 | 64.5 | 56.6 | 54.7 |
| Percent of farms: | | | | | | | |
| Self-sufficing * | 52.5 | 61.7 | 52.4 | 55.7 | 49.8 | 44.1 | 37.2 |
| Part time | 20.2 | 21.1 | 31.6 | 22.5 | 27.1 | 19.4 | 17.6 |
| General * | 14.7 | 7.5 | 7.9 | 12.1 | 10.0 | 26.3 | 17.4 |
| Value of real estate: | | | | | | | |
| Per acre * | $29.3 | $14.3 | $16.4 | $24.3 | $14.4 | $13.0 | $27.1 |
| Per farm* | $2054 | $1194 | $1181 | $1799 | $1383 | $ 881 | $2548 |
| Value per farm: | | | | | | | |
| Farm dwellings* | $ 418 | $ 294 | $ 378 | $ 548 | $ 313 | $ 202 | $ 549 |
| Farm machinery* | $ 124 | $ 140 | $ 97 | $ 147 | $ 118 | $ 80 | $ 162 |
| Population density per square mile* | 47.5 | 21.5 | 22.7 | 28.3 | 16.1 | 11.8 | 28.7 |
| Number per farm: | | | | | | | |
| Cows milked | 1.3 | 1.3 | 1.1 | 1.4 | 1.4 | 1.2 | 1.6 |
| Beef animals | .05 | .08 | .07 | .3 | .1 | .1 | .2 |
| Chickens | 25 | 28 | 24 | 28 | 26 | 23 | 44 |
| Horses & mules | 1.3 | 1.4 | 1.2 | 1.6 | 1.4 | 1.2 | 1.4 |
| Sows and gilts | .2 | .2 | .4 | .3 | .9 | .3 | .4 |
| Ewes | .9 | 1.5 | 1.7 | 2.3 | 1.3 | .5 | .4 |
| Acres per farm: | | | | | | | |
| All hay grown | 6.5 | 4.6 | 4.5 | 7.9 | 3.6 | 3.7 | 4.4 |
| Small grains | 1.0 | 1.0 | .2 | .4 | .2 | .1 | .02 |
| Corn yield per acre* (bu.) | 25.0 | 17.5 | 19.4 | 20.3 | 19.8 | 17.1 | 18.1 |
| Tobacco yield per farm (lbs.) | 5 | 3 | .2 | 4 | 2 | - | 4 |

(continued)

* Factors used in delineation of Plateau.

** Includes crops harvested, crop failure, and idle or fallow.

TABLE LXVII. COMPARISON OF FIVE DIVISIONS AND TWO SUB-DIVISIONS OF THE CUMBERLAND PLATEAU IN AGRICULTURAL VALUES, PRODUCTION, AND PERCENTS, 1930 (continued)

| Agricultural Factors | Divisions of Plateau | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1 | 2a | 2b | 3 | 4a | 4b | 5 |
| Total value of farm products per farm | $733 | $514 | $483 | $616 | $505 | $422 | $681 |
| Crop and livestock sales per farm | $338 | $151 | $156 | $253 | $219 | $171 | $417 |
| Percent crop sales are of livestock and crop sales per farm | 46 | 29 | 32 | 41 | 43 | 40 | 61 |

Source: Census of Agriculture, 1930.

Although the following discussion is based on data collected for 1930, it is believed that the areas are still very much as here outlined.

## Division 1

This area includes that part of Claiborne, Campbell, and Anderson counties lying on the Plateau except for Civil District 4 of Anderson. The area includes approximately 279,907 acres and 693 farms. The topography is mountainous and it is here that the coal fields are most highly developed. Total population per square mile in this area is nearly double that of any other section of the Plateau. Much of the farming carried on is part time with the people depending on work off the farm for a large

proportion of their income. The greater portion of outside work is in coal mines.

The number of farms in this area compared with the size of the area is small. Only 17.4 percent of the total area is in farms. The only section having less of its area in farms is section 4. The value per farm is relatively high due to mining operations carried on. The value of land and buildings may be represented as slightly higher than they should be in 1930, perhaps due to the manner in which the census was taken. For example, for nine farms reporting in Civil District 8, Claiborne County, the per farm value was $30,883, while in 1935 there were 92 farms reporting an average value per farm of $405 in the same civil district.

Yields of corn per acre are 25 bushels in this section, the highest of any section on the Plateau. A higher quantity of tobacco per farm is produced, which may be due to the fact that much tobacco is grown in the valleys jutting up into the Plateau in Claiborne County.

Sale of all farm products in this section was $338 per farm which was higher than in any of the others, except for section 5 in the southern end of the Plateau where the value of farm products per farm was $733. More local markets for this division caused by the more dense population probably accounted for some of this.

This area is geographically well located in respect to several small cities in the East Tennessee Valley. Two railroads run through

this section, and it is also near splendid highways which bring in people from north, south, east, and west areas.

## Division 2

Division 2, comprising nearly all of Fentress County, the southern half of Scott, northwestern part of Morgan, two civil districts in Cumberland, and parts of three districts in Overton County, is one of the least highly developed sections on the Plateau. Self-sufficing and part-time farms are high, sale of crops and livestock low, as is also value of farm land per acre. This division was subdivided into subdivisions, 2a and 2b, largely on the basis of emphasis on part-time farming and topographic factors.

Subdivision 2a: This subdivision, comprising nearly all of Fentress County, one civil district in Morgan, two in Cumberland, and some land in Overton, is highest of any division in self-sufficing farms with 61.7 percent. It is lowest in cash income from crop and livestock sales with $151 per farm in 1930. Crop sales also furnished the lowest proportion of cash income with 29 percent of the total income from total crops and livestock sales coming from crops.

Subdivision 2b: This subdivision, lying east of 2a and comprising parts of Morgan and Scott counties, is in the more rugged parts of the Plateau. While it embodies many features similar to 2a the rougher topography and apparently better access to railroads, plus opportunity

for non-farm work causes farms to be smaller in cropland area, more of them part-time, and less emphasis on producing for home consumption. The farms average 19.9 acres in cropland,(3) the smallest of any group except subdivision 4b in which 18.6 acres of cropland are found per farm. It has 31.6 percent part-time farms, the highest of any division.

## Division 3

Division 3 lies astride the center of the Plateau embracing civil districts in close proximity to the Tennessee Central Railway and the through State Highway running across the state from west to east. It embraces nearly all of Cumberland County, the eastern part of Morgan and one civil district of Anderson. The total area covers about 529,930 acres and includes 1,765 farms. Of this total area 24.6 percent of the land is in farms, of which 32.7 percent of the farm land is in cropland. This percentage of cropland is the highest for any of the divisions on the Plateau. This section is slightly higher than average in agricultural real estate. Farms average 24.2 acres of cropland, the largest of any division except number 5. Hay acreage was 7.9 acres per farm, the largest of any division.

This division produces more sheep than any other, there being 2.3 ewes per farm found here. Horses and mules, and beef cattle are also

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(3) Cropland harvested, idle, or crop failure.

more numerous here per farm.

The value of farm land and buildings is relatively high, $1799, as is farm machinery, $147.

While the population is not so dense in this section as in the more developed mining sections, the population per square mile, 28.3, is relatively high.

## Division 4

Division 4 embraces that part of the Plateau south of Cumberland County, exclusive of the Sequatchie Valley, to Marion and Franklin counties. Two districts of Marion and one of Franklin counties are included. It is undoubtedly the least developed of any division on the Plateau, and population density is lowest in this section. It has the lowest percent of land in farms of any division, farms are slightly below average in size, and real estate values are low.

In general, conditions are slightly more developed west of the Sequatchie Valley, and for this reason the area has been subdivided into 4a and 4b.

Subdivision 4a: Subdivision 4a, lying west of the Sequatchie Valley and extending to the Highland Rim, embraces a total of about 403,680 acres with 433 farms. Fifteen percent of the land was in farms. Population density was 16.1 per square mile which is higher than 4b but considerably below any other division. The value of products sold per

farm was above 2a and 2b, but still slightly below average.

Subdivision 4b: Subdivision 4b is approximately 235,700 acres in size of which 12.4 percent is in farms. The farms number about 443. Farm real estate is valued at $13 per acre, farm dwellings at $202 per house, and total farm real estate at $881 per farm; it being the lowest subdivision with respect to these factors. Crop yields are also lowest with corn yielding 17.1 bushels per acre. The total value of farm production was $422 per farm, the lowest of any division.

## Division 5

The area covered by division 5 is the Plateau land in Marion County, except that Plateau land on each side of the Sequatchie Valley in Marion County, and the Plateau land in the northeastern part of Franklin County. The general elevation of the Plateau here is lower than farther north. This division is somewhat comparable with Sand Mountain in Alabama. The climate is warmer than in other sections of the Plateau. Many small streams cut into the area here, leaving numerous small valleys.

The total land area covered by this division is about 181,851 acres, of which 22.7 percent or 34,536 acres was in farms in 1930. The number of farms in 1930 was 368. This area had the largest percentage of farm land in cropland, 30.9 percent, and a relatively large percent in plowable pasture, 7.9 percent. The percent of general farms was 17.4

which is relatively high as compared with the rest of the Plateau. The value of land and buildings per farm was $2,548 which is a value much higher than the rest of the Plateau. This is due in part to the geographic location of this area being near several large cities and easily accessible to markets. The value of farm dwellings was $549 per farm, an indication of the more developed agriculture. The value of farm machinery was $162, the highest for any area in the region.

The value of all products sold or used on the farm was $681 per farm, and of this value, $417 was the value from sale of crops and livestock. The percent crop sales are of all livestock and crop sales per farm was the highest, 61 percent, as compared to the other divisions of the Plateau. This may be due in part to the favorable climate for vegetable growing in this area, and the markets that are easily available. Cotton is also of some importance in this area.

On the whole this area had a slightly more developed type of agriculture than did the rest of the Plateau and was greatly influenced by the valley land found in Marion County.

## CHAPTER X

## FARM ORGANIZATION AND MANAGEMENT, 107 SELECTED CUMBERLAND PLATEAU FARMS

In order to supplement the census figures, data were tabulated from 107 farm account books kept under the supervision of the University of Tennessee Agricultural Extension Service[1]. The farms used were those located in civil districts having all of their land on the Cumberland Plateau. These farmers are cooperating with the Tennessee Agricultural Extension Service, and Tennessee Valley Authority, from which they received phosphate for their land.

> Test-demonstration are planned, organized, conducted, and to a large extent financed by the farmers themselves. The T.V.A. makes available phosphates for testing and funds for employment by the Extension Service of additional personnel to help conduct test-demonstrations. The Extension service furnishes supervision, leadership and technical information through their farm and home agents and specialists. ----- The farmers formed local committees and selected men considered most suitable for conducting the practical testing of phosphate in adjusted farming systems.[2]

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(1) Unless otherwise stated all data in this chapter on 107 farms were taken from these farm account books.

(2) Agricultural Extension Service, Farming for Victory and Peace, University of Tennessee, Publication 263, June 1942.

No attempt is made in this report to show the advantages or disadvantages of cooperating with these agencies, nor of the returns received from phosphate.

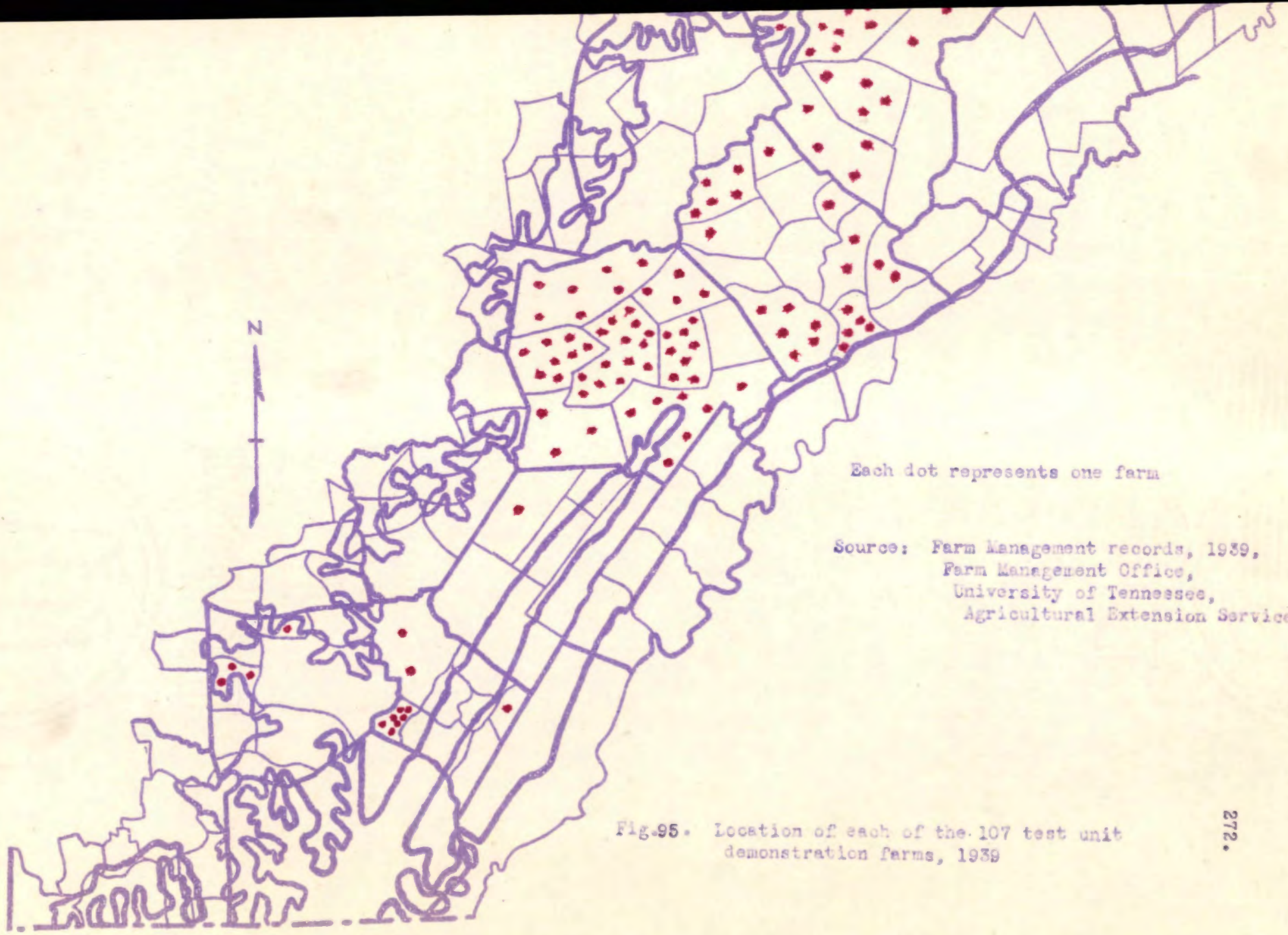
Data for 1939 were tabulated on the following factors: (a) land use, (b) crop yields, (c) receipts and expenses, (d) crop and livestock production, and (e) other information necessary for analysis of farm business.

## Farm Organization

Forty-six percent of the record keepers were in Cumberland County, 23 percent in Morgan, 20 percent in Scott, and percents varying from 1 to 10 in Sequatchie and Bledsoe.

Use of Farm Land: The average size of farm was 166.6 acres, the range being from 20 acres to 1000 acres. Fifty-seven, or over half the total number of farms, were under 125 acres (Table LXVIII).

Acres in crops represented 31.5 percent of the total farm land. Approximately 65.5 acres, or about 39.3 percent of the farm land, were tillable. The 60.7 percent that was not tillable was in either permanent pasture, woodland, or waste land. Acres in rotation pasture in 1939 made up only 1.0 percent of the farm land, a percentage close to that of the census averages. These farms were 106.6 acres per farm larger than the average of ten Plateau counties. The selected farms had a greater percent




Source: Farm Management records, 1939,
Farm Management Office,
University of Tennessee,
Agricultural Extension Service

Fig.95. Location of each of the 107 test unit demonstration farms, 1939

of land in cropland, 31.5 percent compared with 28.5 percent; had less cropland idle, 3.5 percent compared with 5.6 percent; and the proportion of land in plowable pasture was 3.4 percent on these farms compared with 5.6 percent on all farms.

TABLE LXVIII. MAJOR USE OF FARM LAND, 107 CUMBERLAND PLATEAU FARMS, AVERAGE OF TEN CUMBERLAND PLATEAU COUNTIES, 1939

| Land Use | 107 Cumberland Plateau Farms | | Average of Ten Cumberland Plateau Counties | |
|---|---|---|---|---|
| | Acres per Farm | Percent of Total | Acres per Farm | Percent of Total |
| Farm land | 166.6 | 100 | 60.0 | 100 |
| Cropland harvested | 52.5 | 31.5 | 17.0 | 28.5 |
| Crop failure and idle cropland | 5.9 | 3.5 | 3.4 | 5.6 |
| Plowable pasture | 8.1 | 4.9 | 3.7 | 6.1 |
| Rotation pasture | (1.6) | (1.0) | (*) | |
| Permanent pasture | (6.5) | (3.9) | (*) | |
| Woodland | 76.1 | 45.7 | 31.8 | 53.0 |
| Other land | 24.0 | 14.4 | 4.1 | 6.8 |
| Permanent pasture not tillable | (16.0) | (9.6) | (*) | |
| Other, waste, etc. | ( 8.0) | (4.8) | (*) | |

* Data not available in 1940 census of agriculture.

Distribution of Crop Acres: These farms averaged 55.1 acres of crops harvested per farm in 1939. Of this, 29.1 acres or 52.8 percent, was in hay (Table LXIX). Lespedeza was grown alone on 18.4 acres, or 63

TABLE LXIX. DISTRIBUTION OF CROP ACRES HARVESTED, 107 CUMBERLAND PLATEAU FARMS, AVERAGE OF TEN CUMBERLAND PLATEAU COUNTIES, 1939

| Use of Land | 107 Cumberland Plateau Farms | | Average of Ten Cumberland Plateau Counties | |
|---|---|---|---|---|
| | Acres per Farm | Percent of Crop Acres | Acres per Farm | Percent of Crop Acres |
| Crop acres | 55.1 | 100.0 | 18.8 | 100.0 |
| Corn | 18.7 | 33.9 | 9.9 | 52.7 |
| Small grains: | | | | |
| Wheat | 1.2 | | 0.6 | |
| Barley | 0.4 | | 0.1 | |
| Oats | 0.1 | | 0.2 | |
| Other | 1.0 | | 0.1 | |
| Total | 2.7 | 4.9 | 1.0 | 5.3 |
| Hays: | | | | |
| Lespedeza | 18.4 | | 3.6 | |
| Grass | 2.0 | | 1.2 | |
| Red top and lespedeza | 5.4 | | | |
| Red clover | 0.7 | | | |
| Alfalfa | 0.6 | | 0.1 | |
| Small grains | 0.4 | | 0.3 | |
| Cowpea and soybeans | 0.4 | | 0.8 | |
| Other hays | 1.2 | | 0.9 | |
| Total | 29.1 | 52.8 | 6.9 | 36.7 |
| Irish potatoes | 1.7 | | 0.6 | |
| Sweet potatoes | 0.9 | | 0.3 | |
| Other truck | 2.0 | | 0.1 | |
| Total | 4.6 | 8.4 | 1.0 | 5.3 |

percent of the hay acres. In addition, lespedeza and red top mixed was grown on 5.4 acres per farm. Grass hay, apparently mixed tame grasses with no legumes, was found on 2 acres per farm.

Corn was harvested on 18.7 acres per farm, 33.9 percent of the total harvested crop area. Small grains were harvested on 2.7 acres per farm, 4.9 percent of the acres in all crops. Wheat was harvested on 1.2 acres per farm while other grains, largely rye, were grown on one acre per farm.

Truck crops, including Irish and sweet potatoes, were harvested on 4.6 acres per farm, or 8.4 percent of the crop acres. Irish potatoes were harvested on 1.7 acres per farm, while sweet potatoes were grown on 0.9 acres. Other truck crops were harvested on 2.0 acres per farm. Whereas these farms averaged 55.1 acres of crops harvested per farm the average of all farms in the 10 Plateau counties was only 18.8 acres, or about one third as much.

The sample farms had about a third of their harvested crop acreage in corn and slightly over half in hay, while for all farms in the ten Plateau counties the reverse situation was found.

Crop Yields: Yields per acre for most of the important crops on the 107 Plateau farms in 1939 were below the State average for the same year (Table LXX). This, however, was not the case with Irish potatoes, the yield being 153 bushels per acre compared with a state

average of 76 bushels. Lespedeza hay yielded 1.0 ton per acre which was almost equal to the state average of 1.1 tons. Yields of small grains were about equal to the state average. These farms, however, produced yields slightly above Plateau farms as a whole. Yield of corn was 0.2 bushel higher on these farms than the census yield per acre for all farms reporting in the ten Plateau counties in 1929. Yields per acre of small grains were also slightly higher than the

TABLE LXX. YIELDS OF IMPORTANT CROPS, STATE YIELDS PER ACRE, YIELDS PER ACRE IN TEN PLATEAU COUNTIES, AND YIELDS PER ACRE, 107 CUMBERLAND PLATEAU FARMS, 1939

| Crops | Average Yield per Acre, 1939 | | |
|---|---|---|---|
| | Tennessee | 10 Plateau Counties | 107 Selected Farms, Cumberland Plateau |
| Corn (bushels) | 21.8 | 19.0 | 19.2 |
| Oats (bushels) | 19.0 | 15.5 | 16.0 |
| Wheat (bushels) | 11.5 | 11.0 | 11.0 |
| Barley (bushels) | 19.3 | 16.8 | 17.0 |
| All tame hays (tons) | 1.13 | 0.9 | 0.9 |
| Lespedeza (tons) | 1.11 | 1.0 | 1.0 |
| Irish potatoes (bushels) | 75.9 | 87.0 | 153.0 |
| Sweet potatoes (bushels) | 82.6 | 87.0 | 78.7 |
| Sorghum for syrup (gallons) | 55.9 | 24.0 | 36.0 |

Source: U. S. Census for Tennessee and for 10 Plateau counties.

census average of ten Plateau counties. Hay yields per acre equalled the census average. Irish potatoes, however, produced 66 bushels per

acre above the Plateau average. On the other hand, the yield of sweet potatoes was slightly below that for all Plateau farms.

Livestock: There was an average of 19.1 animal units per farm on the 107 selected farms in 1939. Mules were found on 71.4 percent of the farms, while horses were reported on 55.1 percent (Table LXXI). All but two of the farms had workstock of some kind.

TABLE LXXI. AVERAGE NUMBER OF LIVESTOCK PER FARM AND PERCENT OF FARMS REPORTING LIVESTOCK, 107 PLATEAU FARMS, TEN PLATEAU COUNTIES, 1939

| Type | 107 Cumberland Plateau Farms | | Average of Ten Cumberland Plateau Counties | |
|---|---|---|---|---|
| | Average Number of Animals per Farm (All Farms) | Percent of Farms With Each Kind | Average Number of Animals per Farm (All Farms) | Percent of Farms With Each Kind |
| Workstock | | | | |
| Horses | 1.2 | 55.1 | 0.5 | 30.8 |
| Mules | 1.5 | 71.4 | 0.6 | 38.0 |
| Productive animals | | | | |
| Milk cows | 2.8 | 94 | 1.4 | 74.4 |
| Other cows | 5.1 | 57 | 0.4 | 8.9 |
| Ewes | 15.0 | 49 | 1.3 | 8.5 |
| Brood sows | 4.2 | 86 | 0.5 | 22.5 |
| Chickens (over 4 months) | 50.0 | 94 | 25.9 | 32.2 |

Milk cows were reported on 94 percent of the farms, the average per farm being 2.8. Fifty-seven percent of the farms reported other cows

which are largely raised for beef. There was an average of 5.1 other cows per farm. Ewes were reported on 43 percent of the farms and the average per farm was 15 animals. Brood sows were reported on 86 percent of the farms, with an average of 4.2 animals per farm. Ninety-four percent of the farms reported the raising of chickens. The average per farm was 50 birds.

In a comparison between the number of livestock kept per farm for the selected farms and the number of livestock kept for all farms in the ten Plateau counties, the average for the selected farms was greater in each case.

Workstock: Of the 107 farms tabulated, 55.1 percent reported the use of horses. On those farms reporting workstock, the average number varied from 1.2 to 7 horses per farm. Mules were reported on 71.4 percent of the farms with the average number of mules varying from 1 to 5 mules per farm.

There were only 2 out of the 107 farms without workstock of any kind. Approximately half of the group had two work animals each, either horses or mules, while another third of them had more than two each. The average for all farms was 2.7 head per farm. It probably should be mentioned here that tractors were reported on 9 farms, or 8.4 percent of the total.

Man Labor: There was an average of 246 man work units per farm on the 107 Plateau farms[3] (Table LXXII). Of this number, 125 units were

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(3) A man work unit is the estimated average amount of work accomplished by one man in a 10-hour day.

reported on crops and 121 on livestock.

