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## THE CHANGING AGRICULTURAL SCENE ON THE CUMBERLAND PLATEAU

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The existing American geographical literature which covers the Cumberland Plateau has not kept pace with the changes that have come to the region. Students in our public schools and colleges still read from their texts such statements as, "Here one finds true subsistence farming, and pioneer customs that date back to the first frontier."<sup>1</sup> No longer are all the people of the Cumberland Plateau living as did their pioneer ancestors. The rural road projects, the TVA, and the Rural Electrification program have brought some of the modern conveniences even to the poor rural homes, raising the level of living and improving the socio-economic status of the people. On the whole the agriculture of the Cumberland Plateau is still of a subsistence rather than of a commercial character; but the agricultural scene, as well as other aspects of the cultural environment of the region, is undergoing some changes. These changes should be brought to the attention of our students so that the out-of-date generalizations will not convey an erroneous picture of the region. It is the purpose of this study to call to our attention some of the changes which are taking place in the agriculture of this oft-mentioned but little known region.

The part of the Cumberland Plateau which is least known is the central sector and the part which White and Foscue call the Northwestern Cumberland Plateau.<sup>2</sup> This is the true upland section with areas ranging from only slight dissection to deep dissection but still in the youth stage of the erosion cycle. The fact that this area is less well known is related to its isolation, and its isolation is in turn related to its youthfulness.

The young, flat-topped part of the plateau is confined mostly to Tennessee. The part which extends northward into Ken-

1. J. Russell Smith and M. Ogden Phillips, *North America*, (New York: Harcourt Brace and Co., 1942), p. 256
2. C. Langdon White and Edwin J. Foscue, *Regional Geography of Anglo-America*, (New York: Prentice-Hall, 1943), p. 215.

tucky and southward into Alabama is maturely dissected, consequently less isolated and therefore better known. The plateau in Tennessee is restricted principally to ten of the state's ninety-five counties. These are, reading from north to south: Fentress, Scott, Campbell, Morgan, Cumberland, Van Buren, Bledsoe, Grundy, Sequatchie, and Marion. One of these counties, Cumberland, was selected for special attention and was studied in much greater detail by field observation and interview than was the remainder of the plateau. Also the census data of earlier periods for this county were examined. Cumberland County was chosen because of its central location and because such a large proportion of its surface consists of upland, a condition which is related to its central location.

During the years 1954, 1955, and 1956, the whole of the plateau was traversed in a number of places both lengthwise and crosswise, and Cumberland County was examined in much greater detail. Here farmers were interviewed and crops were inspected. Also, the County Agricultural Agent of Cumberland County was consulted upon numerous occasions, and when the County Agricultural Agent of Cumberland County was consulted upon numerous occasions, and when the conclusions were drawn up he read the manuscript and made many essential suggestions. The statistical data for this study were obtained from the U. S. agricultural census, beginning with 1930.

#### Type of Farm

Luebke, *et. al.*, classified the agriculture on the Cumberland Plateau as "very small general and part-time farming."<sup>3</sup> The extent of part-time farming is indicated by the fact that 61 per cent of the farm operators reported working off their farms in 1954, and 45 per cent reported working 100 days or more off their farms in that year. The small size of the farm is attested by the fact that the average size in 1954 was 93 acres. At that time 35 per cent of the farms in Cumberland County contained less than 30 acres each.

For many decades the trend was toward smaller and smaller farms. In 1880, the average size farm in Cumberland County was 205 acres. By 1940 it was only 62 acres. Not until 1950 did the federal census show an increase in the acreage of the average size farm on the plateau; that year it was 76 acres. By 1954, it had increased to 93 acres.

The total number of acres in the farm renders only a partial picture of the size of the farming operation. This aspect of the

3. B. H. Luebke, S. W. Atkins, and C. E. Allred, *Types of Farming in Tennessee*, (Knoxville: The University of Tennessee Agricultural Experiment Station, Bulletin No. 169, 1939), p. 79.

agriculture can better be judged in terms of the amount of cropland. In 1954, only 38 per cent of the farm land of the plateau was in crops, and only 18 per cent was in harvested crops. Many of the farms have a very small acreage of harvested cropland, the remainder of the cropland being used for pasture only. In 1949 43 per cent of the farms of Cumberland County reported less than 10 acres of harvested cropland each, 69 per cent reported less than 20 acres, and 87 per cent reported less than 50 acres so employed.

The extent of mechanization of agriculture can perhaps be measured better by the number of tractors than by any other one machine on the farm. There were few tractors on the plateau before 1940, and in that year only 2 per cent of the farms had tractors. This percentage increased to 4 in 1944, to 12 in 1950, and to 23 in 1954.

