May 25, 1966

To the Graduate Council:

I am submitting herewith a thesis written by Robert R. Lane entitled "Resource Shifts and Adjustments in Three Counties of Tennessee's Central Basin from 1860 to 1960." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agricultural Economics.

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RESOURCE SHIFTS AND ADJUSTMENTS IN THREE COUNTIES OF TENNESSEE'S CENTRAL BASIN FROM 1860 TO 1960

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

---

by

Robert R. Lane

June 1966

ACKNOWLEDGEMENT

There is one person that deserves as much, or more, credit for this thesis than I. To my wife, Betty, for her perseverance, advice, typing, encouragement and personal sacrifice I am forever indebted. She enabled me to complete this study despite the times when the task seemed insurmountable.

The writer wishes to express his indebtedness to those who made available the funds and facilities for his graduate program. To Dr. Thomas J. Whatley, Head of the Department of Agricultural Economics and Rural Sociology, a special indebtedness is expressed.

Sincere gratitude is extended to all the staff members of the Department who contributed directly or indirectly to this project. The writer wishes to express his sincere appreciation to the chairman of his graduate committee, Dr. Stanton P. Parry, and to Drs. M. B. Badenhop and Cecil E. Fuller for offering suggestions for improvements of this manuscript.

Appreciation is also extended to Dr. Robert Stark, B. B. Gracey, Lou Wallace, Charles Allred and David Moore for the personal interviews they permitted, which contributed much of the information necessary for this thesis.

To my parents and parents-in-law a debt is owed that can never be repaid. It was through their personal sacrifice and encouragement that my education was possible.

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Appreciation is also extended to the clerical staff of the Department and to Mrs. Georgia Troglen for their assistance.

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CHAPTER I

INTRODUCTION

In 1840 Tennessee was in first place among all states in number of swine and mules and in the production of corn. Soon after Tennessee's era of glory, other states wealthier in agricultural resources started to forge ahead. Tennessee's position of leadership dwindled, but the state has remained an important contributor to the nation's agricultural economy.

Since 1860 the changes in physical volume of agricultural output have been dynamic, both in total and in various crop and livestock enterprises. Shifts in the location of production within the state have also taken place. In an effort to increase economic efficiency and remain competitive, Tennessee farmers have done four things:

1. Changed size of operation.
2. Changed crop and/or livestock enterprises and combinations of these.
3. Relocated their farming operations to a more favorable geographic area.
4. Left farming entirely.

I. THE PROBLEM

In Tennessee during the era of 1860 to 1960, change became one of the more persistent forces in society. The factors influencing

change have not yet been fully explained, and the economic aspects have not been emphasized. Many of the changes or adjustments and the outlook for the future are not so apparent unless data for a long period of time are studied.

Several studies have been made of the agricultural resources of the Central Basin Counties as they presently exist, but no previous program has attempted to document historically the shifts in resource use. This economic history of three selected counties of the Central Basin should provide insight into why greater shifts took place in the Tennessee agricultural economy and provide a better understanding of Tennessee agriculture as well as insight into what may occur. The study is organized historically and emphasizes the economic aspects of selected changes that occur from 1860 to 1960.

II. OBJECTIVES

The objectives of this study are: (1) To document production and resource allocation changes and patterns from 1860 to 1960 for Maury, Rutherford and Williamson, three contigious Central Basin Counties (Figure 1); (2) To search out, over time, the factors influencing change; and (3) To indicate the effects resource shifts and adjustments have had on the ability of the selected area and the Central Basin to compete with other regions in agricultural production.

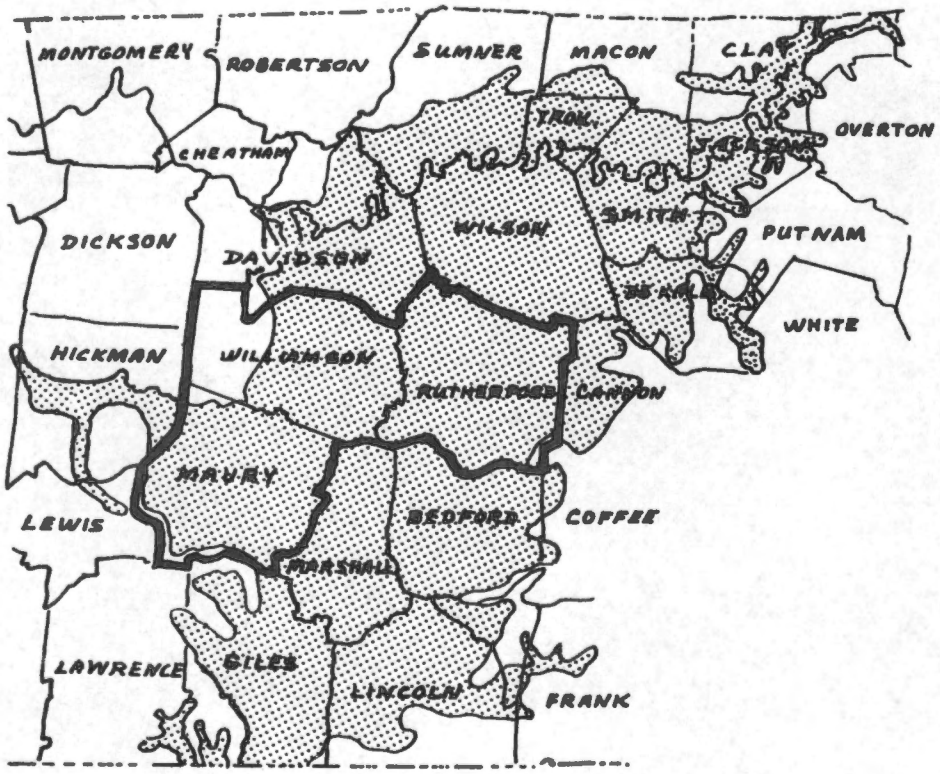


Figure 1. Selected study counties in the Tennessee Central Basin. (From The Fortieth Biennial Report, Tennessee Department of Agriculture, 1954.)

III. JUSTIFICATION OF THE STUDY

Shortly before and for sometime after the Civil War, the Central Basin was referred to as the garden spot of Tennessee. Specialization in certain crop and livestock production resulted in the Basin being well represented on lists ranking the top ten producing counties of Tennessee. For example, in 1860 the Central Basin contributed 40 percent of Tennessee's total cotton production. The percentage declined to 25 percent in 1870, but Maury and Rutherford, two of the study counties, remained among the top ten cotton-producing counties.[1] Corn, small grains, tobacco and various livestock endeavors also received similar emphasis and rank during the era of specialization.

In organizing, analyzing and comparing the data from 1860 to 1960, several resource shifts may be seen developing. The selected area remained competitive in agriculture, but the emphasis shifted from crops to livestock.

Why certain adjustments were made in preference to others and the many factors which influenced the decisions for change have never been fully documented. Little is also known of the alternative uses made of agricultural resources and the effect these changes had on the agricultural and non-agricultural sectors of the Central Basin's economy. Through illustrations of the operation of the law of comparative

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[1]Charles E. Allred and B. D. Raskopf, Economic History of Cotton Production in Tennessee, Monograph 130 (Knoxville: Tennessee Agricultural Experiment Station, The University of Tennessee, 1941), p. 6.

advantage, the resource shifts can better be understood. Concentrating an analysis on the selected area should provide a basis for judging whether the Central Basin was better able to compete with other regions by making changes. In addition, by analyzing a detailed historical study of a relatively small geographic area and comparing the trends of the selected area with those of the state, insight into why similar and larger shifts and adjustments were experienced by the total Tennessee agricultural economy can be obtained.

IV. PROCEDURE

Initially, several historical volumes and books describing Tennessee agriculture were reviewed. These sources provided the background information necessary to become generally familiar with Tennessee history and the specialized agricultural history of the selected area.

In order to provide useful and informative data, the basic source was the Agricultural Census Reports. The introductions to the census reports provided changes in definition, sampling procedures used, and general agricultural situation reports. Many of the reasons for possible numerical differences from the previous censuses were apparent after reading the introductions.

The relevant data were then gathered for the 1860-1960 era and plotted as a time series. The data indicated certain trends, and since the solution to why certain trends developed was not evident, historical records and authoritative residents of the selected area were useful.

Often a definite answer was impossible, and only a calculated assumption based on available information could be made.

The data were then organized into an economic history of the area by census periods with three major divisions. The first major division spanned 1860-1900, the agricultural age. The second division covered the era from 1900-1940 and emphasized the problems of agriculture in an industrial economy. The last major division, 1940-1960, was used to summarize and formulate the total effects previous resource changes had on the ability of the Central Basin to compete in an era of modern agriculture.

V. PHYSICAL CHARACTERISTICS OF THE SELECTED AREA

General Description and Location

The study area (Figure 1, page 3) is geographically located in the west-central portion of the Basin. The area is L-shaped in form and contains approximately 1,837 square miles.

Rutherford County, the largest of the selected counties, is roughly square in form, containing about 630 square miles. It lies in the central part of the Basin and is the center-most county in the state. The Stones River drains the county, and Murfreesboro is the county seat.

Maury, the second largest of the selected counties, is generally pentagonal in form and contains about 614 square miles. The county is bounded on the south, west and northwest by a complete semi-circle of

bold highland. Columbia, the county seat, is located next to the Duck River.

Williamson County is roughly a rectangular area of about 593 square miles. A small portion, the western end of the county, is on the Highland Rim, while the remainder lies within the Basin. Great ridges transverse many parts of the county, and high hills are rarely out of view. The Harpeth River drains the hilly surfaced area, and Franklin is the county seat.

In general, the terrain of the selected study area is undulating but level tracts are frequently found near the rivers. Most of the area was originally covered with cane and cedar glades. The cedar glades are estimated to have covered about 300 square miles of the Basin at one time and are the characteristic feature of the Basin.[2]

The Basin is frequently referred to as the phosphatic-limestone-bluegrass area. The phosphate deposits are among the most extensive in the United States and provided the major source of phosphate until the Florida deposits became operative. The only other area geologically similar to the Basin is the famous bluegrass region of Kentucky. The two similar areas comprise a total of 5,770,000 acres with 73 percent or 4,193,000 acres located in the Basin.[3]

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[2]James M. Safford, Cotton Production of the State of Tennessee, Tennessee Bureau of Agriculture (Washington: Government Printing Office, 1884), pp. 28-29.

[3]Tennessee Department of Agriculture, Makers of Millions, Book 4 (Nashville: Tennessee Department of Agriculture, 1951), p. 5.

The topography of the study area was formed by stream erosion on the underlain limestone formations. The limestone is principally of the Trenton, or Lebanon and Nashville, series. It is mainly blue and lies in horizontal sheets. Occasionally beds of shale and some gray and red limestone occur. The same erosion process that formed the selected area also eroded the Basin and the Highland Rim. The entire area (selected area, Basin and Highland Rim) was at one time a dome-shaped mass of rock (ancient plain) with an apex approximately 1,200 to 1,300 feet above the present site of Rutherford County. The differences in elevation between the Highland Rim and the selected area and within the Basin were caused by a less rapid erosion of rock.[4]

Soils

It can be stated that geological formations caused the differences in soil and topography. Soils are formed by the weathering of underlying parent rock materials. The differences in soil types and fertility are due largely to the character and composition of these parent materials.

The soils found in the selected area, topography and stony land permitting, are well suited to the production of all the leading crops. The selected counties contain deep and fertile limestone soils and also shallow, infertile, glady soils. As a rule, some of the most productive soils of Tennessee are located in the selected area.[5]

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[4]Charles E. Allred, S. W. Atkins, and others, Human and Physical Resources of Tennessee (Knoxville: Tennessee Agricultural Experiment Station, The University of Tennessee, 1939), pp. 12-14.

[5]Safford, op. cit., pp. 28-35.

There are three soil associations recognized within the area and the Basin, and these are: (1) Talbott-Haggerstown-Stony Land (number 10 on Figure 2); (2) Baxter-Dellrose-Mimosa (number 8 on Figure 2); and (3) Maury-Mimosa-Stony Land (number 9 on Figure 2). A soil association is a group of different soils in a repeating pattern and is generally named for the predominant soils. The soils within the association differ in characteristics and behavior but present a pattern. It should be emphasized that the difference in soils within any one of the associations found in the selected area is almost as great as if the soils were compared to soils found in distant associations. The point being made is that an association refers more to a pattern of repetition than to a group of similar soils.

Differences in soils often influence the ways a soil can be used and what is produced. A general description of the soil associations follows:

1. The Talbott-Haggerstown-Stony Land association is found in Rutherford County and the central portion of the Basin. The distinction between this association and the other two associations found in the selected area establishes what is frequently known as the Inner and Outer Basin. The soils of this association form the Inner Basin. The land is undulating to gently rolling with large parts occupied by stony land. The shallowness of the soil and bedrock beneath hinders growth of deep rooted foilage and, where depth of soil permits, productivity is moderate to high. The shallow soils of this association support the

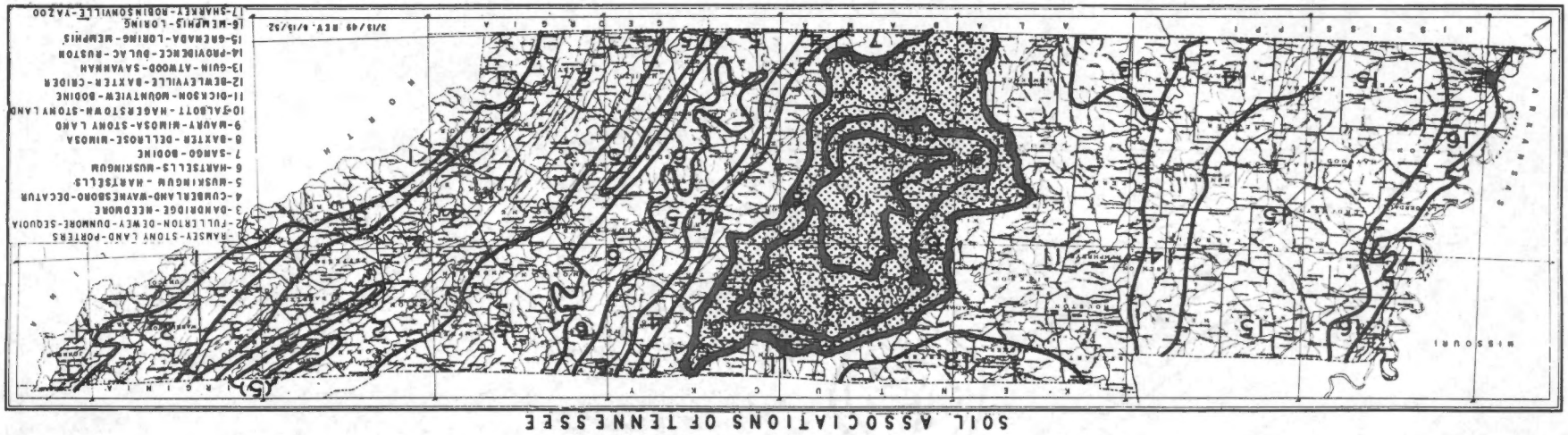


Figure 2. Soil associations in the study area. (From The University of Tennessee Agronomy Department working in cooperation with the United States Soil Conservation Service, 1952.)

cedars that are characteristic of the basin, and frequently tilled fields stop exactly where the shallow cedar growth begins. About one-third of the area is too stony for tilled crops.[6]

2. The Baxter-Dellrose-Mimosa association is found in Maury, Williamson and the more hilly parts of the Outer Central Basin. Cherty, clay and stony land soils are typical, and intermixed with these are some areas of terrace and bottom soils. The topography and stony land limit the areas suitable for crops, and approximately half is not suited for tilled crops. The area suitable for crop production is moderately high in natural fertility.[7]

3. The Maury-Mimosa-Stony Land association is found in Maury, Williamson and the smoother portion of the Outer Central Basin. The soils are high in phosphorous content and fertility is moderate. The shallowness to bedrock is not as critical as in the Inner Basin soils. Again topography and stony land appear to be the limiting factors.[8]

Climate

In general, the differences between average temperature is slight within the entire Basin. Almost all of the selected area has a mean annual temperature range of from 48 to 50 degrees Fahrenheit. The selected area has an average of 60 days with freezing temperatures,

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[6]Joe A. Martin and B. H. Lubke, Types of Farming in Tennessee, Bulletin 311 (Knoxville: Tennessee Agricultural Experiment Station, The University of Tennessee, 1960), p. 18.

[7]Ibid.

[8]Ibid.

and this can be compared with the 120 to 180 days of freezing temperatures averaged by states north of Missouri. Generally, the annual number of days continuously below freezing average between 5 and 10.[9]

Primarily of importance to agriculture is the amount of time between the last killing frost in the spring and the first killing frost in the fall (frost-free days). In the selected area the period averaged 190 to 200 days.

The selected area lies in the humid portion of the United States, and a large part of the annual rainfall, about 50 inches, occurs during the growing season. Autumn is driest, with about 9.5 inches, and seasonal precipitation on the whole is favorable. There is normally an adequate supply of moisture for germination and growth of crops in the spring and fall and smaller quantity during the autumn harvest.[10]

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[9]United States Weather Bureau, Climatological Data for Tennessee: 1962. Vol. 67, No. 1 (Washington: Government Printing Office, 1962), p. 156.

[10]Ibid., p. 157.

CHAPTER II

THE AGE OF AGRICULTURE: 1860 TO 1900

I. INTRODUCTION

Shortly after 1860, the selected area experienced a decline in agriculture, and the cause is generally attributed to the great American tragedy, the Civil War. The changes resulting from this war overshadow the physical decline and social decay prior to 1860. Valuable insight into and a better understanding of the chaos and repercussions of the Civil War were gained by a brief examination of pre-1860 history of the selected area.

Physical Decline Prior to 1860

Physical decline prior to 1860 resulted from the decreasing productivity of soils. The continuous planting in the selected area of row crops (corn, tobacco and cotton) had exhausted the soil or allowed its native fertility to be washed away and caused many barren waste areas.[1] Lack of motive rather than the lack of knowledge seemed to be the cause, since Grey mentioned that as early as 1834, references were made in The Tennessee Farmer concerning improvement of worn lands by the use of lime, green manures, drainage and different methods of

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[1]United States Bureau of the Census, Eighth Census of the United States: 1860. Agriculture, Vol. I (Washington: Government Printing Office, 1864), p. ix.

plowing.[2] Apparently the vast areas open for settlement further west were more attractive than fertility management in the study area.