These farms averaged 1.5 man equivalents per farm for 1939.(4) There was an average of 18.2 months man labor per farm. Man labor varied from 12.0 months of man labor on each of 3 farms to 37.4 months man labor each on 4 farms.

TABLE LXXII. LABOR FACTORS PER FARM, 107 CUMBERLAND PLATEAU FARMS, 1939

| Factors | Per Farm |
|---|---|
| Total man work units | 246.0 |
| Man work units crops | 125.0 |
| Man work units livestock | 121.1 |
| Man work units per man | 164.0 |
| Months man labor per farm | 18.2 |
| Man equivalent | 1.5 |

There was an average of 171.5 man work units per man in 1939.(5) The amount of part-time work and the lack of machinery in this area was due in part to the amount of work available per man on farms.

The value of family labor constituted 60.7 percent of the total value of labor, or $136 per farm. There was a value of $78 for hired labor, or 34.8 percent of the total labor. The value of cropper labor

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(4) Man equivalent is the average number of men working for a year. Man equivalent equals 1/12 the number of months of operator labor, plus months of family labor, plus months of paid labor, plus cropper labor.

(5) Man work units per man equals the total man work units divided by the man equivalent per farm.

was 4.5 percent of the total value of labor, $224.

Length of operator's labor was 191 months per farm.

Farm Investment: The total investment per farm was $5,782, a figure over double that of the average given per farm by the 1940 census (Table LXXIII). The range in investment was from $884 to $20,350. Total investment per acre of cleared farm land was approximately $62.

Real estate constituted 64.6 percent of the total investment, or $3,677 per farm; livestock $1,175 per farm; machinery and equipment, $331; and feed and supplies, $509. Twenty-eight percent of the investment (feed and supplies not included) was in livestock and machinery compared with approximately 17 percent for Tennessee as a whole.

TABLE LXXIII. DISTRIBUTION OF FARM INVESTMENT, 107 CUMBERLAND PLATEAU FARMS, AVERAGE OF TEN PLATEAU COUNTIES, 1939

| | 107 Cumberland Plateau Farms | | Average of Ten Cumberland Plateau Counties | |
|---|---|---|---|---|
| | Investment on Farms | Percent of Total | Investment on Farms | Percent of Total |
| Total investment | $5692 | 100.0 | $1907 * | 100.0 |
| Total real estate | 3677 | 64.6 | 1503 | 78.8 |
| Buildings | 1308 | 23.0 | 524 | 27.5 |
| Land | 2369 | 41.6 | 979 | 51.3 |
| Livestock | 1175 | 20.7 | 290 | 15.2 |
| Machinery & equip. | 331 | 5.8 | 114 | 6.0 |
| Feed and supplies | 509 | 8.9 | - | - |

* Feed and supplies not included.

The value of farm capital was higher per farm for these 107 farms than was the average for farms in the ten Plateau counties; while at the same time proportionately more of the capital invested was in working capital, especially in livestock.

Gross Receipts: The average gross receipts per farm for the 107 farms was $995 (Table LXXIV). The receipts received from livestock and livestock products amounted to $479, or 48.2 percent of the total receipts. Crop receipts were $208 or 21 percent of the gross receipts. Receipts from other sources was $94 per farm, or 9.3 percent of the total. Receipts included under "other sources" were receipts from labor, machinery hire, forest products, and income from such sources as bees and honey, sweet potato plants, pensions, etc.

TABLE LXXIV. SOURCES OF GROSS RECEIPTS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Source | Receipts per Farm | Percent of Total |
|---|---|---|
| Total gross receipts | $ 995 | 100.0 |
| Crops | 208 | 21.0 |
| Net increase and sales of livestock and livestock products | 479 | 48.2 |
| Increase feed and supplies | 171 | 17.2 |
| Agricultural conservation payment | 43 | 4.3 |
| Other sources | 94 | 9.3 |

Value of Farm Production: The total value of farm production on the 107 farms was $1033 per farm (Table LXXV). The average value of

all farm products for all farms in the ten Plateau counties was $417 per farm.

The value of crop receipts was $208 per farm and the value of livestock and livestock products was $448 per farm on the 107 farms while crop receipts were $67 per farm and livestock and livestock product sales was $102 per farm for all farms. The value of farm products used by the family was $577 per farm on the sample farms while $245 was the value of farm products used by the family per farm in the ten Plateau counties.

TABLE LXXV. VALUE OF FARM PRODUCTION PER FARM, TEN PLATEAU COUNTIES AND 107 SELECTED FARMS COMPARED, 1939

| | 10 Counties | 107 Selected Farms |
|---|---|---|
| Crop receipts | $67 | $208 |
| Livestock and livestock products receipts | 102 | 448 * |
| Value of farm products used by the family ** | 245 | 577 |
| Total value of farm production | $417 | $1033 |

* Includes changes in inventories.
** Does not include house rental.

Total Expenses: Total expenses were $666 per farm (Table LXXVI). Current expenses accounted for over 1/2 of the total expenses. Unpaid family labor was second with $134 per farm. Decrease in livestock and livestock products was $31 per farm, and depreciation $86.

TABLE LXXVI. DISTRIBUTION OF EXPENSES PER FARM, 107 CUMBERLAND PLATEAU FARMS, 1939

| Expenses | Amount per Farm | Percent of Total |
|---|---|---|
| Total expenses | $666 | |
| Current expenses | 365 | 54.7 |
| Unpaid family labor | 134 | 20.1 |
| Depreciation | 86 | 13.0 |
| Decrease of feed and supplies | 50 | 7.6 |
| Decrease in livestock and livestock products | 31 | 4.6 |

Financial Statement: With the gross receipts valued at $995 per farm, and total expenses valued at $666 per farm, the average farm income for the 107 farms in 1939 was $329[6] (Table LXXVII). The interest on average capital calculated at 5 percent was $289 per farm. The average labor income was $40[7]. When the value of perquisites is added to labor income, the labor earnings per farm was $480.

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(6) Farm income is what the farmer has for his year's work and the use of the farm; it is calculated by subtracting the total farm expenses other than interest from the total farm receipts.

(7) Labor income represents what the farmer receives for his own labor for the year in addition to house rent and farm products used by the family. It is calculated by deducting interest on the total investment from farm income.

TABLE LXXVII. FINANCIAL STATEMENT, 107 CUMBERLAND PLATEAU FARMS, 1939

| | Average Value per Farm | |
|---|---|---|
| Gross receipts | $995 | |
| Total expenses | 666 | |
| Farm income | | $329 |
| Interest on average capital @ 5% | 289 | |
| Labor income | | 40 |
| Value of perquisites | 440 | |
| Labor earnings | | 480 |

## Value of Perquisites

Perquisites, the items produced on the farm, and used by the family, were valued at $440 per farm (Table LXXVIII). Family food constituted $359 or 81.4 percent of the value of the family living derived from the farm products. It is assumed that the greater portion of the total value of food supplied the family by the farm was in livestock and livestock products such as pork, milk, chickens and eggs. House rent was valued at $65 per farm, or 14.3 percent of the family's living from the farm. Family fuel, largely in the form of wood, was valued at $19 per farm.

TABLE LXXVIII. VALUE OF PERQUISITES PER FARM, 107 CUMBERLAND PLATEAU FARMS, 1939

| Source | Average Value per Farm | Percent of Total |
|---|---|---|
| Total value of perquisites | $440 | 100.0 |
| Family food | 359 | 81.4 |
| Use of house | 63 | 14.3 |
| Family fuel | 18 | 4.3 |

## Effective Organization of Selected Farms

Having presented the similarities and differences between the 107 farms keeping records with the Tennessee Agricultural Extension Service, and the average of all Cumberland Plateau farms, it is now desirable to compare farms of different sizes and organization in order to get some idea of the most desirable setup for this area. No attempt is made to correlate all efficiency factors with income. The aim is more to arrive by way of returns from the smaller farms, and what organization is operating most satisfactorily on these smaller farms.

Investment: There were 8 farms with less than $2000 invested in farm business (Table LXXIX). These farms were small; had an average of 23 acres in crops, with 5.6 animal units. They also were low in income

with a $-5 labor income and $323 labor earnings (Table LXXIX). In contrast with this was a group of 29 farmers with between $4000 and $5999 invested who operated farms averaging 50 acres in size and had labor incomes averaging $132 and labor earnings of $552. Farmers with investments of $8000 and up had the highest incomes of any group. However, while crop acres and amount of livestock are closely associated with investment, there appears to be other factors tied up with investment, also.

TABLE LXXIX. RELATION OF TOTAL INVESTMENT PER FARM TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Total Investment per Farm | Number Farms | Average per Farm | | | | |
|---|---|---|---|---|---|---|
| | | Acres in Crops | Animal Units | Percent Investment in Real Estate | Labor Income | Labor Earnings |
| Under $2000 | 8 | 23 | 5.5 | 57.4 | $-5 | $323 |
| $2000 - 3999 | 35 | 39 | 12.1 | 58.9 | -5 | 358 |
| $4000 - 5999 | 29 | 50 | 16.2 | 65.9 | 132 | 552 |
| $6000 - 7999 | 15 | 75 | 20.4 | 65.7 | -18 | 483 |
| $8000 and up | 20 | 96 | 36.8 | 66.6 | 136 | 723 |

Acres in Crops: The 107 Cumberland Plateau farms were divided next on the number of acres in crops and subdivided on whether the farms had a relatively high or low number of animal units (Table XXC). On farms low in animal units the labor earnings did not increase as the acres in crops did, while on farms high in animal units labor earnings did have

more tendency to increase as the acres in crops increased. Labor earnings on farms having a high number of animal units were nearly double in each case the labor earnings on farms low in animal units. From this it can be seen that farms should have both livestock and crops, with slightly more emphasis on livestock.

TABLE XXC. RELATION OF ACRES IN CROPS AND AMOUNT OF LIVESTOCK PER FARM TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Acres in Crops | No. Farms | Average per Farm | | | | | |
|---|---|---|---|---|---|---|---|
| | | Productive Animal Units | Total Farm Receipts | Total Farm Expenses | Farm Income | Labor Income | Labor Earnings |
| Farms low in a.u. | | | | | | | |
| Under 20 | 5 | 4.7 | $318 | $374 | $-58 | $-134 | $156 |
| 20.0 - 39.9 | 20 | 7.6 | 595 | 381 | 215 | 51 | 397 |
| 40.0 - 59.9 | 27 | 9.6 | 713 | 567 | 145 | -122 | 364 |
| 60.0 - 79.9 | 8 | 13.3 | 1014 | 678 | 337 | 48 | 457 |
| 80.0 - 99.9 | 5 | 21.3 | 959 | 878 | 81 | -326 | 60 |
| 100 and up | 4 | 19.3 | 1733 | 1152 | 581 | 106 | 556 |
| Farms high in a.u. | | | | | | | |
| Under 20 | 3 | 8.0 | 293 | 295 | -2 | -145 | 254 |
| 20.0 - 39.9 | 12 | 21.9 | 1011 | 652 | 359 | 121 | 531 |
| 40.0 - 59.9 | 10 | 31.5 | 1027 | 646 | 381 | -126 | 697 |
| 60.0 - 79.9 | 4 | 40.8 | 1710 | 1097 | 613 | 208 | 690 |
| 80.0 - 99.9 | 5 | 42.2 | 2493 | 1148 | 1344 | 791 | 1373 |
| 100 and up | 4 | 76.1 | 3234 | 1981 | 1253 | 515 | 1149 |
| All farms | | | | | | | |
| Under 20 | 8 | 5.9 | 308 | 344 | -36 | -138 | 193 |
| 20.0 - 39.9 | 32 | 12.9 | 751 | 483 | 269 | 77 | 447 |
| 40.0 - 59.9 | 37 | 16.6 | 798 | 588 | 209 | -123 | 454 |
| 60.0 - 79.9 | 12 | 22.5 | 1246 | 818 | 429 | 99 | 521 |
| 80.0 - 99.9 | 10 | 31.8 | 1726 | 1013 | 713 | 232 | 716 |
| 100 and up | 8 | 47.7 | 2483 | 1566 | 917 | 310 | 852 |

On the farms as a whole, those under 59.9 acres were not consistent in profitable gains in labor income. Farms under 20 acres had a labor income of $-138 and a labor earnings of $193. From 20 to 39.9 acres in crops the labor income was $77 and labor earnings $447. But on farms of from 40.0 to 59.9 acres the labor income dropped to $-123, however labor earnings increased $7 to $454 per farm. For the groups of farms over 59.9 acres in crops there were greater gains in labor income as the acres in crops increased. Farms having 60 to 79.9 acres in crops had a labor income of $521 while farms having 80.0 to 99.9 acres in crops had a labor income of $716. Farms having 100 acres and over in crops had a labor income of $852 per farm.

Workstock: There were only 2 farms without workstock (Table XXXI). These farms apparently had other arrangements not shown on the record whereby they secured the use of workstock.

Of the farms with workstock but no tractors, those with 1 horse or mule accomplished the least work per man and received the smallest labor income ($-123) as well as smallest labor earnings ($191). Farms with 3 horses had the next lowest labor incomes and labor earnings, $-103 and $330 respectively. There was very little difference, however, between 2 horse farms, 4 horse farms, or farms with more than 4 horses in their income producing capacity. Of these 3 groups, the 2 horse farms had highest labor income, but farms with over 4 horses had highest labor earnings.

TABLE XXCI. RELATION OF NUMBER OF WORKSTOCK TO LABOR EARNINGS, 98 CUMBERLAND PLATEAU FARMS, 1939

| Number of Workstock * | Number Farms | Average per Farm | | | | |
|---|---|---|---|---|---|---|
| | | Acres in Crops | Animal Units | Man Work Units per Man | Labor Income | Labor Earnings |
| Without tractors | | | | | | |
| None * | 2 | 19 | 5.0 | 102 | 110 | 562 |
| 1 | 9 | 23 | 5.2 | 138 | -123 | 191 |
| 2 | 48 | 42 | 13.5 | 180 | 18 | 438 |
| 3 | 14 | 53 | 16.9 | 209 | -103 | 330 |
| 4 | 11 | 89 | 31.5 | 208 | - 12 | 474 |
| 5 and up | 8 | 72 | 29.4 | 237 | - 1 | 476 |
| With tractors | | | | | | |
| 2.8 | 9 | 82 | 33.8 | 169 | 411 | 970 |

* None reported, but evidence on record of use of workstock.

Farms with tractors averaged $441 labor income and $970 labor earnings, which was higher than that of farms without tractors. They were, however, about the same size as farms with 4 or more horses. They averaged 82 acres in crops and 33.8 productive animal units per farm. In addition to tractors, they averaged 2.8 head of workstock.

Amount of Labor (Months of Labor): The lack of opportunity for remunerative employment has often been mentioned as a cause of many low income families in this area. These farms, which are larger than the average for the area apparently have among them some that do not furnish

enough productive work to the operator as now organized.

Of 102 farms for which months of man labor were reported, there were 12 with less than ten months of labor expended on them. These farms averaged $10 labor income and $331 labor earnings per farm (Table XXCII). Labor earnings increased about $100 per farm for farms with from 10 to 14 months of labor and an additional $100 for farms with from 15 to 19 months. Change in labor earnings were indefinite for farms with over 20 months of labor.

TABLE XXCII. RELATION OF MONTHS MAN LABOR PER FARM TO LABOR EARNINGS, 102 CUMBERLAND PLATEAU FARMS*, 1939

| Months Man Labor per Farm | Number Farms | Average per Farm | | | |
|---|---|---|---|---|---|
| | | Acres in Crops | Animal Units | Labor Income | Labor Earnings |
| Under 10.0 | 12 | 42 | 9.9 | 10 | 331 |
| 10.0 - 14.9 | 24 | 56 | 14.4 | 46 | 434 |
| 15.0 - 19.9 | 25 | 47 | 17.7 | 99 | 547 |
| 20.0 - 24.9 | 18 | 58 | 16.5 | -12 | 531 |
| 25.0 and up | 23 | 73 | 23.3 | 87 | 591 |

* Five farms had insufficient data on months man labor.

Productive Man Work Units: The number of man work units on a particular farm depends upon the kind of crops produced and the livestock raised as well as the quantity of each. There were 17 farms having under 150 man work units per farm. Apparently the size of these farms

was too small as the labor income was $-95 and labor earnings $242 per farm (Table XXXIII). On farms having from 150 to 199 man work units per farm labor income averaged $-111 and labor earnings $297.

TABLE XXXIII. RELATION OF NUMBER OF MAN WORK UNITS PER FARM TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Man Work Units per Farm | | Number Farms | Average per Farm | | | | | |
|---|---|---|---|---|---|---|---|---|
| Range | Ave. | | Acres in Crops | Animal Units | Farm Receipts | Percent Livestock | Labor Income | Labor Earnings |
| Under 150 | 121 | 17 | 23 | 6.4 | 393 | 39.7 | $-95 | $242 |
| 150-199 | 172 | 22 | 44 | 10.8 | 552 | 51.6 | -111 | 297 |
| 200-249 | 227 | 27 | 52 | 17.4 | 888 | 56.4 | - 18 | 419 |
| 250-299 | 290 | 22 | 54 | 19.1 | 1012 | 48.7 | 99 | 551 |
| 300 & up | 456 | 19 | 101 | 42.2 | 2166 | 44.6 | 442 | 989 |

The group of farms averaging 200 to 249 man work units per farm had an average labor income of $-18 and a labor earnings of $419 while the next highest group in number of man work units had an average labor income of $99 and labor earnings of $551. There were 19 farms with over 300 productive man work units per farm and averaging 101 acres in crops. These farms had a labor income of $442 and labor earnings of $989.

Apparently increased earnings are evident at about 200 days of productive man work units per farm, and that incomes increase with productive work above this point.

Productive Animal Units: There were 24 farms reporting less than 8 productive animal units per farm (Table XXCIV). These farms averaged 29 acres in crops and 5.3 animal units per farm. The labor income on these farms was $-129 per farm while the labor earnings was $254 per farm. There were 37 farms with between 8.0 and 15.9 animal units with an average of 11.2 animal units per farm. These farms had 49 acres in crops, labor income amounted to $-40 per farm, and labor earnings $396 per farm. Farms having between 16.0 and 23.9 animal units per farm of which 65.5 percent were cattle had a labor income of $-8 per farm and a labor earnings of $428 per farm. Farms having 24 animal units or more had 92 acres in crops, reported labor incomes

TABLE XXCIV. RELATION OF NUMBER OF PRODUCTIVE ANIMAL UNITS PER FARM TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Animal Units | Number Farms | Average per Farm | | | | |
|---|---|---|---|---|---|---|
| | | Acres in Crops | Animal Units | Percent per A.U. in Cattle | Labor Income | Labor Earnings |
| 0 - 7.9 | 24 | 29 | 5.3 | 64.2 | -129 | 254 |
| 8 -15.9 | 37 | 49 | 11.2 | 67.9 | - 40 | 396 |
| 16 -23.9 | 22 | 59 | 19.4 | 65.5 | - 8 | 428 |
| 24 and up | 24 | 92 | 42.1 | 78.4 | 421 | 947 |

of $421 per farm and labor earnings of $947 per farm. The percent of cattle was 78.4 on these farms having 24 animal units or more per farm.

Incomes increased steadily with productive livestock; however, the greatest increase was for farms with 24 or more productive animal units.

Percent of Income per Farm from Livestock and Livestock Products: The 107 farms tabulated on percent of income from livestock and livestock products averaged nearly the same number of acres in crops, 43 to 58 acres for different groups, but the average number of animal units per farm in the different groups increased as did the percent of income from livestock and livestock products (Table XXCV). The main point in the different groups of farms is that those having less than 20 percent of their income from livestock and livestock products had a higher labor income, $65, and a higher labor earnings, $498, as compared with the labor income $-166, and labor earnings, $332, per farm in the group having 80 to 100 percent of their income from livestock and livestock products.

TABLE XXCV. RELATION OF PERCENT OF INCOME PER FARM FROM LIVESTOCK AND LIVESTOCK PRODUCTS TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Percent of Income from Livestock and Livestock Products | Number Farms | Average per Farm | | | | |
|---|---|---|---|---|---|---|
| | | Acres in Crops | Animal Units | Total Farm Receipts | Labor Income | Labor Earnings |
| Under 20 | 19 | 52 | 12.9 | $105 | $ 65 | $498 |
| 20 - 39 | 25 | 43 | 13.6 | 935 | 129 | 563 |
| 40 - 59 | 29 | 56 | 20.4 | 1089 | 63 | 557 |
| 60 - 79 | 22 | 58 | 21.8 | 946 | 65 | 478 |
| 80 - 100 | 12 | 57 | 27.0 | 970 | -166 | 332 |

The group of farms having the largest labor income, $129, and the largest labor earnings, $563, was that having an average of 20 to 39 percent of their income from livestock and livestock products.

Apparently a diversified type of farming where more than one farm enterprise contributes to the farm income is best farm management in this area.

Income from Irish Potatoes: There were 29 farms reporting no income from the sale of Irish potatoes (Table XXCVI). These farms had 50 acres in crops and 14.7 animal units. Another group of farms had nearly the same number of acres in crops, 52, slightly more animal units, 17.7, but on these farms there was a cash income of $100 to $199 from Irish potatoes. If the two groups of farms are compared on income, the group not selling Irish potatoes had a labor income of $-84 while the group selling Irish potatoes had a labor income of $131 (Table XXCVI). The same is true with labor earnings, inasmuch as $297 were reported for farms not selling Irish potatoes as compared with $553 per farm for those selling $100 to $199 worth of Irish potatoes. Here are two farms apparently the same in size but one realizing a much larger labor income and labor earnings, apparently from the growing and marketing of Irish potatoes. Both labor earnings and labor incomes increased with increased sale of Irish potatoes, but as other factors must be taken into consideration, it cannot be said that Irish potatoes were wholly the cause of the increased labor earnings. However it may be pointed out that the more successful farms produce relative large

TABLE XXCVI. RELATION OF IRISH POTATO SALES TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Cash Income from Irish Potatoes per Farm | Number Farms | Average per Farm | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total Receipts | Potato Sales per Farm | Acres in Crops | Animal Units | Labor Income | Labor Earnings |
| None | 29 | $706 | $ 0 | 50 | 14.7 | -84 | 297 |
| $1.00 to $49.00 | 32 | 665 | 20 | 67 | 15.3 | 10 | 412 |
| $50.00 to $99.00 | 18 | 982 | 70 | 51 | 22.7 | 45 | 524 |
| $100 to $199 | 10 | 1138 | 138 | 52 | 17.7 | 131 | 553 |
| $200 and up | 18 | 2073 | 809 | 83 | 26.5 | 329 | 899 |

quantities of Irish potatoes.

Percent of Farm Income from Irish Potatoes: Farms selling Irish potatoes but having under 5 percent of their income derived from the sale of Irish potatoes had a labor income of $91 per farm and a labor earnings of $506 per farm (Table XXCVII). Farms having 15 to 24 percent of their income from sale of Irish potatoes had a labor income of $123 per farm and a labor earnings of $586 per farm. Farms having 25 percent or more of their income from the sale of Irish potatoes had a labor income of $353 and a labor earnings of $254.

There were two groups of farms, one having 5 to 14 percent of their income from Irish potato sales and the other having 15 to 24 percent of their sales from Irish potatoes, that had about 50 acres in crops, but

one group had an average of 19.8 animal units per farm while the other group had only 11.2 animal units per farm. The group with the larger number of animal units per farm had a labor earnings nearly double that of the group of farms having a low number of animal units per farm.

Here again it is obvious that farms on the Plateau must not specialize in only one type of farming alone to realize the best gains, but should strive to follow a system whereby crops and livestock are produced together in the most efficient manner.

TABLE XXXVII. RELATION OF PERCENT OF FARM INCOME FROM IRISH POTATO SALES TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Percent of Total Income from Irish Potatoes | Number Farms | Percent Receipts from Potatoes | Average per Farm | | | | |
|---|---|---|---|---|---|---|---|
| | | | Potato Income | Acres in Crops | Animal Units | Labor Income | Labor Earnings |
| No sales | 29 | 0 | $ 0 | 50 | 14.7 | $-84 | $297 |
| $1 to $5 | 26 | 2 | 20 | 46 | 20.6 | 91 | 506 |
| $5 to $14 | 29 | 9 | 107 | 52 | 19.8 | 123 | 586 |
| $15 to $24 | 10 | 20 | 151 | 50 | 11.2 | -260 | 254 |
| $25 and up | 13 | 34 | 710 | 83 | 25.4 | 353 | 892 |

Income from Other Sources: Other sources of income included income from man labor, man and team work, machinery work, cash rent, sirup, and lumber. The farms were divided into those having under 50 acres in crops and those having 50 acres and over in crops to determine the relation of other sources of income to labor earnings per farm (Table XXXVIII).

The labor earnings were greater in each division of value received from other sources on the farms having 50 acres in crops or over as compared with farms having under 50 acres. For farms of all sizes, there was a labor earnings of $312 on farms reporting no income from other sources. Labor earnings increased as did income from other sources except in the case of farm receiving $100 to $199 from other sources. In this division labor earnings averaged $409 per farm.