#### General Land Use

The general picture presented by the landscape of the Cumberland Plateau where one ventures far from the principal roads, and in some places even along the main highways, is still that of a forested region. This is no surprise when it is noted that, in 1954, only 11 per cent of the total land area of the region was in cropland, and less than half of this was in harvested cropland. Some increase in agricultural activity during the last twenty-five years, however, is shown by the census data. Since 1929, the percentage of farmland in cropland has risen from 28 to 38.

Some changes in area and location of non-forested land are occurring. About 20,000 acres have been cleared in Cumberland County within the past twenty-five years,<sup>4</sup> an appreciable portion of which is accounted for by the Cumberland Homesteads project. This has been compensated for to some extent by forest plantings and natural conversion of abandoned fields to forests. Because of changes in type of farming and better yields resulting from experimentation with fertilizers and new type crops, it is to be expected that some decrease in total forest area may occur as the cycle of land clearings and land reversion to forest continues.

#### The Soil Factor

A prime cause of the lack of agricultural development on the plateau is the deficiency of plant nutrients in the soils. As a result of the low productivity of the soils, this region was found to be unfavorable for agriculture by the early pioneers. Even in their virgin state, without the use of mineral fertilizers, the soils could not be profitably cultivated commercially for

4. William H. Ogden, *Forest Resources and Industries of Cumberland and Morgan Counties, Tennessee* (Norris, Tennessee: TVA, Division of Forestry Relations, 1953), p. 8.

the usual field crops, and the use of these mineral fertilizers was practically unknown by the early settlers. Thus, with the exception of subsistence cultivation, the land was left in forest. As long as an abundance of fertile land was available farther west, there was little incentive for the pioneers to develop farms on the plateau. Although lime can be supplied from beds within the region and rock phosphate from within the state at prices that are now not prohibitive, until recently delivery costs have been so high that these deficiencies have been real handicaps in this region of low cash incomes. Delivery costs were due partly to the lack of a good road system, a condition which the rural road projects have alleviated appreciably in the last twenty-five years. The introduction of high value per acre crops in recent years also assisted in increasing the use of commercial fertilizers.

### Crops

The agriculture of the plateau consists chiefly of the production of crops, although livestock and livestock products are a growing source of cash income. Corn and hay are the basic crops on the general farms. In 1954, these two crops occupied 35 per cent and 43 per cent respectively of the harvested cropland acreage. In recent years, however, other crops, particularly vegetables, are being relied upon more and more for a cash income. They have always been important for home consumption on the small subsistence farms. Now, with improved roads making markets more accessible, commercial vegetables are becoming a part of the general farming scene in many areas. As a result of the increase in importance of cash vegetable production, the trend is gradually away from a strictly subsistence to a commercial type of agriculture. Some changes in the acreage occupied by the various crops will be mentioned in the following discussion.

#### *Corn*

Corn is grown mainly as feed for livestock and food for man in this region rather than as a commercial crop. Even though it is produced primarily for consumption on the farm, in 1954 it occupied 35 per cent of the harvested cropland, a larger proportion than was occupied by any other crop excepting hay.

The percentage of harvested cropland in corn in the plateau counties approximately equals the state average, although the yield per acre on the plateau is less than that of the state. Nevertheless, corn is still the leading crop, a fact that is due mainly to its value as a food and feed crop. If the soil is properly fertilized and drought does not occur, a fair crop of corn can be grown. Most of that grown is harvested for grain. The

growing of corn for rough fodder has greatly decreased since 1929. This loss of fodder has been offset, however, by an increase in acreages of hay crops and annual legumes.

### *Hay*

Hay, the leading crop in terms of acreage, occupied 43 per cent of the harvested cropland in 1954. The most important hay crop at present is lespedeza, which has increased in acreage greatly in recent years. In Cumberland County in 1949, there was nearly as much of it as of all other kinds of hay combined.

The increased use of lime and phosphate has encouraged the growing of more legumes for hay. The growth of alfalfa, however, has been little developed. Crimson clover is increasing in popularity as a cover and green-manure crop as well as for hay and pasture. Soybean acreage is also on the increase in some sections of the plateau. Most of the hay is fed to livestock on the farms where grown, though some may be sold locally. Along with the increasing number of tractors the use of machinery for bailing hay in the field is increasing.

### *Irish Potatoes*

In the decade 1930 to 1940, the growing of potatoes, especially seed potatoes, on the plateau was promoted by experimentation and other activities. During that period the acreage was increased, but since then, market conditions and competition from other regions have discouraged growing the crop. Since 1940, the acreage devoted to potatoes has decreased greatly. This decrease has been due principally to the fact that other crops have been found to be more profitable, even though, of the major crops, only Irish potatoes produce per acre yields higher than the state average.<sup>5</sup>

Because of the presence of one specialized farm, the census statistics give a distorted picture of the importance of potato growing among the farmers of Cumberland County. The Knoxville Fertilizer Company operates a 2300-acre farm a few miles north of Crossville. Of the 1500 acres of this farm that were cultivated in 1955, potatoes occupied 300 acres. This farm harvests only two crops, potatoes and oats, and accounts for a large part of the potatoes as well as oats grown in the county. In 1955, the County Agricultural Agent of Cumberland County reported that, other than on this one farm, growing potatoes commercially was no longer important.