Social Decay Prior to 1860

Social decay prior to 1860 developed from the slave trade between the selected area and the emerging cotton regions to the west and south. The original North Carolina and Virginia settlers had driven in their livestock and brought refinement, culture and slaves into the area. The slaves furnished an abundance of cheap labor for the large tracts of land which were planted in cotton.

The opening of the Mississippi lands caused many of the wealthy planters of the study area to migrate with their slaves and buy land in Mississippi and Alabama. The opening of new plantations in the "El Dorado" for cotton planters required an increasing number of slaves. The possibility of the selected area furnishing slaves developed, and as the slave population increased in the area, more surplus Negroes were sent to the newer plantations. The profitability of selling slaves as a regular business started when cotton from the study area failed to bring more than $.04 to $.07 per pound on the Memphis market and a large number of the slaves were not needed to produce the crops replacing cotton.[3]

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[2]Lewis C. Grey, History of Agriculture in the Southern United States, Vol. II (Washington: Carnegie Institute, 1933), pp. 800-808.

[3]J. B. Killebrew, Introduction to the Resources of Tennessee, Tennessee Bureau of Agriculture (Nashville: Tavel, Eastman and Howell, 1874), pp. 831-833.

The geographic nearness of the newly emerging cotton regions to the main cotton mart at New Orleans almost resulted in a monopoly in cotton production and literally forced cotton out of the study area. This area then developed into one of the more productive corn, hemp and swine regions in the state, and the production changes reduced the acreage planted in cash crops. Land withdrawn from crop production was frequently seeded to grass, and it was first noted in 1840 that the selected area was following the Kentucky bluegrass region by substituting a grazing economy for the production of cotton.[4] The influence of high transportation costs, low prices for cotton and physical decline of soils was instrumental in stimulating the shift away from cotton production in this area.

The land slowly removed from cotton production often shifted to corn production, but clover, timothy and rye were also introduced into the cropping system. Frequently, bluegrass pastures were established and purebred livestock were imported from Kentucky and also from Europe.

Effects of the Civil War

The Civil War overshadows any changes in resource allocation prior to 1860. The war settled only a constitutional question, and the real tragedy lay not so much in the deaths and injuries as in the legacy of injustice it bequeathed. The selected area's trade arrangements with the cotton regions were dissolved by the war, and this

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[4]Grey, op. cit., pp. 878-879.

shattered the economy. Landless emancipation left Negroes without an independent source of livelihood and the farmers without compensation for the loss of their chattels.[5]

Slaves were the chief form of capital in the selected area, and in 1860 the area had a slave population of about 50,000. This number of slaves represented the largest concentration of slaves in Tennessee. The granting of freedom to so many definitely complicated a confused situation.

The full impact of the Civil War was experienced in the selected area. Some of the bloodiest battles were fought there, causing widespread destruction and devastation. It was reported, for example, that from Murfreesboro for a distance of thirty miles, all one could see was wild, wide, dreary waste. The fences were burned down, fields lay in ashes and only the walls of splendid mansions remained. The livestock had been stolen, confiscated, driven off or slaughtered. The horrors of war and the problems of economic recovery were complicated and perpetuated by cruelty and stupidity.[6]

II. PERIOD FROM 1860 TO 1870

Introduction

In the Censuses of 1860 and 1870, farm was defined as any holding of three acres of more, and an establishment of less than three

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[5]Ross M. Robertson, History of the American Economy (second edition; New York and Burlingame: Harcourt, Brace and World, Inc., 1964), pp. 247-249.

[6]Carlton C. Sims (ed.), A History of Rutherford County (Murfreesboro, Tennessee: Carlton C. Sims, 1947), p. 44.

acres was included if $500 worth of produce from it had been sold during the census year ending June first. A farm was either owned or leased by one man and cultivated under his care.[7] The selected area had more land in farms in 1860 than in any census period since (Table I). The average amount of improved land (cleared land used for grazing, grass, tillage or lying fallow) per farm for the counties was: Maury, 96.9 acres; Rutherford, 112.2 acres; and Williamson, 121.6 acres. These figures exceed the state average of 87.3 acres and give some indication of how advanced the study area was in 1860.[8]

The average size of farms in 1860 for the selected area exceeded 216 acres per farm (Table I), and the state average was about 265 acres per farm. The size of farms in the selected area was apparently restricted by the availability of farm land and the high cash value per acre, which in 1860 was estimated to be as follows: Maury, $32; Rutherford, $33; and Williamson, $29. These reported cash values resulted in the counties being ranked second, third and sixth in the state on the basis of cash value and well above the state average of $13 per acre.[9]

General Agricultural Situation from 1860 to 1870

The usefulness of the Census of 1870 is questionable, since the Census of 1880 frequently referred to the defectiveness of agricultural

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[7]United States Bureau of the Census, Ninth Census of the United States: 1870. Agriculture, Vol. I (Washington: Government Printing Office, 1872), pp. iv-v.

[8]Charles E. Allred, S. W. Atkins, and P. E. Strickler, Development of Agriculture in Tennessee to 1870 (Knoxville: Tennessee Agricultural Experiment Station, The University of Tennessee, 1935), p. 19.

[9]Ibid., p. 29.

TABLE I

TOTAL POPULATION AND SPECIFIED AGRICULTURAL CHARACTERISTICS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1860-1900

Item	County	Year 1860	1870	1880	1890	1900
Total Population	Maury	32,498	36,289	39,904	38,112	42,703
	Rutherford	27,918	33,289	36,741	35,097	33,543
	Williamson	23,827	25,328	28,313	26,321	26,429
Number of Farms[a]	Maury	2,151	3,061	3,724	3,183	3,945
	Rutherford	1,644	2,011	3,967	3,266	4,355
	Williamson	1,417	2,467	3,064	2,761	3,152
Land in Farms (Acres)	Maury	464,922	196,242[b]	375,714	363,623	368,104
	Rutherford	404,221	181,447[b]	359,410	366,951	361,299
	Williamson	363,276	155,471[b]	333,352	318,043	340,886
Average Farm Size (Acres)	Maury	216.1	121.0	101	114.2	93.2
	Rutherford	245.9	170.6	91	112.4	83.3
	Williamson	256.4	127.1	109	115.2	115.7
Proportion of Land in Farms	Maury	--	--	--	--	98.8
	Rutherford	--	--	--	--	93.3
	Williamson	--	--	--	--	97.3

[a]Censuses of 1860, 1870, 1880, and 1890 defined a farm as consisting of three or more acres, or establishments of less than three acres producing $500 worth of produce in one year. The Census of 1900 omitted the $500 requirement and establishments of less than three acres were classified as farms if they required the constant service of an operator or manager.

[b]Figures on land in farms (acres) for 1870 include only improved land.

SOURCES: United States Bureau of the Census, Eighth through Twelfth Censuses of the United States: 1860-1900. Population and Agriculture (Washington: Government Printing Office).

statistics for 1870. Farms were apparently omitted (especially in the South), and this resulted in erroneous statistics.[10] Even with the possibility that some farms were omitted, the most noticeable change in the study area from 1860 to 1870 was the increase in number of farms (Table I, page 18). The shift from slave labor to paid labor resulted in the division of farms. Many of the former slaves remained on the farms as unproductive units, and this resulted in economic pressure stemming from an ineffective labor force whose presence resulted in a reduction of the average size of farms (Table I, page 18).[11] Historical sources also indicated that the large actual and relative increase in the number of farms resulted because the social importance of agriculture was commonly recognized and justifiably reflected in the agricultural statistics.[12]

Crop Situation from 1859 to 1869

The obvious difficulty in obtaining crop reports for the census year ending June first resulted in the Censuses of 1860 and 1870 enumerating on the crop year which preceded the census year.[13] From 1859

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[10]United States Bureau of the Census, Tenth Census of the United States: 1880. Agriculture, Vol. III (Washington: Government Printing Office, 1883), pp. i-xv.

[11]Opinion expressed by B. B. Gracey, retired professor of agriculture at Middle Tennessee State University, in a personal interview, Murfreesboro, April 14, 1966.

[12]Opinion expressed by Lou Wallace, agricultural historian and editor of Tennessee's Biennial Reports, in a personal interview, Nashville, April 13, 1966.

[13]Eighth Census of the United States: 1860. Agriculture, op. cit., pp. 132-139; and Ninth Census of the United States: 1870. Agriculture, op. cit., pp. 242-249.

to 1869, there was a noticeable increase in cotton and a sharp decline in corn production in the selected area, as shown in Table II. The increase in cotton production apparently resulted from the high post-war prices of $1.89 per pound in the New York market.[14] The cotton supply had been limited during the war, and destruction hindered the production of several cropping seasons. The resulting equilibrium between supply and demand caused prices to increase. The availability of a labor force, trained in cotton production, permitted the farmers of the selected area to shift back to cotton production, hoping to generate capital for needed farm improvements.[15]

The decline in corn production apparently resulted from pressure by the emerging corn-growing regions. The rich, virgin soils of the midwestern states grew corn more efficiently than did the depleted soils of the study area. Even the development of railroads in the study area (for example, the Nashville and Chattanooga Line), which connected the major agricultural production centers with the eastern markets, failed to overcome the physical disadvantages. The favorable corn prices from 1853 to 1860 had hastened the entry of the midwestern states into corn production, and the emerging Corn Belt was also better able to use new technology; improved machines were more adaptable to the prairie sods of the Corn Belt. The rapid, internal development of

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[14]Charles E. Allred and B. D. Raskopf, Economic History of Cotton Production in Tennessee, Monograph 130 (Knoxville: Tennessee Agricultural Experiment Station, The University of Tennessee, 1941), p. 49.

[15]Grey, op. cit., p. 810.

TABLE II

PRODUCTION OF SPECIFIED CROPS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1860-1900

Item	County	Year[a] 1859	1869	1879	1889	1899
Cotton (Bales)	Maury	5,610	9,367	8,912	1,677	180
	Rutherford	9,783	8,412	12,414	4,770	4,148
	Williamson	2,272	3,815	4,538	861	29
Corn (Bushels)	Maury	2,174,653	1,449,935	2,177,071	2,363,444	1,577,460
	Rutherford	1,561,158	867,443	1,590,855	1,925,083	1,465,300
	Williamson	1,533,636	1,010,443	1,439,445	1,291,878	1,237,570
Wheat (Bushels)	Maury	103,719	200,684	271,592	346,716	630,660
	Rutherford	150,401	174,745	172,997	270,937	269,510
	Williamson	8,224	227,294	315,966	527,615	686,510
Oats (Bushels)	Maury	672	--	6,270	4,836	1,860
	Rutherford	2,163	--	590	1,177	50
	Williamson	1,848	--	499	3,377	2,260

[a]Due to the obvious difficulty in obtaining crop reports for the year ending on June first, the Censuses (1860 to 1900) enumerate on the crop year preceding the census year.

SOURCES: United States Bureau of the Census, Eighth through Twelfth Censuses of the United States: 1860-1900. Agriculture (Washington: Government Printing Office).

transportation linked the new corn-producing region to the population centers of the East. The Civil War probably stimulated the development of northern agriculture since agricultural supplies from the South were terminated during the war, and another dependable source had to be encouraged into the production of staple products.[16]

The large reduction in livestock numbers, resulting from the Civil War, was also associated with a decrease in corn production in the study area. Corn, no longer needed to feed large herds of swine and cattle, simply was not planted. The decision not to plant saved labor and seed costs.[17]

The production of cereal crops increased in the selected area from 1859 to 1869 (Table II, page 21). Apparently the emphasis placed on shifting from row crops prior to and during the Civil War influenced the farmers of the area. County fairs had paid premiums in the late 1850's for high yields of wheat, and respected agricultural authorities stressed the need for exploring the small grain market, especially since high quality wheat could be grown in the area.[18]

The flour manufactured from the Tennessee wheat commanded a favorable price in the markets. There was a peculiarity in the flour which enabled it to resist dampness and remain sweet and fresh. It also had a capacity for absorbing more water and retaining it in the baking process, giving a greater number of pounds of bread for a given number

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[16] Ibid., p. 812.

[17] Wallace, loc. cit.

[18] Ibid.

of pounds of wheat. Since the wheat grown in Tennessee matured approximately a month earlier than that grown in northern areas, it received favorable prices at the market places.[19]

Crop production from 1859 to 1869 in the selected area indicated several changes. The influences of climatic conditions and other accidents of nature are not so apparent since acreages of crops were not reported. If the study area had followed the agricultural pattern exhibited by most of the South during the war, a diversification of agricultural production should have developed. If the pattern continued after the war, decreases in corn acreage and increases in wheat that were observed would be quite understandable. Equally understandable was the increased cotton acreage since a profitable cash crop was definitely needed to finance the rebuilding effort.

It appeared that the favorable position secured by northern agricultural areas during the war discouraged and prevented the farmers of the study area from competing at eastern markets. The increased production of feed and food grains by other areas caused some crop prices to decline and probably encouraged many farmers of the selected area to reduce total cropland acreage and concentrate on replenishing lost livestock numbers and growing cotton.

Livestock Situation from 1860 to 1870

Livestock reports are based on the livestock on farms as of June first. Livestock owned, but housed off the farm or in transit to the

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[19]Killebrew, op. cit., pp. 96-97.

farm, were enumerated in the Censuses as livestock on the farm.[20] The great decline in livestock is not apparent from the Census of 1870. The most noticeable changes indicated by Table III are in swine and workstock numbers. Apparently, Rutherford County experienced a large decline in total cattle numbers, and it was surprising that the other counties did not exhibit a similar change. It appears that Williamson and Maury Counties had either replaced some of their livestock by 1870 or their war losses were not as great.

Horses and mules apparently declined because breeding stock had been removed during the war. The major pre-war market (furnishing the cotton regions with work animals) was disorganized due to the division of the larger plantations. Furthermore, the number of horses and mules one man with limited labor could handle differed greatly from the number of animals needed by planters with many slaves. Forced into hiring laborers to work the fields and tend the livestock, the farmers of the selected area and of the other cotton regions could not afford to buy, raise or keep the previous number of work animals.[21] The war costs restricted available capital.

The decline in swine numbers shown in Table III was large in the selected area and reflected the loss of southern markets. In the cotton regions, corn and bacon (staples) were formerly demanded, and the

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[20]United States Bureau of the Census, Eighth Census of the United States: 1860. Agriculture, op. cit., pp. 132-139; and Ninth Census of the United States: 1870. Agriculture, op. cit., pp. 242-249.

[21]Wallace, loc. cit.

TABLE III

NUMBERS OF SPECIFIED LIVESTOCK ON FARMS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1860-1900

Item	County	Year[a] 1860	1870	1880	1890	1900
Cattle[b] (Number)	Maury	17,660	17,135	15,301	20,067	18,910
	Rutherford	18,688	13,550	16,427	19,845	19,615
	Williamson	14,206	11,669	12,829	14,709	15,002
Cattle, Primarily Dairy (Number)	Maury	7,446	6,735	6,280	7,417	6,282
	Rutherford	6,249	5,862	6,725	7,279	6,968
	Williamson	5,249	5,060	5,152	5,921	5,728
Swine (Number)	Maury	97,673	53,214	53,851	50,957	37,267
	Rutherford	64,877	33,376	45,775	47,800	37,091
	Williamson	61,749	41,703	43,132	37,437	26,672
Sheep (Number)	Maury	21,181	21,330	19,066	12,567	13,193
	Rutherford	23,133	17,183	14,481	12,521	13,815
	Williamson	19,142	15,226	15,809	11,871	11,214
Horses and Mules (Number)	Maury	20,245[c]	13,810[c]	15,999[c]	19,912	17,037
	Rutherford	14,656[c]	11,446[c]	13,944[c]	15,625	16,962
	Williamson	16,565[c]	10,315[c]	11,042[c]	12,811	13,855

[a]Livestock reports are for the census year ending June first and represent livestock on farms. Livestock owned but housed off the farm or in transit was also enumerated in the Census as on the farm.

[b]Total cattle number includes dairy and beef (neat) cattle.

[c]Figures for horses and mules also include asses from 1860 to 1880.

SOURCES: United States Bureau of the Census, Eighth through Twelfth Censuses of the United States: 1860-1900. Agriculture (Washington: Government Printing Office).

selected area's geographic nearness gave it an advantage over areas farther north. The selected area's economy relied heavily on supplying the staples, and production was shifted to meet the growing market which the Civil War had destroyed. Another factor causing the early build up of the swine industry in the selected area was the nearness of Cincinnati (porkopolis). Farmers reaped profits by driving droves of swine to the market prior to the war, but the emerging swine industry of the Midwest during and shortly after the war lessened the geographic advantage the study area once held. The rapidly developing transportation facilities and the elimination of the southern supply during the Civil War permitted the Midwest to supply almost the entire northern and eastern swine market and practically eliminated the selected area's ability to compete after the war.[22]

It is evident that the loss of swine and cattle during the war years and the decline in market advantage probably caused some of the reduction in corn production, since much of the corn had been used to feed livestock.

The sheep industry remained relatively stable in the selected area (Table III, page 25) and even increased slightly in the state. The influence on the sheep industry of Mark Robertson Cockrill, a resident of Davidson County, probably was a prime factor. Cockrill won the top premium in 1851 at the World's Fair in London. He devoted his life to improvement and perfection of the wool-growing interests in

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[22] Ibid.

the State of Tennessee and especially in the Central Basin.[23]

Most of the agricultural adjustment from 1860 to 1870 resulted from the Civil War, but the hardships encountered by competing with the emerging western farming areas forced the farmers of the selected area to adopt technical methods and eliminate waste. The war losses in livestock encouraged a search for new breeds and bloodlines. The breeds brought into the study area by the early settlers (accidents of origin) experienced an upgrading and a change for the better.[24]

III. PERIOD FROM 1870 TO 1880

Introduction

In 1870 greenbacks were still the common currency and below the par value of gold. The variations in value and changing from reporting on a paper basis to a gold basis reduced total values by about 20 percent. Costs in general were high, and 1870 is often referred to as the starting period for post-war inflation.[25]

The farmers of the selected area advocated public enterprise and internal development, since agricultural products were more easily carried over macadamized roads and railroads. Transporting corn to

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[23]Tennessee Department of Agriculture, Makers of Millions, Book No. 2 (Nashville: Tennessee Department of Agriculture, 1951), pp. 1-10.

[24]Wallace, loc. cit.