TABLE XXCVIII. RELATION OF INCOME FROM OTHER SOURCES PER FARM TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Income from "Other Sources" | Number Farms | Average per Farm | | | | |
|---|---|---|---|---|---|---|
| | | % Value in Man Labor | Acres in Crops | Animal Units | Labor Income | Labor Earnings |
| Farms under 50 A. in crops | | | | | | |
| None | 30 | - | 36 | 13.3 | $115 | $306 |
| $1 - $49 | 8 | 23.5 | 36 | 13.8 | 3 | 379 |
| $50 - $99 | 9 | 19.7 | 28 | 9.1 | -30 | 386 |
| $100 - $199 | 8 | 27.2 | 30 | 11.2 | - .6 | 392 |
| $200 and up | 7 | 39.9 | 29 | 10.3 | 290 | 703 |
| Farms 50 and up acres in crops | | | | | | |
| None | 23 | - | 81 | 26.3 | -170 | 319 |
| $1 - $49 | 5 | 23.5 | 63 | 19.8 | 196 | 709 |
| $50 - $99 | 5 | 29.7 | 98 | 30.4 | 552 | 1047 |
| $100 - $199 | 5 | 79.1 | 72 | 17.8 | .4 | 438 |
| $200 and up | 7 | 11.5 | 131 | 32.3 | 956 | 1524 |
| All size farms | | | | | | |
| None | 53 | - | 56 | 18.9 | - 8 | 312 |
| $1 - $49 | 13 | 23.5 | 46 | 16.1 | 77 | 506 |
| $50 - $99 | 14 | 23.2 | 52 | 16.7 | 178 | 629 |
| $100 - $199 | 13 | 47.4 | 46 | 13.7 | - .2 | 409 |
| $200 and up | 14 | 26.4 | 80 | 21.3 | 623 | 1114 |

Man Work Units per 100 Acres in Crops: There were 19 farms having from 200 to 399 man work units per 100 acres in crops (Table XXCIX). The labor income on these farms was $-211 and labor earnings $279. These farms were the largest of any group, but the amount of productive man work was too little for this size farm (Table XXCIX). On the other hand there were 12 farms with 800 and over man work units per farm with labor incomes averaging $-94 and labor earnings $316 per farm. These farms had 36 acres in crops with apparently the intensity of culture too great for this area. Farms showing little gains were those having 400 to 599 man work units per 100 acres in crops. The labor income on these farms was $95 while the labor earnings were $552

TABLE XXCIX. RELATION OF NUMBER OF MAN WORK UNITS PER 100 ACRES IN CROPS TO EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Man Work Units per 100 Acres in Crops | Number Farms | Average per Farm | | | |
|---|---|---|---|---|---|
| | | Total Man Work Units | Acres in Crops | Labor Income | Labor Earnings |
| 200 - 399 | 19 | 283 | 88 | -211 | 279 |
| 400 - 599 | 53 | 246 | 82 | 95 | 552 |
| 600 - 799 | 23 | 237 | 35 | 253 | 616 |
| 800 and over | 12 | 264 | 36 | - 94 | 316 |

per farm. The group of farms showing the greatest earnings were those having 600 to 799 man work units per 100 acres in crops. The labor income

on these farms averaged $255 and the labor earnings $616 per farm.

Livestock per 100 Acres in Crops: As the number of productive animal units per 100 acres in crops increased the labor income tended to increase as did the labor earnings (Table XX). Farms having below 20 animal units per 100 acres in crops had a $-165 labor income and $267 per farm in labor earnings. Farms having 20 to 29.9 animal units per 100 acres in crops had a labor income of $10 and a labor earning of $417 per farm. Farms having 50 to 69.9 animal units per farm had a labor income of $145 and a labor earnings of $609 per farm, a labor income and labor earnings slightly below farms having 30 to 49.9 animal units per 100 acres in crops. Where the range of animal units per 100 acres in crops was 70 and over, the labor income was $374 and the labor earnings were $836 per farm.

TABLE XX. RELATION OF PRODUCTIVE ANIMAL UNITS PER 100 ACRES IN CROPS TO LABOR EARNINGS PER FARM, 107 CUMBERLAND PLATEAU FARMS, 1939

| Animal Units per 100 Acres in Crops | Number Farms | Average per Farm | | | |
|---|---|---|---|---|---|
| | | Acres in Crops | Cattle Units | Labor Income | Labor Earnings |
| 0 - 19.9 | 25 | 57 | 6.7 | $-165 | $267 |
| 20 - 29.9 | 32 | 48 | 8.4 | 10 | 417 |
| 30 - 49.9 | 27 | 54 | 16.0 | 149 | 629 |
| 50 - 69.9 | 15 | 55 | 23.9 | 145 | 609 |
| 70 and over | 8 | 49 | 29.8 | 374 | 836 |

From this it is gathered that the farms should strive to carry at least a reasonable amount of livestock to the number of acres in crops as farms having nearly the same number acres in crops realized more gains in labor earnings on the farms having more livestock, especially cattle.

Value of Farm Machinery per 100 Acres in Crops: One-tenth of the farmers had less than $200 invested in farm machinery per 100 acres in crops (Table XCI). The labor income on these farms was $-102 and the labor earning was $356 per farm (Table XCI). Farms having $200 to $399 in farm machinery per 100 acres in crops had a labor income of $-53 and a labor earning of $345 per farm. Slightly better equipped farms having $400 to $599 in machinery per 100 acres had a labor income of $141 and a labor earnings of $627. Farms having $600 to $999 in value of machinery per 100 acres in crops had a $-55 labor income and $367

TABLE XCI. RELATION OF VALUE OF FARM MACHINERY PER 100 ACRES IN CROPS TO LABOR EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Value of Farm Machinery per 100 Acres in Crops | Number Farms | Average per Farm | | | |
|---|---|---|---|---|---|
| | | Value of Farm Machinery | Acres in Crops | Labor Income | Labor Earnings |
| $ 0 - $199 | 10 | 166 | 68 | $-102 | $356 |
| 200 - 399 | 35 | 157 | 55 | - 53 | 345 |
| 400 - 599 | 23 | 275 | 59 | 141 | 627 |
| 600 - 999 | 25 | 292 | 40 | - 55 | 367 |
| 1000 and over | 16 | 924 | 50 | 389 | 897 |

labor earning. Where the value was $1000 and over the labor income was $389 and the labor earnings $879 per farm.

It should perhaps be pointed out that the increased value of farm machinery is not the reason for increased labor earnings in all cases, but that the more successful farms have higher investments in farm machinery.

Receipts per $1.00 Labor and Machine Cost: Farms having receipts of less than $1.00 per $1.00 of labor and machinery cost had a labor earnings of $-15, while those having receipts of from $1.00 to $1.99 per $1.00 labor and machinery cost had a labor earnings of $351 (Table XCII). Both of these groups of farms had low acreages in crops, 41 and 47 acres each, and animal units were 9.1 and 15.6 respectively. Farms having $4.00 or more receipts per $1.00 of expense received $602 labor income and $1003 labor earnings per farm.

TABLE XCII. RELATION OF RECEIPTS PER $1.00 LABOR AND MACHINERY COST TO EARNINGS, 107 CUMBERLAND PLATEAU FARMS, 1939

| Receipts per $1 of Labor and Machinery Cost | Number Farms | Average per Farm | | | |
|---|---|---|---|---|---|
| | | Acres in Crops | Animal Units | Labor Income | Labor Earnings |
| Under $1.00 | 19 | 41 | 9.1 | $-470 | $ -15 |
| 1.00 - 1.99 | 38 | 47 | 15.6 | - 97 | 351 |
| 2.00 - 2.99 | 23 | 67 | 21.9 | 189 | 611 |
| 3.00 - 3.99 | 12 | 71 | 30.8 | 415 | 937 |
| 4.00 and up | 14 | 54 | 23.3 | 602 | 1003 |

As the receipts per $1.00 labor and machinery cost increased irrespective of the size of the farm the labor earnings tended to increase.

## Relation of Farm Organization on Farms Having Two Work Animals Each to Labor Earnings(7)

In the farm organization factors in previous sections, farms having 2 work animals showed up favorably with respect to labor earnings. These 2 work animal farms are now analyzed from the standpoint of farm organization with the hope that further information can be obtained as to the best organization for farms of this kind. The 48 farms were grouped into three classes of 16 farms each on the basis of labor earnings. Farms having from $-439 to $277 labor earnings were considered low labor earnings farms; those with from $299 to $529 labor earnings were considered medium; and those with $569 or over were considered high.

The average low labor earnings farm had 44.0 acres in crops; 1.1 acres in Irish potatoes, 9.2 acres in corn, 23.0 acres in hay, and 2.6 acres in small grains (Table XCIII). The average medium labor earnings

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(7) Farms with tractors were not included in this section.

TABLE XCIII. CERTAIN FACTORS IN FARM ORGANIZATION FOR FARMS GROUPED BY LABOR EARNINGS, 48 FARMS HAVING 2 WORKSTOCK EACH, CUMBERLAND PLATEAU, 1939 *

| Average per Farm | 16 Farms Low in Labor Earnings | | 16 Farms Medium in Labor Earnings | | 16 Farms High in Labor Earnings | |
|---|---|---|---|---|---|---|
| | Average | Average Deviation | Average | Average Deviation | Average | Ave. Deviation |
| Acres in crops (total) | 44.0 | ± 15.0 | 36.0 | ± 10.0 | 47.0 | ±15.0 |
| Acres in corn | 9.2 | 4.9 | 8.6 | 2.2 | 9.6 | 3.4 |
| " " hay | 23.0 | 10.0 | 18.8 | 9.3 | 30.3 | 12.4 |
| " " small grain | 2.6 | 3.3 | 1.5 | 2.4 | 1.0 | 2.0 |
| " " Irish potatoes | 1.1 | 1.0 | 1.0 | 1.0 | 1.5 | 1.0 |
| " " rotation pasture | 8.0 | 7.1 | 12.0 | 9.0 | 9.0 | 7.0 |
| " " perm. pasture tillable | 2.6 | 4.3 | .6 | 1.1 | 2.7 | 3.9 |
| " " open past. non-tillable | 1.7 | 2.8 | 1.3 | 2.2 | - | - |
| Animal units in cattle | 5.9 | 2.9 | 8.1 | 3.2 | 13.5 | 6.9 |
| " " " sheep | 1.4 | 1.6 | .9 | .9 | 2.1 | 1.9 |
| " " " hogs | 1.9 | 1.2 | 2.0 | 1.3 | 1.7 | 1.3 |
| " " " poultry | .5 | .2 | .7 | .4 | .7 | .4 |
| Number of milk cows | 2.3 | 1.1 | 2.5 | 1.1 | 3.5 | 1.9 |
| " " other " | 1.9 | 2.4 | 1.8 | 2.8 | 2.8 | 3.5 |
| Months of man labor | 18.1 | 6.5 | 14.3 | 5.8 | 18.1 | 4.5 |
| Prod. m.w.units (total) | 189 | 40.0 | 195 | 41.0 | 252 | 66.0 |
| " " per man | 142 | 45.0 | 215 | 95.0 | 184 | 73.0 |
| Total investment ($) | 4319 | 1294.0 | 4146 | 1541.0 | 4917 | 1571.0 |
| Investment in real estate ($) | 3012 | 1164.0 | 2773 | 1350.0 | 3058 | 1202.0 |
| Percent of investment in real estate | 69.7 | 8.0 | 66.9 | 10.0 | 62.2 | 9.0 |
| Investment in mchy. ($) | 207 | 98.0 | 263 | 93.0 | 327 | 167.0 |
| Total farm receipts ($) | 473 | 112.0 | 599 | 173.0 | 1268 | |
| Pct. rec. from potatoes | 6.0 | | 8.0 | | 10.0 | |
| Labor income ($) | -342 | | 12.0 | | 381 | |
| " earnings ($) | 28 | | 398 | | 926 | |

* Farms with tractors excluded.

farms had less acres in crops (36.0), less acreage in Irish potatoes (1.0), less acreage in corn (8.6), less acreage in hay (18.8), and less acreage in small grains (1.5). The farms having a high labor earnings per farm had more acreage in crops (47.0), and more acreage in each of the crops except in acres of small grain (Table XXIII). Low labor earnings farms are apt to include small size farms and some large size farms, while medium labor earnings farms would be apt to contain mostly farms of medium size.

In pasture acreage the medium labor earnings had 12 acres in rotation pasture while the low group had 8.0 acres and the high labor earnings had 9.0 acres. The low labor earnings and the high labor earnings had 2.6 and 2.7 acres respectively in permanent pasture while the medium labor earnings had .6 in permanent pasture.

Farm receipts showed more change in each of the groups with receipts increasing as labor earnings did. The receipts per farm were $473 for low labor earnings, $699 for medium labor earnings, and $1268 for large labor earnings. The percent of receipts from Irish potatoes increased as did the receipts with 6.0 percent Irish potato receipts on low labor earnings, 8.0 percent on medium labor earnings, and 10.0 percent on high labor earnings.

For investment per farm the low labor earnings group had $4319, the medium labor earnings the lowest investment, $4146, and the high labor earnings the largest, $4917 per farm. Real estate followed the

same trend with $3012 for low labor earnings group, $2773 for medium labor earnings group, and $3058 for high labor earnings group. However the percent of investment in real estate became less as labor earnings increased. Investment in machinery increased from $207 on the low labor earnings to $263 on the medium labor earnings to $324 on the high labor earnings.

In considering animal units per farm, animal units in cattle increased from low labor earnings to the medium labor earnings to high labor earnings farms. The high labor earnings group had 13.5 animal units in cattle while the low labor earnings group had 5.9 animal units in cattle. The medium earnings group had 8.1 animal units in cattle. There were 3.5 milk cows on the large labor earnings, 2.5 milk cows on the medium and 2.3 on the low, while for beef cows there were 2.8 cows on the large labor earnings, 1.8 on the medium, and 1.9 on the low. There were more hogs on the average on medium labor earnings (2.0) than on the other two groups of farms. There were more sheep per farm on the high labor earnings (1.8) than on the other farms, while poultry was nearly the same on all groups.

There were 252 productive man work units on the high labor earnings, and 189 on the low labor earnings. Medium labor earnings had 195 productive man work units per farm. Man work units per man were 215 on the medium labor earnings, 184 on the high labor earnings, and 142 on the low.

The acreage of potatoes was not significantly different for the three groups, but percent of farm receipts represented by potato sales increased from 6 percent for the low earnings group to 8 percent for the medium earnings group, and 10 percent for those with highest labor earnings. Apparently potato yields were quite important in raising the incomes of the latter group. The average labor earnings per farm was $926 on the high group of farms, $398 per farm on the medium, and $28 on the low.

## CHAPTER XI

## AN ECONOMIC PROGRAM FOR DEVELOPING THE CUMBERLAND PLATEAU

### Basis for Recommendation

The Area and Its People: The Cumberland Plateau area of Tennessee has attracted numerous families who expected to find in it an opportunity to provide security and a means of livelihood. Settlement of the land has been a process extending over more than a century. During the 1930's numerous new farms were established by migrants as well as by local residents, not because the people expected to obtain large incomes, but because opportunities for employment in industries or agriculture elsewhere were sharply curtailed. Not only have new settlers come into the area in recent years, but the birth and death rates are such as to double the population every generation of 30 years if there is no migration. It has been estimated by Conrad Taeuber, Division of Farm Population and Rural Welfare, that with no migration or occupational change in the area normal aging of population would leave 2868 "vacancies" on farms, but would produce 7411 young men to fill them during the years 1940 to 1950 (data based on ten Plateau counties).(1)

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(1) Statement by Conrad Taeuber, Acting Head, Division of Farm Population and Rural Welfare, July 21, 1941.

Under such conditions it is necessary either to expand the resource base or find outlets for the population through migration.

While this area has increased fairly rapidly in population, the distribution of population has not been uniform. People have tended to settle, in the main, near coal mining centers. This has caused the mountainous northeastern section of the region to be more densely populated than other sections. Families came to that region for employment in the coal mines, and for the most part have had no farm experience. When the coal mines shut down, as they often do for various reasons, the people are left with no source of income. They have no knowledge of farming, and furthermore many do not live on farms but on small plots of mountainous land adjacent to the coal mine, and often owned by the mine operators.

Here then is an area in which a large proportion of the population is dependent, directly or indirectly, upon a type of economic activity that is highly unstable in character and which tends to be associated with acute problems, both social and economic.

Farms and Incomes: The present agriculture of the Plateau is for the most part incapable of supporting a farm population except when supplemented by income from employment off the farm. In 1929 there were 50 percent of the farms self-suffising, 26 percent part time, 10.8 percent general, 3.1 percent animal specialty, and 10.9 percent other types.

In the ten representative counties the average size of farm in 1940

was 60 acres. In 1940, 27.7 percent of all farms were between 10 to 29 acres in size. The number of acres included in the farm is an inadequate measure of size of operating unit in this area, but it indicates in part the potentialities for development.

The value of livestock and livestock products sold was $102 per farm, while the value of crops sold was $47 per farm in 1939. In many sections of the United States farmers ordinarily expect to receive the greater portion, if not all, of their income from the farm, but most of the farmers in this area depend on part-time work off the farm as a major source of income, or as a supplement to farm income.

Resources Other than Agriculture: Much of the land is still in large forest tracts owned by corporations. The area was first important for exploitation of minerals, coal, and timber, and in terms of value of product this use of the land was more important in the region, before 1929, than was agriculture; however in terms of persons reported by the census as gainfully employed, agriculture was more than three times as important.

In the past, and to a large extent at present, the cutting of timber and the development of other natural resources has not always been done with due regard to the future, resulting in long term economic losses.

In 1939 there was 72.7 percent of the total area in the ten Plateau counties in non-farm forest land.

The coal bearing area of Tennessee and of the Cumberland Plateau

is identical, being divided into what is known as the northern and the southern coal fields. While the coal industry is developed enough for present needs, it is only a matter of a few years before some of the larger mines will be worked too far back to be profitable. There are so few definite markers in the coal field that the correlation of beds from field to field is possible only by painstaking, almost foot by foot, detailed mapping. It will take years to make a scientific and engineering study of the coal deposits, in order to recommend ground to prospect for new coal mines, and this work should be carried on now.

Some sandstone for building purposes is quarried in Cumberland County, but its production is relatively unimportant.

The presence of extractive industries contribute to the living of the farm families not only by providing a source of outside employment but also by furnishing a market for some farm grown produce, including farm woodlot products.

The broad tax base provided by mining properties, investments, and by industries dependent upon or associated with extractive industries, permits rural families to enjoy facilities that could not otherwise be provided except by subsidies.

In the light of the foregoing facts, planning for the future should mean principally planning for adjustments in utilizing resources considering very carefully probable future trends in the extractive industries in the respective portions of the region. A sound plan should provide that enterprises be so projected as to avoid developing the evils of a stranded population, which in the past have often been associated with the exploitation of mines and forests.

The general situation described in this report points to developing a program of adjustment based on two principal sources of income; agriculture and non-agriculture. The major lines of adjustment involve a combina-

tion of farming with part-time employment in non-agricultural enterprises; or employment in mining with part-time farming.

It is recognized that poor land and sparse population furnish an inadequate basis for maintaining needed educational, social, and religious institutions. Evidence of these conditions and their consequence are found elsewhere in this report.

Lack of roads results in economic and cultural isolation. Poverty and isolation tend to lower the physical, mental, and moral development, and to undermine the economic efficiency of a population. Inadequate medical attention, poor diet, ignorance of hygiene, inadequacies of housing, and similar factors contribute to a high death rate and tend to undermine the economic efficiency of a population.

In some parts of the region it will probably be possible to mitigate population pressure through introduction of new industries or other such adjustments. However, any fundamental improvement in the conditions of life can be achieved only by removing some of the population from localities of limited economic opportunities to other places in which these families can supplement earnings from the farm with employment; or to areas where a more adequate livelihood can be obtained from farming. It need not be assumed that this adjustment will involve caring for the present population on a permanent basis in local part-time farming. There are large numbers of the population, particularly among the younger generation, who will welcome opportunities for employment elsewhere.

If any concentration of population is brought about by an adjustment to utilize natural resources, adequate educational opportunities and accessibility to larger centers of population through the medium of good roads, and increased availability of other means of communication, should be provided.

In short, rational planning is a critical need in the Plateau area. Land is not being used now in accordance with its physical and economic adaptability. In some sections the land is adapted to further agricultural expansion; other sections are best suited to forest use; but by reason of improper management and other circumstances, the potential benefits of the best uses of the land are not being realized.

It must be recognized that some areas not now profitable for agriculture, are in reality well adapted to that use. It would be a mistake to attempt to divert land in such areas to non-agricultural use in order to correct a temporary situation. Throughout the region first consideration should be given to ameliorating conditions of life without extensive regrouping of the population. In any case the essential regrouping should be accomplished only gradually. In the meantime there is room for the continued exertion of educational efforts aimed to teach the people methods of making the best of the resources, human and social, at their disposal.

## Development of Natural Resources

While it is true that natural resources and economic possibilities are to be found on the Plateau, a sound and time beneficial program must

be worked out in the development of these resources. Other than agriculture, the main resources needing planning in their development are forestry and mining.

## Forestry

In this area forestry should become a form of land management, developed through practical measures, for protecting forest growth from fire and other destructive agencies; for logging woodland in such manner as to carry over or reproduce a crop of timber; and for planting forest trees in cut-over areas where the soil is too poor to farm.

Forest Fire Prevention: Fire prevention is the first means to be employed in improved forest practice. Fires in the past have caused more injury to forests than logging or any other influence.

Educational activities are now recognized as of fundamental importance in the campaign against fires. Efforts are being made to reach all communities and all forest users, through the church, the school, and other organizations. The work along this line should be continued and with much more effort. Not only should posters stating the evils of fires be placed along the roads but a series of lectures by the State Forestry Department could be given in schools and at public gatherings during a specified period as for example during a month or two just before the dry season.

The Plateau region has an organized fire-control force, but, because of inadequate support, these organizations have never been able to

command the man power and equipment necessary to render them fully effective. Limited funds have been stretched over large areas, providing in many cases only a skeleton system of fire protection, and leaving many other areas without even the beginning of an organization. It is to the interest of timber owners as well as farmers to see that protection is furnished, and to amplify it by concerted action to the extent necessary to safeguard property.

A fire prevention program should be set up on a county basis,(2) with each county employing a chief warden. A county is as large an area as can be handled effectively by a single warden. The chief warden should be employed full time on this job. His district should be subdivided into small areas, each in charge of a warden employed full time during the fire season. While the size of these sub-districts will depend upon local conditions, particularly the distribution of woodlands, seriousness of the risks, available means of transportation, and readiness of local residents to cooperate, they ought not to include more than 10,000 or 15,000 acres of woodland.

The chief forest warden in each county should be appointed by the State Forestry Department with the assistance of the County Court. This man would be responsible to the State Forestry Department, reporting to it at least weekly. He would be charged with the selection of other

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(2) Chapin Jones, "Organization or Methods in Fire Protection", State Forester, University, Virginia. Proceedings of the Third Southern Forestry Congress, Atlanta, Georgia, July 20-22, 1921, p. 183.

members of the force in his county, in this way relieving the Forestry Department of this duty. One of his principle duties would be in getting as capable and enthusiastic wardens as possible, and to supervise them in their work. These men should receive some training in fire prevention practices as well as in fighting fires. They should be charged with the duty of interesting landowners in constructing fire lanes and other methods of preventing forest fire. Prevention of fire should receive more emphasis than fire fighting.

A lookout system could be provided, decreasing the number of wardens needed when detection of fire is wholly dependent upon patrol.(3) The lookout system, in which observers are stationed during the fire season at fire towers or other points of vantage, has proved very successful in most places tried, and is coming more and more into use. However, one of the disadvantages of this system is that competent, trustworthy, and alert men must be used as observers or the system has no value. In general, the effectiveness of the lookout system depends equally upon the reliability, intelligence, and alertness of the men selected for this duty; the reliability of a supporting telephone communication system; and the perfection of a fire-fighting organization ready to

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(3) B. H. Stone, "Organization and Methods for Fire Protection", Proceedings of The Third Southern Forestry Congress, Atlanta, Georgia, July 20-22, 1921, p. 38.

start for a fire at a moment's notice, and remain with it until it is extinguished. It is essential that local telephone lines within the area commanded from the observation point be so organized as to permit the lookout to notify all wardens immediately of the location of a fire, and particularly the wardens located nearest the fire.

Benefits to timber owners, whether farmer, lumberman or coal operators, will far outweigh their cost if effective measures are brought about. The measure should be supported by those benefiting by the system. The ones to bear the cost should be the State, the county, and the timber owners; with some assistance from the Federal government. The cost to the timber owners should be in proportion to their holdings receiving protection. Plans should be drawn up by the State Forestry Department on the preventive measures to be introduced, and estimates of the aggregate cost to the individual, State, and county. These plans could be presented at special meetings called in the counties for the purpose of acquainting timber owners of the workings of the organization. After all differences are adjusted the program should be put into effect as soon as possible.