### *Tobacco*

Until recently, tobacco has not been considered an important crop on any part of the plateau. Acreage decreased from the turn of the century until after 1930. Following 1940, the amount

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5. Luebke, Atkins, and Allred, *op. cit.*, p. 80.

grown increased greatly, especially in Cumberland and Fentress counties, and in 1954 the crop was grown on 980 acres in plateau counties. In 1939, only 727 farms reported growing tobacco, whereas in 1954 the number had increased to 1,627 farms. The following reasons for the great increase in tobacco acreage were listed by the Cumberland County Agricultural Agent:

1. The increased price of tobacco due to the federal tobacco control program.
2. Many farmers changed from potatoes to tobacco because growing the latter was more profitable.
3. Some farmers moved to the county from TVA reservoirs areas where most had had previous experience with tobacco.
4. Formerly most people on the plateau had believed tobacco could not be grown successfully there.
5. Improvement in the availability of commercial fertilizers.

#### *Vegetables*

Since 1929, vegetable production for sale has greatly increased on the small general farms in many areas of the plateau, especially in Bledsoe, Cumberland, Fentress, and Morgan counties. Through experience, farmers on the plateau have learned that the soils of the region can be made productive and economically competitive for such high-value-per-acre crops as vegetables and tobacco. From 1929 to 1954, the land area on the plateau producing vegetables for sale increased from 987 acres to 4,963 acres. Of the latter number of acres, 2,550 were in Fentress County. An additional 719 acres were used for strawberries in 1954. Strawberry production expanded rapidly, particularly in Bledsoe, Cumberland, and Fentress counties, so that in 1954 there were 757 commercial growers on the plateau. The one-quarter million dollars worth of berries produced in that year in Cumberland County resulted in their becoming the leading cash crop there.<sup>6</sup>

Increased vegetable production led the Monticello Canning Company to establish a small cannery in Cumberland County in 1954. The chief vegetables in acreage grown in this county are green beans, followed by strawberries and pimento peppers. The green beans go mostly to large companies: Stokleys, Bush Brothers, Winter Garden, and Southern Freezers, whose plants are located outside the area.<sup>7</sup> Local canneries handle only a small part of the bean crop. The pimento peppers, however, are produced under contract with the local canning company, and their commercial production is a result of this local demand.

6. Interview with Mr. Dennis V. Patton, County Agricultural Agent of Cumberland County, April, 1956.

7. *Ibid.*

A few of the fresh strawberries go to markets outside the region, but most of the crop is fresh frozen. Other than the local establishments, freezer companies buying berries are Winter Garden, Iceland Gardens, and Southern Preserving and Freezing Company.

#### Pasture Land

Permanent pasture, other than timber land used for pasture, has always occupied a relatively small acreage on the plateau. The small amount of permanent pasture results from a number of factors. The sandy soils of the plateau, without the use of large amounts of lime and fertilizers, are not suited to the growth of grasses and legumes. Prior to 1948, most of the forested land of the county was grazed even though its carrying capacity was very low. Until recent years, a range-type livestock production was practiced. Not until 1948 was there a general fence law in Tennessee.<sup>8</sup> Before that date there were only individual county laws, but no such law had been passed in the sparsely settled Cumberland Plateau counties. The State law has eliminated much of the grazing of unfenced non-farm land. The law also led to an increase in the amount of cropland used for pasture and hay.<sup>9</sup>

#### Farm Woodland

Woodland is still an important feature of the farms of the plateau. During the past twenty-five years there has been little change in the proportion of farm land occupied in this manner. Moreover, farm woodlands have been important as grazing land, and recent figures show that this type of land use is on the increase. A major factor in this increase has been the general fence law referred to above. The fencing-in of livestock has meant that they have been restricted to the farmland.

#### Livestock and Livestock Products

Livestock on the farms of the plateau consists chiefly of cattle, swine, sheep, and chickens. Because of the nature of the farming, even in the days before the farm tractor, large numbers of draft animals were not required. Consequently horses and mules have been relatively few in number. An examination of census data for Cumberland County reveals that there the farms have averaged only about one draft animal each.