[25]Tennessee Department of Agriculture, "Farming and Progress," The Thirty-seventh Biennial Report: 1947-1948 (Nashville: Tennessee Department of Agriculture, 1948), p. 308.

markets 160 miles away in wagons over dirt roads and selling it for $24.75 per ton resulted in little profit, but, by using railroads to transport the corn the same distance at a cost of $2.40 per ton, a larger profit could be realized.[26]

The selected area's nearness to Nashville permitted the area to market agricultural products in the 1870's in a city served by 12 turnpikes, 6 railroads and the navigable Cumberland River. Maury County was serviced by the Nashville and Decatur Railroad, which was reportedly one of the best lines ever built. Rutherford County, in addition to 11 turnpikes, had the Nashville, Chattanooga and St. Louis Railroad, which was the main trunk line in Tennessee. Williamson County had seven turnpikes and was traversed by the Louisville, Nashville and Great Southern Railroad in 1870. All of the turnpikes and railroad lines interconnected and greatly improved transportation facilities.[27]

General Agricultural Situation from 1870 to 1880

The influence of Nashville from 1870 to 1880 started to affect the selected area. The capital served as the principal market, and all roads (turnpikes) seemed to lead to Nashville. The rapidly expanding railroad lines served the selected area, but the "influence" of Nashville interests retarded the growth somewhat.[28]

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[26]Killebrew, op. cit., pp. 365-368.

[27]Ibid., pp. 305-332.

[28]Tennessee Department of Agriculture, "Farming and Progress," The Thirty-seventh Biennial Report: 1947-1948, op. cit., pp. 307-309.

There seemed to be an awareness among those engaged in agriculture of the many problems facing the farmer, during the period from 1870 to 1880. Agricultural interests in Tennessee were probably promoted and influenced most through the work of J. B. Killebrew. His published books were authoritative, and the basic data reported informed Tennesseans about their state and its resources. Killebrew headed the State Bureau of Agriculture from 1872 to 1881, and was the first Department Head since the Civil War. He was instrumental in getting the elementary principles of agriculture added to the school curriculum of studies in 1873.[29]

The primary source of agricultural information in the Central Basin was the diffusion of agricultural knowledge through newspapers. The news media attempted to inform farmers on what to plant, how to plow and when to harvest. The dangers resulting from not doing the job right were illustrated, and the farmers were informed of the newest labor-saving inventions.[30]

The right direction was often indicated, and a policy of soil improvement was advocated by the editors. The items stressed most were: (1) rotation of crops to increase fertility, (2) raising more livestock and grass but fewer acres of row crops, and (3) improvement of worn land by deep plowing.[31]

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[29]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854-1954," The Fortieth Biennial Report: 1952-1954 (Nashville: Tennessee Department of Agriculture, 1954), pp. 214-217.

[30]News item in The [Nashville] Rural Sun, December 18, 1873.

[31]News item in The [Nashville] Rural Sun, June 26, 1873.

The Agricultural College at Knoxville was often the target of dissenting newspaper editors of the Central Basin. They openly expressed dissatisfaction (especially with the method used for disseminating knowledge to farmers) and considered the entire staff as stagnant and doing little to aid farmers.[32]

The National Grange (Patrons of Husbandry) was active in the selected area, and through its secret and social functions members were bound together. Common interests and the need for general protection resulted in the Grange's attempt to fight the monopoly interests that oppressed agriculture. Methods were organized to: (1) procure and disseminate crop information, (2) purchase and exchange seeds, cattle, labor and farm implements, and (3) make members aware of all items relative to demand, supply, price, markets and transportation.[33]

One of the most noticeable trends in the selected area continued to be the increase in the number of farms and the decrease in farm size (Table I, page 18). The census reporters used the same definition for a farm; therefore, a change in definition did not cause the increase. It apparently stemmed from the financial panic of 1873 (Black Friday) which caused tremendous economic pressures on the population of the selected area and forced many depressed farmers to sell land to the many who returned to farming.

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[32]Editorial in The [Nashville] Rural Sun, February 27, 1879; and news item in the Herald and Mail [Columbia], August 27, 1880.

[33]News item in The [Nashville] Rural Sun, October 23, 1873.

Crop Situation from 1869 to 1879

The Census of 1880 reported on the acreage of crops for the first time in the history of the Census. The Superintendent of the Census, Francis Walker, commented:

> Were an intelligent statistician to be asked to make his choice between the statistics of the acreage of the several crops, and the statistics of their yield for a given year, he would prefer the former, since the acreage tells the real story as to the extension of a given crop while the yield in any one year is influenced by accidents or by conditions peculiar to that year.[34]

In an effort to overcome high prices (inflation), the farmers of the selected area increased the production of either row or cereal crops, as indicated by Table II, page 21. The most evident change was the re-emphasizing of corn production. Maury and Rutherford Counties nearly doubled their production from the previous census period, and Williamson County experienced an increase. For the first time since 1859, Maury County exceeded 2,000,000 bushels, and the acreage planted in corn was reported at 85,496 acres (Table IV).

Some of the increase in corn production stemmed from the increasing demand from the reactivated cotton regions. The favorable prices of cotton, when compared with prices received for other commodities, induced more farmers in the cotton region to plant cotton. The increasing labor force required more corn (staple), and Tennessee's geographic nearness resulted in an advantage over states further north.

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[34]United States Bureau of the Census, Tenth Census of the United States: 1880. Agriculture, op. cit., pp. vii-viii.

TABLE IV

ACREAGE OF SPECIFIED CROPS, IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1880-1900

Item	County	Year[a] 1879	1889	1899
Cotton	Maury	21,748	15,150	498
	Rutherford	32,657	25,025	12,494
	Williamson	11,859	5,284	103
Corn (Harvested Grain)	Maury	85,496	82,093	80,611
	Rutherford	74,753	71,427	90,932
	Williamson	61,122	52,179	62,094
Tobacco	Maury	72	25	32
	Rutherford	47	23	46
	Williamson	197	265	242
Wheat	Maury	43,510	26,711	54,843
	Rutherford	29,250	24,952	30,435
	Williamson	39,685	38,460	56,756
Oats	Maury	6,068	14,642	7,644
	Rutherford	6,482	10,668	4,376
	Williamson	5,912	5,125	2,853
Barley	Maury	390	214	100
	Rutherford	40	86	4
	Williamson	57	200	192
Hay (Mowed)	Maury	5,911	19,695	9,366
	Rutherford	5,497	15,449	11,985
	Williamson	5,310	13,944	9,062

[a]Due to the obvious difficulty in obtaining crop reports for the year ending June first, the Censuses enumerate on the crop year preceding the census year.

SOURCES: United States Bureau of the Census, Eighth through Twelfth Censuses of the United States: 1860-1900. Agriculture (Washington: Government Printing Office).

Another reason for an increase in corn production was the increasing number of livestock animals on farms. The corn was produced and mostly fed on the same farm, since the animal industry was apparently more profitable than cash crop farming. The emphasis on diversification probably caused many farmers to incorporate a balance between crops and livestock in the study area.

Corn culture in the selected area varied, but one recommended method consisted of: (1) deep subsoiling or plowing in the fall, (2) spacing rows 4-1/2 to 5 feet apart, (3) dropping seed grains 20 to 30 inches apart (depending on the grade of land), (4) harrowing soil to cover and plowing (cultivating) 4 or 5 times, each time further away from the corn, and (5) sowing field peas on last cultivation. The field peas provided a second crop during a single growing season and the vines made good fertilizer when plowed under.[35]

Cotton production in the selected area increased in all but Maury County, where a large acreage had been planted in corn (Table II, page 21). Rutherford County had 32,657 acres of cotton (Table IV, page 32) and produced 12,414 bales, which was very high compared to the previous census periods.

The price of cotton was falling from the ten-year average of 86 cents per pound following the Civil War. The price of 13 cents per pound in 1877 and 11.73 cents per pound in 1879 indicates how fast and

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[35]News item in The [Nashville] Rural Sun, December 18, 1873.

far cotton prices had dropped.[36]

Cereal crop production increased in the selected area, and the total acreage of wheat was exceeded only by total corn acreage (Table IV, page 32). Often it was stressed that the sooner the selected area shifted to cereal crops instead of row crops the more prosperous the area would become.[37]

Livestock Situation from 1870 to 1880

Neat cattle, a term frequently used in the early census reports, referred to cattle that are presently classified as beef cattle. The Devons, Herefords, Shorthorns, Polled, Galloways, and Aberdeen or Polled Angus were the primary breeds, and in the selected area Shorthorns were the dominant breed from 1870 to 1880.[38] Total cattle numbers in the selected area increased in all but Maury County (Table III, page 25). The slight decline in Maury probably resulted from the increase in horses and mules, plus a concentration on the redevelopment of better blood lines of cattle.[39]

Dairy cattle remained fairly stable in numbers from 1860 to 1880 in the selected area (Table III, page 25). Each farm generally had

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[36]Tennessee Department of Agriculture, "Farming and Progress," The Thirty-seventh Biennial Report: 1947-1948, op. cit., p. 311.

[37]Killebrew, op. cit., pp. 364-366.

[38]United States Bureau of the Census. Twelfth Census of the United States: 1900. Agriculture, Vol. V, Part I (Washington: Government Printing Office, 1902), pp. cxii-clxiii.

[39]Wallace, loc. cit.

several dairy cows for family use, and a milk market was just starting to develop.

An increase in horses and mules occurred in the selected area from 1870 to 1880. The area was once again supplying work animals to other regions, and Maury County was frequently recognized as a mule center.

The swine industry in the selected area showed a slight increase (Table III, page 25), and apparently the hog cholera epidemic was not as severe in the area as in the rest of the state. The disease (cholera) was spreading, and by the 1870's, the impact on the swine industry was tremendous.

The number of sheep in the selected area declined in all but Williamson County (Table III, page 25). The sheep industry was reportedly plagued by wild dogs that traveled in packs. Annual estimates on the number of sheep killed by the half-starved dogs often exceeded 1,000 head for the area and over 30,000 head for the state. The losses discouraged the growth of the sheep industry, and since other livestock selections were more profitable, farmers apparently preferred the swine and cattle industries.[40]

Concluding Note on Period 1870 to 1880

Farming had several drawbacks in 1880, and some were noted by Killebrew in his book, Resources of Tennessee. The major problem in the inflationary economy from 1870 to 1880 was the lack of active

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[40] Ibid., pp. 364-366.

capital. Agriculture needed active capital to provide suitable tools and hire labor. The lack of capital prevented farmers from holding crops until better prices prevailed, and often crops were rushed to the market without proper harvest or handling, due to the pressure of unpaid bills. Ready cash for fertilizers and quality seeds was not available, and the quality of farming suffered.[41]

Often there was an attempt to cultivate too much land, and an insufficient amount of good labor hindered the farming operations. Farmers were also penalized by a fence tax (enclosure law). The fence tax was determined on a per rod basis, and the total cost was about $15 annually per farm.[42]

These hardships (drawbacks) to farming caused a loss of faith in the profitability of farming and often resulted in constant inattention to the business of farming.

IV. PERIOD FROM 1880 TO 1900

Introduction

The 1880 to 1900 period is characterized by falling prices. Hard times resulted in the agricultural economy when prices (1872 to 1900) of general commodities fell about 50 percent, wheat about 60 percent and cotton about 70 percent. The price of all the staples declined, but apparently cotton fell the most.[43]

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[41] Ibid., pp. 360-362.

[42] Ibid.

[43] Tennessee Department of Agriculture, "Farming and Progress," The Thirty-seventh Biennial Report: 1947-1948, op. cit., pp. 309-311.

The farmers of the selected area suffered from the fall in prices, particularly since they had failed to accumulate operating capital. The planting of crops and hiring of labor was usually based on payment at the end of the cropping season, and excess capital, when available, was used to rebuild the ruins of the war and replace the livestock. The combination of rising costs and falling prices plagued the farmers in the study area.

Many farmers threatened to sell out, but the decreasing value of farm land, which would have resulted in great losses, discouraged them. The need for money "regularly" prompted many farmers to examine the possibility of dairy farming. The frequent milk checks (monthly) and fewer cropping costs (reduction of cropland) appeared very attractive. The College of Agriculture, criticized earlier, strongly advocated grasslands and cattle for the selected area, and many ears were "tuned in" on the opportunities the recommended combination offered. The establishment of Nashville as a center for meat packing added some of the additional stimulus needed.[44]

The discovery of phosphate rock (1893) in Maury County contributed to the enrichment of the soils, and a valuable industry was born.[45] The market for Tennessee phosphate continued until richer deposits found in Florida eventually caused a decline.

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[44]Wallace, loc. cit.

[45]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854 to 1954," The Fortieth Biennial Report: 1952-1954, op. cit., p. 233.

General Agricultural Situation from 1880 to 1900

The requirement that establishments of less than three acres would not be counted as farms unless $500 worth of produce had been sold off the farm during the year, was changed in 1900. Apparently there was no logic in requiring $500, since in no census of the country had one-half of the farms reported products of a value of $500. Too many establishments with people devoting their entire time to farming were being excluded from the census reports. The amount of sales was therefore omitted from the Twelfth Census, and all establishments (three acres or less) were reported as farms if they required the constant operation and management services of at least one individual.[46]

The effects of the turmoil which the economy exhibited from 1880 to 1900 is reflected in the instability in the number of farms, land in farms and the changes in average size of farms for the selected area (Table I, page 18). The evidenced fluctuations related to the hard times that prevailed for agriculture. Farming in the area dipped downward when prices dropped and tilted upward when better prices resulted in profits.

The most noticeable feature of the period 1880 to 1900 for the selected area and the state was the formation of agricultural organizations based largely upon the idea of cooperative buying and selling (agrarian movement). The first recognized livestock marketing cooperative in Tennessee resulted when a group of farmers in 1877 formed

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[46]United States Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V, Part I, op. cit., p. xv.

the Goodlettsville Lamb and Wool Club. This club was organized in Davidson County, and the idea spread and became very popular in the selected area.[47] The Grange, mentioned earlier, remained popular but stressed the social aspect of union rather than the political.

In contrast to the Grange, the Southern Farmers Alliance was a political movement, and the first Alliance in the state was established in the Central Basin. The Southern Alliance gained its greatest strength in the selected area and from there spread eastward. The growth rate was rapid and resulted in the uniting of the Southern Alliance and The Wheel, a West Tennessee organization, in 1888.[48] The name selected for the combined groups was the "Farmers' and Laborers' Union of America," and in 1889, John P. Buchanan of Rutherford County was named president of the combined organization. The buying and selling cooperative, Southern Alliance, had moved into the political sphere and was attacking the many ills of agriculture. The political purpose of the alliance was to break the control of monopolists, who through corruption and bribery, had ruined the government and caused injury to the farmers and laborers.[49] The Alliance pledged justice to all honorable and legitimate vocations and believed that the development of the state's resources would lead to prosperity. The need for more railroads, more

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[47]Tennessee Department of Agriculture, Makers of Millions, op. cit., Book 4, pp. 6-10.

[48]Joseph A. Sharp, "Farmers Alliance and Tennessee Politics 1890-1892" (unpublished Master's thesis, The University of Tennessee, Knoxville, 1931), pp. 29-42.

[49]News item in the Weekly [Nashville] Toiler, July 31, 1889.

factories and more capital to aid development was stressed. The relative position of agriculture increased during the period from 1880 to 1890. The political, social and economic influences changed the status of farming in the study area and the State of Tennessee, and based on what happened, it can be said, that this was the era for agriculture and the importance of agriculture was recognized.[50]

Crop Situation from 1879 to 1899

In 1886, one of the great questions was, "Does farming pay?" Dr. A. S. N. Dobson expressed a belief that farming does pay. He thought that any man with a good business knowledge and systematic work could succeed at making farming pay. "The successful farmer works thoroughly and instead of going West, goes deeper into the ground." Plowing fewer acres was recommended, and also planting more grass was stressed. "Use commercial fertilizers only as a last resort," he said. "The barnyard manure pile is a farmer's bank."[51]

The acreage figures for the period (1879 to 1899) indicated a decline in cotton acres (Table IV, page 32). The reduction in cotton acreage varied from over 20,000 acres in Maury and Rutherford to about 11,000 acres in Williamson County. The results of the declining cotton prices were definitely exhibited in the selected area. A comparison in the selected area between production of cotton (Table II, page 21)

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[50] Ibid., July 30, 1890.

[51] Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854 to 1954," The Fortieth Biennial Report: 1952-1954, op. cit., p. 225.

and acreage of cotton (Table IV, page 32) indicated the desirability of acreage rather than production figures. The results in Table II, page 21, could have been influenced by insects, weather, or lack of a labor supply (all accidents), since any one of them would affect the yield per acre. More specifically, the cotton production figures in Rutherford County from 1889 to 1899 show very little change, while the cotton acreage reported indicated more than a 12,000 acre decrease for the same period of time.

The corn acreage reported for the selected area from 1879 to 1899 indicated that perhaps some cotton acreage in Rutherford County was shifted to corn (Table IV, page 32). The area as a whole, increased corn acreage slightly over the period, and the suggestion to reduce row crops, especially cotton, voiced many years earlier, was apparently being practiced by the farmers in the selected area. Analysis of data (only Table II, page 21) from 1879 to 1899 would result in the erroneous conclusion that corn had declined by a very "substantial" amount.

An analysis of the wheat acreage from 1879 to 1899 indicates that farmers in the study area shifted an additional 29,500 acres into wheat. The improvement in transporation and the quality of Tennessee wheat permitted the selected area to compete actively in the eastern markets. The Golden Chaff wheat grown in the area had silica in the straw, which made it difficult to harvest but more resistant against wheat rust.[52]

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[52]Tennessee Department of Agriculture, The Biennial Report: 1884-1886. (Nashville: Tennessee Department of Agriculture, 1886), pp. 29-32.

The invention and usefulness of farm machinery in wheat farming was evident during the period under analysis. Machinery replaced some labor, and the cropland of the selected area permitted the use of labor-saving devices. The shortage of qualified labor at certain crucial times of the cropping season encouraged the farmers to seek crops adaptable to machinery and to be less dependent on a questionable labor supply.[53]

Hay acreage in the selected area from 1879 to 1899 fluctuated inversely with cropland planted to row crops (Table IV, page 32). Most of the hay was fed to cattle on the farm where the hay was raised, and this arrangement implied that the number of cattle and hay acreage would have parallel movements. When hay acreage increased substantially, as exhibited in the acreage reported by Table IV, page 32, for 1889, the total acreage of the other specified crops decreased and cattle numbers increased.

A value (percentage) indicating the importance of the specified crops in the selected area was calculated by summing the acreage of specified crops for a given census year for each county and dividing the total by the total farm acres reported for that county the same census year. The resulting values, expressed in a percentage, indicated the amount of total farm acreage allocated to the specified crops (Table V). Variations in the values from one census period to another indicated a change in land use and possibly adjustments or shifts in resources.