There are two methods by which the funds for the protection of the forest may be raised, on a voluntary basis or on a direct tax basis. The taxing of timberland would seem to be the quickest and surest means. A special tax on forest on a per acre basis to be paid either annually

in conjunction with the general property tax, or a tax on forest on a per acre basis to tax, or when the timber is harvested; or a severance tax on timber. In a comparison of these means of taxing many advantages and disadvantages could be presented for each method, but as the funds are needed now and preventative activity should begin immediately it would not be wise to assess timberland and then wait for payment until the timber is harvested. Then, too, a severance tax is unlawful in Tennessee. The best means of raising funds under present conditions and needs of this area would be the assessment of the timber land and the levying of a tax of about $.05 per acre of forest land payable when general property tax is paid. In this manner there would be a fund raised for the protection of the forest from the timber owned that would supplement funds appropriated by the county, State, and Federal government. The tax levied on the timberland owners should be on a prorate basis as for example, if a total of 50 cents per acre is contributed by the governments then $.05 per acre should be borne by the timberland owners, but if 25 cents per acre is contributed by the governments then 3 cents per acre would be paid by the timber owners. In this manner a just sum per acre would be paid by the timberland owners on the severity of risk and cost of prevention in the county in the opinion of the governments.

The cost of effective fire-fighting system will vary according to the extent and severity of the risk, cooperation of the local residents,

roughness of the country, and promptness with which a fire-fighting crew can be transported to the fire. In rough country and areas difficult of access, ample roads and trails for reaching fires quickly should be developed and kept clear. In extreme cases the cost of preventive measures may rise to as much as 10 cents per acre.(4) The average cost of the present standard on protected areas is attained at costs ranging from less than 1 cent to a little more than 3 cents an acre a year in the Southern Appalachians.(5)

Logging Practice:(6) The additional treatment required to maintain forest production in some measure, once adequate fire protection is assured, is very simple. What form it is to take must be determined from conditions now encountered on cut-over areas. However, the situation may be sufficiently well characterized by the following four general conditions that, according to data already presented, are the most widely prevalent.

1. Deficiency of good species among both the large and smaller size classes.

2. Surplus of defective trees, and of less desirable species like scurwood, red maple, and black gum.

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(4) E. H. Frothingham, Timber Growing and Logging Practice in the Southern Appalachian Region, United States Department of Agriculture, Technical Bulletin No. 250, August 1931, p. 61.

(5) Ibid.

(6) Ibid., p. 66.

3. Deficiency of tree reproduction of desirable kinds.

4. In burned stands, a heavy preponderance of sprouts in the reproduction.

Whether or not these conditions can be corrected in the course of logging without extra cost depends entirely upon the density, quality, and accessibility of stands. The treatment indicated in the majority of cases on non-farm forest lands will be as follows:

Emphasis should be placed upon getting rid of as many defective trees as possible along with more salable timber, so as to clear the way for growth and reproduction.

Care should be observed in logging to prevent breakage of trees left for growth. All broken trees should be removed.

To insure continuance of good species in future stands, the seed supply should be built up where inadequate, by reserving a few well distributed seed trees.

After logging, the stand should not be cut over again until it is in such condition that a second cutting will leave half or more of the area stocked with sound young trees. This new stand, reinforced by reproduction in the openings left by cutting the larger trees, will comprise the growing stock for future cutting. The time interval between the first and second cuttings should be determined partly by the size and condition of the stand remaining and the growth capacity of the site, rather than entirely by commercial possibility of operation.

Only on the best sites, with a fairly good young stand left after the first cutting, should a second operation be considered in as short a time as 10 years. On dry sites, or when only a thin stand of young trees is left after the first cutting, a return cutting may not be advisable for 20 years or even longer.

To get the highest possible value out of a forest requires more intensive and detailed treatment than fire protection and a few simple cutting rules designed merely to restore or maintain a moderate production. A detailed program of cutting and thinning should be adopted, and for large tracts this program should be elaborated into a definite schedule of cuttings, or management plan.

Once the forest condition necessary to produce full timber crops is attained, it can be maintained indefinitely. This may be done by harvesting successive crops at yearly or other intervals, the size of the crops cut being held down to the amount of growth that the stand can make. This in turn is governed by the quality of soils in which the stands grow. It is realized that large timber tracts cannot be managed with as much care as farm woodlands, but the best way to go about acquiring a normal growing stock is to conserve promising immature trees and to encourage a full reproduction of desired species.

At the present time, due to the amount of timber becoming less and the trees smaller in size, it might be wise to cut only enough for market needs and to allow the timber stands for the most part to reach a greater maturity.

Farm woodlands on the other hand being smaller in size can receive more attention at less cost. Farm woodlands are neglected opportunities on many farms. Instead of being handled for a steady income, as they might be, a common practice has been to cull out the best meratial whenever it can be sold or used. This has resulted in such poor stands that many owners have lost interest in their woods as a source of income. Lack of familiarity with markets and prices for wood products have placed farmers at a disadvantage, with the result that much timber has been sacrificed for low paying uses when some of it at least might far better have been left for growth to more valuable sizes. The aggregate loss, through poor management of farm woods, is serious to the region as a whole. The area of farm woods is so large that if all were under good management for continuous production the crop would go far toward improving the economic situation in the region.

Farm woods, being in smaller units than timber owned tracts, can be easily managed in the course of other work on the farm. Labor and teams can be used in them during slack periods. There is no heavy investment in land, stumpage, and special equipment. Fuel and other wood products needed on the farm itself can be supplied from unmerchantable trees cut to benefit the stand. The farm woods are usually accessible by good roads to sawmills, and other establishments that require constant supplies of forest products. Such markets are an incentive for

the management of farm woods to supply continuous yields of most profitable materials. For these reasons it is relatively easy and practical for farmers to apply intensive methods that lead to full timber crops.

The treatment of farm woods to enable them to earn a steady income depends upon their condition, age, and composition. Conditions vary all the way from thin overgrazed, or overburned stands with trees of no value except for fuel, to dense stands of thrifty timber. Some farm woods contain only mature trees; others are made up of young reproduction that came in when a previous stand was cut clean or a field was abandoned for cultivation. Each stand therefore presents a problem that must be worked out independently, with a view to developing the most valuable and rapidly growing species and maintaining the largest and most profitable yield. Poor, thin stands cannot be converted rapidly into good ones. The process is a slow one. Dense stands can be improved by light partial cuttings in old growth or thinnings in second growth, at intervals of 5 to 10 years.

Reforestation: In spite of the periodic slumps that have taken place in the value of lumber, it is difficult to see how the lumber industry can do anything but advance in value.

At the present time soil surveys are being made of different counties and needless to say this should continue until all sections in Tennessee have been surveyed. With the aid of soil survey data

the better lands of the region should gradually be taken up for agriculture, first near the railroads and public highways and then farther back. But there is such an abundance of timberland and their conversion into farmsteads will require such length of time that it would be unwise to hesitate with the beginning of reforestation of those areas remotely situated from adequate transportation. The general working plan undoubtedly should include as high a proportion as practicable of the true forest land in the initial forestry projects, then taking in the more inferior farm lands, and finally the relatively inaccessible better grades of soil. The project could be further strengthened by turning the attention of prospective farm owners to the better and more accessible farm land. However, a good policy would be to retain some of the present cut-over areas reasonably near the farm communities in grass to be used for grazing purposes. A sound plan for restoring woodland of this area should make provisions for growing timber and grazing stock as a combined enterprise. This would mean not only reforesting of some of the more remote clearings but encouraging and improvement of grass in the more accessible clearings for cattle. This work should be under the supervision of the State Forest Service.

Local Wood Requirements: Forest resources of this area in the past no doubt yielded enough wood to meet local requirements.

It is roughly estimated that yearly requirements of this region for wood are now more than twice the amount of annual growth of the forest.(7) In the future the situation will be many times worse unless remedial measures are adopted very soon.

Saw mills, both portable and stationary, are found throughout the area, although the portable mills are more numerous. About one-half of the mills operate on a custom basis, making a charge of from 4 to 6 dollars per thousand board feet, lumber tally, for logs delivered at the mill; or, when sawing on a "share basis", the mill owner receives one-half of the lumber tally in lieu of cash.(8)

The bulk of the mine timbers were obtained from woodlots within a fifty-mile radius of the mines in the Norris Dam Watershed area.(9) It is reasonable to assume that this is also true where mines are found on the Plateau proper.

The market for crossties is of course restricted to railroads and street railways. In many instances ties are hewn on the farm and sold directly to the railroad. The Tennessee Valley Authority found that many portable sawmills produced crossties in conjunction with sawing rough lumber, since by making ties they were able to utilize a greater percentage of the log.

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(7) Tennessee Valley Authority, Forest Conditions in Hamilton County, Tennessee, Forest Relations Department Commission, 1937, p. 44.

(8) Tennessee Valley Authority, Utilization and Drain of Forest Products from the Norris Dam Watershed.

(9) T.V.A. Forestry Division, op. cit., p. 8.

Adjustment for Wood-Using Industry: It is apparent that wood-using industries on or near the Plateau face severe adjustments and reorganizations.[10] Lack of standing timber will force many of the portable mill operators to either abandon their equipment or move to other regions. As they leave, lumber dealers and secondary lumber industries will draw more of their rough lumber from out-of-county sources. The almost certain result will be a rise in the cost of raw materials, and, if the market permits, a rise in the selling prices of their products. The immediate adoption of improved forestry practices will not prevent this trend, but it can be expected to lessen its severity.

The wood-using plants are small, and if forced out of business by pressure of changing conditions, the economic effect will be slight. However, many people depend on these plants directly or indirectly and the activities may, in time, have a far-reaching effect. In the first place, future lumbering operations by the inefficient and destructive portable mill practices constitute an important problem to this region. Integration of these mills into more efficient units, closer utilization of raw materials and the manufacture of more diversified products are strongly indicated.[11] It may be worth while to attempt a cooperative form of forest management and utilization, that is, an organization of

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(10) Tennessee Valley Authority, Forest Conditions in Hamilton County, Tennessee, Forest Relation Department in cooperation with Hamilton County Planning Commission, 1937.

(11) Tennessee Valley Authority, op. cit., p. 48.

forest owners controlling and operating the manufacturing equipment.(12) Such an organization could well afford to hire a manager and produce high quality products without working at cross purposes. Production by this cooperative could include such commodities as rough and dressed lumber, dimension stock, ties, poles, graded fence posts, fuel wood, veneer logs, and handle stock.

There are several plants in Chattanooga making paper products which are consuming large quantities of pulp from foreign countries and from domestic sources at a distance from this area. Purely from the standpoint of economy, it may be well to consider the possibilities of a nearby pulp mill to supply at least a part of this demand. Properly located, such a mill could enjoy advantages of water transportation and low-cost electricity.

Future development projects that seem most deserving of encouragement are those which tend towards a greater economy of operation, less waste of raw materials and the greatest possible spread of benefits to both local citizens and consumers.

## Mining

Coal is by far the most important mineral in this area. The development of coal has drawn many families to this area, and explains much of the large increase in population. The mining towns, usually built and owned by the mine operators, have often been unwholesome. Work in the mines has been irregular, and even during times of

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(12) Tennessee Valley Authority, op. cit., p. 48.

prosperity and business booms many mines have closed from one to several months each year. When the mines are closed most miners are able to earn very little, as many of them are located where few other industries and little agriculture exists. Moreover, it has been difficult for miners to raise their own fruit and vegetables, as the land around mining towns is usually allowed to remain in forest. While much of this land is not adapted to cultivation small sections of it could be made into family size gardens. Doubtless the mine operators would gladly permit this to be done.

However, there is the factor of uncertainty of permanent employment in the mines, the prejudice of clearing and developing land for others and many such disadvantages in the development of land under these conditions. Adjustments may be made if the labor union of these workers could be interested in a community garden project. The labor union would act so as to protect the interest of the people in this project and that of the mine owners. It would not be the task of the labor union to supervise the cultivation of a community garden project but to act as advisory board for all difficulties that might arise. It would be the task of the county agent and the Agricultural Extension Service to supervise the cultivation of the gardens. There is little doubt that permission could be secured from the mine operators to clear some of the more suitable land for agriculture. This clearing should be done by all of the workers in the town under the supervision of the county

agent and other agricultural agencies of the State. A large area may not be planted the first year but the area could be increased.

The clearing of the land and breaking of it would be on a community basis, but after the ground is prepared and ready for planting it will become an individual responsibility to plant and care for the individual gardens. Each family will be designated a section of the cleared and plowed ground in which they are to cultivate vegetables for their own use. These people will need much encouragement and many small difficulties will arise, but with patient supervision a family garden program could be carried on.

Coal mining has provided employment for more people than has any other occupation except agriculture, and unfortunately this has relocated many families where alternate employment opportunities are not usually found, and in an industry where employment has been very irregular.

Clearly the problems associated with mining operations must be faced, and a long-time plan developed which will have in it the element of permanence of employment and security of livelihood. Recent experiments have been directed to the establishment of families dependent on employment in seasonal industries on subsistence homesteads to enable them to supplement industrial employment with farm work and to produce a considerable proportion of their food supply.(13) Under

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(13) United States Department of the Interior, Division of Subsistence Homesteads, General Information Concerning The Purpose and Policies of the Division of Subsistence Homesteads, Circular I, 1933.

conditions prevailing in the coal producing sections, it is doubtful that any permanent improvement in the situation can be achieved until increased stability of employment can be introduced into the coal industry itself. It is conceivable that, with reorganization, the coal industry might provide adequate employment and a living wage for part time farm and mine workers and that rural farm homes adjacent to the mines might be substituted for the usual mining town. These rural homes for the mine workers should be clustered along good roads to avoid excess costs for roads, schools, and other public services. Each home should have a small section of ground for part-time farming. Any arrangements whereby the families are not so dependent on mining will prove beneficial to the families concerned, to the public, and to the mining companies.

An effort should be made by the Agricultural Extension Service and other such agencies to prevent the practice of the past which was the tendency for mines to draw families from farms and placing them in mining villages or towns where employment complementary or supplementary to mining is not available.

One means of improving the situation may be the connecting of coal mining with other industrial activities.(14) Coal is an important

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(14) United States Department of Agriculture, Miscellaneous Publication No. 205, Washington, D. C., January 1935.

primary source of power. The chief raw material manufactured in the region is timber. These are the two great natural resources, in addition to agriculture, upon which the economic and social organization of the region must primarily depend. Therefore, if increased decentralization of industry is possible, a logical economic development would be to combine coal resources with the production of manufactured forest products. In this manner people would be more sure of year around employment as they would not be dependent on unstable inherent qualities of coal mining alone.

However, at the risk of repetition, the thing that should be done now by the agricultural agencies of the state is to either move the families out of the mining towns and establish them on part-time farms; or to encourage them into clearing and farming the more suitable land surrounding the town.

## Other Industries

Factory employment has been utilized by many of the families living in this area. There are several industrial towns surrounding the area such as Cookeville, Sparta, Rockwood, La Follette, Harriman, Clinton, and Chattanooga. Some arrangement should be made whereby individuals who are able, in the different families on the Plateau, could obtain employment in these nearby towns and thereby increase the family income. Such agencies as the State Employment Service could do much in locating jobs for these people, and an effort should be made to distribute the employment so that several individuals in neighborhoods would be able to share the transportation cost by

traveling to work together.

More industrial plants could be introduced. A program should be carried on by the State Agricultural Experiment Station informing industrial plant owners and other interested parties of the industrial possibilities and available resources of this area. Such advantages of this area should be presented as: the excellent geographical position with reference to present and future markets; low wage scale due to low cost of food supplies, rent, fuel and clothing; extensive timber and mineral resources, especially coal; liberal labor laws; moderate taxation; and a genuine desire for new industries, with worthwhile inducement in certain localities.

## Development of the Range

The grazing of cattle on range has always been considered as a major enterprise in this area. There has been no attempt in the past to control grazing, no permits were required, and no fees collected by land owners. The livestock men have just allowed their cattle to graze through the woods, and this freedom from payment for the range used but not owned, as well as freedom from nearly all investment expenses, has afforded some cash income and profit to the stockmen at times. However, this practice is not so profitable at present as formerly, and will be even less profitable in the future unless some adjustments are

made.

One reason for the range tending to become unprofitable under present management is the development of the region. More farms and homes are being built in the area, taking over the land formerly used for grazing. An example of this is the erection of the Cumberland Homesteads on land that was formerly used freely by livestock owners. With the settlement of this region not only have the farmers lost the free use of much of the woodland, but theft has become very serious. Sheep have been more readily stolen, but the losses in cattle is also great. These losses have become so acute that it is unprofitable to keep but the poorest grade stock.

An adjustment to this factor would be to clear the land suitable for pasture near the main farm unit, improve the plowable and open non-tillable pasture, and confine the better grades of livestock close to the farm unit. The poorer grades of cattle could be allowed to range farther away. Every effort should be made by the people and by the law enforcement forces to prevent stealing.

There is little question that the farmers have come to depend on the freedom of the woodlands found in this area for the grazing of their livestock, and if deprived of it would suffer a serious loss. However if the farmers continue to use this land there must be controlled grazing. There are several types of controlled grazing such as the placing of salt, erection of fence, water development or the use of rangers. The more inexpensive methods of controlled grazing should be practiced, and if the seriousness of the problem is not lessened, then steps will have

to be taken to control grazing by use of rangers.

Salt should be placed in areas where cattle should graze. This will tend to control them, but if in addition a few strands of barb-wire fence are strung through the woods, enclosing large acreages, the cattle can be fully controlled in their grazing. Springs and streams should be included in the desired areas for grazing.

If such practices fail to overcome the problems of stock losses and damage to growing timber, then the use of rangers will have to be resorted to.

As the forest should be divided into districts for fire prevention policies, so the same districts could be used as grazing districts. The men acting as fire wardens would have an additional duty of controlling the grazing of cattle. It would not be their duty to herd the cattle but to see that the proper herding is being carried on.

Plans would have to be drawn up by the State Forestry Service, consisting of maps, policy, and objective statements, and such written material as will set forth proper range management in relation to tree growth, seasons actually used, distribution and salting of stock, and important related interests such as forest reproduction and wild life.

Cattle is often grazed along the cleared sections of the roads. While there may be no objections to this practice except the possibility

that the cattle might be killed by vehicals traveling the road a more profitable practice might be to graze these animals on cleared permanent pastures on the farms.

## Development of the Agricultural Possibilities

Farming for the most part is by farmers with small farm units who find other work to supplement their farm income. Following is a proposed plan for the development of agriculture designed to increase farm income and living standards. While much of the discussion is suited to full family size farming, it is also suited to small farms on a less extensive scale. Although farm operators must often seek other employment, they should also endeavor to improve their farm management.

Farming in different sections of the Plateau is not very different, but is carried on under somewhat different circumstances in some sections. Coal mining is found in Division 1, located in the northeastern section of the Plateau, where there is now considerable opportunity for professional agricultural workers to teach the people gardening, and thus raise their standard of living.(15)

Other divisions have different problems. In the northwestern part of the area, Division 2a and 2b, the most helpful thing would be

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(15) The major divisions of the Plateau are described in Chapter IX.

for the landowners to develop their farms, care for their forest, and properly graze their cattle. However, these people need another source of income at present, while at the same time improving their farms. One industrial possibility of this division is the quarrying of flag stone, a fine quality of which is found along the western edge of the Plateau. Freight rates from Jamestown are favorable to northern cities.

In the central section of the Plateau, Division 3, farms should be improved, and better marketing facilities provided. The farms in this area could be stocked with more dairy cattle, as well as the production of more Irish potatoes. Crossville, Cumberland County, which is in this division is the logical marketing center and might be developed as such.

Conditions in the south central part, Division 4a and 4b, are especially critical because of the sparse population and isolated communities. However, if roads are built to the best farming land of the area, and proper settlement guided and encouraged, it should not be long until this section becomes as fully developed as the remainder of the Plateau. Grazing of beef cow herds could be increased in this area with a limited increase in dairy.

In Division 5, found in the southern part of the Plateau, part-time farming is the most important type. These farms are higher in value of real estate. In this division crop production could be expanded, as could dairying with the products being sold in the nearby

industrial centers found in the valleys.

In proposing a program of sound farm management for the Plateau, one should attempt to eliminate the outstanding weakness found on the farms in the different areas. The farmers are in need of a substantial, progressive agricultural program to enable them to efficiently operate their farms so as to make adequate financial returns.

Before outlining a step-by-step procedure, a statement of general principles is desirable. First, the best of farm operation is required for successful management of small farm units anywhere. A small area of land, with a small number of livestock, is called upon to support a family, and only the widest margin between cash cost and income, or the most efficient mode of operation, will provide sufficient net income.

Second, all of the matters dealt with in the proposed program are essential to the success of small units. No one of them can be neglected without decreasing the net returns disproportionately.

Third, planning must be projected on a long-term basis, if good results are to be attained. Each operator must be assisted in getting and keeping in mind a clear picture of the constructive operation of the farm as it should be done when improved, and of a well timed, effective, efficient and systematic plan for attaining his objective. After an adequate long-range plan is set up, it will need some revision from year to year to keep it in line with changing conditions.

Fourth, the fact that some of the present farm operators will not accept sound planning at first must be expected. The beginning must be made with families who are willing to cooperate, and others reached more gradually through their neighbors.

Fifth, it is not inferred that all economic needs of the area can be met through agriculture. Some of the farms are adequate to support a family through full-time farming; others, if efficiently operated, will need little outside income; while still other farms are not capable of doing much more than providing subsistence production. These recommendations are intended to assist each farmer in realizing, to the fullest extent possible, his agricultural resources as a means of helping him to work better with what he has.

Family-Size Farms

On the large or family size farms the farm operator often receives some income from sources off the farm, but is not so dependent on work off the farm. It is expected, on these larger farms, that the farm operator will spend most of his time working on the farm, or will hire help to replace himself if he has a position, as these farms will have at least enough productive work to keep one man busy. Any additional source of income would then serve as a supplement to the farm income.

Size of Farm: The size of the farm will depend on many considerations, as type of farming, amount of work off the farm, and

and ability of the farm operator. However, it may be said that in most cases the farms are too small. The operators have no enterprise large enough to provide employment in the most efficient manner.

From data previously presented, it is apparent that for a farm operator working full time on the farm, the minimum desirable size is a two-horse unit. As shown in Chapter X such farms are better adapted to the type of farming carried on in this region.

On the assumption that 25 acres of cropland would be required to realize the efficient use of one horse, the minimum size of a full time farm would be about 45 acres in crops with about 25 animal units, mostly cattle. The total acreage of the farm would be at least 100 acres. Of this, about one-half would be in tillable land, one quarter in permanent pasture, and one quarter in woodland. The cattle would be grazed on the permanent pasture and in parts of the woodland fenced off. Other woodland, off the farm, could be utilized in a controlled grazing manner. It is unlikely that the farmers will be deprived of the privilege of grazing their cattle on the open range as they are doing now, but the farmer should realize that with the development of this area, the use of this non-farm land may not be available for grazing for various reasons. A progressive farmer will plan his future farm program so that if deprived of the free grazing land he would not be forced to reduce the size of herd. One

plan that may be put into practice now is to improve pastures, both tillable and non-tillable. The carrying capacity of the cleared land of the farm is greater than that of the woodland, so that less cleared land is needed to support the same amount of livestock than is needed of woodland.

Land Clearing and Use: Many of the present farms are below the minimum size recommended here. While many of the farmers might not be able to make a rapid change in their acreage, even where suitable soils are found, plans should be made to gradually clear more land for farming purposes. On farms having no suitable land to clear, an effort should be made to purchase additional suitable land.

It will be necessary to establish definite criteria, based on systematic patterns of operation, for sound land clearing and use of present cleared land. Consideration should be given to adequate soil conservation, and to maximum economic benefits to the farmers. Fortunately, these considerations are not contradictory, as the latter is largely dependent upon the farmer, particularly when viewed over a period of years.

Before land is cleared, it should be determined that it is suitable for either crops or pasture. Detailed soil survey maps would have to be made and carefully considered, as would recommended land use maps. After the land under consideration has been studied,

and it has been decided which segments would produce most profitable if used for farming, and which for timber use, a land clearing program should be undertaken. Lack of capital will prevent most farm operators from taking advantage of clearing by tractor or "bulldozer". Credit will be necessary if many of the farmers are to quickly provide themselves with an adequate size farm unit. Among the alternative sources of credit are: the establishment of a cooperative clearing association, with the cost of the equipment advanced in whole or in part by a public credit agency; public or privately owned machinery, with individual farm clearing jobs done on a contract or hourly rate basis, and with individuals receiving credit for payment of machine hire; clearing of large blocks of land by a public agency with individual farmers purchasing the cleared land on a long term contract basis, and at low interest rates. This plan is similar to that followed in the development of irrigation reclamation projects.