Dairying has never been a major activity on the plateau. There are some dairy farms, however, and an increasing number of farmers depend upon the sale of milk for an appreciable part of their cash incomes. The dominance of forest in the general land use, the unsuitability of the soils in their natural state for the growth of grasses, the general sparseness of the population, and, until recently, the lack of a good system of rural roads are

8. *Crossville Chronicle*, February 27, 1947, p. 1.

9. Patton, *op. cit.*

factors which have contributed to the slow development of the dairy industry.

The increase in milk sales has been accompanied by an improvement in the quality of the dairy herds. In former years upland cattle acquired most of their feed from the open range. The change from this method of production, and the accompanying change in pasturage, have been paralleled by an increase in the number of purebred animals in the dairy herds as well as in the beef herds.

TABLE I  
SELECTED FARM CHARACTERISTICS AND LAND USES  
ON THE CUMBERLAND PLATEAU<sup>a</sup>

	1929	1934	1939	1944	1949	1954
Average size of farm in acres	83	65	69	67	76	93
Per cent of farm operators working off their farms	— <sup>b</sup>	48	50	— <sup>b</sup>	56	61
Per cent of farms with tractors	— <sup>b</sup>	— <sup>b</sup>	2	4	12	23
Per cent of area in farms	27	27	27	27	30	30
Per cent of land area in cropland	7	7	7	12	13	11
Per cent of farm land in cropland	28	30	28	47	40	38
Per cent of farm land in harvested cropland	27	30	27	29	20	18
Per cent of farm land in woodland	45	51	48	53	52	54
Per cent of cropland harvested	96	98	98	62	49	50
Per cent of cropland harvested in corn	50	40	43	40	42	35
Per cent of cropland harvested in hay	33	36	43	— <sup>b</sup>	48	43

<sup>a</sup>Source: Computed from data given in the United States agricultural census for the stated years.

<sup>b</sup>Data not available.

### Summary

Some noteworthy changes in the agriculture of the plateau can be observed from this study. Corn and hay still form the basis of the cropping system on the small general farms. In recent years, however, other crops, particularly vegetables and tobacco, are becoming more important as cash crops. The kind of agriculture which prevailed in the past resulted in extremely low average cash incomes per farm family. The cash incomes are still comparatively low. Agriculture remains largely subsistence in character, although a trend is apparent toward increased commercial crop production, especially of vegetables. In the decade 1930 to 1940, an effort was made to establish the production of seed Irish potatoes, but commercial potato growing has been generally replaced by other vegetables and by tobacco. A great increase in the raising of tobacco has been brought about by a number of factors among which are especially the price support program and the replacement of potatoes with tobacco as a source of cash income. A general fence law put an end to the open-range method of cattle production.



Following this change has come improvement in both the beef and dairy herds. An increase in hay and pasture crops and a better system of crop rotation also appear to be related to the closing of the open range. Excepting on a very few farms, corn is no longer grown in the same field for more than two years in succession. Now most farmers practice a three-year or a four-year crop rotation system with corn, hay, and pasture. The increase of livestock and the development of cash production have promoted an increase in pasture acreage, better crop rotation practices, and higher land fertility levels. An increasing number of

TABLE II  
ACREAGES OF SELECTED CROPS ON CUMBERLAND FARMS<sup>a</sup>

	1929	1934	1939	1944	1949	1954
Corn for all purposes	93,480	105,394	92,574	81,066	74,113	54,863
Oats threshed	320	312	2,834	4,209	4,795	5,299
Wheat threshed	2,173	7,346	6,862	6,982	5,602	4,179
Hay, excluding annual legumes and sorghum	62,096	73,946	86,390	— <sup>b</sup>	86,203	67,952
Soybeans	7,747	5,670	6,911	8,994	7,728	6,807
Irish potatoes	5,683	6,184	6,720	6,292	4,104	1,778
Vegetables harvested for sale	987	1,188	681	1,856	3,233	4,963
Strawberries	169	— <sup>b</sup>	176	71	213	719
Tobacco	498	394	489	508	904	980

<sup>a</sup>Source: Computed from data given in the United States agricultural census for the stated years.

<sup>b</sup>Data not available.

farmers are finding employment off their farms. Previously, the average size of farm had become smaller and smaller. A reversal in this trend, begun during the decade of the 40's, is continuing. Some farmers are enlarging their holdings by buying their neighbor's land. The larger units allow for a greater use of machinery. Hence the farms become more economical operating units.

It can be seen that the major changes in the agricultural scene on the Cumberland Plateau involve a combination of changes in type of farming and improvement in agricultural practices. These changes are outgrowths of improvements in the means of transportation and communication, both within and without the region, and the developments in our technology which have been enjoyed throughout the nation. In describing the Cumberland Plateau, no longer is it sufficient merely to say that here is a region where the people are isolated, where agriculture is "backward", and where cultivation is limited to small patches of ground for subsistence purposes only.