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[53]Gracey, loc. cit.

TABLE V

PERCENTAGE OF TOTAL FARM ACRES ALLOCATED TO SPECIFIED CROPS[a], SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1880-1900

	Year		
County	1880	1890	1900
Maury	43.4	43.6	41.6
Rutherford	41.5	40.2	41.6
Williamson	37.2	36.3	36.0

[a]Specified crop acreage implies the total acres of cotton, corn, wheat, oats, barley, tobacco and hay used in the study for a given census.

The calculated percentages for the selected counties shown in Table V, page 43, ranged from 36.3 to 43.6 percent. The difference between the percentages and the "possible" value of 100 percent indicated that the selected crops did not account for all the uses of farm land. Woodland, pasture, other crops and waste land probably accounted for most of the other land in farms in this study, and these other uses of farm land were fairly constant from 1880 to 1900. The relatively stable values for the specified crops indicated that if the acreage of a specified crop changed, offsetting increases or decreases occurred in other specified crops.

Interest in determining the influence of hay acreage in stabilizing the calculated values resulted in a recalculation of the percentages excluding hay acres (Table VI). The new values fluctuated from 1880 to 1900 and varied at the most about 5.6 percent from the values in Table V, page 43. Changes in hay acreage apparently were instrumental in stabilizing the calculated values. The usefulness of Tables V and VI is more apparent when the enumeration dates in the future censuses start to change. The changes distort the reported livestock figures, and without a relative gauge--most hay was fed to livestock on farms--comparisons would be difficult.

Livestock Situation from 1880 to 1900

The overall cattle numbers in the selected area increased during the period 1880 to 1900 (Table III, page 25). The trend towards fewer acres of row crops and more livestock affected the allocation of

TABLE VI

PERCENTAGE OF TOTAL FARM ACRES ALLOCATED TO SPECIFIED CROPS[a], SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1880-1900

County	Year		
	1880	1890	1900
Maury	41.9	38.2	39.0
Rutherford	39.9	36.0	38.3
Williamson	35.6	31.9	35.8

[a]Specified crop acreage implies the total acres of cotton, corn, wheat, oats, barley and tobacco used in the study for a given census. The acreage of hay was excluded from crop acreage.

resources. The improved blood lines produced a desirable product demanded in the Nashville meat market, and improved transportation facilities increased the ability of the farmers in the selected area to compete in more distant markets.[54]

The number of dairy cattle changed slightly in the study area from 1880 to 1900 (Table III, page 25). The emphasis was on the Jersey breed and attempts to establish butterfat records. Several animals of exceptionally high merit (Landseu's Fancy, Tormentor, and Gold Basis) were rated "par excellence" for the Jersey breed.[55]

The overall increase in total population for the selected area (Table I, page 18) and the nearness to Nashville developed a profitable milk market. Two creameries (Erwin Jones and Co. and Stones River Creamery Co.)[56] were established in the Murfreesboro area and indicated a rising interest in dairy farming. The emphasis was on butter and cheese production, and registered dairy cattle flourished on the bluegrass pasture, since the farmers in the selected area sought a regular and more stable income.[57]

Some of the first records of cream (now butterfat) and butter production were started in the selected area. The supervised butterfat

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[54]Wallace, loc. cit.

[55]Tennessee Department of Agriculture, The Biennial Report: 1884-1886, op. cit., pp. 35-36.

[56]Ibid., pp. 18-19.

[57]Opinion expressed by Dr. Clifford Stark, retired head of the Department of Agriculture at Middle Tennessee State University, in a personal interview, Murfreesboro, April 14, 1966.

test made by Major W. J. Webster of Columbia in 1889, was made one year before the Babcock milk tester was invented. It is also noteworthy that almost every advance in dairy cattle testing had its origin in Tennessee.[58]

The steep decline in swine numbers in the selected area from 1880 to 1900 (Table III, page 25) can be partially explained by the epidemic of hog cholera. The disease was instrumental in reducing swine numbers, and in 1887, 135 hogs out of every 1,000 died of cholera. The importance of eliminating hog cholera was realized, and when the USDA Bureau of Animal Industry was established in 1884, cholera was the first disease to be studied experimentally. Hog cholera had become the nation's multimillion-dollar problem.[59]

Horse and mule numbers fluctuated during the period from 1880 to 1900. The city of Columbia was widely recognized as the mule capital of the world and served as one of the principal markets for mules.[60]

The sheep numbers reported between 1880 and 1900 for the selected area showed a downward trend (Table III, page 25). This trend is probably misleading since the census reports on sheep from 1860 to 1880 omitted all statistics for lambs. The classification of lambs started in 1900, and sheep enumerations in previous years probably included some

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[58]Robert H. White, Tennessee Growth and Progress (Nashville: Robert H. White, 1947), p. 145.

[59]Tennessee Department of Agriculture, Makers of Millions, op. cit., Book 3, pp. 18-19.

[60]Tennessee Department of Agriculture, The Biennial Report: 1884-1886, op. cit., pp. 14-15.

lambs.[61] From the census schedules used in the Census of 1890 it appears very probable that a similar factor influenced total cattle number. Calves, less than one year old, were reported as other cattle and probably accounted for about 10 to 20 percent of the total cattle numbers.[62]

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[61]United States Bureau of the Census, Twelfth Census of the United States: 1900. Agriculture, Vol. V, Part 1, op. cit. p. cciv.

[62]Ibid., p. cixii.

CHAPTER III

AGRICULTURE IN AN INDUSTRIAL ECONOMY: 1900 TO 1940

I. INTRODUCTION

The preceding chapter characterized on the whole, the great hardships agriculture experienced in the selected area from 1860 to 1900. Incomes rose only slightly, and a growing farm population resulted in a decrease in the income per farming unit. The supply of farm products increased at a rate greater than demand and resulted in low farm prices.

Starting about 1896, a period of improvement developed, and by 1900, farm production had slackened its rate of increase. Assets of land, building and livestock started to appreciate in value,[1] and the economic position of the farmers in the selected area improved.

Traditionally, one of the requirements thought essential for a healthy agriculture is that the rate of increase in industrial output must be much greater than the rate of increase in agricultural output. From 1860 to 1900 the rate of industrial output was not sufficient to offset the increase in agricultural production, but starting about 1900 industry started to develop fast enough to remove farm production from the markets at a profitable price. The situation that evolved

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[1]Theodore W. Schultz, Agriculture in an Unstable Economy (New York: McGraw-Hill, 1945), pp. 114-116.

about 1900 was experienced in the State of Tennessee and the entire United States agricultural economy.[2]

II. PERIOD FROM 1900 TO 1910

Introduction

The economic improvement in the agricultural economy of the selected area from 1900 to 1910 was unmatched in previous history. Favorable prices created a profitable atmosphere for farming, and from 1900 to 1910 the farmers in the area prospered. Internal transportation developments permitted the selected area to penetrate more distant markets which were experiencing a rapid population and industrial growth. The population of Nashville continued its rapid growth, and the geographic nearness of the selected area to Nashville contributed to the study area's development.[3]

General Agricultural Situation from 1900 to 1910

The definition of farm in 1910 was similar to the one used in 1900, except establishments of three acres or less, classified as farms, were limited to those units with over $250 value of production in 1909.[4] The major change in the Census of 1910 was the decision to

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[2]Ross M. Robertson, History of the American Economy (Second edition; New York and Burlingame: Harcourt, Brace and World, Inc., 1964), pp. 260-265.

[3]Opinion expressed by Lou Wallace, Agricultural historian and editor of Tennessee's Biennial Reports, in a personal intervew, Nashville, April 13, 1966.

[4]United States Bureau of the Census, Thirteenth Census of the United States: 1910. Agriculture, Vol. V (Washington: Government Printing Office, 1913), pp. 22-23.

report the enumeration as of April fifteenth. This change in enumeration date differed from the previous Censuses of Agriculture which enumerated as of June first.[5]

One of the more noticeable trends from 1900 to 1910 was the continuing decline in average size of farms (Table VII). The farm establishment was frequently reduced to a one-man operation with additional labor hired at planting and harvest time. The number of farms (Table VII) continued to increase, but a shortage of available labor required a reliance on the labor furnished by the immediate family (family farm). The reluctance to depend on paid labor and the shortage of labor other than the family caused long, hard hours of toil for farm families and influenced many farmers' sons to seek a livelihood outside of agriculture.[6]

Another of the more important movements from 1900 to 1910 was the Farmer's Institutes. The Institutes were originally inaugurated by Commissioner Godwin in 1891 and flourished for many years. They gained state wide organization and acceptance while Captain Thomas H. Paine (Father of the Farmer's Institutes) was Commissioner of Agriculture from 1899 to 1903.[7] The aim of the Institutes was to instruct

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[5]Ibid., p. 13.

[6]Opinion expressed by B. B. Gracey, retired professor of agriculture at Middle Tennessee State University, in a personal interview, Murfreesboro, April 14, 1966.

[7]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854-1954," The Fortieth Biennial Report: 1952-1954 (Nashville: Tennessee Department of Agriculture, 1954), pp. 234-245.

TABLE VII

TOTAL POPULATION AND SPECIFIED AGRICULTURAL CHARACTERISTICS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1900-1940

Item	County	Year[a] 1900 (June 1)	1910 (Apr. 15)	1920 (Jan. 1)	1925 (Jan. 1)	1930 (Apr. 1)	1935 (Jan. 1)	1940 (Apr. 1)
Total Population	Maury	42,703	40,456	35,403	--	34,016	--	40,357
	Rutherford	33,543	33,199	33,059	--	32,286	--	33,604
	Williamson	26,429	24,213	23,409	--	22,835	--	25,220
Number of Farms[b]	Maury	3,945	4,039	3,728	3,899	3,680	4,419	3,439
	Rutherford	4,335	4,884	5,264	5,862	4,653	4,745	4,450
	Williamson	3,152	3,015	3,355	3,296	3,005	3,568	3,534
Land in Farms (Acres)	Maury	368,104	365,321	350,971	322,603	346,025	351,105	341,795
	Rutherford	361,299	363,823	361,906	252,680	332,398	351,143	355,710
	Williamson	340,886	323,168	331,151	309,590	321,839	313,480	332,686
Average Farm Size (Acres)	Maury	93.3	90.4	94.1	82.7	73.3	79.5	74.7
	Rutherford	83.3	74.5	68.7	60.2	71.4	74.0	79.9
	Williamson	115.7	107.2	98.7	93.9	107.1	87.9	94.1

TABLE VII (continued)

Item	County	Year[a] 1900 (June 1)	1910 (Apr. 15)	1920 (Jan. 1)	1925 (Jan. 1)	1930 (Apr. 1)	1935 (Jan. 1)	1940 (Apr. 1)
Proportion of Land in Farms	Maury	98.8	98.1	94.2	86.6	92.9	94.3	87.0
	Rutherford	93.3	92.6	92.1	89.7	84.6	89.4	88.2
	Williamson	97.3	94.5	88.3	82.5	85.8	83.6	87.5

[a]Changing enumeration dates from 1900 to 1940 requires that each enumeration date be specified to aid comparability of censuses.

[b]The Census definition of farm was similar from 1900 to 1940. A farm consisted of establishments of three acres or more and establishments of less than three acres classified as farms were limited to those units with over $250 worth of production for the year preceding the Census.

SOURCES: United States Bureau of the Census, Twelfth through Sixteenth Censuses of the United States: 1900-1940. Population and Agriculture (Washington: Government Printing Office).

and inform farmers through organized discussions. The current issues affecting agriculture were brought to the farmers' attention, and frequently the need for farmers to recognize that different crops require different elements in different proportions was stressed. The Institutes flourished, and through an organized effort the needs of agriculture were brought to the attention of the proper legislative authorities.[8]

By 1907 the Farmer's Institutes had passed the experimental stage, and emphasis shifted from simply providing information to a combination of informing and demonstrating.[9] Fairs, partly responsible for the original organization of the Bureau of Agriculture, proved popular from 1900 to 1910, and the premiums offered often stimulated farmers to practice what the Institutes taught. The state fairs held in Nashville had increasing participation from the farmers in the study area, and the premiums won by the area farmers indicated that livestock was improving.[10]

An issue that affected the selected area and the entire state was the defining of the various responsibilities for the College of Agriculture, Experiment Station and State Department of Agriculture. Commissioner Thompson recognized the confusion resulting from the three agencies' duplication of effort and called attention to the fact. Duplication in many cases was deemed wasteful, and finally a decision was made that the business of the College was instruction, the work

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[8] Ibid.

[9] Ibid.

[10] Ibid., pp. 252-253.

of the Station was investigation of problems, and the function of the Department was execution of laws concerning agriculture.[11]

Crop Situation from 1899 to 1909

The changing of the enumeration date in 1910 did not affect the securing of crop reports. The reports on acreage, production and value were still based on the crop year preceding the census year.[12]

One of the most instrumental changes during the period from 1900 to 1910 resulted from the actions of the farmers in the selected area. To overcome the mixing of varieties (especially cereal grains) when being shipped in large quantities by rail, agreements on varieties were reached prior to shipment, thus preventing the mixing. The agreements increased returns and were successful through an organized effort.[13]

One of the more noticeable trends in crops was the reduction of corn and wheat acreage and the increase in hay acreage (Table VIII). Wheat and corn production was shifting to a grass and livestock economy.[14]

Rutherford County increased cotton acreage slightly from 1899 to 1909, but Maury and Williamson Counties had shifted almost entirely

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[11]Ibid., p. 254.

[12]United States Bureau of the Census, Thirteenth Census of the United States: 1910. Agriculture, Vol. V, op. cit., p. 13.

[13]Wallace, loc. cit.

[14]Opinion expressed by Charles E. Allred, retired head of Department of Agricultural Economics and Rural Sociology at The University of Tennessee, in a personal interview, Knoxville, June 22, 1965.

TABLE VIII

ACREAGE OF SPECIFIED CROPS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1900-1940

Item	County	Year[a] 1899	1909	1919	1924	1929	1934	1939
Cotton	Maury	498	502	626	1,448	1,204	861	167
	Rutherford	12,494	19,313	17,287	39,872	17,334	18,350	10,108
	Williamson	103	54	30	1,123	180	560	164
Corn (Harvested Grain)	Maury	80,611	74,698	81,918	65,190	67,069	56,751	51,777
	Rutherford	90,932	72,748	82,334	61,697	71,462	54,133	49,863
	Williamson	62,094	51,619	61,545	52,402	51,220	43,590	44,474
Tobacco	Maury	32	19	33	551	1,666	2,358	3,639
	Rutherford	46	40	113	55	151	221	195
	Williamson	242	479	988	1,099	2,041	2,084	2,690
Wheat	Maury	54,843	32,189	23,758	12,897	17,807	16,766	9,747
	Rutherford	30,435	12,618	7,146	2,769	5,075	10,436	7,957
	Williamson	56,756	30,027	24,802	11,124	14,666	15,605	14,275
Oats	Maury	7,644	18,092	10,453	3,979	2,217	2,674	3,186
	Rutherford	4,376	10,544	3,500	1,280	532	1,234	2,073
	Williamson	2,853	13,186	7,223	2,523	1,421	1,300	2,197
Barley	Maury	100	205	268	482	75	1,459	2,058
	Rutherford	4	52	30	26	61	418	655
	Williamson	192	373	670	931	614	3,490	5,806

TABLE VIII (continued)

Item	County	Year[a] 1899	1909	1919	1924	1929	1934	1939
Hay (Mowed)	Maury	9,366	25,402	29,984	22,971	25,667	38,138	43,005
	Rutherford	11,985	27,147	35,216	31,478	34,302	40,697	54,188
	Williamson	9,062	19,183	25,897	22,423	23,918	32,257	39,551

[a]Crop reports from 1900 to 1940 were enumerated on the crop season preceding the Census. (Example: The Census of 1925, enumerated as of January first, reported on the crops produced during the growing season of 1924.)

SOURCE: United States Bureau of the Census, Twelfth through Sixteenth Censuses of the United States: 1900-1940. Agriculture (Washington: Government Printing Office).

out of cotton production (Table VIII). The availability of labor familiar with "cotton chopping" in Rutherford County influenced some farmers into deciding to engage actively in cotton farming.[15] The cotton grown in Rutherford was apparently concentrated on several large farms, while most farmers in the county shifted out of cotton.

Williamson County had a slight increase in tobacco acreage (Table VIII), and the reason appears to be that favorable prices encouraged the shift on many of the farms. Only Maury County failed to emphasize a large labor-requiring crop. Apparently the phosphate industry in Maury County reduced the availability of labor, and many farmers were preoccupied with their mule-raising interests.

The usefulness of production figures for crops is again questionable, since the varying importance of the specified crops is not clearly evident from the statistics (Table IX). The reduction in corn acreage in the area from 1899 to 1909 (Table VIII, page 56) and the production figures (Table IX) reflect the fact that improved farming practices were boosting yields. Farmers were able to plant fewer acres and, if favorable weather conditions prevailed, harvest more bushels, thus increasing total production while reducing some costs.

The calculated values indicated that from 1900 to 1910 a shift from row and cereal crops was offset by increased hay acreage (Table X). It is also evident (Table XI) that excluding hay from the specified crops increased the unaccounted acreage in census reports. The total

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[15]Gracey, loc. cit.

TABLE IX

PRODUCTION OF SPECIFIED CROPS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1900-1940

Item	County	Year[a] 1899	1909	1919	1924	1929	1934	1939
Cotton (Bales)	Maury	180	133	289	752	463	448	90
	Rutherford	4,148	7,601	8,870	15,423	7,771	11,766	6,710
	Williamson	29	22	16	424	90	320	82
Corn (Bushels)	Maury	1,577,460	1,953,996	2,159,421	1,360,895	1,629,125	1,407,396	1,082,305
	Rutherford	1,465,300	1,611,727	1,920,729	1,233,251	1,286,184	1,181,963	1,074,376
	Williamson	1,237,570	1,347,076	1,537,556	1,377,689	1,186,272	1,113,933	972,946
Wheat (Bushels)	Maury	630,660	497,653	245,395	149,919	127,574	197,136	116,432
	Rutherford	269,510	405,165	70,620	25,983	40,346	97,119	85,533
	Williamson	686,510	492,126	277,007	147,276	91,238	175,306	167,865
Oats (Bushels)	Maury	1,860	300,120	198,395	82,504	37,129	49,924	50,840
	Rutherford	50	145,187	57,239	26,479	7,843	17,396	39,676
	Williamson	2,620	212,162	102,337	49,937	21,425	20,594	36,878

[a]Crop reports from 1900 to 1940 were enumerated on the crop season preceding the Census. (Example: The Census of 1925, enumerated as of January first, reported on the crops produced during the growing season of 1924.)