Not only should soil type and condition be considered in the clearing of new land but also slope categories as modified by specific land management practices. The conditions to be met are essentially as follows: First, determine the maximum slope that can be cropped without danger of serious erosion when using such cropping practices as winter cover for the land and maintaining adequate organic content of the soil. The limit of the slope would probably be about three percent. Second, determine the range of slopes that can be used for

general crops, including intertilled crops in rotation with close growing crops and perennial hay, and upon which certain mechanical checks to erosion must be practiced. These slopes would probably range from about three to ten or twelve percent. Third, determine the range of slopes that may be used for close growing crops and perennial hay in rotation, or for permanent hay upon which certain means for checking erosion are used. Probably the range for this use would be from ten or twelve percent to twenty or twenty-five percent. Fourth, determine the range of slopes which, although too steep for crops, may be used for permanent pasture, provided certain specific practices are followed as terracing. This range would likely be from twenty or twenty-five percent to forty or forty-five percent. Fifth, determine the slope above which all land will be used for the production of forest trees.

Other criteria for land use should be brought into play over certain parts of the area, such as where the subsoil is too thin, where erosion has been severe, or where topography is too broken for utilization or improvement as determined by slope classification.

Farm Organization: From the standpoint of farm organization, maximum success demands the best possible organization of the farm business that is consistent with soil conservation, economic needs, and the ability of the farm operator. On the basis of consideration of general land use, this area should be designated as best suited to

livestock production; but due to the small size of many of the present farms, it appears that farm organizations should be set up on the following stipulations.

First, use sufficient land on each farm for the production of food and feed for use when fresh, and to be stored for future use, including vegetable crops, livestock, and livestock products. This would include the raising of feed for livestock, as well as vegetables for the farm family, to the greatest practical extent. Much stress should be placed upon ample production of Irish and sweet potatoes, raw fruits, smaller root crops, freeze-resisting crops, corn, and wheat. Meat, eggs and dairy products should also be stressed from the standpoint of ample year around supplies.

Second, use the remainder of the land for producing livestock and cash crops for sale. Beef cattle, limited dairying in some areas, sheep, and hogs appear to be the most favorably adapted. Poultry may be raised on an extensive scale on farms well adapted to its production. Cash crops, especially Irish potatoes, should prove to be profitable on many farms.

Third, good timber production practices should be followed on all land which is unsuited to crop production. Attention should be given to adapted species which have a good market value, and so far as possible to early maturing species.

In following these plans for farm organization it must be remembered that the farms are relatively low in capital, and the farmers are in no position to finance heavy expenditures over a long period of time without realizing considerable immediate income.

Soil Improvement: Burning the timbered areas, poor farm management practices on the cleared land, and low mineral content of the soil to begin with, have resulted in poor soil fertility over much of the area. The general condition of the farms cannot be appreciably improved without first making the cleared land more productive. Yields must be increased to the point where the land can be profitably used for agriculture, where quality of the product is consistent with market demands, and where nutritive requirements of the family as well as livestock are met. In order to meet current needs of the family, land must be kept in use while soil improvement is under way. The following approach is proposed for soil improvement:

(a) Chemical Treatment: Most of the soils are acid in reaction, and lime treatments should be initiated on each field by tests and continued observation or trial. Due to financing, the whole farm probably cannot be limed the first year, but a portion given an application each year or every few years until the crop and pasture lands are all covered.

Commercial fertilizers, particularly superphosphate, should be

used in sufficient quantities to make up for a lack of soil nutrients. A major portion of the fertilizer could be applied to the green manuring crops, since that method of use retains the original nutrients in the soil and increases the amount of organic matter and fixed nitrogen returned to the soil. Corn and hay crops, which are most prevalent in the area, draw heavily on phosphates. Hence to get the best returns, a treatment of not less than 200 pounds of 16 percent superphosphate, or its equivalent per acre per year for most crops, should be applied in addition to the limestone. If intensive crop production is carried on, a much heavier application of fertilizer will generally be needed. Additional applications of fertilizer should be made to all crops as long as increased returns are in excess of the fertilizer cost. If finances prevent the application of phosphate and lime to all improved land the first year, these products should be applied where needed most, and where they will yield the greatest return.

(b) Green Manures: All land used for intensive production should be seeded to a cover or green manuring crop. The seeding should be made early enough in the fall to procure a good growth by early spring. The crops used should be legumes or a mixture of legumes and cereals. Either crimson clover, small grain, vetch, or a combination could be sown, with a major portion of the year's application of fertilizer.

Rotated feed crops should include a deep rooted legume, such as red clover or sweet clover, to be plowed in the early fall after the first or second cutting, and the land seeded to a green-manuring crop as specified above. Corn should follow the green manuring crop and be followed in turn by fall seeded small grain.

The only legumes grown extensively in the region at present are lespedeza, cowpeas, and soybeans, all of which are acid-tolerant summer annuals. These crops are soil depleting when the hay is removed and the manure not returned. For the soil to be improved from the growth of annual legumes, it is necessary that they be fed on the farm and the manure carefully conserved.

(c) Animal Manures: Animal manures should be applied to that part of the farm on which it is most desirable to hasten improvement, such as poorer areas of crops or pasture where green manures will not grow large enough for rapid improvement. All manure should be carefully conserved and properly used. At present, little care is taken of the manure. Often it is allowed to lie out, weather, leach, and wash away. Thus, for the lack of a little work on the part of the operator, the soil is being deprived of considerable fertility. The manure should be applied first to thin and galded spots, to make each field of uniform fertility; thereafter it may be distributed evenly over the poorer fields.

(d) Miscellaneous Organic Matter: All organic materials, such as leaves, old hay, or straw that are often burned, should be used in the same manner as animal manures. Only brush and pieces of wood large enough to obstruct management of crops should be burned, while suitable trash put in compost piles to rot and later applied to land. Quite often it is desirable to pile brush on galded spots or in gullies, rather than burning it.

(e) Pasture Improvement: Solution of the pasture problem calls for establishing permanent pasture on all cleared land of designated pasture slopes, and on some land of gentler slopes which for one reason or another may be more desirably used for pasture. On many farms considerable land might well be cleared for pasture.

The main task of improving pasture is in establishing a good sod of desirable grasses and legumes.(16) Pasture, whether new or old, will need lime, phosphate, and possibly other fertilizers. Weeds and broom sedge should be clipped twice each year and left on the ground.

(f) Cropping: Definite steps for soil maintenance must be taken to offset losses through harvested crops, leaching and surface erosion. This requirement is partially fulfilled by the improvement practices previously given and by objective crop rotations.

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(16) Recommended pasture mixtures may be obtained from Tennessee Agricultural Experiment Station, Circular No. 11.

The rotation must be so designed as to provide the crops needed for feed, feed, and market; to equalize the demand for plant nutrients; return a maximum amount of organic matter and nitrogen; provide winter cover of close-growing crops as much of the time as possible; and to properly distribute labor throughout the rotation cycle. During the soil building phase, a two or three year rotation is desirable. A suggested rotation is corn, followed by a rye cover crop to be harvested, followed by lespedeza and red top, pastured and then plowed, and planted to potatoes, which in turn would be sown in crimson clover.

As land is brought into proper use, and effectively managed for improvement and maintenance, the best of cropping practices should be carried out. Such practices include use of good seeds of adapted varieties, thorough seed bed preparation, planting at the proper time and in the proper manner, practical use of commercial fertilizer, thorough cultivation, harvesting at the proper time and in the proper manner. Adequate storage for harvested crops, especially Irish potatoes, is also very important.

Irish potatoes do well on these farms and should be an important part of the farm program. Each farm should grow at least one acre of Irish potatoes and at least a quarter of an acre of sweet potatoes. Enough Irish potatoes should be produced to satisfy the needs of the family and also to produce a surplus for marketing. The sale of Irish

potatoes should be no small part of the farm income, but along with livestock and livestock products constitute the bulk of the farm income.

(g) Mechanical Means of Soil Maintenance: Under conditions encouraging surface erosion, such mechanical checks as contour farming, terraces or strip cropping, grass strips, diversion ditches, and check dams should be brought into full use under the respective conditions demanding them.

Livestock Practices: A good crop management pattern may be largely nullified by the exercise of poor livestock practices. Emphasis should be placed on the use of good quality livestock, good breeding, adequately sheltered, and fed sufficient quantities of good quality home grown feeds.

The livestock program on every farm should provide for at least one or two reasonably good milk cows, enough poultry and hogs to supply home needs, and sufficient workstock for efficient operation of the farm. Dairy cattle are a rather intensive enterprise, and provide for the utilization of considerable surplus farm labor. The dairy products could be marketed in some instances, in the mining centers and in the nearby cities off the Plateau.

A small beef cow herd may be profitably maintained on the farms as it will fit into the program utilizing roughages as straw, corn stover, rough hay and pasture. A cow herd is recommended for the area rather than other types of beef cattle production.

On some farms, a small flock of sheep may be profitably kept for the production of spring lambs and wool, especially on those farms having surplus winter and summer pasture together with a small amount of grain for feed.

Commercial production of hogs could be done on a small scale. Hogs could be raised on some of the newly cleared land, the brushy land and in the woodland.

The number of workstock should be adapted to the needs of each farm. More breed mares might be introduced into the area to do the farm work in addition to raising a colt each year.

In general, the inclusion of productive livestock in the farm program provides for a better labor distribution and hence for its more efficient use. Livestock also provides for the sale of feed in a concentrated form. They make possible the retention on the farm of most of the plant food nutrients in the feed, and help conserve soil fertility. Livestock and crop production should supplement each other. The particular type of livestock kept to be on a farm will depend on the nature of the feed available, size of the farm, labor supply, markets, and other factors.

Cash Farm Income: After the operator has provided for as many items as possible for direct use of the family, and produced sufficient feed for his livestock, provision should be made for cash to buy the other necessities and to maintain the standard of living of the family.

Cash income from the farm should supplement that from work off the farm. Hay and small grains should generally not be sold, as such practice will tend to deplete the soil fertility. The principal source of cash income should be from the sale of livestock, livestock products, Irish potatoes, and other truck crops. An additional source of cash income should be from sale of timber products.

Reduce Expenses: The main expenses that may be reduced by better organization of the farm are for feed, seed and labor. As much of the feed as possible should be produced on the farm. The major seed costs are for hay and small grains, for which seed should usually be saved on the farm. Labor costs could be reduced to a minimum by the operator and his family doing as nearly all the work as possible, and by adjustments in farm organization to distribute labor over a longer period and avoid labor peaks.

All expenses, as well as all receipts, and other farm records should be recorded in a suitable account book. This farm record will be useful for future planning and may be used to find where mistakes have been made in the past, thus enabling the operator to correct them.

Small or Part-Time Farms

There are many people in this area who do not operate full family-sized farms as just discussed but depend more on work in industry as a source of cash income and rely on a small farm as an additional source of income. Thus the farm should produce much of the products consumed by the family.

The recommendations outlined in the first part of this discussion should also be followed with modifications on these smaller farms. For the most part it is assumed that some of these part-time farmers would desire to develop their farms into larger units and if so every effort should be made to enable them to do this.

These smaller farms should be developed as the men work in industry to provide security for when they grow older. The farms should be a form of investment and place where the owner may in later life cease working in industry and be able to provide himself and his family with an adequate income.

On many of the part-time farms where the farm operator spends about half his working time in a year off the farm, a one-horse farm may be the more efficient sized farm. Such a farm would have about 25 acres of tillable land. The farmer would not have enough time in many cases to carry on intensive farming, but he should attempt to keep a small beef cow herd and carry on as much crop production as possible. These farms should have at least one dairy cow to supply the family with milk, and a small flock of chickens should be kept to supply the family with eggs and poultry.

As the farm develops in size more products can be sold thereby increasing the cash income. The farmer should make every effort possible to conduct his farm in the most efficient manner and according to recognized improved methods. Many of these men are not experienced farmers

so that it might be advantageous for the agricultural workers to hold special classes in the evenings at local schools in order to provide them with information on profitable and efficient methods of improving their farms. Every effort possible should be exerted to train these part-time farmers as well as full time farmers and to keep them informed of latest experimental work conducted.

Other men may not be able to spend as much time in running as large a farm as a one-horse farm. These men should receive supervision in running a smaller farm on which they may have one milk cow, a few chickens, and a small garden patch varying up to one acre in size. Many of them will have to hire power work needed, but these men could still produce farm products for the family thereby supplementing their farm income.

## Development of Markets

Marketing in this area is relatively decentralized, and operates through small markets and consumers within the area. There are, however, larger markets found in surrounding areas such as Knoxville, Nashville, and Chattanooga, where products are sent to be processed. With better highways built in recent years, the task of getting farm products to market has become much easier. Also during certain seasons of the year, many motorists pass through this area on their way either from the south to the north or vice versa, thus affording some opportunity for the development of roadside markets.

However most of the produce is picked up by truckers who supply most of the marketing services as grading and packing. The farmers are apparently satisfied with this service. Cooperatives have been tried several times as a cooperative livestock association at Crossville, Cumberland County, but they have not been too successful. A study would have to be made on the marketing situation including a report on why the cooperatives have not been successful before definite recommendations for or against cooperative marketing could be made.

A means of improving the present form of marketing would be an exchange of goods with the farmers by the wholesalers through local merchants and in some cases rolling stores.(17) The wholesalers would have to take the initiative in this project and instruct merchants in grading, packing, and handling the different products. The manner in which this marketing would be handled would be that the farmer will exchange his farm products with the local merchant for goods needed from the merchant. The merchant will grade and pack the products and exchange them with the wholesaler for goods needed for his trade. The wholesaler will then sell the farm produce, thereby not only selling manufactured products and processed feeds but also selling farm produce making a profit on both. It will also help the farmers by affording him a market outlet. This form of marketing would work best with non-perishable farm produce, but after the system is in working order and speedy enough, some

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(17) C. E. Allred, Department of Agricultural Economics and Rural Sociology, University of Tennessee, interview, 1942.

of the more perishable products may be marketed in the same way. Irish potatoes are probably the most important crop at the present time to be handled in this manner. Farmers with only a few bushels of potatoes to sell are most disadvantaged at present; the larger growers selling either to truckers or shipping.

Other means of improving the marketing situation are: Production of high quality crops, livestock, and livestock products. Since good quality of these products is dependent upon soil, both quantity and quality of production are incentives to soil improvement.

Grading and packaging products, in order to maintain good market relations, and perpetuate outlets of products grown.

Location of the best central markets available as outlets for products that can be furnished in appreciable quantities at an economic advantage. The location of these markets should be as close to the area as possible.

Emphasize the production of less perishable products, such as shell beans, potatoes, mature onions, etc., in order to avoid market gluts that come from seasonal overproduction of highly perishable goods.

Greater diversification, in order to meet more accurately the demands of local markets.

Introduction of private or cooperatively owned canning plants for utilizing surpluses.

Marketing facilities for grading, packing assembling and transporting the products in an economical and orderly fashion.

Utilizing as much of the producer's labor as possible in grading, canning, and packing his crops. This will lead to simpler devices but should help to utilize more of the producers' time and will benefit the producer through lower fees for such service.

# CHAPTER XII

## SUMMARY

### Findings

This study represents an analysis of the agricultural situation on the Cumberland Plateau in Tennessee, with an attempt to suggest potentialities that may be developed.

The Plateau is located in the western part of the Southern Appalachian Highlands. There are twenty-two Tennessee counties having land on the Plateau. The approximate area of the Plateau in Tennessee is 2,727,492 acres, which represents about 45.1 percent of the total land area of the twenty-two counties having such land. Counties with over three-fifths of their land on the Plateau, in order of proportion of Plateau land are: Morgan, Scott, Cumberland, Fentress, Bledsoe, Sequatchie, Grundy, Campbell, and Van Buren. Counties having between a third and a half of their land area on the Plateau are: Marion, Rhea, and Anderson. Counties with less than one fourth of their land in this area are: Hamilton, White, Claiborne, Pickett, Franklin, Overton, Putnam, Roane, Warren, and Coffee.

The region is a relatively flat-to-rolling table land, with many low ridges and shallow valleys. The elevation ranges from about 1000 to 3000 feet above sea level, with an average of about 1800 feet.

The area is underlain by a coal bearing formation, and is part of the greatest coal bearing formation in the United States.

Natural drainage is good to excessive, with sheet erosion resulting on much of the steeper land in cultivation. However, much of the rain which falls on this region rapidly soaks into the ground.

By ten-year periods, there was a 2.3 percent increase in population in this area from 1920 to 1930, and a 15.3 percent increase from 1930 to 1940. Population density in 1940 was 31.9 persons per square mile. Farm population was 64,848 for the ten representative Plateau counties, or 51.6 percent of their total population.

Since many of the farms are self-sufficing, with a high degree of part-time farming, a relatively decentralized agricultural marketing system has developed, which operates largely through small markets and to consumers within the area. Beef cattle, sheep, and hogs are the principal types of livestock grown for market. The principal classes of cattle sold from the area are feeders and stockers.

The building of a network of all-weather roads has occurred relatively recently in the area. Of all farms in 1940, 15.7 percent

were on hard surface roads, 35.7 percent gravel roads, 20.4 percent on improved dirt roads, and 28.2 percent on unimproved dirt roads.

In 1940 there were 158 coal mines, employing 7,977 persons. The annual output of these mines was 5,181,000 tons for the year.

This area has an annual rainfall of from 48 to 56 inches, one of the highest of any region in Tennessee.

The mean annual temperature is from 55° Fahrenheit, found in the north central part of the area, to 59° Fahrenheit in the extreme southeastern section.

The average date of the last killing frost ranges from April 13, in the southwestern part of the area, to April 24 in the northern portion; and the average date of first killing frost in the fall ranges from October 11 in Cumberland County to October 31 at Sewanee, Franklin County. The average length of growing season is from 171 days in the northern portion of the region to 201 days in the southern portion.

Most of the soils of the Plateau are classified in the Hartsells-Muskingum association. They are dominantly fine sandy loams to silt loams, with parent materials consisting of interbedded sandstones and shales of "coal measures". The soils are well-drained, low in mineral plant nutrients and organic matter, medium to strongly acid in reaction, and deficient in phosphate and lime. Soils respond remarkably to the application of phosphate, lime, and nitrogen.

It is estimated, on the assumption of 2,727,402 acres of Plateau

land, that in 1935 there were 10,615 farms on the Plateau proper. Number of farms increased by 5,277 from 1880 to 1940, in the ten Plateau counties. Average value per farm in ten Plateau counties in 1940 was $1503.

Since 1913, the tax per acre on real estate, and the tax per acre in the counties of which the Plateau is a part, has been lower than for Tennessee as a whole. Farm real estate in nine of the ten Plateau counties was assessed in 1939 at what appeared to be a fair percentage of the owner's valuation.

In 1939 about 50 percent of the farms were self-sufficing, 26 percent were part-time farms, 10.8 percent general farms, 3.1 percent animal specialty, and 10.9 percent other types of farms.

Owner-operated farms in 1940, for the ten Plateau counties, were 75 percent of the total. Twenty-two percent of the farms were operated by tenants, and 3 percent by croppers.

In 1934 there were 589,118 acres of land in farms which represented 21.6 percent of the land area. Average number of acres per farm in 1940, in the ten representative counties, was 60 acres. Of the farms, 27.7 percent contained from 10 to 29 acres, the largest size group.

Land in harvested crops, idle cropland, and land on which crop failure occurred in 1935, represent a total of 28.8 percent of the total farm land. The average number of acres of crops harvested per

farm was 17.0 acres in 1940. There were also 3.7 acres pf plowable pasture, 31.8 acres of woodland, and 4.1 acres of other land per farm, in the ten Plateau counties.

In 1939 there was 72.7 percent of the total area in non-farm forest land.

In 1939 there were 214,194 acres of cropland harvested in ten Plateau counties. Of this, 92,574 acres, or 43.3 percent was in corn, 40.4 percent in hay, 6.4 percent in small grains, 3.1 percent in Irish potatoes, 2.9 percent in fruit, 1.1 percent in sweet potatoes, 0.5 percent in sorghums, and 2.3 percent in other crops.

Corn yields averaged 19 bushels per acre in 1939; yield of all hay was 1.0 tons; Irish potatoes yielded 87 bushels; and the yield of sweet potatoes was 87 bushels.

Lespedeza was grown alone on 51.8 percent of the hay acreage, clover and timothy alone or mixed on 11.4 percent, soybeans on 8.7 percent, native hay on 5.6 percent, small grains for hay on 3.8 percent, cowpeas on 2.5 percent, alfalfa on 1.9 percent, and all other tame hays on 14.3 percent in 1939.

Apple trees were reported on 45.6 percent of the farms in 1935. There was an average of 29.0 trees of bearing age per farm, producing an average of 21.5 bushels of apples per farm. In the same year 28.8 percent of the farms reported peach trees, 4.5 percent reporting cherry trees, 21.4 percent grape vines, and 1.4 percent strawberries.

In 1935 there was an average of 4.86 animal units per farm in the Plateau area. Of these 0.83 animal units were horses and mules, 2.79 animal units of cattle, 0.17 animal units of sheep, 0.79 animal units of swine, 0.03 animal units of goats, and 0.23 animal units in chickens per farm.

Total value of all farm products sold, traded or used by the farm household in ten Plateau counties in 1939 was $525,827, an average of $417 per farm; while value of farm products used by the farm family was $243 per farm, or 57.6 percent of the total value of the agricultural production. The value of livestock and livestock products sold was $102 per farm, and value of crops sold was $47 in 1939.

In this study the Cumberland Plateau has been divided into five divisions and two subdivisions, on the basis of agricultural factors in 1930. Division 1 includes that part of Claiborne, Campbell, and Anderson counties lying on the Plateau, except civil district 4 of Anderson County. This division includes approximately 279,907 acres and 693 farms. The population per square mile is nearly double that of any other section on the Plateau. Much part-time farming was carried on in 1930.

Division 2 is composed of nearly all of Fentress, the southern half of Scott, the northwestern part of Morgan, two civil districts in Cumberland, and parts of 3 districts in Overton County. This division is one of the least developed sections of the Plateau. Self-sufficing

and part-time farms are plentiful, sales of crops and livestock are low, as is the value of farm land per acre.

Division 3, astride the center of the Plateau, embraces the civil districts in close proximity to the Tennessee Central Railway and the through highway running across the State from east to west. This division is slightly higher than the average of the Plateau in value of land per acre, and slightly better farming practices are used.

Division 4 embraces that part of the Plateau south of Cumberland County, except the Sequatchie Valley, to Marion and Franklin counties. It is one of the least developed of any division on the Plateau, the population density being lowest. It has the lowest percent of land in farms of any division, farms are slightly below average in size, and real estate values are low.

Division 5 covers the Plateau area in Marion County (except the Plateau land on each side of the Sequatchie Valley in Marion County) and the Plateau land in the northeastern part of Franklin County. This area had the largest percentage of farm land in cropland, 30.9 percent, and a relatively large percent of plowable pasture.

In 1939 there were 107 Cumberland Plateau farms cooperating with the Tennessee Agricultural Extension Service, and the Tennessee Valley Authority in keeping farm records, and received some phosphate for their land as well as supervision, leadership, and technical information.

These 107 farms had an average of $1033 per farm in value of farm production for 1939, which was much higher than the $417 averaged by all farms in the ten representative counties. The value of farm products used by the family on the 107 selected farms was $377 while the average for all farms was $243. Value of livestock and livestock products receipts was $448 per farm for the 107 farms and $102 for all farms. Crop receipts were $208 per farm on the 107 selected farms and $67 on all farms. The 107 farms were larger, averaging 166.6 acres compared with 60 acres for all farms.

## Conclusions

For the most part this area is made up of small farms that alone do not return an income large enough to maintain a good standard of living. Additional income is obtained by work off the farm in timber, coal, and in the few industrial enterprises found here. However there are some farms in the region that return labor earnings that are adequate. Several of these farms receive supervision and advice from the Agricultural Extension Service and phosphate from Tennessee Valley Authority, and show what can be done in this area when farmers use the best practices.

This region is in process of development, and has undergone a remarkable change in the last 30 years. More farms are being developed, and the population is increasing both from immigration and natural increase.

Some problems are arising in the region from maladjustment in land use, and in the relation of population to land. Tangible adjustments in utilization of the land must be effected through a sound and reasonable planning to overcome the acute problems that are arising.

It may be assumed that the people in this area will, upon being shown what is good and beneficial in farm management practices and other adjustments to land use, undertake to make improvements. In some cases they will doubtless need financial assistance in the form of a loan. The average farmer in this region now has a small capital investment, as shown by his farm investments and equipment. Credit should be made available to these families and on such terms that they will be able to repay the loan. Considerable supervision must also be given by technical agricultural agencies. The people are not below average in intelligence and initiative, and will respond to any help given them. It will be advantageous to the State of Tennessee to plan the development of this region and so shape its destiny that the region will always be a credit to the State.