SOURCES: United States Bureau of the Census, Twelfth through Sixteenth Censuses of the United States: 1900-1940. Agriculture (Washington: Government Printing Office).

TABLE X

PERCENTAGE OF TOTAL FARM ACRES ALLOCATED TO SPECIFIED CROPS[a], SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1900-1940

	Year						
County	1900	1910	1920	1925	1930	1935	1940
Maury	41.6	41.4	41.9	33.3	42.9	33.9	44.2
Rutherford	41.6	39.2	40.3	38.9	38.8	35.7	35.2
Williamson	36.0	35.6	36.6	29.6	29.2	31.5	32.8

[a]Specified crop acreage implies the total acres of cotton, corn, wheat, oats, barley, tobacco and hay used in the study for a given census.

TABLE XI

PERCENTAGE OF TOTAL FARM ACRES ALLOCATED TO SPECIFIED CROPS[a], SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1900-1940

County	Year						
	1900	1910	1920	1925	1930	1935	1940
Maury	39.0	34.4	33.4	26.2	33.4	23.0	27.5
Rutherford	38.3	31.7	30.5	29.9	28.5	24.1	19.9
Williamson	35.8	29.6	28.8	22.4	21.8	22.2	20.9

[a]Specified crop acreage implies the total acres of cotton, corn, wheat, oats, barley and tobacco used in the study for a given census. The acreage of hay was excluded from crop acreage.

acreage planted in the specified crops apparently did not vary much, since the percentages reported are fairly stable. The values, especially those indicating the exclusion of hay, indicated a rather large increase in hay-consuming animals on farms in the selected area.

Livestock Situation from 1900 to 1910

Changing the census enumeration date from June first in 1900 to April fifteenth in 1910 makes the comparison of census data on livestock difficult. Obviously, cattle and swine numbers would have been greater in the study area in June and sheep numbers less. This factor must be considered in comparing data.[16]

The increase in hay acreage indicated that the number of cattle should increase. All three counties did show an increase, and Rutherford and Maury Counties ranked high on the list of the top ten cattle counties in the state. If calves born in April and May were tabulated and the number of fat cattle sold during those two months subtracted, a direct comparison could have been made from 1900 to 1910. Since the months of April and May generally are calving months, the figures shown in Table XII are not directly comparable.

The apparent reason for the increase in total cattle numbers probably stemmed from the favorable prices farmers received for cattle. Beef cattle prices averaged $3.90 per hundredweight in 1910, and calf prices averaged $5.20 per hundredweight, indicating an upward trend in

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[16]United States Bureau of the Census, Thirteenth Census of the United States: 1910. Agriculture, Vol. V, op. cit., p. 331.

TABLE XII

NUMBERS OF SPECIFIED LIVESTOCK ON FARMS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1900-1940

Item	County	Year[a] 1900 (June 1)	1910 (Apr. 15)	1920 (Jan. 1)	1925 (Jan. 1)	1930 (Apr. 1)	1935 (Jan. 1)	1940 (Apr. 1)
Cattle[b] (Number)	Maury	18,910	22,841	28,502	21,432	24,092	29,534	30,243
	Rutherford	19,613	24,184	27,382	25,882	28,282	34,855	33,780
	Williamson	15,002	17,550	23,529	21,060	22,062	24,126	25,863
Cattle, Primarily Cattle (Number)	Maury	6,282	7,645	7,165	10,945	10,364	--	15,861
	Rutherford	6,968	8,788	11,422	15,351	16,274	--	21,673
	Williamson	5,728	6,318	8,013	12,275	10,585	--	14,074
Swine (Number)	Maury	37,267	37,281	55,490	29,948	22,502	20,843	24,954
	Rutherford	37,091	31,981	49,999	22,946	18,704	20,886	25,780
	Williamson	26,762	30,192	41,958	22,943	17,304	18,976	23,082
Sheep (Number)	Maury	13,193	48,346	16,827	20,104	50,691	30,235	23,459
	Rutherford	13,815	28,397	11,622	10,492	19,693	17,598	17,053
	Williamson	11,214	45,951	21,242	16,023	40,675	24,384	22,983
Horses and Mules (Number)	Maury	17,037	17,520	15,794	12,741	9,539	8,666	9,285
	Rutherford	16,962	16,739	18,221	15,321	11,015	9,516	10,089
	Williamson	13,855	12,825	13,279	10,636	8,190	7,126	9,950

[a]Livestock enumerations from 1900 to 1940 were made as of the dates indicated. Changing the enumeration date caused the reported figures to fluctuate and in making comparisons between Censuses the date must be considered.

[b]Total cattle numbers include dairy and beef cattle.

SOURCES: United States Bureau of the Census, Twelfth through Sixteenth Censuses of the United States: 1900-1940. Agriculture (Washington: Government Printing Office).

prices.[17] The increasing rate of industrial development, employing more people and paying higher salaries, permitted the population to be more selective in its diet choice.

An increase in dairy cattle numbers was also evident in the selected area from 1900 to 1910, and the establishment of several creameries verified the fact. The comparison of dairy cattle numbers from 1900 to 1910 (Table XII, page 63) was difficult for the same reason as the total cattle numbers comparison was difficult, and the change in definition of a dairy animal (from two years of age in 1900 to 15-1/2 months of age in 1910) created more problems.[18] Some dairy cattle were probably included in the Census of 1900 as "other cattle"; therefore, due to the increase (Table XII, page 63) plus the indicated difference in age, an assumption can be made that the dairy cattle numbers increased far more than the census figures of 1900 to 1910 implied. The percentage increase in hay acreage again proved to be a reliable indicator of an expected cattle increase.

The growing milk market in Nashville and the larger cities within the study area probably encouraged farmers to shift into the dairy business. Breeders' clubs and fairs encouraged improvement, and the dairy industry was well adapted to the labor supply of a farm family.

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[17]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1866-1960. Crop and Livestock Statistics (fourth edition, Nashville: Tennessee Department of Agriculture, 1964), pp. 104-105.

[18]United States Bureau of the Census, Thirteenth Census of the United States: 1910. Agriculture, Vol. V, op. cit., p. 342.

The profit motive and economic pressures from the outside apparently caused the tremendous development of the selected area's most potential agricultural combination.[19]

Swine numbers remained about the same in the selected area, according to the data in Table XII, page 63. Realization that the census enumeration date probably affected the swine numbers most in comparing data from 1900 to 1910 required a re-evaluation of the prevailing situation in 1910. Pigs were not classified prior to 1910, and the pig crop from April to May (quite large) would have been included in previous census reports.[20]

Perhaps the increase in average price per hundredweight received by farmers for hogs was another reason for suspecting an increase in swine numbers from 1900 to 1910. In 1910 the average price of $8.10 per hundredweight showed an increase from preceding years.[21] The trend towards more meat consumption by the growing population probably resulted in the more favorable prices.[22]

Based on the previous discussion, plus the fact that Dr. Marion Dorset of Columbia successfully immunized Hog Number 844 against cholera in 1904, the assumption that swine numbers increased from 1900 to 1910

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[19]Opinion expressed by Dr. Clifford Stark, retired head of the Department of Agriculture at Middle Tennessee State University, in a personal interview, Murfreesboro, April 14, 1966.

[20]United States Bureau of the Census, Thirteenth Census of the United States: 1910. Agriculture, Vol. V, op. cit., p. 345.

[21]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., p. 111.

[22]Gracey, loc. cit.

can be made.[23] Realization that cholera losses could partially be prevented after 1906 probably encouraged farmers to expand the number of brood sows, and the figures enumerated in 1910 possibly are composed of mainly adult animals. Provided the above assumptions are correct, the figures in Table XII, page 63, reporting swine numbers, definitely understated the increase that had taken place.

The increase in sheep numbers from 1900 to 1910 for the selected area probably overstated the actual shift that occurred (Table XII, page 63). Sheep numbers were probably influenced more by the change in date than were cattle numbers. The census report of sheep numbers in April included most of the spring lambs. If the census report had been taken in June (as in 1900), most of the lambs would have been marketed, and only the breeding stock would have been available for enumeration.[24] There was probably an increase in sheep numbers, but not so great an increase as the enumerated data of 1910 implied.

The reasons for shifting to sheep resulted from the rising prices wool and lambs were bringing at the markets. The average price of lambs per hundredweight received by the farmers increased to $6.10 in 1910, and the average price of sheep per hundredweight increased to $4.00.

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[23]Tennessee Department of Agriculture, Makers of Millions, Book 3 (Nashville: Tennessee Department of Agriculture, 1951), pp. 50-54.

[24]B. D. Raskopf and others, Prices Paid for Sheep and Hogs, 1931-1946, at Nashville Livestock Market, Rural Research Series, Monograph No. 217 (Knoxville: Tennessee Agricultural Experiment State, The University of Tennessee, 1947), pp. 3-5.

In 1910 wool was selling for an average of 27 cents per pound, and these increasing favorable prices stimulated interest in the sheep industry.[25]

The geographic advantage the study area had over western states, more distant from the eastern markets, probably induced many farmers to include sheep in their livestock operation. The mixed grazing of cattle and sheep utilized the grasses more efficiently and increased the profits per acre from livestock.[26] Transporting the lambs to Nashville was relatively easy, and improved rail facilities to eastern markets made the sheep industry profitable. The improved marketing methods of buying lambs on an actual weight basis rather than a buyer's guess, came into being as a result of the cooperative's efforts.[27]

The change in enumeration date in 1910 probably resulted in a slight understatement of increases (Maury) and an overstatement of the decreases (Rutherford and Williamson) in horses and mules from 1900 to 1910 (Table XII, page 63). The introduction of the gasoline engine on the eve of World War I indicated a future change that would revolutionize agriculture. The complete dependence on animal power was beginning to shift toward mechanical power, and the mule center of the world, Columbia, would only be remembered in Tennesee history books.

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[25]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., pp. 116-117.

[26]Wallace, loc. cit.

[27]Tennessee Department of Agriculture, Makers of Millions, op. cit., Book 4, pp. 17-20.

III. PERIOD FROM 1910 TO 1920

Introduction

The relative position of agriculture in the selected area approached a zenith from 1910 to 1920. The frequently referred to "golden era of agriculture" (1909-1914) resulted in agricultural and industrial incomes reaching a remarkably favorable ratio which would not be achieved again until the World War II years.[28]

An examination of the statistics of agriculture from 1910 to 1920 tends to exaggerate the effects of World War I. Often the rapid increases in industrial growth which stimulated agriculture during the same years (1910-1920) are forgotten, and for an economic history of agriculture to be meaningful, the impact of the development of the industrial era should be recognized.[29]

General Agricultural Situation from 1910 to 1920

The decision to take a census of agriculture in 1915 was curtailed as a result of the nation's involvement in World War I. In 1920 the enumeration date for the census was changed to January first. The change in date of enumeration affected the reporting of livestock more than crops, since crops were still reported on the basis of the crop year preceding the census.[30]

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[28]Robertson, op. cit., pp. 264-265.

[29]Ibid., pp. 266-267.

[30]United States Bureau of the Census, Fourteenth Census of the United States: 1920. Agriculture, Vol. V (Washington: Government Printing Office, 1922), p. 11.

In the selected area from 1910 to 1920 there was a slight decline in total population (Table VII, page 52). The drawing power of rising industrial centers and the war resulted in emigration and probably accounted for the decline. The farmers in the selected area reaped the benefits of an era of good feeling between the State Department of Agriculture and the College of Agriculture. Lectures and demonstrations indicating the practical aspects of farming were made possible by the cordial relationship that existed from 1910 to 1920. Coordinating efforts permitted the Experiment Station to concentrate on the development of crop rotations and the maintenance of soil fertility in the area.[31]

The desirable and useful information (to farmers) resulting from agricultural experiments was printed in several of the area newspapers, and frequently the editorial columns emphasized the message to the farmers. Railroads were useful in transporting special agricultural exhibits (prepared by the State Department of Agriculture) into the Central Basin and proved to be a successful means of dissemination of agricultural information. The special exhibits traveled into the selected area, and as many as 5,000 people per day visited the agricultural displays.

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[31]Tennessee Department of Agriculture, The Biennial Report: 1909-1910 (Nashville: Tennessee Department of Agriculture, 1910), pp. 4-5.

[32]Ibid., pp. 7-9.

Crop Situation from 1909 to 1919

One of the most important factors influencing farmers' decisions on what crops to plant was the monthly publication Tennessee Agriculture. The periodical was published in Nashville, starting in 1912, under the sponsorship of the Department of Agriculture. For the first time monthly crop reports, by counties, on acreage and condition of crops, were available to farmers in the selected area.[33] Planning future operations depended then, as it does today, on having the most current and best information available, and the Tennessee Agriculture publication provided this information in the 1900's.

Corn and hay acreage increased noticeably in the selected area from 1909 to 1919, while wheat and oat acreage declined (Table VIII, page 56). The corn farmers often battled with insects, and the increase in total corn production (Table IX, page 59) apparently resulted from better fertility management and improved varieties. The introduction and development of "Neal's Paymaster Corn" by William Neal increased the annual yields per acre in the selected area. Corn yields ranged from 16.1 to 19.9 bushels in 1909, while in 1919 the reported average range was from 23.4 to 26.4 bushels per acre.[34] The state average was 21.4 bushels of corn per acre in 1919. The average price of corn per

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[33]Tennessee Department of Agriculture, The Biennial Report: 1911-1912 (Nashville: Tennessee Department of Agriculture, 1912), pp. 9-13.

[34]Tennessee Department of Agriculture, "Farming and Progress," The Thirty-seventh Biennial Report: 1947-1948 (Nashville: Tennessee Department of Agriculture, 1948), pp. 430-466.

bushel increased from 77 cents in 1909 to $1.85 in 1919 and served as an added incentive for increasing acreage.[35]

The general lack of nitrogen and potash restricted the use of fertilizers in the area during the war, and subsequently more acreage was diverted to hay (Table VIII, page 56). The hay acreage was instrumental in stabilizing the amount of total farm acres allocated to the specified crops and even caused a slight increase (Table X, page 60). When hay acreage was removed from the specified crop acreage (Table XI, page 61), almost a 10 percent decrease in specified acreage resulted for Rutherford County, and noticeable differences developed in the other counties. The values, when compared, provide a useful and practical measure of the influence of the increasing or decreasing of hay acres in the selected area. Again the increase in total hay acres signals an expected rise in cattle numbers.

The noticeable decrease in wheat acreage (Table VIII, page 56), in spite of increasing wheat prices, indicated the increasing shift of wheat to the western regions. The adaption of the combine (Marsh-type harvester with attachment of John Appleby's twine binder), frequently referred to as the Deering harvester in the late 1880's, provided western farmers with a fairly efficient harvester.[36] The farmers of the western regions with their large tracts of land could better utilize and assume the cost of owning the necessary labor-saving machinery.

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[35]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960, Crop and Livestock Statistics, op. cit., p. 31.

[36]Robertson, op. cit., pp. 259-260.

In contrast, the limited size of the wheat fields in the study area was not economically adaptable to the available technology. Apparently, increasing livestock numbers was more profitable than trying to compete in growing wheat.

The infestation of the boll weevil started in Tennessee between 1915 and 1916.[37] Cotton yields suffered shortly thereafter. The natural barrier of the Highland Rim, however, apparently delayed the entry of the pest into the Central Basin. Cotton acreage was minor in Maury and Williamson Counties in 1919, and Rutherford County had a reduction of over 2,000 acres (Table VIII, page 56) from the reported 1909 acreage figures. The substantial acreage reduction in Rutherford County failed to decrease total cotton production, which increased over 1,000 bales (Table IX, page 59) from 1909 to 1919.

Livestock Situation from 1910 to 1920.

Table XII, page 63, indicates a general increase in all specified livestock except sheep from 1910 to 1920. The increase in cattle numbers in the study area probably influenced the establishment of the Union Stockyards in Nashville. Farmers in the area were increasing herd size, and a convenient large market near the study area stimulated this development. The cattle farmers of the area were fortunate in avoiding the cattle-tick epidemic that plagued other Tennessee

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[37]Charles E. Allred and B. D. Raskopf, Economic History of Cotton Production in Tennessee, Monograph 130 (Knoxville: Tennessee Agricultural Experiment Station, The University of Tennessee, 1941), p. 51.

cattle farmers. The losses in gain and the poor health of animals reported elsewhere were not experienced in the selected area and gave the farmers a definite advantage in cattle production over other areas of Tennessee.[38]

The profit incentive probably encouraged many cattle farmers to expand their cattle numbers or enter the cattle industry in the selected area. The average price per hundredweight received by farmers for beef cattle increased from $3.90 in 1910 to $6.80 in 1920, and several of the intervening years had average prices of over $8.00. Calf prices also increased from an average of $4.75 per hundredweight in 1910 to $9.20 in 1920.[39]

The increase in dairy cattle, except for a slight decline in Maury County, from 1910 to 1920 (Table XII, page 63) partially resulted from a growing demand for cheese and butter. Several new milk plants were established which specialized in cheddar cheese. Jersey cattle remained the principal breed, and frequently Holsteins were used as nurse cattle.[40]

The swine numbers increased markedly (Table XII, page 63) from 1910 to 1920, and much of the increase resulted from the Dorset serum treatment which reduced cholera losses. In 1913 the United States Congress appropriated $500,000 toward a hog cholera program aimed at

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[38]Gracey, loc. cit.

[39]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960, Crop and Livestock Statistics, op. cit., pp. 104-105.

[40]Gracey, loc. cit.

reducing losses. Maury County, birthplace of Dorset, was the county selected to represent Tennessee in the national program against hog cholera. The program in Maury County proved very successful in reducing cholera and served as an example of what could be done under a supervised program.[41]

The prices received by farmers for hogs increased from an average price of $8.10 per hundredweight in 1910 to $12.40 per hundredweight in 1920. Several interim years had average prices of over $15, and again the increasing demand for meat resulted in favorable prices.[42]

The decline in sheep numbers from 1910 to 1920 (Table XII, page 63) apparently resulted from the change in enumeration date. In the selected area, the bulk of lambs were sent to market during May, June and July.[43] The sheep report on January first resulted in only the bred ewes and breeding stock being enumerated, and caused a sizeable difference in the number of sheep on farms. The favorable between-seasons marketing point enjoyed by the area's sheep industry probably resulted in a slight increase in total sheep numbers, since Tennessee's lambs were marketed prior to the sheep from the western states. The

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[41]Tennessee Department of Agriculture, Makers of Millions, op. cit., Book 3, pp. 56-57.