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# APPENDIX

APPENDIX TABLE I. TOTAL LAND AREA, LAND IN FARMS, PERCENT OF LAND IN FARMS, AND AVERAGE NUMBER OF ACRES PER FARM FOR CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1929, 1934

| County | No. of C.D. | Total Land Area | Land in Farms | | Percent of Land in Farms | | Average Number of Acres per Farm | |
|---|---|---|---|---|---|---|---|---|
| | | | 1929 | 1934 | 1929 | 1934 | 1929 | 1934 |
| Anderson | 5 | 101,763 | 21,642 | 26,228 | 21.3 | 25.8 | 62.9 | 46.5 |
| Campbell | 3 | 219,774 | 47,078 | 54,202 | 21.4 | 24.7 | 59.8 | 45.6 |
| Claiborne | 2 | 54,714 | 11,963 | 11,594 | 21.9 | 21.2 | 135.9 | 29.5 |
| Cumberland | * | 425,517 | 83,812 | 76,721 | 19.7 | 18.0 | 81.1 | 68.0 |
| Fentress | * | 311,875 | 80,075 | 80,313 | 25.7 | 25.8 | 81.1 | 54.0 |
| Morgan | * | 341,011 | 89,874 | 96,677 | 26.4 | 28.4 | 83.7 | 66.7 |
| Overton | 3 | 86,328 | 53,293 | 55,557 | 61.7 | 64.4 | 81.2 | 63.1 |
| Pickett | 1 | 40,399 | 13,262 | 12,644 | 32.8 | 31.3 | 78.9 | 62.3 |
| Putnam | 2 | 56,150 | 22,663 | 26,646 | 40.4 | 47.5 | 83.6 | 76.1 |
| Scott | * | 352,407 | 75,130 | 93,936 | 21.3 | 26.7 | 66.8 | 50.8 |
| White | 2 | 55,648 | 8,813 | 11,175 | 15.8 | 20.1 | 80.1 | 86.6 |
| Bledsoe | * | 257,014 | 108,460 | 113,346 | 42.2 | 44.1 | 11.7 | 102.3 |
| Franklin | 3 | 79,142 | 12,022 | 13,665 | 15.2 | 17.3 | 103.6 | 84.9 |
| Grundy | * | 232,103 | 41,431 | 43,799 | 17.9 | 18.9 | 79.1 | 45.4 |
| Hamilton | 1 | 195,329 | 80,004 | 80,707 | 41.0 | 41.3 | 73.6 | 58.6 |
| Marion | * | 319,119 | 85,816 | 72,080 | 26.9 | 22.6 | 82.2 | 55.2 |
| Rhea | * | 229,530 | 118,980 | 118,034 | 51.8 | 51.4 | 98.7 | 86.5 |
| Sequatchie | * | 172,053 | 37,240 | 42,803 | 21.6 | 24.9 | 69.3 | 74.6 |
| Van Buren | * | 171,480 | 51,783 | 43,701 | 30.2 | 25.5 | 106.1 | 77.1 |
| Warren | 3 | 42,316 | 21,589 | 28,203 | 51.0 | 66.6 | 97.2 | 104.1 |
| Total | ** | 3,743,672 | 1,064,930 | 1,102,031 | 27.6 | 31.6 | 83.2 | 63.6 |

* Figures are for the entire county by civil districts.

** Total number of Civil Districts having some or all of their land on the Plateau was 96 in 1929, and 95 in 1935.

Source: U. S. Census of Agriculture, 1930, 1935.

APPENDIX TABLE II. NUMBER OF ACRES OF CROPLAND, PLOWABLE PASTURE, WOODLAND, OTHER LAND, AND PERCENT EACH IS OF ALL LAND IN FARMS ON THE CUMBERLAND PLATEAU, 1930

| County | No. of C.D. | Total Cropland | | Plowable Pasture | | Woodland | | All Other | |
|---|---|---|---|---|---|---|---|---|---|
| | | Acres | Pct. | Acres | Pct. | Acres | Pct. | Acres | Pct. |
| Anderson | 5 | 7,295 | 33.7 | 3,028 | 14.0 | 9,810 | 45.3 | 982 | 4.5 |
| Campbell | 5 | 19,200 | 40.8 | 5,296 | 11.2 | 18,524 | 39.5 | 1,952 | 4.1 |
| Claiborne | 2 | 1,218 | 10.2 | 849 | 7.1 | 9,647 | 80.6 | 191 | 1.6 |
| Cumberland | * | 26,078 | 31.1 | 3,470 | 4.1 | 47,982 | 57.2 | 4,856 | 5.8 |
| Fentress | * | 24,608 | 30.7 | 3,900 | 4.9 | 44,225 | 55.2 | 5,679 | 7.1 |
| Morgan | * | 26,028 | 29.0 | 3,434 | 3.8 | 45,650 | 50.8 | 13,204 | 14.7 |
| Overton | 3 | 15,735 | 30.0 | 2,876 | 5.4 | 30,937 | 58.1 | 2,945 | 5.5 |
| Pickett | 1 | 4,821 | 36.4 | 1,401 | 10.6 | 5,804 | 43.8 | 1,071 | 8.1 |
| Putnam | 2 | 6,539 | 28.9 | 1,582 | 7.0 | 13,183 | 58.2 | 667 | 2.9 |
| Scott | * | 18,727 | 24.9 | 6,423 | 8.5 | 36,855 | 49.1 | 11,318 | 15.1 |
| White | 2 | 1,856 | 21.1 | 696 | 7.9 | 5,710 | 64.8 | 392 | 4.4 |
| Bledsoe | * | 34,358 | 21.7 | 21,883 | 20.2 | 46,150 | 42.6 | 3,851 | 3.6 |
| Franklin | 3 | 2,992 | 24.9 | 766 | 6.4 | 7,889 | 65.6 | 314 | 2.6 |
| Grundy | * | 13,790 | 33.3 | 2,559 | 6.2 | 21,832 | 52.7 | 1,458 | 3.5 |
| Hamilton | 1 | 32,397 | 40.5 | 6,974 | 8.7 | 32,509 | 40.6 | 5,449 | 6.8 |
| Marion | * | 34,866 | 40.6 | 9,780 | 11.4 | 34,602 | 40.3 | 4,744 | 5.5 |
| Rhea | * | 30,253 | 42.2 | 14,351 | 12.1 | 49,892 | 41.9 | 3,220 | 2.7 |
| Sequatchie | * | 14,166 | 38.3 | 6,540 | 17.6 | 15,367 | 41.2 | 724 | 1.9 |
| Van Buren | * | 15,357 | 29.6 | 6,375 | 12.3 | 25,682 | 49.6 | 2,996 | 5.8 |
| Warren | 3 | 7,436 | 34.4 | 3,238 | 15.0 | 8,825 | 40.9 | 1,499 | 6.9 |
| Total | 96 | 357,680 | 33.6 | 105,421 | 9.9 | 511,075 | 48.0 | 67,812 | 6.3 |

* Figures are for the entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1930.

APPENDIX TABLE III. NUMBER OF ACRES OF ALL CROPLAND, ALL PASTURE, WOODLAND NOT IN PASTURE, ALL OTHER LAND, AND PERCENT EACH IS OF ALL LAND IN FARMS BY CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1934

| County | No. of C.D. | All Cropland | | All Pasture | | Woodland Not in Pasture | | All Other Land | |
|---|---|---|---|---|---|---|---|---|---|
| | | Acres | Pct. | Acres | Pct. | Acres | Pct. | Acres | Pct. |
| Anderson | 5 | 8,186 | 31.2 | 8,140 | 31.0 | 8,832 | 33.7 | 1,070 | 4.1 |
| Campbell | 3 | 20,890 | 38.5 | 14,642 | 27.0 | 14,961 | 27.6 | 3,709 | 6.8 |
| Claiborne | 2 | 2,439 | 21.0 | 8,485 | 73.2 | 176 | 15.2 | 494 | 4.3 |
| Cumberland | * | 25,420 | 33.1 | 14,538 | 18.9 | 32,288 | 42.2 | 4,475 | 5.8 |
| Fentress | * | 29,258 | 36.4 | 8,656 | 10.8 | 39,411 | 48.9 | 2,988 | 3.7 |
| Morgan | * | 25,586 | 26.5 | 4,978 | 5.1 | 60,305 | 62.4 | 5,808 | 6.0 |
| Overton | 3 | 13,611 | 24.5 | 10,112 | 18.2 | 28,094 | 50.6 | 3,740 | 6.7 |
| Pickett | 1 | 4,447 | 35.2 | 2,315 | 18.3 | 5,337 | 42.2 | 545 | 4.3 |
| Putnam | 2 | 6,498 | 24.4 | 7,889 | 29.6 | 9,966 | 37.4 | 2,293 | 8.6 |
| Scott | * | 25,006 | 26.6 | 39,103 | 41.6 | 15,732 | 16.7 | 14,095 | 15.0 |
| White | 2 | 3,021 | 27.0 | 814 | 7.3 | 7,136 | 63.9 | 204 | 1.8 |
| Bledsoe | * | 42,501 | 37.5 | 28,817 | 25.4 | 39,452 | 34.8 | 2,576 | 2.3 |
| Franklin | 3 | 2,525 | 18.5 | 1,843 | 13.5 | 8,930 | 65.3 | 367 | 2.7 |
| Grundy | * | 17,581 | 40.1 | 4,178 | 9.5 | 20,270 | 46.3 | 1,770 | 4.0 |
| Hamilton | 1 | 33,448 | 41.4 | 13,467 | 16.7 | 31,214 | 38.7 | 2,578 | 3.2 |
| Marion | * | 33,270 | 46.2 | 19,884 | 27.6 | 17,034 | 23.6 | 1,892 | 2.6 |
| Rhea | * | 54,493 | 46.2 | 25,846 | 21.9 | 33,290 | 28.3 | 4,405 | 3.7 |
| Sequatchie | * | 13,865 | 32.4 | 7,851 | 18.3 | 19,724 | 46.1 | 1,366 | 3.2 |
| Van Buren | * | 13,810 | 31.6 | 7,285 | 16.7 | 21,585 | 49.4 | 1,021 | 2.3 |
| Warren | 3 | 9,018 | 32.0 | 11,019 | 39.1 | 6,809 | 24.1 | 1,357 | 4.8 |
| Total | 96 | 384,873 | 34.9 | 239,862 | 21.8 | 420,546 | 38.2 | 56,753 | 5.2 |

* Figures are for the entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE IV. TOTAL VALUE OF FARM LAND AND BUILDINGS, VALUE OF FARM LAND AND BUILDINGS PER FARM, AND VALUE PER ACRE OF FARM LAND BY CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1929, 1934

| County | No. of C.D. | Total Value of Land and Buildings | | Value of Land and Buildings per Farm | | Value per Acre of Farm Land | |
|---|---|---|---|---|---|---|---|
| | | 1929 | 1934 | 1929 | 1934 | 1929 | 1934 |
| Anderson | 5 | $590,415 | $687,565 | $1,716 | $1,219 | $27.28 | $26.21 |
| Campbell | 3 | 1,547,227 | 1,849,130 | 1,966 | 1,555 | 32.87 | 34.11 |
| Claiborne | 2 | 441,650 | 351,950 | 5,019 | 895 | 36.92 | 30.56 |
| Cumberland | * | 1,951,310 | 1,609,370 | 1,852 | 1,426 | 22.85 | 20.98 |
| Fentress | * | 1,121,837 | 1,177,497 | 1,136 | 791 | 14.01 | 14.66 |
| Morgan | * | 1,649,215 | 1,413,129 | 1,536 | 975 | 18.35 | 14.62 |
| Overton | 3 | 678,460 | 548,645 | 1,034 | 622 | 12.73 | 9.88 |
| Pickett | 1 | 224,225 | 123,465 | 1,335 | 608 | 16.91 | 9.76 |
| Putnam | 2 | 499,656 | 297,560 | 1,844 | 850 | 22.05 | 11.17 |
| Scott | 5 | 1,298,903 | 1,079,451 | 1,155 | 584 | 17.29 | 11.49 |
| White | 2 | 169,057 | 108,250 | 1,536 | 839 | 19.18 | 9.69 |
| Bledsoe | * | 2,753,181 | 1,510,291 | 2,969 | 1,363 | 25.38 | 13.32 |
| Franklin | 3 | 266,704 | 148,987 | 2,299 | 925 | 22.18 | 10.90 |
| Grundy | * | 974,027 | 993,519 | 1,858 | 1,030 | 23.51 | 22.68 |
| Hamilton | 1 | 1,295,483 | 2,780,785 | 1,191 | 2,019 | 16.19 | 34.45 |
| Marion | * | 3,108,270 | 2,275,192 | 2,977 | 1,742 | 36.22 | 31.56 |
| Rhea | * | 4,288,051 | 2,550,760 | 3,555 | 1,868 | 36.04 | 21.61 |
| Sequatchie | * | 1,194,937 | 915,570 | 2,225 | 1,595 | 32.09 | 21.39 |
| Van Buren | * | 831,165 | 472,086 | 1,703 | 832 | 16.05 | 10.80 |
| Warren | 3 | 386,700 | 330,575 | 1,741 | 1,219 | 17.91 | 11.72 |
| Total | ** | 25,234,273 | 21,223,777 | 1,972 | 1,226 | 23.69 | 19.26 |

* Figures are for entire county by Civil Districts.

** Total number of Civil Districts having some or all of their land on the Plateau was 96 in 1929, and 95 in 1935.

Source: U. S. Census of Agriculture, 1929, 1934.

APPENDIX TABLE V. NUMBER OF SQUARE MILES, TOTAL POPULATION, POPULATION PER SQUARE MILE, RURAL-FARM POPULATION, AND PERCENT OF RURAL-FARM POPULATION, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1940, 1930

| County | No. of C.D. | No. of Sq. Mis. | Total Population | | Population Density | | Rural-Farm Population | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1940 | 1930 | 1940 | 1930 | 1940 | | 1930 | |
| | | | Number | Number | Per Sq. Mi. | Per Sq. Mi. | Number | Pct. of Total | Number | Pct. of Total |
| Anderson | 5 | 159.0 | 9,576 | 8,365 | 60.2 | 52.6 | | | 2,147 | 25.7 |
| Campbell | 3 | 343.4 | 19,571 | 17,761 | 57.0 | 51.7 | | | 4,895 | 27.6 |
| Claiborne | 2 | 85.5 | 3,970 | 4,754 | 46.4 | 55.6 | | | 500 | 10.5 |
| Cumberland | * | 679.0 | 15,592 | 11,440 | 23.0 | 16.8 | 10,802 | 69.3 | 6,278 | 54.9 |
| Fentress | * | 499.0 | 14,262 | 11,036 | 28.6 | 22.1 | 10,071 | 70.6 | 5,867 | 53.2 |
| Morgan | * | 539.0 | 15,242 | 13,603 | 28.3 | 25.2 | 8,403 | 55.1 | 5,780 | 44.0 |
| Overton | 3 | 134.9 | 4,574 | 4,849 | 33.9 | 35.9 | | | 3,660 | 75.5 |
| Pickett | 1 | 63.1 | 985 | 1,216 | 15.6 | 19.3 | | | 846 | 70.0 |
| Putnam | 2 | 87.7 | 3,570 | 3,460 | 40.7 | 39.4 | | | 1,607 | 46.4 |
| Scott | * | 549.0 | 15,966 | 14,080 | 29.1 | 25.6 | 7,909 | 49.5 | 6,284 | 44.6 |
| White | 2 | 86.9 | 1,265 | 2,045 | 14.6 | 23.5 | | | 622 | 30.4 |
| Bledsoe | * | 404.0 | 8,358 | 7,128 | 20.7 | 17.6 | 5,859 | 70.1 | 5,124 | 71.9 |
| Franklin | 3 | 123.7 | 2,330 | 2,079 | 18.8 | 16.8 | | | 680 | 32.7 |
| Grundy | * | 358.0 | 11,552 | 9,717 | 32.3 | 27.1 | 3,534 | 30.6 | 2,868 | 29.5 |
| Hamilton | 1 | 305.2 | 30,426 | 22,986 | 99.7 | 75.3 | | | 6,534 | 28.4 |
| Marion | * | 507.0 | 19,140 | 17,549 | 37.8 | 34.6 | 4,820 | 25.2 | 5,686 | 32.4 |
| Rhea | * | 335.0 | 16,353 | 13,871 | 48.8 | 41.4 | 7,506 | 45.9 | 7,223 | 52.1 |
| Sequatchie | * | 273.0 | 5,038 | 4,047 | 18.5 | 14.8 | 3,375 | 67.0 | 2,817 | 69.6 |
| Van Buren | * | 255.0 | 4,090 | 3,516 | 16.0 | 13.8 | 2,569 | 62.8 | 2,414 | 68.7 |
| Warren | 3 | 66.1 | 1,495 | 1,590 | 22.6 | 24.1 | | | 1,385 | 87.1 |
| Total | ** | 5853.5 | 203,355 | 175,092 | 34.7 | 29.9 | 64,848 | 31.9 | 73,217 | 41.8 |

* Figures are for entire county by Civil Districts.

** Total number of Civil Districts having some or all of their land on the Plateau was 96 in 1930, and 90 in 1940.

Source: U. S. Census of Agriculture, 1930, 1940.

APPENDIX TABLE VI. NUMBER OF FARMS, VALUE OF FARM DWELLINGS, AND VALUE OF FARM MACHINERY, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1930

| County | No. of C.D. | Number of Farms | Value of Farm Dwellings | | Value of Farm Machinery | |
|---|---|---|---|---|---|---|
| | | | Total | Per Farm | Total | Per Farm |
| Anderson | 5 | 344 | $145,865 | $ 424 | $51,750 | $150 |
| Campbell | 3 | 787 | 415,820 | 528 | 113,085 | 144 |
| Claiborne | 2 | 88 | 32,150 | 365 | 8,307 | 94 |
| Cumberland | * | 1034 | 549,468 | 531 | 141,031 | 136 |
| Fentress | * | 987 | 287,811 | 292 | 94,637 | 96 |
| Morgan | * | 1074 | 558,291 | 520 | 157,958 | 147 |
| Overton | 3 | 656 | 133,112 | 203 | 41,329 | 63 |
| Pickett | 1 | 168 | 32,498 | 193 | 11,384 | 68 |
| Putnam | 2 | 271 | 154,470 | 570 | 31,242 | 115 |
| Scott | * | 1124 | 374,783 | 333 | 91,741 | 82 |
| White | 2 | 110 | 30,200 | 274 | 8,387 | 76 |
| Bledsoe | * | 927 | 407,630 | 440 | 136,408 | 147 |
| Franklin | 3 | 116 | 47,000 | 405 | 20,353 | 176 |
| Grundy | * | 524 | 247,007 | 471 | 84,370 | 161 |
| Hamilton | 1 | 1087 | 884,642 | 814 | 262,242 | 241 |
| Marion | * | 1044 | 622,487 | 596 | 191,183 | 183 |
| Rhea | * | 1206 | 765,465 | 635 | 277,873 | 230 |
| Sequatchie | * | 537 | 240,505 | 448 | 88,565 | 165 |
| Van Buren | * | 488 | 176,540 | 362 | 59,277 | 122 |
| Warren | 3 | 222 | 104,475 | 471 | 30,400 | 137 |
| Total | 96 | 12,794 | 6,210,219 | 485 | 1,901,522 | 149 |

* Figures are for the entire county by Civil Districts.

Source: Figures on The Southern Appalachian Highland Study in files of the Department of Agricultural Economics, University of Tennessee.

APPENDIX TABLE VII. FARM OPERATORS WORKING FOR PAY OR INCOME NOT CONNECTED WITH THEIR OWN FARM AND TOTAL NUMBER OF DAYS OF OTHER OCCUPATION FOR PAY, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1934

| County | No. of C.D. | Operators Classed by Principal Occupation Off the Farm | | | Number of Days of Other Occupations for Pay | |
|---|---|---|---|---|---|---|
| | | Agricultural | Non-Agricultural | Not Reported | Total | Per Farm |
| Anderson | 5 | 7 | 191 | 63 | 31,703 | 56.2 |
| Campbell | 3 | 11 | 566 | 10 | 76,927 | 64.7 |
| Claiborne | 2 | | 257 | | 37,586 | 95.6 |
| Cumberland | * | 1 | 319 | 150 | 53,859 | 47.7 |
| Fentress | * | 79 | 666 | 2 | 69,430 | 46.7 |
| Morgan | * | 51 | 682 | 37 | 78,248 | 54.0 |
| Overton | 3 | 36 | 187 | 12 | 11,830 | 13.4 |
| Pickett | 1 | 26 | 42 | 3 | 3,269 | 16.1 |
| Putnam | 2 | 30 | 151 | 19 | 12,969 | 37.1 |
| Scott | * | 9 | 559 | 191 | 83,541 | 45.2 |
| White | 2 | 4 | 63 | 22 | 8,167 | 63.3 |
| Bledsoe | * | 92 | 202 | 314 | 39,223 | 35.4 |
| Franklin | 3 | 3 | 53 | 2 | 5,523 | 34.3 |
| Grundy | * | 12 | 371 | 84 | 42,454 | 44.0 |
| Hamilton | 1 | 4 | 278 | 213 | 62,276 | 45.2 |
| Marion | * | 5 | 405 | 193 | 65,101 | 49.8 |
| Rhea | * | 45 | 269 | 131 | 47,051 | 34.5 |
| Sequatchie | * | - | 120 | 76 | 19,751 | 34.4 |
| Van Buren | * | - | 128 | 186 | 16,366 | 28.9 |
| Warren | 3 | - | 6 | 76 | 4,485 | 16.5 |
| Total | 95 | 415 | 5,515 | 1,784 | 769,759 | 43.9 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE VIII. TOTAL VALUE OF AGRICULTURAL PRODUCTS; SALE OF CROPS, LIVESTOCK, AND LIVESTOCK PRODUCTS; AND PERCENT CROP SALES ARE OF TOTAL CROP, LIVESTOCK AND LIVESTOCK PRODUCT SALES; CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1930

| County | No. of C.D. | All Products Sold, Traded, or Used by the Family | | Total Crop Sales, Livestock Sales, and Livestock Product Sales | | Crops Sold or Traded | | Percent Crop Sales Are of Livestock Product Sales and Crop Sales | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total | Per Farm | Total | Per Farm | Total | Per Farm | Pct. | Per Farm |
| | | | | | | | | % | |
| Anderson | 5 | $150,859 | $439 | $ 54,932 | $160 | $20,117 | $59 | 36.6 | 36.6 |
| Campbell | 3 | 629,169 | 800 | 319,248 | 406 | 84,969 | 108 | 26.6 | 26.6 |
| Claiborne | 2 | 47,436 | 539 | 17,873 | 203 | 3,269 | 37 | 18.3 | 18.3 |
| Cumberland | * | 652,431 | 631 | 264,595 | 256 | 63,194 | 61 | 23.9 | 23.9 |
| Fentress | * | 567,502 | 575 | 154,606 | 157 | 32,200 | 33 | 20.8 | 20.9 |
| Morgan | * | 657,646 | 612 | 251,921 | 235 | 77,240 | 72 | 30.7 | 30.7 |
| Overton | 3 | 282,385 | 431 | 82,821 | 126 | 26,097 | 40 | 31.5 | 31.6 |
| Pickett | 1 | 90,305 | 538 | 45,186 | 269 | 5,894 | 35 | 13.0 | 13.1 |
| Putnam | 2 | 131,840 | 487 | 50,341 | 186 | 12,696 | 47 | 25.2 | 25.3 |
| Scott | * | 534,849 | 476 | 146,109 | 130 | 48,306 | 43 | 33.1 | 33.3 |
| White | 2 | 41,328 | 378 | 15,049 | 137 | 5,313 | 48 | 35.3 | 35.5 |
| Bledsoe | * | 750,446 | 810 | 477,192 | 515 | 91,001 | 98 | 19.1 | 19.1 |
| Franklin | 3 | 85,763 | 739 | 42,254 | 364 | 16,939 | 146 | 40.1 | 40.1 |
| Grundy | * | 343,685 | 656 | 171,678 | 328 | 54,552 | 104 | 31.8 | 31.8 |
| Hamilton | 1 | 835,366 | 769 | 536,400 | 494 | 300,385 | 276 | 56.0 | 56.1 |
| Marion | * | 670,633 | 642 | 370,485 | 355 | 146,049 | 140 | 39.4 | 39.5 |
| Rhea | * | 1,266,763 | 1050 | 916,739 | 760 | 533,558 | 442 | 58.2 | 58.9 |
| Sequatchie | * | 346,991 | 646 | 170,463 | 317 | 40,781 | 76 | 23.9 | 23.9 |
| Van Buren | * | 208,770 | 428 | 96,131 | 177 | 11,688 | 24 | 12.2 | 12.2 |
| Warren | 3 | 139,420 | 621 | 50,600 | 228 | 12,275 | 55 | 24.3 | 24.4 |
| Total | 96 | 8,433,587 | 659 | 4,234,523 | 331 | 1,586,523 | 124 | 37.5 | 37.6 |

* Figures are for entire county by Civil Districts.

Source: Figures on Southern Appalachian Highland Study in files of Department of Agricultural Economics, University of Tennessee.