[42]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., p. 111.

[43]Raskopf and others, Prices Paid for Sheep and Hogs, 1931-1946, at Nashville Livestock Market, op. cit., p. 3.

increase in prices per hundredweight for lambs went from $6.10 in 1910 to $12.10 in 1920 and gives an added reason for assuming that sheep numbers increased in the selected area.[44]

In general, the number of animals on farms on January first is less than that which would be expected in April. In attempting to compare 1910 to 1920, one finds the change in enumeration date for 1920 must be considered, since in 1920 the numbers reported for livestock consisted mostly of breeding stock. The change in definition of a dairy unit also reduced the number of dairy cattle reported. In 1910 a dairy unit was required to be 15-1/2 months of age, and this was changed to two years of age in 1920.[45] The assumption that the Census of 1920 was too early to include spring lambs, pigs, calves, and colts seems justified and must be recognized when comparing the data.

Apparently, favorable prices for corn, wheat, and cotton would have made any of the three crops profitable, but a limitation of land, capital and labor caused selections to be made. The increases in cattle and swine numbers required more labor; therefore, it appeared that in addition to determining crop acreage, the farmers of the study area were faced with deciding on more crops or more livestock or a change in the combination. The statistics indicated that the decision

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[44]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., pp. 115-116.

[45]United States Bureau of the Census, Fourteenth Census of the United States: 1920. Agriculture, Vol. VI, op. cit., p. 23.

to procure more livestock was apparently preferable and that the remaining capital and labor were allocated to cash crops. Increasing livestock numbers (cattle) required additional hay acreage, and a less crucial harvest period for hay did not cause an undue labor requirement.

IV. PERIOD FROM 1920 TO 1940

Introduction

For a quarter of a century prior to 1920 agriculture was moving towards a stronger position in the economy. World War I abnormally stimulated farm production and boosted farm prices and income. Agricultural prices were the first to break in 1920, and until 1921 a period of recession existed. In the study area, the recession years caused some farmers to go bankrupt. The decreases in the average prices of corn, wheat and lint cotton in Tennessee from 1919 to 1921 were these:[46]

	1919	1921	Percent Change
Corn (bu.)	$1.85	$0.66	-64.3
Wheat (bu.)	2.30	1.28	-44.4
Cotton (lb.)	.3405	.1647	-54.5

Many other commodities did not suffer quite so severe a decline; but falling prices generally prevailed, and the impact was quite serious, since many of the farmers had incurred a large amount of fixed

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[46]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., pp. 17-40.

indebtedness. The fixed charges (payment of principal and interest) had to be met currently and at regular intervals. The rapid, unfavorable change in the farmer's balance sheet caused the equities of most farmers to shrink and led to the trouble.[47]

The crops sold in 1920 had been produced by the farmers in the area at very high costs, and credit had been relatively freely used. The absence of surplus capital to offset the declining commodity prices was evident during the depression. Debt payments were paid (or partially paid) with commodities that brought lower prices, and the debt pressure struck at a time when returns were inadequate to balance the debts acquired in producing them.

The period of falling prices and lower incomes from 1920 to 1921 was mild compared to what happened at the onset of the Great Depression. The 1920's, frequently referred to as "Coolidge prosperity," were not prosperous years for the farmers of the selected area, and when the break started in 1930, prices again fell.[48] in Tennessee, the fall in average prices for corn, wheat and lint cotton from 1930 to 1931 were these:[49]

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[47]Robertson, op. cit., pp. 428-432.

[48]Carlton C. Sims (ed.), A History of Rutherford County (Murfreesboro, Tennessee: Carlton C. Sims, 1947), pp. 206-207.

[49]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., pp. 17-40.

	1930	1931	Percent Change
Corn (bu.)	$0.86	$ .36	-58.1
Wheat (bu.)	1.01	.62	-38.6
Cotton (lb.)	.0904	.0533	-41

The days of 36 cent corn, 62 cent wheat and 5 cent cotton at the local markets were definitely burdens on the farmers of the study area.[50]

The shift to a heavy concentration of livestock in the selected area caused the decline in livestock prices to be equally disasterous. From 1930 to 1931 the average price received per hundredweight for beef cattle, hogs and lambs dropped, and the reported prices in Tennessee were:[51]

	1930	1931	Percent Change
Cattle (per hundredweight)	$6.00	$4.40	-26.7
Hogs (per hundredweight)	9.10	6.70	-26.4
Lambs (per hundredweight)	9.20	6.40	-30.4

The percentage change in prices for crops and livestock forced not only many of the marginal farmers, but also some of the successful ones into bankruptcy.[52] The collapse of farm prices caused a new and alarming disparity between farm incomes and costs. Non-agricultural

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[50]Gracey, loc. cit.

[51]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., pp. 99-116.

[52]Sims, op. cit., p. 207.

prices remained fairly rigid. Farmers started to protest, existing farm organizations increased their memberships, and new ones were established. Pressure exerted on the lawmakers and administrators was partially responsible for the large amount of farm legislation that developed from the early 1920's through 1938. The combination of deflation, depression and Agricultural Adjustment Acts makes the 1920 to 1940 era different from preceding eras and almost incomparable.

The county councils of agriculture were organized by the Agricultural Extension Service as early as 1919 and were the forerunners of the Tennessee Farm Bureau. The representatives from the various Farm Bureaus and county councils of the state met in Nashville on July 29, 1921, and organized a temporary State Farm Bureau Federation. J. Frank Porter, president of the Maury County Farm Bureau, was elected president of the temporary state organization.

In 1923, the Tennessee Farm Bureau paid its dues into and affiliated with the American Farm Bureau Federation. Within the same year the Farm Bureau publication was established and a State Cooperative Purchasing Organization organized and incorporated to purchase for members fertilizers and other farm supplies. Extension Agricultural Organizational Specialists were employed jointly to help the Farm Bureau and the farmers of the state.

The membership increased from 2,500 to 3,000 in 20 counties in 1923 to 11,000 in 73 counties by 1942. The state office was located at Columbia in Maury County and aided in the development of the agriculture of the study counties. One of the main objectives of the

Tennessee Farm Bureau has been directed at protecting the legislative welfare of Tennessee farmers. The state organization has consistently worked with the American Farm Bureau Federation in securing national legislation in the interest of farmers and cooperated with the Agricultural Extension Service and State Department of Agriculture.[53]

General Agricultural Situation from 1920 to 1940

The fluctuations in agriculture from 1920 to 1940 in the selected area resulted from the combined impact of a period of recession followed later by a period of depression. Production costs, exceeding sale prices, made the early government programs welcome and offered some relief to the area. When the economy started to stabilize in the late thirties, many of the farmers, previously aided, criticized the government for too many controls and restrictions on individual freedom.[54]

The limitations of funds handicapped the State Department of Agriculture, and the major emphasis of the Department was on providing market information. Market reporters were stationed at principal market centers (Nashville for the selected area) and attempted to inform the farmers the latest and most up-to-date market quotations.[55]

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[53]Tennessee Department of Agriculture, Tennessee Agriculture (Nashville: Tennessee Department of Agriculture, 1942), pp. 90-91.

[54]Sims, op. cit., pp. 206-208.

[55]Opinion expressed by Charles E. Allred, retired head of Department of Agricultural Economics and Rural Sociology at The University of Tennessee, in a personal interview, Knoxville, June 22, 1965.

To understand the changes that developed from 1920 to 1940, it is necessary to understand that farming in the selected area was more than just a living; it was a way of life. The farm was the home and the workshop for the farmer and his family. Hours of labor varied with the season and the selection of crops and livestock. Often the isolation caused farm families to join other farm families in the community in a common bondage, and this developed the sociological interest agriculture possessed during the era.[56]

The production of agricultural commodities was not always for the purpose of money, and especially during the depression, agricultural production was a mode of existence in the selected area. Production in the early 1930's was mainly for family consumption, and the farmers lived at or near a subsistence level.[57]

From 1920 to 1940 the comparability of the agricultural statistics was complicated by the variations in enumeration dates. In 1930 and 1940 the census was enumerated April first, but in 1920, 1925 and 1935, the census reported for the period ending January first.[58] The period between January and April was characterized by change in the selected area (especially livestock numbers), and much of the reported

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[56]Wallace, loc. cit.

[57]Troy, J. Cauley, Agriculture in an Industrial Economy (New York: Bookman Associates, 1956), pp. 50-54.

[58]United States Bureau of the Census, Sixteenth Census of the United States: 1940. Agriculture, Vol. I (Washington: Government Printing Office, 1941), pp. 2-6.

numerical differences between two or several censuses can be logically explained.

The Census definition of farm from 1920 through 1940 included units of three acres or more and establishments of less than three acres, provided the agricultural products were valued at $250 or more.[59] In the study area, the number of farms fluctuated from 1920 to 1940 (Table VII, page 52), and realizing that economic pressures were present during the era partially explains the increases and decreases.

When farm prices fell relative to other non-agricultural prices as happened in 1920 and from 1929 to 1933, the price mechanism determining a transfer of labor resources was superseded by other forces. Farmers, who became bankrupt to the extent of having mortgages on their farms foreclosed, did not in the majority of the cases quit farming. They continued as tenant farmers, instead of farm owners, and the number of farms was affected very little. In 1932, the worst year of the Great Depression, the farm population of the selected area (and of the rest of the economy) in absolute numbers reached an all time peak. People simply lost their jobs in town and went back to the farm where at least food and shelter were available.[60]

The return to the farm introduces a deviation from accepted thinking concerning price as a balance wheel in the economy. Relative prices are not effective in inducing a redistribution of labor forces

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[59] Ibid.

[60] Allred, loc. cit.

(transferring the excess labor supply out of agriculture) unless a fuller use of resources exists than prevailed from 1920 to 1940.[61]

Understanding the two previous paragraphs explains why the selected area experienced a slight increase in total population from 1920 to 1940 (Table VII, page 52). Apparently the pressures of the Great Depression affected the area more than the period of deflation, since from 1920 to 1925, land in farms, average farm size and proportion of land in farms decreased but these same items increased from 1930 to 1935 in all but Williamson County. The smaller total population, larger area in woodland, and comparatively rougher terrain explain why Williamson County deviated from the noted pattern.

Crop Situation from 1919 to 1939

From 1919 to 1939 crops were consistently enumerated on the production of the preceding (past) crop year, but federal programs regulating crops complicated the comparability of the data. The selected area, at first was indifferent to federal aid, partially because of the strong cooperatives and partly because of the traditional opposition to increased federal powers, but hard times finally resulted in the area's joining the movement.[62] The central ideas of farm relief plans started with "agitation centered, first and foremost, around the general

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[61]Sims, op. cit., pp. 201-207.

[62]United States Department of Agriculture, "Farmers in a Changing World," The Yearbook of Agriculture: 1940 (Washington: Government Printing Office, 1940), p. 307.

idea of equality for agriculture, and the related idea of a 'fair share of national income.' It also embodied the hope for security against bankruptcy prices and low, unstable income, drought and crop failure, and mortgage foreclosure and uncertain land tenure."[63]

Cotton in the selected area showed a large increase, as indicated by Table VIII, page 56, from 1919 to 1924. This apparently stemmed from the fact that during the early twenties the state was "cotton minded" and that land was diverted to cotton.[64] Maury and Rutherford Counties more than doubled cotton acreage from 1919 to 1924, and Williamson's increase was from 30 acres to over 1,000 acres. The decrease from 1924 to 1929 resulted from the return of the labor force to industrial employment as evidenced by the decline in total population in 1930 (Table VII, page 52). The cotton acreages enumerated for 1934 and 1939 were affected by the Agricultural Adjustment Act of 1933, the Soil Conservation and Domestic Allotment Act of 1936, and the Agricultural Adjustment Act of 1938. The influence of these three Acts brought about a decline in cotton acreage.[65]

The attempts by the Federal Government to regulate supply, encourage soil improvement and provide a parity price for specified

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[63]Ibid.

[64]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854-1954," The Fortieth Biennial Report: 1952-1954, op. cit., pp. 272-273.

[65]United States Department of Agriculture, Century of Service. Centennial Committee, Economic Research Service, Agricultural History Branch (Washington: Government Printing Office, 1963), pp. 143-176.

"surplus" crops and livestock through acreage or livestock reduction resulted in the cotton, corn, tobacco, wheat, swine and cattle figures being incomparable with all other previous figures. Decreases in crop acreage resulted from non-recourse loans offered to particpating farmers who restricted production.[66] The resulting enumeration for the study area showed a high degree of participation in the federal programs and indicated that the selection of livestock or crops from 1934 to 1939 was governed by this force.

The decrease in corn acreage from 1919 to 1939 in the selected area resulted from declining prices and participation in federal programs. The historical base (based on 1919 to 1929 acreage) used in 1934 and 1939 decreased corn acreage, and, since livestock was also influenced by the Adjustment Acts, the need for corn was not as great. The yields per acre fluctuated from yearly averages of 18 bushels to over 26 bushels and made the total production figures (Table IX, page 59) almost meaningless, since little indication of the relative importance of the specified crops was indicated.

Tobacco acreage showed a rapid increase in Maury and Williamson Counties from 1919 to 1939 (Table VIII, page 56), but again the influence of the federal acts must be recognized, since tobacco prices were supported by government prices. The increase from 1919 to 1929 resulted from favorable prices, increased usage of smoking tobacco and small plots of tobacco on most farms in the two counties.[67]

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[66] Ibid.

[67] Gracey, loc. cit.

The decrease in oats and increase in barley acreage (Table VIII, page 56) resulted from the decrease in horses and mules and the emphasis on barley as a feed high in nutrient value. Barley was recommended for brood sows and cattle, and apparently the farmers utilized the information obtained through research in animal nutrition.[68]

The statistics on hay acreage were also influenced by the Adjustment Acts, and the substantial increase from 1934 to 1939 indicated the effects of the participation in the Soil Conservation Program of 1936. It should be noted that many farmers were planning to increase hay acreage, and the added incentive was provided by the Federal Government.[69] The use of lespedeza hay started around 1920, and it soon became very popular in the study area.[70] From 1919 to 1924 hay acreage decreased, and the cost of seed in addition to a decrease in cattle probably discouraged planting or mowing additional acres of hay. It also encouraged using the limited resources for planting cash crops. The percentage of total farm acreage allocated to specified crops decreased from 1920 to 1925 (Table X, page 60) and gave an indication that the influence of hay acreage was not instrumental in stabilizing the percentages. Analyzing the period from 1935 to 1940 (Tables X, page 60, and XI, page 61) one finds indicated that the decreased caused

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[68]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854-1954," The Fortieth Biennial Report: 1952-1954, op. cit., pp. 272-277.

[69]Stark, loc. cit.

[70]Sims, op. cit., pp. 201-208.

by reduced acreage of row and cereal crops was balanced by up to 16.7 percent of the specified crop acreage being allocated to hay (Maury County).

The recession period of the 1920's, the depression period of the 1930's, and the influence of the Agricultural Adjustment Acts of 1933, 1936 and 1938, were forces instrumental in causing shifts in crop acreage. Any comparison of the enumeration data of the censuses is questionable, and the only noticeable trend apparent from 1919 to 1939 is that the farmers of the selected area participated in federal programs and regulated acreage to receive the benefit of price supports.

Livestock Situation from 1920 to 1940

The complexity of the livestock situation stemmed from the change in enumeration dates, a period of recession and depression, and the Agricultural Adjustment Acts. Since most of the enumerated data are not comparable, only a few, brief overall trends are discussed.

The selected area continued to shift resources that aided in the development of livestock. Cattle and grass became the characteristic features of the selected area, and only the horse and mule numbers declined noticeably during the 1920 to 1949 period.[71]

The beef industry in the selected area had two definite changes. First, a shift was made from Shorthorns to Herefords, and second, a shift from a fat-cattle operation to a supplier of feeder calves

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[71]Gracey, loc. cit.

developed. The preference for Herefords stemmed from the influence of L. A. Richardson in the 1920's, who was often called the "Father of Tennessee's Beef Industry."[72] The improvement in blood lines, developed through careful breeding, resulted in animals that made rapid gains and had a favorable feed to gain ratios. The Shorthorns remained an important segment of the cattle industry but definitely lost their superiority.

The decision to furnish feeder calves developed when the Corn Belt states' comparative advantage over other regions in fattening cattle was recognized. Improved rail facilities permitted the transfer of large lots of feeder calves to the Midwest. The development of the major stockyards and meat packing industries in the Midwest made the furnishing of feeder calves more profitable, and rather than trying to compete in the fat cattle markets, the farmers of the study area recognized the advantage of being suppliers of feeder calves.[73]

The increase in the dairy industry from 1920 to 1940 was influenced by the establishment in 1927 of a large Carnation Creamery in Rutherford County. The many milk processing facilities established in the area encouraged the enlargement of the dairy herds, and the Jersey breed was still preferred.[74]

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[72]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854-1954," The Fortieth Biennial Report: 1952-1954, op. cit., p. 283.

[73]Gracey, loc. cit.

[74]Sims, op. cit., pp. 205-207.

The starting of dairy cattle shows with minimum production (butterfat) requirements stimulated the improvement of dairy herds.[75] The influence of the Agricultural Adjustment Acts caused cutbacks in beef and swine production and encouraged enlargement of the dairy industry. The Agricultural Adjustment Act of 1933 was supposed to regulate the dairy industry also, but due to milk shortages, action to reduce dairy cattle numbers was never initiated. The influence of the Nashville fluid milk market also proved instrumental in shifting farmers (with family labor) into the milk business as well as in encouraging development of milk processing plants in the selected areas.[76]

From 1909 to 1940 the average milk production per cow increased. This increase stemmed from better care, feeding and breeding practices.[77] Mechanical milking machines, invented in Australia in 1902, permitted a dairy farmer to reduce the time required for milking and also encouraged him to increase herd size. For several years, farmers were prejudiced against milking machines and indicated that machines impaired the milk producing capacity of a cow; but by the 1930's there were "no grounds" for the notion, and the milking machine rose in popularity.[78]

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[75]Tennessee Department of Agriculture, "A Century of Tennessee Agriculture, 1854-1954," The Fortieth Biennial Report: 1952-1954, op. cit., pp. 280-282.

[76]Stark, loc. cit.

[77]Ibid.

[78]G. A. Smith and H. A. Harding, Milking Machines, Bulletin 353 (Ithaca, New York: New York State Agricultural Experiment Station, 1935), pp. 328-330.