APPENDIX TABLE IX. VALUE OF LIVESTOCK SOLD OR TRADED, LIVESTOCK PRODUCTS SOLD OR TRADED, FOREST PRODUCTS SOLD, AND PRODUCTS USED BY THE FAMILY, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1930

| County | No. of C.D. | Livestock Sold or Traded | | Livestock Products Sold or Traded | | Forest Products Sold | | Farm Products Used by the Family | |
|---|---|---|---|---|---|---|---|---|---|
| | | Total | Per Farm | Total | Per Farm | Total | Per Farm | Total | Per Farm |
| Anderson | 5 | $11,397 | $ 33 | $23,418 | $ 68 | $5,904 | $ 17 | $90,023 | $262 |
| Campbell | 3 | 148,218 | 188 | 86,061 | 109 | 35,025 | 45 | 274,896 | 350 |
| Claiborne | 2 | 5,154 | 39 | 9,450 | 107 | 200 | 2 | 29,363 | 334 |
| Cumberland | * | 133,395 | 129 | 68,006 | 66 | 56,331 | 55 | 331,505 | 321 |
| Fentress | * | 86,828 | 38 | 35,578 | 36 | 63,234 | 64 | 349,662 | 354 |
| Morgan | * | 96,750 | 90 | 29,222 | 27 | 29,222 | 27 | 376,503 | 351 |
| Overton | 3 | 26,535 | 40 | 15,292 | 23 | 15,292 | 23 | 184,272 | 281 |
| Pickett | 1 | 26,884 | 160 | 12,408 | 74 | 9,839 | 59 | 35,280 | 210 |
| Putnam | 2 | 20,028 | 74 | 17,617 | 65 | 6,569 | 25 | 74,930 | 276 |
| Scott | * | 55,693 | 50 | 42,210 | 38 | 35,040 | 31 | 353,700 | 315 |
| White | 2 | 5,954 | 54 | 3,782 | 34 | 2,910 | 27 | 25,560 | 232 |
| Bledsoe | * | 261,275 | 282 | 124,916 | 135 | 22,322 | 24 | 250,932 | 271 |
| Franklin | 3 | 9,886 | 85 | 15,429 | 133 | 5,353 | 46 | 43,265 | 373 |
| Grundy | * | 68,419 | 131 | 48,720 | 93 | 16,666 | 32 | 155,328 | 296 |
| Hamilton | 1 | 45,298 | 42 | 190,717 | 176 | 24,133 | 22 | 274,833 | 253 |
| Marion | * | 85,549 | 82 | 8,882 | 85 | 8,882 | 9 | 291,266 | 279 |
| Rhea | * | 193,287 | 160 | 189,894 | 158 | 15,926 | 13 | 334,098 | 277 |
| Sequatchie | * | 51,309 | 96 | 78,373 | 146 | 22,569 | 42 | 153,969 | 287 |
| Van Buren | * | 59,206 | 121 | 25,237 | 52 | 11,905 | 24 | 100,734 | 206 |
| Warren | 3 | 21,180 | 95 | 17,046 | 77 | 10,006 | 45 | 78,915 | 356 |
| Total | 96 | 1,412,145 | 110 | 1,042,257 | 82 | 397,317 | 31 | 3,809,034 | 298 |

* Figures are for entire county by Civil Districts.

Source: Figures on Southern Appalachian Highland Study in files of Department of Agricultural Economics, University of Tennessee.

APPENDIX TABLE X. ACREAGE OF SMALL GRAINS HARVESTED, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1930

| County | No. of C.D. | Grains Cut and Threshed | | | | | | Oats Cut for Grain When Ripe and Fed Unthreshed |
|---|---|---|---|---|---|---|---|---|
| | | Winter Wheat | Oats | Barley | Rye | Buck-wheat | Other Mixed Grains Not Separated in Harvest | |
| | | Acres | Acres | Acres | Acres | Acres | Acres | Acres |
| Anderson | 5 | 33 | 8 | 3 | | | | 43 |
| Campbell | 3 | 159 | 35 | 4 | 28 | | 12 | 845 |
| Claiborne | 2 | | | | | | | 19 |
| Cumberland | * | 59 | 26 | | | 40 | 1 | 101 |
| Fentress | * | 107 | 17 | | 161 | 2 | 22 | 1,049 |
| Morgan | * | 50 | 24 | | 90 | 10 | 4 | 513 |
| Overton | 3 | 174 | 5 | | 92 | | 6 | 337 |
| Pickett | 1 | 116 | 18 | | 2 | 2 | | 35 |
| Putnam | 2 | 6 | | | | | | 46 |
| Scott | * | | 21 | 10 | | | | 94 |
| White | 2 | | | | 3 | 1 | | 19 |
| Bledsoe | * | 398 | 10 | 17 | 27 | | 35 | 253 |
| Franklin | 3 | | | | | | | |
| Grundy | * | 729 | 40 | | 33 | | 10 | 31 |
| Hamilton | 1 | 358 | 49 | 1 | 6 | | | 155 |
| Marion | * | 161 | 19 | | | | 8 | 82 |
| Rhea | * | 1,439 | 180 | 40 | 283 | 9 | | 328 |
| Sequatchie | * | 211 | 13 | | | | 10 | 79 |
| Van Buren | * | 53 | 22 | | | | | 36 |
| Warren | 3 | 69 | 13 | 8 | | | | 48 |
| Total | 96 | 4,122 | 500 | 83 | 725 | 64 | 108 | 4,163 |

* Figures are for entire county by Civil Districts.

Source: Figures on Southern Appalachian Study in files of Department of Agricultural Economics, University of Tennessee.

APPENDIX TABLE XI. NUMBER OF CATTLE AND CALVES, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No.of C.D. | Cattle and Calves All Ages | | | Calves Under 1 Year | | | Heifers 1 Year and Under 2 Yrs. | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | No. Farms Rptg. | Per Farm Rptg. | Total | No. Farms Rptg. | Per Farm Rptg. | Total | No. Farms Rptg. | Per Farm Rptg. | Total |
| Anderson | 5 | 457 | 3.7 | 1,701 | 188 | 2.2 | 421 | 141 | 2.3 | 318 |
| Campbell | 3 | 1,023 | 4.3 | 4,418 | 456 | 2.4 | 1,086 | 270 | 2.1 | 558 |
| Claiborne | 2 | 366 | 2.4 | 863 | 107 | 1.7 | 180 | 39 | 3.9 | 153 |
| Cumberland | * | 952 | 7.7 | 7,283 | 500 | 3.5 | 1,760 | 316 | 3.0 | 944 |
| Fentress | * | 1,237 | 4.9 | 6,040 | 654 | 2.3 | 1,508 | 374 | 1.9 | 722 |
| Morgan | * | 1,165 | 4.8 | 5,610 | 674 | 2.1 | 1,392 | 413 | 1.8 | 736 |
| Overton | 3 | 615 | 3.1 | 1,923 | 247 | 1.8 | 450 | 164 | 1.4 | 235 |
| Pickett | 1 | 166 | 3.8 | 639 | 77 | 2.6 | 203 | 31 | 1.7 | 52 |
| Putnam | 2 | 282 | 3.3 | 925 | 123 | 2.0 | 247 | 67 | 1.5 | 101 |
| Scott | * | 1,444 | 3.6 | 5,178 | 735 | 2.1 | 1,514 | 386 | 2.0 | 765 |
| White | 2 | 118 | 6.4 | 759 | 71 | 2.8 | 196 | 40 | 2.0 | 78 |
| Bledsoe | * | 986 | 9.8 | 9,686 | 589 | 3.8 | 2,224 | 380 | 3.1 | 1,166 |
| Franklin | 3 | 130 | 6.7 | 874 | 86 | 2.8 | 242 | 44 | 2.6 | 114 |
| Grundy | * | 840 | 5.1 | 4,316 | 478 | 2.6 | 1,227 | 285 | 1.8 | 525 |
| Hamilton | 1 | 1,055 | 5.0 | 5,306 | 480 | 2.4 | 1,166 | 357 | 2.7 | 954 |
| Marion | * | 1,104 | 7.1 | 7,807 | 637 | 3.1 | 1,975 | 380 | 2.9 | 1,111 |
| Rhea | * | 1,159 | 6.7 | 7,804 | 552 | 3.1 | 1,709 | 399 | 2.7 | 1,086 |
| Sequatchie | * | 511 | 7.7 | 3,933 | 316 | 3.6 | 1,127 | 177 | 3.0 | 535 |
| Van Buren | * | 475 | 6.8 | 3,208 | 278 | 2.7 | 754 | 191 | 2.2 | 418 |
| Warren | 3 | 258 | 8.0 | 2,076 | 109 | 4.1 | 445 | 71 | 3.5 | 246 |
| Total | 95 | 14,343 | 5.6 | 80,349 | 7,357 | 2.7 | 19,826 | 4,525 | 2.4 | 10,817 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XII. NUMBER OF STEERS AND BULLS, COWS AND HEIFERS MILKED, COWS AND HEIFERS 2 YEARS OLD, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Steers and Bulls | | | Cows and Heifers Milked | | | Cows and Heifers 2 Years Old | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | No.of Farms Rptg. | Per Farm Rptg. | Total | No.of Farms Rptg. | Per Farm Rptg. | Total | No.of Farms Rptg. | Per Farm Rptg. | Total |
| Anderson | 5 | 84 | 2.4 | 201 | 419 | 1.7 | 706 | 444 | 1.7 | 761 |
| Campbell | 3 | 139 | 4.4 | 601 | 1,012 | 1.7 | 1,715 | 996 | 2.2 | 2,179 |
| Claiborne | 2 | 11 | 2.7 | 30 | 360 | 1.3 | 478 | 362 | 1.4 | 500 |
| Cumberland | * | 212 | 6.0 | 1,264 | 922 | 1.9 | 1,763 | 932 | 3.6 | 3,315 |
| Fentress | * | 178 | 3.1 | 559 | 1,166 | 1.7 | 1,969 | 1,197 | 2.7 | 3,251 |
| Morgan | * | 257 | 2.9 | 741 | 1,057 | 1.8 | 1,914 | 1,118 | 2.4 | 2,741 |
| Overton | 3 | 46 | 2.4 | 111 | 586 | 1.6 | 915 | 587 | 1.9 | 1,127 |
| Pickett | 1 | 17 | 3.2 | 55 | 154 | 1.5 | 236 | 163 | 2.0 | 329 |
| Putnam | 2 | 28 | 2.6 | 72 | 262 | 1.6 | 407 | 268 | 1.9 | 505 |
| Scott | * | 205 | 2.0 | 418 | 1,361 | 1.5 | 2,046 | 1,373 | 1.8 | 2,481 |
| White | 2 | 32 | 3.4 | 109 | 112 | 1.9 | 214 | 113 | 3.3 | 376 |
| Bledsoe | * | 282 | 5.9 | 1,666 | 894 | 2.4 | 2,110 | 969 | 4.8 | 4,630 |
| Franklin | 3 | 22 | 2.7 | 59 | 121 | 2.9 | 362 | 126 | 3.6 | 459 |
| Grundy | * | 182 | 2.8 | 504 | 775 | 1.6 | 1,225 | 809 | 2.5 | 2,060 |
| Hamilton | 1 | 144 | 2.4 | 339 | 1,003 | 2.2 | 2,253 | 1,035 | 2.8 | 2,847 |
| Marion | * | 249 | 3.6 | 894 | 1,055 | 1.3 | 1,938 | 1,076 | 3.6 | 3,827 |
| Rhea | * | 192 | 2.8 | 538 | 1,099 | 2.9 | 3,154 | 1,135 | 3.9 | 4,471 |
| Sequatchie | * | 158 | 4.6 | 720 | 493 | 2.3 | 1,128 | 494 | 4.2 | 2,051 |
| Van Buren | * | 104 | 4.2 | 441 | 454 | 1.7 | 756 | 464 | 3.4 | 1,595 |
| Warren | 3 | 51 | 4.1 | 208 | 256 | 1.6 | 407 | 258 | 4.5 | 1,157 |
| Total | 95 | 2,593 | 3.7 | 9,530 | 13,561 | 1.9 | 25,696 | 13,919 | 2.9 | 40,662 |

*Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XIII. NUMBER OF SHEEP AND LAMBS, EWES, GOATS AND KIDS, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Sheep and Lambs All Ages | | | Ewes 1 Year Old and Over | | | Goats and Kids All Ages | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | No. Farms Rptg. | Per Farm Rptg. | Total | No. Farms Rptg. | Per Farm Rptg. | Total | No. Farms Rptg. | Per Farm Rptg. | Total |
| Anderson | 5 | 9 | 5.2 | 47 | 4 | 6.3 | 25 | 10 | 6.5 | 65 |
| Campbell | 3 | 23 | 10.9 | 252 | 23 | 8.3 | 190 | 7 | 4.3 | 30 |
| Claiborne | 2 | 20 | 28.0 | 560 | 17 | 20.8 | 353 | 22 | 15.5 | 340 |
| Cumberland | * | 246 | 16.7 | 4,117 | 213 | 14.9 | 3,171 | 18 | 5.8 | 104 |
| Fentress | * | 224 | 10.3 | 2,314 | 213 | 6.8 | 1,451 | 17 | 8.0 | 136 |
| Morgan | * | 185 | 16.3 | 3,017 | 172 | 12.2 | 2,103 | 28 | 7.0 | 197 |
| Overton | 3 | 36 | 9.3 | 336 | 31 | 7.5 | 234 | 4 | 1.8 | 7 |
| Pickett | 1 | 22 | 7.9 | 174 | 13 | 5.8 | 76 | 3 | 6.0 | 18 |
| Putnam | 2 | 13 | 5.8 | 76 | 12 | 4.2 | 50 | 5 | 11.2 | 56 |
| Scott | * | 190 | 14.6 | 2,771 | 171 | 11.5 | 1,972 | 25 | 11.5 | 287 |
| White | 2 | 19 | 12.9 | 245 | 18 | 8.2 | 148 | 5 | 2.2 | 11 |
| Bledsoe | * | 138 | 20.9 | 2,890 | 132 | 16.3 | 2,153 | 36 | 15.7 | 564 |
| Franklin | 3 | 11 | 25.5 | 280 | 10 | 18.4 | 184 | 6 | 10.2 | 61 |
| Grundy | * | 39 | 11.6 | 451 | 34 | 9.9 | 339 | 70 | 8.3 | 580 |
| Hamilton | 1 | 18 | 24.3 | 437 | 15 | 21.1 | 316 | 16 | 2.8 | 45. |
| Marion | 3 | 40 | 14.4 | 575 | 36 | 10.8 | 388 | 39 | 25.5 | 996 |
| Rhea | * | 11 | 14.5 | 159 | 11 | 11.9 | 131 | 5 | 17.0 | 85 |
| Sequatchie | * | 40 | 21.9 | 876 | 37 | 20.2 | 746 | 8 | 11.8 | 94 |
| Van Buren | * | 93 | 15.6 | 1,450 | 79 | 15.2 | 1,198 | 16 | 15.5 | 248 |
| Warren | 3 | 20 | 17.3 | 346 | 18 | 15.4 | 278 | 1 | 6.0 | 6 |
| Total | 95 | 1,317 | 15.3 | 21,373 | 1,259 | 12.3 | 15,506 | 341 | 11.5 | 3,930 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XIV. NUMBER OF HORSES AND MULES, AND SWINE, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Horses and Mules All Ages | | | Swine | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | All Ages | | | Sows and Gilts Bred to Farrow Before June 1935 | | |
| | | No. Farms Rptg. | Per Farm Rptg. | Total | No. Farms Rptg. | Per Farm Rptg. | Total | No. Farms Rptg. | Per Farm Rptg. | Total |
| Anderson | 5 | 271 | 1.6 | 432 | 265 | 6.6 | 1,743 | 33 | 2.1 | 68 |
| Campbell | 3 | 660 | 1.6 | 1,074 | 471 | 3.3 | 1,570 | 157 | 1.4 | 226 |
| Claiborne | 2 | 134 | 1.3 | 180 | 323 | 6.7 | 2,171 | 35 | 2.1 | 75 |
| Cumberland | * | 663 | 2.0 | 1,295 | 757 | 10.5 | 7,985 | 445 | 2.2 | 989 |
| Fentress | * | 800 | 1.8 | 1,467 | 994 | 7.8 | 7,707 | 424 | 1.8 | 751 |
| Morgan | * | 738 | 1.7 | 1,259 | 656 | 4.2 | 2,784 | 102 | 1.5 | 153 |
| Overton | 3 | 454 | 1.6 | 726 | 429 | 4.8 | 2,040 | 124 | 1.5 | 181 |
| Pickett | 1 | 118 | 1.9 | 221 | 140 | 4.3 | 602 | 19 | 1.4 | 27 |
| Putnam | 2 | 170 | 1.7 | 284 | 172 | 4.6 | 786 | 75 | 1.3 | 99 |
| Scott | * | 851 | 1.5 | 1,279 | 842 | 6.5 | 5,431 | 198 | 1.9 | 380 |
| White | 2 | 79 | 1.9 | 147 | 96 | 10.7 | 1,030 | 56 | 1.9 | 107 |
| Bledsoe | * | 709 | 2.3 | 1,629 | 878 | 9.7 | 8,528 | 594 | 2.0 | 1,186 |
| Franklin | 3 | 94 | 1.7 | 161 | 116 | 12.4 | 1,433 | 101 | 2.1 | 215 |
| Grundy | * | 566 | 2.0 | 1,129 | 652 | 6.9 | 4,522 | 261 | 1.5 | 403 |
| Hamilton | 1 | 814 | 1.9 | 1,548 | 577 | 3.1 | 1,811 | 82 | 1.5 | 124 |
| Marion | * | 869 | 2.2 | 1,873 | 834 | 6.6 | 5,507 | 374 | 1.5 | 567 |
| Rhea | * | 868 | 2.4 | 2,097 | 743 | 3.7 | 2,726 | 302 | 1.3 | 407 |
| Sequatchie | * | 349 | 2.0 | 713 | 346 | 7.8 | 2,715 | 187 | 1.9 | 347 |
| Van Buren | * | 349 | 1.9 | 657 | 429 | 10.6 | 4,558 | 241 | 2.7 | 644 |
| Warren | 3 | 215 | 2.2 | 476 | 160 | 6.2 | 995 | 69 | 1.7 | 117 |
| Total | 95 | 9,771 | 1.9 | 18,647 | 9,880 | 6.7 | 66,644 | 3,879 | 1.8 | 7,066 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XV. ACREAGE AND PRODUCTION OF CORN HARVESTED FOR GRAIN, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Number of Farms Rptg. | Total Number of Acres | Acres Per Farm Rptg. | Total Number of Bushels | Bushels Per Farm Rptg. |
|---|---|---|---|---|---|---|
| Anderson | 5 | 461 | 2,308 | 5.0 | 45,828 | 99.4 |
| Campbell | 3 | 1,079 | 7,727 | 7.2 | 135,055 | 125.2 |
| Claiborne | 2 | 333 | 1,604 | 4.8 | 29,760 | 89.4 |
| Cumberland | * | 984 | 7,912 | 8.0 | 153,336 | 155.8 |
| Fentress | * | 1,413 | 11,732 | 8.3 | 168,110 | 118.9 |
| Morgan | * | 1,235 | 7,222 | 5.8 | 116,913 | 94.7 |
| Overton | 3 | 864 | 7,945 | 9.2 | 134,073 | 155.2 |
| Pickett | 1 | 197 | 2,029 | 10.3 | 29,809 | 151.3 |
| Putnam | 2 | 316 | 2,576 | 8.2 | 40,811 | 129.1 |
| Scott | * | 1,513 | 9,454 | 6.2 | 154,376 | 102.0 |
| White | 2 | 115 | 1,077 | 9.4 | 21,481 | 186.8 |
| Bledsoe | * | 1,031 | 17,938 | 17.4 | 415,377 | 403.4 |
| Franklin | 3 | 149 | 1,409 | 9.5 | 31,157 | 209.1 |
| Grundy | * | 827 | 6,259 | 7.6 | 139,481 | 168.7 |
| Hamilton | 1 | 1,166 | 11,299 | 9.7 | 212,999 | 182.7 |
| Marion | * | 1,130 | 15,083 | 13.3 | 321,368 | 284.4 |
| Rhea | * | 1,167 | 16,916 | 14.5 | 309,706 | 265.4 |
| Sequatchie | * | 528 | 5,856 | 11.1 | 124,511 | 235.8 |
| Van Buren | * | 546 | 6,093 | 11.2 | 93,470 | 171.2 |
| Warren | 3 | 256 | 4,496 | 17.6 | 63,501 | 248.1 |
| Total | 95 | 15,310 | 146,935 | 9.6 | 2,741,622 | 179.1 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XVI. ACREAGE AND PRODUCTION OF IRISH AND SWEET POTATOES, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON THE CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Irish Potatoes | | | | | Sweet Potatoes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acreage | | | Production | | Acreage | | | Production | |
| | | No. Farms Rptg. | Per Farm Rptg. | Total Acres | Total Bu. | Production per Farm Rptg. | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Bu. per Farm Rptg. | Total Bushels |
| Anderson | 5 | 425 | .25 | 106 | 11,133 | 26.2 | 344 | 77 | .22 | 25.2 | 8,684 |
| Campbell | 3 | 1,006 | .44 | 439 | 34,297 | 34.1 | 731 | 211 | .29 | 24.1 | 17,630 |
| Claiborne | 2 | 266 | .35 | 92 | 5,414 | 20.4 | 227 | 51 | .22 | 14.9 | 3,389 |
| Cumberland | * | 871 | .86 | 749 | 60,007 | 68.8 | 654 | 189 | .29 | 31.3 | 20,449 |
| Fentress | * | 1,367 | .69 | 943 | 86,745 | 63.5 | 1,229 | 331 | .27 | 31.7 | 38,997 |
| Morgan | * | 1,195 | .97 | 1,165 | 133,655 | 111.8 | 966 | 261 | .27 | 35.3 | 34,075 |
| Overton | 3 | 684 | .24 | 163 | 17,283 | 25.3 | 669 | 129 | .19 | 26.3 | 17,624 |
| Pickett | 1 | 164 | .44 | 72 | 6,083 | 37.1 | 163 | 27 | .17 | 26.0 | 4,244 |
| Putnam | 2 | 289 | .39 | 113 | 9,804 | 33.9 | 236 | 56 | .24 | 25.7 | 6,066 |
| Scott | * | 1,424 | .74 | 1,057 | 74,652 | 52.4 | 1,098 | 452 | .41 | 27.5 | 30,175 |
| White | 2 | 117 | .38 | 45 | 4,398 | 37.6 | 106 | 20 | .19 | 26.6 | 2,822 |
| Bledsoe | * | 864 | .62 | 533 | 34,339 | 39.7 | 807 | 473 | .59 | 65.8 | 53,071 |
| Franklin | 3 | 148 | .49 | 72 | 7,109 | 48.0 | 124 | 32 | .26 | 28.4 | 3,527 |
| Grundy | * | 886 | .50 | 440 | 41,366 | 46.7 | 770 | 196 | .25 | 27.0 | 20,801 |
| Hamilton | 1 | 767 | .37 | 285 | 22,003 | 28.7 | 796 | 435 | .55 | 55.9 | 44,548 |
| Marion | * | 1,048 | .52 | 541 | 51,891 | 49.5 | 860 | 395 | .46 | 48.5 | 41,704 |
| Rhea | * | 818 | .56 | 460 | 26,957 | 32.9 | 819 | 566 | .69 | 64.2 | 52,567 |
| Sequatchie | * | 499 | .52 | 261 | 25,390 | 50.9 | 429 | 131 | .31 | 38.1 | 16,352 |
| Van Buren | * | 466 | .24 | 113 | 11,582 | 24.9 | 442 | 80 | .18 | 28.2 | 12,481 |
| Warren | 3 | 251 | .21 | 52 | 6,427 | 25.6 | 236 | 60 | .25 | 33.5 | 7,913 |
| Total | 95 | 13,555 | .57 | 7,701 | 670,536 | 49.5 | 11,706 | 4,172 | .36 | 37.3 | 437,119 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XVII. ACREAGE AND PRODUCTION OF SMALL GRAINS CUT FOR HAY; SORGHUM CUT FOR SILAGE, HAY, AND FODDER, CIVIL DISTRICTS HAVING SOME OR ALL LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Small Grains Cut for Hay | | | | | Sweet and Grain Sorghum for Silage, Hay and Fodder | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acreage | | | Production | | Acreage | | | Production | |
| | | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total No. of Tons | Tons per Farm Rptg. | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total No. of Tons | Tons per Farm Reporting |
| Anderson | 5 | 20 | 100 | 5.0 | 52 | 2.6 | 62 | 100 | 1.6 | 115 | 1.9 |
| Campbell | 3 | 53 | 247 | 4.7 | 247 | 4.7 | 96 | 220 | 2.3 | 321 | 3.3 |
| Claiborne | 2 | - | - | - | - | - | 12 | 31 | 2.6 | 47 | 3.9 |
| Cumberland | * | 60 | 286 | 4.8 | 194 | 3.2 | 97 | 168 | 1.7 | 210 | 2.2 |
| Fentress | * | 106 | 416 | 3.9 | 225 | 2.1 | 436 | 829 | 1.0 | 1,529 | 3.5 |
| Morgan | * | 66 | 249 | 3.8 | 146 | 2.2 | 119 | 321 | 2.7 | 318 | 2.7 |
| Overton | 3 | 35 | 178 | 5.4 | 163 | 5.1 | 99 | 200 | 2.0 | 326 | 3.3 |
| Pickett | 1 | 7 | 15 | 2.1 | 8 | 1.1 | - | - | - | - | - |
| Putnam | 2 | - | - | - | - | - | 105 | 118 | 1.1 | 200 | 1.9 |
| Scott | * | 27 | 171 | 6.3 | 140 | 5.2 | 89 | 305 | 3.4 | 330 | 3.7 |
| White | 2 | 22 | 94 | 4.3 | 67 | 3.0 | 33 | 40 | 1.2 | 73 | 2.2 |
| Bledsoe | * | 49 | 560 | 11.4 | 519 | 10.6 | 137 | 398 | 2.8 | 907 | 6.6 |
| Franklin | 3 | 9 | 39 | 4.3 | 30 | 3.3 | 6 | 17 | 2.4 | 49 | 8.2 |
| Grundy | * | 98 | 299 | 3.1 | 284 | 2.9 | 135 | 241 | 1.8 | 609 | 3.8 |
| Hamilton | 1 | 7 | 56 | 8.0 | 60 | 8.6 | 117 | 346 | 2.9 | 334 | 2.9 |
| Marion | * | 65 | 455 | 7.0 | 264 | 4.1 | 118 | 209 | 1.8 | 260 | 2.2 |
| Rhea | * | 194 | 1,260 | 6.5 | 622 | 3.2 | 106 | 306 | 2.9 | 690 | 6.5 |
| Sequatchie | * | 27 | 174 | 6.4 | 148 | 5.6 | 54 | 125 | 2.3 | 279 | 5.2 |
| Van Buren | * | 35 | 239 | 6.8 | 193 | 5.5 | 143 | 271 | 1.9 | 529 | 3.7 |
| Warren | 3 | 57 | 491 | 8.6 | 315 | 5.5 | 54 | 154 | 2.9 | 168 | 3.1 |
| Total | 95 | 935 | 5,329 | 5.7 | 3,681 | 3.9 | 2,018 | 4,385 | 2.2 | 7,194 | 3.6 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XVIII. ACREAGE AND PRODUCTION OF TIMOTHY AND CLOVER, SWEET CLOVER AND LESPEDEZA CUT FOR HAY, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Timothy and Clover | | | | | Sweet Clover and Lespedeza | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acreage | | | Production | | Acreage | | | Production | |
| | | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total No. of Tons | Tons per Farm Rptg. | No. of Farms | Total Acres | Acres per Farm Rptg. | Total Number of Tons | Tons per Farm Reporting |
| Anderson | 5 | 33 | 142 | 4.3 | 152 | 4.6 | 53 | 230 | 4.3 | 189 | 3.6 |
| Campbell | 3 | 68 | 468 | 6.9 | 491 | 7.2 | 169 | 1,158 | 6.9 | 1,414 | 8.4 |
| Claiborne | 2 | 5 | 16 | 3.2 | 15 | 3.0 | 8 | 52 | 6.5 | 54 | 6.8 |
| Cumberland | * | 181 | 2,510 | 13.9 | 2,197 | 12.1 | 234 | 2,505 | 10.7 | 2,146 | 9.2 |
| Fentress | * | 140 | 987 | 7.1 | 929 | 6.6 | 516 | 3,071 | 6.0 | 2,918 | 5.7 |
| Morgan | * | 66 | 340 | 5.2 | 275 | 4.2 | 273 | 1,666 | 6.1 | 1,552 | 5.7 |
| Overton | 3 | 41 | 310 | 7.6 | 305 | 7.4 | 156 | 915 | 5.9 | 909 | 5.8 |
| Pickett | 1 | 10 | 78 | 7.8 | 66 | 6.6 | 82 | 538 | 6.6 | 415 | 5.1 |
| Putnam | 2 | 33 | 184 | 5.6 | 127 | 3.8 | 114 | 584 | 5.1 | 526 | 4.6 |
| Scott | * | 29 | 172 | 5.9 | 214 | 7.4 | 68 | 304 | 4.5 | 318 | 4.7 |
| White | 2 | 19 | 103 | 5.4 | 77 | 4.1 | 36 | 327 | 9.1 | 202 | 5.6 |
| Bledsoe | * | 102 | 706 | 6.9 | 1,540 | 15.1 | 351 | 6,602 | 18.8 | 9,042 | 25.8 |
| Franklin | 3 | 3 | 59 | 19.7 | 47 | 15.7 | 17 | 165 | 9.7 | 144 | 8.5 |
| Grundy | * | 94 | 545 | 5.8 | 632 | 6.7 | 238 | 1,864 | 7.8 | 2,279 | 9.6 |
| Hamilton | 1 | 65 | 517 | 7.9 | 404 | 6.2 | 173 | 1,366 | 7.9 | 1,136 | 6.6 |
| Marion | * | 36 | 574 | 15.9 | 470 | 13.1 | 330 | 3,900 | 11.8 | 3,798 | 11.5 |
| Rhea | * | 63 | 630 | 10.0 | 509 | 8.1 | 483 | 5,634 | 11.7 | 4,850 | 10.1 |
| Sequatchie | * | 2 | 17 | 8.5 | 17 | 8.5 | 166 | 2,429 | 14.6 | 2,201 | 13.3 |
| Van Buren | * | 15 | 266 | 17.7 | 250 | 16.7 | 95 | 1,043 | 10.9 | 837 | 8.8 |
| Warren | 3 | 21 | 260 | 12.4 | 177 | 8.4 | 52 | 1,008 | 19.4 | 681 | 13.1 |
| Total | 95 | 1,026 | 8,884 | 8.7 | 8,894 | 8.7 | 3,614 | 35,363 | 9.8 | 35,611 | 9.9 |