Swine numbers from 1920 to 1940 were greatly influenced by the Agricultural Adjustment Acts, since by reducing swine numbers the need for corn production diminished. The government purchased pigs and sows in the 1930's to reduce swine numbers and tried to stabilize the swine industry.

The sheep industry remained fairly stable from 1920 to 1940 in the selected area (Table XII, page 63). The enumeration date affected the comparability, and when adjustments for the dates were taken into consideration, a fairly constant upward trend was evident.

The decrease in horses and mules was anticipated, since the use of mechanical power was becoming a reality. The shift to tractors in the study area was hindered by the size of operations and the large number of mules and horses already present on farms. The purchase costs of the tractor and implements discouraged a rapid change-over, but by 1940 the number of all-purpose tractors (appearing in the United States in 1924) was starting to increase and eventually replaced animal power.[79]

Concluding Notes on Period from 1920 to 1940

The difficulty in discussing and documenting agricultural shifts from 1920 to 1940 resulted in an attempt to present only general trends. The combination of social, political and economic forces from 1920 to 1940 caused frequent fluctuations, and the forces either stimulated or

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[79]Harold Burger and H. H. Landsberg, American Agriculture, 1899-1939 (New York: National Bureau of Economic Research, Inc., 1942), p. 207.

retarded development throughout the period. The analysis of crops and livestock resulted in the conclusion that the changes were continuations of trends evident prior to 1920. The changes or shifts occurring resulted primarily from a combination of the forces, generally experienced for the first time in American agricultural history in such a unique combination.

CHAPTER IV

AGRICULTURE DURING THE WAR AND CONFUSION: 1940 TO 1960

I. INTRODUCTION

The preceding chapter spanned forty years of agricultural history influenced by dynamic economic, social, political, and physical forces at work in the economy. The "golden era" of agriculture was followed by a period of recession, an era of depression and a period of prosperity brought about by preparation for war. The first efforts from 1921 to 1933 to correct the problems plaguing agriculture proved unsuccessful, and starting in 1933 the crystalization of a planned program of farm policy developed and was inaugurated into action.

From 1933 to 1960 federal farm policy was instrumental in guiding farmers' decisions and trying to correct the illness agriculture had developed. The Agricultural Adjustment Acts, AAA, attempted to increase farm prices by restricting production. The most important weapon used was the acreage allotment, and benefit payments were offered to participating farmers who reduced the acreage of soil depleting crops. Efforts were aimed at decreasing cropland acreage, rebuilding the withdrawn soil and boosting farm incomes.

Price supports, based on a parity price concept, were initiated, and the more favorable prices and the war effort caused the troubles which had plagued agriculture to disappear. From 1941 to 1948 favorable

prices for agricultural commodities prevailed, shortly thereafter large supplies started to accumulate in storage. An attempt was made to reduce the supplies by a voluntary shifting of land into a Soil Bank in 1956, and the results were unbelievably bad. The carry-over stocks continued to accumulate, boosted storage costs and presented a serious problem in 1960. A remedy for the farm problem was being sought, but apparently the wrong perscriptions were used.

This agricultural setting just presented indicates that the period from 1940 to 1960 will be difficult to present and equally difficult to compare. Again, as in the 1920 to 1940 period, economic, social and political forces tend to cloud the time era under study and definitely influence farmers' decisions in the selected area. The farmers of the study area, because of necessity, participated in the federal programs, and the enumerated census data from 1940 to 1959 shows the influence various programs caused. Amid the confusion and clouding effects the various programs had on agriculture in the study area, the following is an attempt to develop the agricultural transition, shifts and adjustments, that took place from 1940 to 1959.

General Agricultural Situation from 1940 to 1959

The comparability of agricultural statistics from 1940 to 1959 is clouded by social and economic forces present in the economy and by the changes in enumeration date and census definition changes. Disregarding the social, political, and economic forces for the moment, the changes in enumeration dates were as follows: The Censuses of 1940 and

1950 were enumerated as of April first; the Census of 1945 as of January first; and the Censuses of 1954 and 1959 were enumerated as of October to November, depending on when the census reporter arrived on the farm.[1] The effect of the changes in enumeration date will either overstate or understate the changes in livestock numbers, since some livestock numbers on farms vary sharply at different months of the year. The comparison of crop acreage will tend to be more uniform except that the federal programs affected crop acreage more than livestock numbers. Any assumptions or implications resulting from the census reports on crops and livestock must therefore consider federal programs, date of enumeration and any indicated trends from the census enumerations prior to the period under study, preferably drawing heavily upon the pre-1920 statistics and trends.

The several changes in definition from 1940 to 1960 caused variances in the reported enumeration data. The Census of 1959 defined farm on the basis of acres in place and estimated value of products sold. For all practical purposes, farms were limited to establishments of 10 acres or more selling at least an estimated $50 worth of produce in 1959. Establishments of less than 10 acres counted as farms if estimated sales of products were at least valued at $250 or more. The Censuses of 1950 and 1954 counted establishments of 3 acres of more with

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[1]United States Bureau of the Census, Eighteenth Census of the United States: 1960. Agriculture, Vol. 1, Part 31 (Washington: Government Printing Office, 1961), pp. ix-xii.

an annual value of products amounting to $150 as farms. Places of less than 3 acres were also counted if annual sales amounted to $150 or more. In 1940 and 1945 the census reporters enumerated farms as establishments of 3 acres or more and places of less than 3 acres only if products for sale or home use were valued at $250 or more.[2]

The changes in definition of farm partially explain the decrease in number of farms from 1940 to 1959 (Table XIII). The change in definition of farm from 1954 to 1959 resulted in 97 fewer farms in Maury County, 241 fewer farms in Rutherford County, and 106 fewer farms in Williamson County. Realizing that part of the decrease resulted from a change in definition, one can still make the assumption that there was an actual decrease in the number of farms from 1940 to 1960 in the selected area. The newly emerging residential housing developments encompassed many acres of farm land, and often the farm dwelling remained the residence of a former farmer, who sought employment at one of the many industries moving into the study area.

The influence of industrialization from 1940 to 1960 was especially noticeable in Rutherford County, and the 28 percent increase in population from 1950 to 1960 (Table XIII) suggested that developing industries and an Air Force Base brought about shifts in resource use. The change in proportion of land in farms (Table XIII) for the selected area implied a decrease in the number of farms and the possible

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[2] Ibid., pp. xiv-xvi.

TABLE XIII

TOTAL POPULATION AND SPECIFIED AGRICULTURAL CHARACTERISTICS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1940-1959

Item	County	Year[a] 1940 (Apr. 1)	1945 (Jan. 1)	1950 (Apr. 1)	1954 (Oct.-Nov.)	1959 (Oct.-Nov.)
Total Population	Maury	40,357	--	40,368	--	41,699
	Rutherford	33,604	--	40,696	--	52,368
	Williamson	25,220	--	24,307	--	25,267
Number of Farms	Maury	3,439	3,562	3,049	3,010	2,272[b]
	Rutherford	4,450	4,210	3,672	3,441	2,566[b]
	Williamson	3,534	3,119	2,979	2,669	1,986[b]
Land in Farms (Acres)	Maury	341,795	357,405	340,521	346,560	306,289
	Rutherford	355,710	371,102	356,492	340,558	325,075
	Williamson	332,686	319,911	327,259	310,875	276,701
Average Farm Size (Acres)	Maury	74.7	100.3	111.7	115.1	134.8
	Rutherford	79.9	88.1	97.1	99.0	126.7
	Williamson	94.1	102.6	109.9	116.5	139.3
Proportion of Land In Farms	Maury	87.0	91.0	86.7	88.2	77.9
	Rutherford	88.2	92.0	88.4	84.5	80.6
	Williamson	87.5	84.2	86.2	81.9	72.9

[a]The Censuses were enumerated as of the indicated dates.

[b]Change in census definition of farm reduced the number of farms in 1959 by the following amounts: Maury, 97; Rutherford, 241; and Williamson, 106.

SOURCES: United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Population and Agriculture (Washington: Government Printing Office).

acquisition of farm land for industry, for government projects, and for residential developments.[3]

The increased size of the average farm and the decrease in the number of farms from 1940 to 1950 indicated that often many small farms were purchased by farmers, causing the formation of fewer but larger farms in the study area (Table XIII, page 96). As farms became fewer in number but larger in size, the percentage of farms that tenants farmed decreased. The trend from 1940 to 1959 was for farmer's ownership of a farm (replacing the formerly popular idea of share or tenant farming), and the movement towards ownership was quite rapid.[4]

The transformation from tenancy to ownership is even more startling once the fact that the owner-tenant relationship accounted for over 40 percent of the farming agreements in 1940 is realized. The percentage decreases in tenant farming from 1940 to 1959 were these:[5]

	1940	1945	1950	1954	1959
Maury	42.8	34.1	31.4	29.3	16.9
Rutherford	44.7	32.7	30.0	27.5	15.7
Williamson	40.5	34.9	28.7	25.7	20.8

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[3]Opinion expressed by B. B. Gracey, retired professor of agriculture at Middle Tennessee State University, in a personal interview, Murfreesboro, April 14, 1966.

[4]Carlton C. Sims (ed.), A History of Rutherford County (Murfreesboro, Tennessee: Carlton C. Sims, 1947), pp. 209-210.

[5]United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Agriculture (Washington: Government Printing Office).

Part of the change (1940 to 1950) resulted from the heavy demands of the draft during the war when many "gentlemen" farmers were forced back to their lands, and even their wives and daughters found it necessary to engage in hard farm work.[6]

The change in percentage of tenancy from 1954 to 1959 was also associated with an occupational change. Tenant farmers found more rewarding and higher paying jobs in the city and migrated to the growing industrial centers. The costs of remaining a farmer were increasing, and often the replacement and acquisition of needed farm equipment exceeded the means of most tenant farmers, resulting in the shift that moved many tenant farmers to industrial jobs.

The increase in the use of mechanical power was retarded by the period of hard times from 1920 to 1940, and the war effort stimulated the need for labor-saving devices during the 40's; but the lack of availability of new machinery forced many farmers to repair and utilize the existing farm implements on hand.[7] After 1945, the equilibrium between the supply and demand for mechanical power changed, and the acquisition of needed equipment to remain competitive was realized (Table XIV).

Often the limited acreage of specified crops on some farms in the selected area resulted in a reliance on custom operators, and many farmers in the area specialized in a custom work operation. The

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[6]Sims, op. cit., pp. 209-210.

[7]Ibid.

TABLE XIV

NUMBERS OF SPECIFIED EQUIPMENT ON FARMS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1945-1959

Item	County	Year[a] 1945 (Jan. 1)	1950 (Apr. 1)	1954 (Oct.-Nov.)	1959 (Oct.-Nov.)
Tractors (Total)	Maury	445	913	1,367	1,833
	Rutherford	552	1,175	1,529	1,691
	Williamson	519	985	1,389	1,537
Grain Combines (Total)	Maury	--	385	379	426
	Rutherford	--	234	250	296
	Williamson	--	234	290	227
Corn Pickers (Total)	Maury	--	54	79	135
	Rutherford	--	102	189	172
	Williamson	--	37	72	101

[a]Equipment reported on farms was enumerated as of the indicated dates.

SOURCES: United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Agriculture (Washington: Government Printing Office).

unavailability of labor (farm laborers having acquired industrial jobs) required the use of technological advances whenever feasible. As the number of full-time farmers decreased and the number of "part-time" farmers increased, the demand for labor-saving devices became more evident.[8] The part-time farmer, working two jobs, came into existence in the study area when full time farming failed to provide an adequate family income. The increasing number of industrial jobs available encouraged the marginal farmer to live on the farmstead and commute to a city job. The acquisition of an automobile increased the farmer's mobility, and improved highways ended the era of isolation which rural families had previously experienced. The desirability of being only a part-time farmer influenced the selection of crops and livestock and brought about a new trend in crops and livestock combinations by the farmers in the study area.[9]

Crop Situation from 1939 to 1959

The comparability of crop acreage from 1939 to 1959 is difficult and complex, since the social, economic and biological forces present during the era complicated the analysis. The presence of the above mentioned forces in the economy frequently permitted only assumptions to be made, and the only fact known for certain is the probable

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[8]Opinion expressed by Lou Wallace, agricultural historian and editor of Tennessee's Biennial Reports, in a personal interview, Nashville, April 13, 1966.

[9]Ibid.

enumeration dates of the censuses. Since corn, wheat and cotton decreased in acreage from 1939 to 1959, the assumption that the federal programs influenced farmers' decisions appears justified. The fluctuations in oats, hay and barley acreage stemmed from the federal programs, since livestock numbers were influenced by limitations placed on crops normally used in feed rations. The increase in prices received by farmers, caused by World War II, was quite large and very favorable. The prosperity of the farmer from 1941 to 1947 can only be compared with the relative position farmers achieved during the "golden era" in agriculture. The increase in prices received by farmers in Tennessee from 1940 to 1947 for corn and wheat, and cotton were these:[10]

	1940	1947	Percent Change
Corn (bu.)	$ .72	$2.18	203
Wheat (bu.)	.86	2.38	177
Cotton (lb.)	.0937	.3253	247

The percent of change indicates that production of any of the three specified crops was desirable, but participation in federal programs required a reduction in total cropland acreage. The reduction of cropland acreage was computed from the farm's historical base, and if the base had not been planted, the privilege of receiving support prices necessitated a further reduction in acreage or the complete abstinence

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[10]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics (fourth edition) (Nashville: Tennessee Department of Agriculture, 1964), pp. 21-40.

from growing certain crops for which the farm was not qualified.

Most frequently the limiting factor was the availability of labor. The war effort reduced the labor force, and farmers planted the assortment of crops that the available labor supply could cultivate and harvest. Mechanical power was scarce and most often either impossible or too expensive to obtain during the War.[11] In 1941 the wages paid a hired hand were about one dollar per day with board, and by 1945 the price had increased to two dollars per day.[12]

Trying to keep the many influential forces in mind clouds the comparison of crop statistics from 1939 to 1959. The decreases in cotton acreage (Table XV) for the study area stemmed from the following apparent reasons:

1. Participation in federal programs reduced acreage.

2. The war effort reduced the labor force and boosted the price paid available laborers. Machinery shortages prevented the substitution of capital for labor during the war.

The substitution of capital for labor characterized the period from 1946 to 1960. The price of hired labor increased to about three dollars per day,[13] and the availability of industrial jobs continued

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[11]Gracy, loc. cit.

[12]Tennessee Department of Agriculture, "Farming and Freedom," The Thirty-ninth Biennial Report: 1950-1952 (Nashville: Tennessee Department of Agriculture, 1952), p. 246.

[13]Ibid.

TABLE XV

ACREAGE OF SPECIFIED CROPS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1940-1959

Item	County	Year[a] 1939	1944	1949	1954	1959
Cotton	Maury	167	244	172	152	73
	Rutherford	10,108	9,881	6,424	5,254	2,168
	Williamson	164	162	160	89	41
Corn (Harvested Grain)	Maury	51,777	46,149	36,316	25,279	19,819
	Rutherford	49,863	45,378	40,267	23,476	21,207
	Williamson	44,474	33,801	28,548	15,481	13,008
Tobacco	Maury	3,639	4,175	3,607	3,238	2,411
	Rutherford	195	244	302	247	218
	Williamson	2,690	3,372	2,833	2,543	1,844
Wheat	Maury	9,747	16,452	10,738	8,273	7,640
	Rutherford	7,957	12,553	4,832	4,543	3,116
	Williamson	14,275	19,874	10,878	5,633	3,821
Oats	Maury	3,186	5,999	4,677	6,318	3,885
	Rutherford	2,073	3,641	6,617	7,929	5,430
	Williamson	2,197	5,150	6.633	6,011	4,371

TABLE XV (continued)

Item	County	Year[a] 1939	1944	1949	1954	1959
Barley	Maury	2,058	10,644	5,448	9,283	4,722
	Rutherford	655	2,466	2,168	3,512	2,550
	Williamson	5,806	12,967	6,969	4,189	2,629
Hay (Mowed)	Maury	43,005	39,554	31,611	25,646	25,389
	Rutherford	54,188	45,074	46,992	37,700	33,761
	Williamson	39,551	30,165	35,741	27,859	29,260

[a]Crop reports are for the preceding census year except for the Censuses of 1945, 1954, and 1959.

SOURCES: United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Agriculture (Washington: Government Printing Office).

to result in a shortage of labor. The fear of falling prices resulted in most farmers' accepting federal support prices and acreage allotments. The attractiveness of city jobs caused an increase in part-time farming and influenced the farmer's selection of crops to plant. The high labor requirement of cotton, and the impracticability of utilizing mechanical pickers on the small cotton acreage caused most farmers in the study area to completely discontinue the planting of cotton. The remaining cotton in Rutherford County (Table XV, page 103) was raised on several large farms on which the utilization of mechanical equipment was practical.[14]

The reduction in corn acreage in the study area from 1939 to 1959 (Table XV, page 103) indicated that apparently the same reasons that caused a decline in cotton also reduced corn acreage. Neal's Paymaster corn was planted until the 1950's, when it was slowly replaced by hybrids. The lack of motivation to switch to hybrids stemmed from the fact that Neal's Paymaster yielded two to three ears per stalk and that an adaptable hybrid was not available, since the Corn Belt varieties were not adaptable.[15]

A preference for raising white corn continued, resulting from the local diet consisting of corn bread, grits and hominy. The Experiment

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[14]Opinion expressed by David Moore, county agent in Rutherford County, in a personal interview, Murfreesboro, April 13, 1966.

[15]Tennessee Department of Agriculture, "Farming and Freedom," The Thirty-ninth Biennial Report: 1950-1952, op. cit., pp. 212-213.

Station developed Dixie 33 and a yellow Dixie 22, both adaptable to the area, and these varieties became popular hybrids partly because of their resistance to the European Corn Borer which plagued the area during the 50's.[16] In 1959 hybrid corn seed was planted almost exclusively as adaptable varieties became more available.

It should be noted that the State Department of Agriculture's seed laboratories, started in 1952, improved the quality of seed available to farmers and stressed the idea of "Keeping Tennessee Green". The use of commercial fertilizer increased rapidly as farmers pushed for higher yields from fewer acres, while liming also became a common improvement practice.[17] The increasing use of fertilizer was not apparent from census data which indicated total tons used per census year. The change from lower to higher analysis fertilizer and the reduction of cropland acreage reduced the total tons used and disguised the fact that farmers increased pounds of available nutrients per acre.