* Figures are for entire county by civil districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XIX. ACREAGE AND PRODUCTION OF TAME AND WILD GRASS CUT FOR HAY, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Acreage | | | Production | |
|---|---|---|---|---|---|---|
| | | No. of Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total Number of Tons | Tons per Farm Rptg. |
| Anderson | 5 | 222 | 1,202 | 5.4 | 1,092 | 4.9 |
| Campbell | 3 | 358 | 2,228 | 6.2 | 2,671 | 7.5 |
| Claiborne | 2 | 37 | 202 | 5.5 | 191 | 5.2 |
| Cumberland | * | 266 | 2,333 | 8.8 | 1,823 | 6.9 |
| Fentress | * | 189 | 1,018 | 5.4 | 738 | 3.9 |
| Morgan | * | 506 | 2,162 | 4.3 | 1,777 | 3.5 |
| Overton | 3 | 42 | 199 | 4.7 | 148 | 3.5 |
| Pickett | 1 | 19 | 149 | 7.8 | 72 | 3.8 |
| Putnam | 2 | 14 | 23 | 1.6 | 30 | 2.1 |
| Scott | * | 564 | 2,470 | 4.4 | 2,813 | 5.0 |
| White | 2 | 33 | 242 | 7.3 | 218 | 6.6 |
| Bledsoe | * | 324 | 3,350 | 10.3 | 2,671 | 8.2 |
| Franklin | 3 | 4 | 16 | 4.0 | 13 | 3.3 |
| Grundy | * | 411 | 1,733 | 4.2 | 1,581 | 3.8 |
| Hamilton | 1 | 262 | 1,496 | 5.7 | 1,097 | 4.2 |
| Marion | * | 236 | 2,574 | 10.9 | 1,803 | 7.6 |
| Rhea | * | 353 | 2,924 | 8.3 | 1,642 | 4.7 |
| Sequatchie | * | 104 | 1,106 | 10.6 | 878 | 8.4 |
| Van Buren | * | 105 | 927 | 8.8 | 610 | 5.8 |
| Warren | 3 | 119 | 1,336 | 11.2 | 854 | 7.2 |
| Total | 95 | 4,168 | 27,690 | 6.6 | 22,722 | 5.5 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XX. ACREAGE AND PRODUCTION OF ALFALFA AND ANNUAL LEGUMES SAVED FOR HAY, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Alfalfa | | | | | Annual Legumes | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acreage | | | Production | | Acreage | | | Production | |
| | | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total Prod. | Prod. per Acre | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total Production | Prod. per Farm Rptg. |
| Anderson | 5 | 2 | 6 | 3.0 | 14 | 7.0 | 116 | 405 | 3.5 | 486 | 4.2 |
| Campbell | 3 | 16 | 66 | 4.1 | 123 | 7.7 | 292 | 1,176 | 4.0 | 1,485 | 5.1 |
| Claiborne | 2 | - | - | - | - | - | 1 | 2 | 2.0 | 3 | 3.0 |
| Cumberland | * | 38 | 403 | 10.6 | 271 | 7.1 | 308 | 1,384 | 4.5 | 1,427 | 4.6 |
| Fentress | * | 3 | 5 | 1.7 | 6 | 2.0 | 476 | 1,406 | 2.9 | 2,315 | 4.9 |
| Morgan | * | 8 | 27 | 3.4 | 38 | 4.8 | 545 | 2,110 | 3.9 | 2,185 | 4.0 |
| Overton | 3 | 7 | 33 | 4.7 | 52 | 7.4 | 88 | 431 | 4.9 | 570 | 6.5 |
| Pickett | 1 | - | - | - | - | - | 12 | 51 | 4.3 | 31 | 2.6 |
| Putnam | 2 | - | - | - | - | - | 98 | 299 | 3.1 | 351 | 3.6 |
| Scott | * | 13 | 54 | 4.2 | 66 | 5.1 | 261 | 1,015 | 3.9 | 1,227 | 4.7 |
| White | 2 | - | - | - | - | - | 42 | 157 | 3.7 | 139 | 3.3 |
| Bledsoe | * | 8 | 42 | 5.3 | 103 | 12.9 | 125 | 681 | 5.4 | 649 | 5.2 |
| Franklin | 3 | 2 | 21 | 10.5 | 40 | 20.0 | 31 | 131 | 4.2 | 142 | 4.6 |
| Grundy | * | 27 | 103 | 3.8 | 238 | 8.9 | 409 | 1,137 | 2.8 | 1,574 | 3.8 |
| Hamilton | 1 | 17 | 150 | 8.8 | 297 | 17.5 | 503 | 2,629 | 5.2 | 2,381 | 4.7 |
| Marion | * | 30 | 317 | 10.6 | 642 | 21.4 | 370 | 1,889 | 5.1 | 1,859 | 5.0 |
| Rhea | 4 | 23 | 143 | 6.2 | 244 | 10.6 | 464 | 2,905 | 6.3 | 2,543 | 5.5 |
| Sequatchie | * | 8 | 51 | 6.4 | 102 | 12.8 | 65 | 328 | 5.0 | 306 | 4.7 |
| Van Buren | * | 2 | 6 | 3.0 | 13 | 6.5 | 128 | 587 | 4.6 | 457 | 3.6 |
| Warren | 3 | 22 | 301 | 13.7 | 230 | 10.5 | 1 | 6 | 6.0 | 4 | 4.0 |
| Total | 95 | 226 | 1,728 | 7.6 | 2,479 | 10.9 | 4,335 | 18,729 | 4.3 | 20,134 | 4.6 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XXI. NUMBER OF APPLE TREES, AND PRODUCTION OF APPLES, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Farms Reporting | Trees Not of Bearing Age | | Trees of Bearing Age | | Production | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Per Farm Rptg. | Total | Per Farm Rptg. | Total Bu. | Bu. Per Farm Rptg. |
| Anderson | 5 | 221 | 1,606 | 7.3 | 4,952 | 22.4 | 7,935 | 35.9 |
| Campbell | 3 | 764 | 7,164 | 9.4 | 22,205 | 29.1 | 28,299 | 37.0 |
| Claiborne | 2 | 84 | 360 | 4.3 | 1,290 | 15.4 | 3,513 | 41.8 |
| Cumberland | * | 354 | 3,895 | 11.0 | 6,815 | 19.3 | 5,074 | 14.3 |
| Fentress | * | 931 | 11,246 | 12.1 | 18,873 | 20.3 | 8,340 | 9.0 |
| Morgan | * | 499 | 6,266 | 12.6 | 32,635 | 65.4 | 9,652 | 19.3 |
| Overton | 3 | 400 | 2,319 | 5.8 | 7,654 | 19.1 | 6,911 | 17.3 |
| Pickett | 1 | 100 | 414 | 4.1 | 2,315 | 23.2 | 596 | 5.9 |
| Putnam | 2 | 222 | 1,955 | 8.8 | 2,758 | 12.4 | 2,578 | 11.6 |
| Scott | * | 528 | 4,915 | 9.3 | 23,154 | 43.9 | 12,897 | 24.4 |
| White | 2 | 83 | 614 | 7.4 | 1,504 | 18.1 | 812 | 9.8 |
| Bledsoe | * | 590 | 4,789 | 8.1 | 14,002 | 23.7 | 20,103 | 34.1 |
| Franklin | 3 | 107 | 466 | 4.4 | 1,705 | 15.9 | 1,409 | 13.2 |
| Grundy | * | 689 | 5,819 | 8.4 | 9,019 | 13.1 | 11,733 | 17.0 |
| Hamilton | 1 | 663 | 3,167 | 4.8 | 35,618 | 53.7 | 22,073 | 33.3 |
| Marion | * | 785 | 3,423 | 4.4 | 8,484 | 10.8 | 7,936 | 10.1 |
| Rhea | * | 626 | 4,026 | 6.4 | 61,238 | 97.8 | 20,670 | 33.0 |
| Sequatchie | * | 440 | 1,489 | 3.4 | 5,239 | 11.9 | 6,618 | 15.0 |
| Van Buren | * | 304 | 2,017 | 6.6 | 4,018 | 13.2 | 2,116 | 7.0 |
| Warren | 3 | 69 | 524 | 7.6 | 639 | 9.3 | 1,455 | 21.1 |
| Total | 95 | 8,459 | 66,474 | 7.9 | 264,117 | 31.2 | 180,720 | 21.4 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XXII. NUMBER OF PEACH TREES AND PEACH PRODUCTION, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Farms Rptg. | Trees Not of Bearing Age | | Trees of Bearing Age | | Production (bushels) | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Per Farm Rptg. | Total | Per Farm Rptg. | Total | Per Farm Rptg. |
| Anderson | 5 | 89 | 236 | 2.7 | 5,723 | 64.3 | 4,590 | 51.6 |
| Campbell | 3 | 468 | 2,020 | 4.3 | 17,803 | 38.0 | 19,336 | 41.3 |
| Claiborne | 2 | 21 | 39 | 1.9 | 142 | 6.8 | 220 | 10.5 |
| Cumberland | * | 219 | 1,339 | 6.1 | 2,474 | 11.3 | 1,277 | 5.8 |
| Fentress | * | 728 | 3,290 | 4.5 | 7,517 | 10.3 | 5,614 | 7.7 |
| Morgan | * | 271 | 1,446 | 5.3 | 4,506 | 16.6 | 1,876 | 6.9 |
| Overton | 3 | 308 | 1,278 | 4.1 | 5,064 | 16.4 | 5,097 | 16.5 |
| Pickett | 1 | 90 | 159 | 1.8 | 1,440 | 16.0 | 993 | 11.0 |
| Putnam | 2 | 168 | 809 | 4.8 | 1,805 | 10.7 | 1,883 | 11.2 |
| Scott | * | 192 | 586 | 3.1 | 2,247 | 11.7 | 1,520 | 7.9 |
| White | 2 | 72 | 494 | 6.9 | 893 | 12.4 | 816 | 11.3 |
| Bledsoe | * | 482 | 3,760 | 7.8 | 20,616 | 42.8 | 30,584 | 63.5 |
| Franklin | 3 | 99 | 382 | 3.9 | 1,185 | 12.0 | 1,137 | 11.5 |
| Grundy | * | 525 | 3,516 | 6.7 | 4,214 | 8.0 | 5,620 | 10.7 |
| Hamilton | 1 | 432 | 4,705 | 10.9 | 141,990 | 328.7 | 94,760 | 219.4 |
| Marion | * | 737 | 3,151 | 4.3 | 16,082 | 21.8 | 14,166 | 19.2 |
| Rhea | * | 338 | 3,773 | 11.2 | 20,416 | 60.4 | 13,127 | 38.8 |
| Sequatchie | * | 396 | 2,659 | 6.7 | 8,310 | 21.0 | 7,073 | 17.9 |
| Van Buren | * | 285 | 1,696 | 6.0 | 4,947 | 17.4 | 5,293 | 18.6 |
| Warren | 3 | 68 | 483 | 7.1 | 711 | 10.5 | 2,215 | 32.6 |
| Total | 95 | 5,988 | 35,821 | 6.0 | 268,085 | 44.8 | 217,197 | 36.3 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XXIII. NUMBER OF CHERRY TREES AND CHERRY PRODUCTION, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Farms Rptg. | Trees Not of Bearing Age | | Trees of Bearing Age | | Production | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Per Farm Rptg. | Total | Per Farm Rptg. | Total | Per Farm Rptg. |
| Anderson | 5 | 91 | 535 | 5.9 | 454 | 5.0 | 102 | 1.1 |
| Campbell | 3 | 438 | 1,367 | 3.1 | 2,203 | 5.0 | 792 | 1.8 |
| Claiborne | 2 | 18 | 40 | 2.2 | 42 | 2.3 | 28 | 1.6 |
| Cumberland | * | 190 | 2,259 | 11.9 | 526 | 2.8 | 159 | .8 |
| Fentress | * | 399 | 1,868 | 4.7 | 1,916 | 4.8 | 114 | .3 |
| Morgan | * | 218 | 853 | 3.9 | 911 | 4.2 | 256 | 1.2 |
| Overton | 3 | 156 | 856 | 5.5 | 692 | 4.4 | 411 | 2.6 |
| Pickett | 1 | 61 | 95 | 1.6 | 200 | 3.3 | 25 | .4 |
| Putnam | 2 | 171 | 1,160 | 6.8 | 477 | 2.8 | 101 | .6 |
| Scott | * | 140 | 209 | 1.5 | 447 | 3.2 | 79 | .6 |
| White | 2 | 59 | 257 | 4.4 | 167 | 2.8 | 19 | .3 |
| Bledsoe | * | 313 | 3,268 | 10.4 | 1,330 | 4.2 | 1,205 | 3.8 |
| Franklin | 3 | 44 | 49 | 1.1 | 87 | 2.0 | 23 | .5 |
| Grundy | * | 442 | 2,738 | 6.2 | 1,102 | 2.5 | 224 | .5 |
| Hamilton | 1 | 276 | 1,762 | 6.4 | 2,998 | 10.9 | 601 | 2.2 |
| Marion | * | 395 | 7,490 | 19.0 | 1,393 | 3.5 | 462 | 1.2 |
| Rhea | * | 214 | 3,183 | 14.9 | 2,238 | 10.5 | 298 | 1.4 |
| Sequatchie | * | 238 | 3,297 | 13.9 | 529 | 2.2 | 274 | 1.2 |
| Van Buren | * | 108 | 412 | 3.8 | 408 | 3.8 | 115 | 1.1 |
| Warren | 3 | 34 | 115 | 3.4 | 158 | 4.6 | 56 | 1.6 |
| Total | 95 | 4,005 | 31,813 | 7.9 | 18,278 | 4.6 | 5,344 | 1.3 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XXIV. ACREAGE AND PRODUCTION OF STRAWBERRIES GROWN, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Acreage | | | Production | |
|---|---|---|---|---|---|---|
| | | No. Farms Rptg. | Total Acres | Acres per Farm Rptg. | Total Production (quarts) | Quarts per Farm Reporting |
| Anderson | 5 | 9 | 2 | .22 | 1,699 | 188.8 |
| Campbell | 3 | 30 | 14 | .47 | 7,908 | 263.6 |
| Claiborne | 2 | - | - | - | - | - |
| Cumberland | * | 14 | 6 | .43 | 2,515 | 179.6 |
| Fentress | * | 23 | 3 | .13 | 1,044 | 45.4 |
| Morgan | * | 32 | 9 | .28 | 7,575 | 236.7 |
| Overton | 5 | 2 | 1 | .50 | 402 | 201.0 |
| Pickett | 1 | - | - | - | - | - |
| Putnam | 2 | 23 | 4 | .17 | 1,352 | 58.8 |
| Scott | * | 7 | 2 | .29 | 435 | 62.1 |
| White | 2 | 1 | 1 | 1.0 | 24 | 24.0 |
| Bledsoe | * | 12 | 26 | 2.2 | 36,920 | 3076.6 |
| Franklin | 3 | 1 | 1 | 1.0 | 900 | 900.0 |
| Grundy | * | 26 | 14 | .54 | 1,358 | 52.2 |
| Hamilton | 1 | 204 | 535 | 2.6 | 496,983 | 2436.2 |
| Marion | * | 28 | 14 | .50 | 18,338 | 654.9 |
| Rhea | * | 469 | 1,540 | 3.3 | 1,513,092 | 3,226.2 |
| Sequatchie | * | 1 | 1 | 1.0 | 150 | 150.0 |
| Van Buren | * | 10 | 11 | 1.10 | 9,249 | 924.9 |
| Warren | 3 | 3 | 1 | 3.3 | 800 | 266.7 |
| Total | 95 | 895 | 2,185 | 2.4 | 2,100,744 | 2,347.2 |

* Figures are for entire county by Civil District.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XXV. NUMBER OF GRAPE VINES OF BEARING AGE AND GRAPE PRODUCTION, CIVIL DISTRICTS HAVING SOME OR ALL OF THEIR LAND ON CUMBERLAND PLATEAU, 1935

| County | No. of C.D. | Farms Reporting | Vines of Bearing Age | | Production | |
|---|---|---|---|---|---|---|
| | | | Total Number | Number per Farm | Total No. of Pounds | Pounds per Farm |
| Anderson | 5 | 78 | 1,648 | 21.1 | 7,475 | 95.8 |
| Campbell | 3 | 289 | 11,980 | 41.5 | 65,783 | 227.6 |
| Claiborne | 2 | 7 | 14 | 2.0 | 795 | 113.6 |
| Cumberland | * | 206 | 1,336 | 6.5 | 23,168 | 136.7 |
| Fentress | * | 509 | 3,649 | 7.2 | 50,403 | 99.0 |
| Morgan | * | 227 | 2,845 | 12.5 | 44,298 | 195.1 |
| Overton | 3 | 77 | 1,045 | 13.6 | 10,560 | 137.1 |
| Pickett | 1 | 26 | 53 | 2.0 | 355 | 13.7 |
| Putnam | 2 | 167 | 621 | 3.7 | 10,886 | 65.2 |
| Scott | * | 123 | 1,948 | 15.8 | 60,913 | 495.2 |
| White | 2 | 71 | 405 | 5.7 | 15,478 | 218.0 |
| Bledsoe | * | 377 | 2,266 | 6.0 | 84,254 | 223.5 |
| Franklin | 3 | 56 | 661 | 11.8 | 11,660 | 208.2 |
| Grundy | * | 511 | 4,053 | 7.9 | 77,799 | 152.2 |
| Hamilton | 1 | 287 | 7,244 | 25.2 | 33,151 | 115.5 |
| Marion | 3 | 495 | 3,470 | 7.0 | 50,401 | 101.8 |
| Rhea | * | 208 | 18,487 | 88.9 | 45,983 | 221.1 |
| Sequatchie | * | 266 | 1,178 | 4.4 | 22,380 | 84.1 |
| Van Buren | * | 67 | 398 | 5.9 | 4,089 | 61.0 |
| Warren | 3 | 43 | 152 | 3.5 | 4,375 | 101.7 |
| Total | 95 | 4,090 | 63,453 | 15.5 | 629,206 | 153.8 |

* Figures are for entire county by Civil Districts.

Source: U. S. Census of Agriculture, 1935.

APPENDIX TABLE XXVI. CLASSIFICATION OF SOILS BASED ON CHEMICAL COMPOSITION ACCORDING TO WOHLTMANN

| Character of Soil | Constituents in Air-Dry Fine Earth (Less Than 2 Mm.) | | | | |
|---|---|---|---|---|---|
| | Nitrogen (N) | Lime (CaO) and Magnesia (MgO) (Cold HCL) | Phos. Acid ($P_2O_5$) (Cold HCL) | Potash ($K_2O$) (Cold HCL) | Potash ($K_2O$) (Hot HCL) |
| | Pct. | Pct. | Pct. | Pct. | Pct. |
| Very rich - may be cultivated without return of fertility removed | Over 0.3 | Over 3.0 | Over 0.25 | Over 0.2 | Over 0.5 |
| Rich - requires partial return of phos. acid removed | 0.2-0.3 | 1.5-3.0 | .15-.25 | .15-.2 | .4 - .5 |
| Good - require return of phos. acid removed | .1-.2 | .5-1.5 | .10-.15 | .10-.15 | .2 - .4 |
| Medium - requires return of phos. acid and potash removed | .06-.1 | .25 - .5 | .07-.1 | .06-.1 | .12-.2 |
| Poor - requires general increase in fertility | .03-.06 | .1-.25 | .04-.07 | .03-.06 | .08-.12 |
| Very poor - very much in need of increase in fertility or periodical rest | .02-.03 | .05-.10 | .02-.04 | .02-.03 | .05-.08 |

Source: C. A. Mooers, The Soils of Tennessee, Agricultural Experiment Station, University of Tennessee, 1906, p. 54.