The comparison of acreage of corn (Table XV, page 103) to production of corn (Table XVI) indicated that corn yields increased from an average slightly over 20 bushels per acre in 1939 to an average of more than 35 bushels per acre in 1959. The corn planted was primarily used to support the area's livestock population, and only a limited amount was sold as a cash crop.[18]

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[16] Ibid.

[17] Ibid., p. 91.

[18] Wallace, loc. cit.

TABLE XVI

PRODUCTION OF SPECIFIED CROPS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1940-1959

Item	County	Year[a] 1939	1945	1949	1954	1959
Cotton (Bales)	Maury	90	189	88	77	59
	Rutherford	6,710	7,095	4,962	2,818	2,437
	Williamson	82	94	80	48	32
Corn (Bushels)	Maury	1,082,305	861,335	983,559	335,986	696,062
	Rutherford	1,074,376	953,984	1,233,746	365,713	777,656
	Williamson	972,946	646,443	1,072,584	230,823	464,396
Wheat (Bushels)	Maury	116,432	256,990	161,729	141,439	162,563
	Rutherford	85,533	176,416	63,679	67,803	62,376
	Williamson	167,865	314,757	146,453	82,209	83,671
Oats (Bushels)	Maury	50,840	159,733	96,800	176,535	110,090
	Rutherford	39,676	98,042	166,121	210,774	186,257
	Williamson	36,878	127,811	163,771	185,527	132,068

[a]Crop reports are for the preceding census year except for the Censuses of 1945, 1954, and 1959.

SOURCES: United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Agriculture (Washington: Government Printing Office).

Wheat acreage fluctuated from 1939 to 1959 in the selected area (Table XV, page 103). The influence of federal programs affected the acreage planted, and most of the wheat planted was used as a cash crop. The introduction of hybrids increased the yields per acre in the area, and in comparing acreage to production of Table XV, page 103, to Table XVI, one finds it apparent that total production has been fairly stable except in 1944 (war effort). The average yield for the study area increased from just over 10 bushels per acre in 1939 to more than 20 bushels per acre in 1959. The increase primarily resulted from the use of hybrids and the increased use of commercial fertilizers.

Oat and barley acreage in the study area fluctuated from 1939 to 1959 (Table XV, page 103). The usefulness of oats and barley in livestock feed resulted in the acreage planted in oats and barley being used primarily on the farm where grown. The changing numbers and selection of livestock enterprises definitely influenced the amount of oats and barley planted and required by the farmers in the area.

Tobacco acreage in the study area from 193 to 1959 was regulated by federal programs. The small plots of tobacco, characteristic on many farms in Maury and Williamson Counties from 1939 to 1959, gave many farmers a cash crop to sell. The prices received by farmers for tobacco increased from an average price per pound of 14.7 cents in 1939 to 41.7 cents in 1947. Tobacco prices continued to rise to 60.4 cents per pound in 1958 as a result of smaller acreage allotments and improved marketing

practices.[19] Favorable prices apparently induced many farmers to plant their tobacco allotments.

From 1939 to 1959 hay acreage in the study area decreased (Table XV, page 103). The decision not to mow hay stemmed partially from the influence of federal programs, which stipulated that diverted acreage could not be harvested. The data on hay acreage in the study may have understated the total hay acreage, since unmowed hay was excluded from the study. In addition to claiming hay acreage as diverted acres, the farmers also started to prefer corn silage over hay, thereby reducing the necessity of mowing hay.[20] The almost complete mechanization of filling silos and the possibility of pooling labor or trading labor, encouraged the shift to silage and resulted in reduced harvested hay acreage from 1939 to 1959.

The percentage of specified acreage accounted for by the specified crops from 1940 to 1959 declined in the selected area (Table XVII). The allocated specified crop acreage decreased from more than 30 percent in 1940 to about 20 percent in 1960 and the federal programs and lack of available labor resulted in a decline of specified crop acreage. Excluding hay acreage from the specified crops indicated a more dynamic transfer from row crops, since the percentage values decreased until

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[19]Tennessee Department of Agriculture, Agricultural Trends in Tennessee: 1864-1960. Crop and Livestock Statistics, op. cit., pp. 24-30.

[20]Opinion expressed by Dr. Clifford Stark, retired head of the Department of Agriculture at Middle Tennessee State University, in a personal interview, Murfreesboro, April 14, 1966.

TABLE XVII

PERCENTAGE OF TOTAL FARM ACRES ALLOCATED TO SPECIFIED CROPS[a], SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1940-1959.

County	Year				
	1940	1945	1950	1954	1959
Maury	44.2	34.5	27.2	22.6	20.9
Rutherford	35.2	32.1	30.2	24.3	21.1
Williamson	32.8	33.0	28.0	19.9	19.9

[a]Specified crop acreage implies the total acres of cotton, corn, wheat, oats, barley, tobacco, and hay used in the study for a given census.

the 1959 values were about half of the 1940 values (Table XVIII). Based on the reported figures and the percentage values, it appears that the participation in the soil conserving programs resulted in a diversion from the specified crop acreage to permanent unmowed hay or pasture. The climatic conditions favored grazing livestock most of the year; and the transfer to brood herds (for feeder cattle) and dairy cattle were conducive to a grazing economy. Planting permanent grass pasture reduced the need for some labor, and it should be noted that the entire period under study (1940-1959) is a period influenced by a shortage of available labor.[21]

The decline in percentage of acreage accounted for by the specified crops frequently results in the implication that perhaps soybeans, harvested for beans, were grown on most of the acreage diverted from the specified crops. Upon checking the reported figures for soybeans from 1945 to 1959, it was found that the following acres were grown:[22]

	1945	1949	1954	1959
Maury	1,104	569	833	1,378
Rutherford	4,200	3,086	1,982	2,300
Williamson	996	1,271	1,623	1,031

Obviously the decline in specified crop acreage did not result from a shift of diverted acres to soybeans. The shattering of beans during

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[21]Wallace, loc. cit.

[22]United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Agriculture, (Washington: Government Printing Office).

TABLE XVIII

PERCENTAGE OF TOTAL FARM ACRES ALLOCATED TO SPECIFIED CROPS[a], SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1940-1959

County	Year				
	1940	1945	1950	1954	1959
Maury	27.5	23.4	17.9	15.2	12.6
Rutherford	19.9	20.0	17.0	13.2	10.7
Williamson	20.9	23.5	17.1	10.9	9.3

[a]Specified crop acreage implies the total acres of cotton, corn, wheat, oats, barley, and tobacco used in the study for a given census. The acreage of hay was excluded from crop acreage.

the short harvest season in the study area discouraged the planting of soybeans, and apparently most farmers, instead of planting soybeans, preferred to divert crop acreage to grass or nonharvested hay as indicated.

Livestock Situation from 1940 to 1959

The change in enumeration dates, participation in the federal programs and non-availability of labor influenced the livestock numbers reported in the selected area from 1940 to 1959 (Table XIX). The shift from row crops to a grassland was followed by an increase in cattle numbers. The supply of beef feeder calves continued to increase cattle numbers and showed a large increase from 1954 to 1959. Dairy farmers started to seek outside, part-time employment and reduced dairy herd size or changed to beef, since the labor requirement was not as demanding.[23] Nashville continued to increase its role as the key market for the area from 1940 to 1959, and news flashes on livestock prices were broadcast several times daily to keep farmers better informed of prevailing market prices.[24]

The influence of consumer demands probably also contributed to the change to beef cattle since, as industrial salaries increased, more meat--especially beef--was demanded by the population and resulted in

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[23] Wallace, loc. cit.

[24] Ibid.

TABLE XIX

NUMBERS OF SPECIFIED LIVESTOCK ON FARMS IN SELECTED COUNTIES OF TENNESSEE'S CENTRAL BASIN, BY AGRICULTURAL CENSUS PERIODS, 1940-1959

Item	County	Year[a] 1940 (Apr. 1)	1945 (Jan. 1)	1950 (Apr. 1)	1954 (Oct.-Nov.)	1959 (Oct.-Nov.)
Cattle[b] (Number)	Maury	30,243	39,193	41,582	42,191	42,230
	Rutherford	33,780	41,299	46,077	48,063	48,802
	Williamson	25,863	33,761	40,790	45,193	46,650
Cattle, Primarily Dairy (Number)	Maury	15,861	17,538	17,352	16,661	16,661
	Rutherford	21,673	22,676	23,074	23,150	17,489
	Williamson	14,074	15,377	17,194	16,865	12,827
Swine (Number)	Maury	24,954	22,137	30,776	24,220	34,147
	Rutherford	25,780	19,065	32,157	18,953	32,369
	Williamson	23,082	18,397	27,560	17,170	24,601
Sheep (Number)	Maury	23,459	20,308	23,522	19,516	20,064
	Rutherford	17,053	17,548	21,767	15,472	13,689
	Williamson	22,983	23,403	25,294	17,969	13,804
Horses and Mules (Number)	Maury	9,285	9,284	7,339	4,345	3,013
	Rutherford	10,089	10,393	7,196	3,746	2,342
	Williamson	9,950	9,494	7,168	4,299	3,138

[a]Livestock reports are for the census year ending on the indicated dates and represent livestock on farms. Livestock owned but housed off the farm or in transit was also enumerated in the Census as on the farm (except range animals).

[b]Total cattle numbers include dairy and beef cattle.

SOURCES: United States Bureau of the Census, Sixteenth through Eighteenth Censuses of the United States: 1940-1960. Agriculture (Washington: Government Printing Office).

favorable prices. Grassland farming was well suited for raising feeder calves, that were shipped to the Corn Belt states for finishing, and both areas profited.

Dairy interests increased until about the early 1950's, when a transfer from dairy to beef became evident in the area. The switch from Jerseys to Holsteins also occurred, and the efforts of the local creameries were instrumental in causing the transfer, since they started to prefer fluid milk testing around 3.5 percent butterfat and encouraged farmers to change.[25]

Swine numbers in the study area increased from 1940 to 1960, but an awareness of the change in enumeration dates and the impact of the federal program should be noted. The swine industry was definitely changing from fat hogs to providing feeder pigs for other areas, and the emphasis was on improved, meat-type feeder pigs. The lard hog of 800 to 900 pounds, at one time common in the study area, was replaced by lean, bacon-type, crossbred hogs on most farms.[26]

Horses and mules declined as the tractor replaced farm work animals. The horses that remained on farms were generally pleasure horses and an industry based on providing quality horses emerged during the era from 1940 to 1959.[27]

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[25]Gracey, loc. cit.

[26]Wallace, loc. cit.

[27]Ibid.

CHAPTER V

SUMMARY, CONCLUSIONS AND PROJECTIONS

I. SUMMARY

This study had three basic objectives: (1) to document production and resource allocation changes and patterns from 1860 to 1960 for Maury, Rutherford and Williamson, three contigious Central Basin Counties; (2) to search out, over time, the factors influencing change; and (3) to indicate the effects resource shifts and adjustments had on the ability of the selected area and the Central Basin to compete with other regions in agricultural production.

The data was obtained, chronologically organized and then divided into three major divisions. Each division spanned a praticular period of agricultural history and indicated the selected resource shifts and adjustments that transpired during that segment of the era under study. The many changes noted from 1860 to 1960 resulted from certain motivating forces frequently grouped into four major classes: physical, economic, social and biological. The influence of these forces caused the type of farming in the study area to change from the almost complete row crop specialization in corn and cotton in 1860 to the agricultural diversification involving crops and livestock in 1960.

II. CONCLUSIONS

The diversification program was first stimulated by the Federal Government in activities related to the aftermath of the Civil War and later by The University of Tennessee and the State Department of Agriculture. The establishment of the Department of Agriculture at Middle Tennessee State College at Murfreesboro and The University of Tennessee's Middle Tennessee Experiment Station at Spring Hill provided insights into the problem situations of farmers in the study area. The county agricultural and home demonstration agents solicited participation in various diversification programs, and in recent years other federal government programs and the Tennessee Valley Authority have encouraged a more scientific use of land.

The motivating forces influencing shifts and adjustments interacted from 1860 to 1960 and the agriculture in the area was in an almost constant state of transition during the period. The resulting multiple pressures, created by the forces, complicated the study and frequently clouded the fact that farmers in the selected area most often selected combinations of enterprises that were personally appealing and seemed to them to yield the best returns.

The Civil War adversely affected the study area and, in addition to almost collapsing the economy, resulted in many agricultural changes. The fragmentation of farms into many smaller units reduced the average size of farms and prevented many farmers from returning to the old

traditional plantation type of agriculture. The release of the slave labor force created a labor problem in that farmers were required to secure paid labor. As a result, many farmers sought whatever profitable combinations of agricultural enterprises that required the least labor. The Civil War, though destructive, stimulated a stagnant agricultural economy and opened the door for possible industrial advancement. The period from 1860 to 1930 of decreasing farm size and increasing farm numbers was followed by an era of decreasing farm numbers and increasing farm size. The advancement in technology permitted fewer farmers to supply more people with agricultural products and permitted a large portion of the agricultural population to seek nonfarming vocations.

The shifts in cropland acreage from 1860 to 1890 resulted from the influence of all four motivating forces. The physical forces of topography, soils and climate limited the total amount of available cropland and influenced the selection of crops. Early in the study area's agricultural history (1812), it was reported that it was a marginal area for cotton production. The unstable weather from 1812 to 1824, referred to as the "Shakes," encouraged many farmers to seek other, more adaptable crops and rely less on cotton. The profitability of furnishing corn, to the newly emerging cotton regions in the South was recognized, as was the advantage of supplying pork there. The geographic nearness of the markets for these commodities gave the selected area a relative economic advantage over other regions.

Frequently, more profit could be realized by marketing crops through animals rather than selling the crop for cash, which encouraged the development of a crop-livestock economy. As the midwestern and western regions gained a relative production and marketing advantage over the selected area in corn and small grain and the western and southern cotton regions re-established their advantage in cotton, the study area adjusted accordingly and increased livestock numbers. The shifts from crops to livestock were stimulated by the federal agricultural programs in the 1930's and, in effect, limited the increases in livestock by restricting cropland acreage. The increasing demands for labor by industry and the need for more production per farmer forced farmers to adopt the latest technology, Cochran's treadmill, to remain competitive.

The overall trend towards more livestock occurred not only in the study area but also in the entire State of Tennessee. The relative advantage in crop production that other states possessed required a change and increased the emphasis on livestock. Crops were utilized mainly to support farm stock and, generally former cropland was diverted to either hay or pasture crops. The Agricultural Adjustment Acts speeded up the transition from crops to grass and encouraged farmers especially in the study area to do what many intended to do anyway.

The growth of the livestock industry in the selected area resulted from the pressures of physical and economic forces. The pressures added an additional stimulus, and by shifting, the area developed a relative

advantage over other agricultural areas of Tennessee in livestock production. Federal programs and hog cholera restricted the increases of swine numbers but probably encouraged the development of the cattle and sheep industries. Favorable prices encouraged expansion, and when prices dropped, often the most convenient way to dispose of crops was through livestock.

One of the more noticeable trends that developed from the many shifts and adjustments was the increase in dairy numbers. The infleunce of Nashville as a local market stimulated dairy interests, and as total population increased, the demand for milk and milk products increased. The advancement in breeding and initiation of most of the dairy tests common to the industry made the dairy industry profitable and resulted in several creameries establishing milk processing facilities in the area. When hard times plagued the agricultural economy, the small but regular monthly milk check provided some relief and appeared to be a better risk than gambling with crops or other livestock for an entire season, only to end up with little or no returns. The desirability of a regular pay check and fairly stable income and the increasing acreage of pasture or hay were two of the primary reasons for shifting to dairy cattle.

Internal transport improvements developed as rapidly in the study area as in most parts of Tennessee, and the losses from biological forces were no greater or worse than experienced by most Tennessee farmers from 1860 to 1960. The recognition of advantages and

disadvantages resulted in an emphasis of livestock and a de-emphasis of cash crops, except tobacco in the selected area. The suitability of the rolling terrain for grass and hay to support grazing animals was encouraged by local, state and finally federal agencies and proved instrumental in the resulting transition in the area.

The more recent years under study indicated that a labor shortage existed, and this influenced the farmers' production decisions. The need for adoption of technological advances to replace man power was a universal problem in Tennessee and definitely not restricted to the study area. The difference between farming incomes and industrial wages attracted many farmers. In the selected area, the percentage of farmers working off farms 100 days or more increased from 1945 to 1959, as indicated by the following percentages:

	1945	1950	1950	1959
Maury	13.0	21.0	27.4	34.0
Rutherford	17.5	28.0	35.0	42.0
Williamson	19.2	21.4	26.2	37.0

Most of the increase in farmers working off the farm can be attributed to industrialization. A relative and useful gauge indicating the influence is shown in the percentage of farmers, with off-farm incomes exceeding farm incomes from 1950 to 1959:

	1950	1954	1959
Maury	25.3	38.8	44.3
Rutherford	32.0	37.8	54.1
Williamson	27.0	33.7	43.7

This increase appears to indicate that more farmers than previously were finding it necessary to supplement farm income with other income to maintain a desirable standard of living. The effect of farmer's seeking other part-time employment is evident in the recent changes in the composition of livestock numbers. Apparently the trend in the late 1950's was away from dairy and toward beef and swine enterprises.

The selection of beef and swine permitted the farmers in the study area to pursue their industrial vocations by reducing the labor requirements on the farm. Brood herds of beef cattle, providing feeder calves, and sows, providing feeder pigs, both of which could be transferred to the Corn Belt states for finishing, demanded less constant labor and permitted more flexibility in the farmers' schedules.

In general, the farming in the selected area and the farming in the state have moved along parallel paths. The inability to generate ample family incomes has resulted in part-time farming and increasing dependence on industrial jobs. The advantage of livestock over crops, except for those crops needed in raising livestock encouraged farmers to change, and, as exhibited by the study area, this change started shortly after the Civil War. In recent years the impact of federal programs permitted many farmers to speed the change and reap an additional financial reward for doing so (e.g., Soil Bank). The increases in hay and pasture acres have started to check the erosion and soil depletion in the area and have provided support for increasing

livestock numbers. By changing when advantages become apparent or recognizable, farmers of the state and the study area were able to remain competitive and contribute to the agricultural economy of the nation.

Changes in definition and enumeration dates complicated the usefulness of the census reports and care had to be exercised to avoid a misinterpretation. Because the censuses at times were the only sources available, they had to be used; however, it was preferable to substantiate the indicated trends whenever possible by using other reliable sources.

III. PROJECTIONS

A few hours spent driving through the selected area show the results of the shifts and adjustments that occurred from 1860 to 1960. Plans embracing reforestation, terracing and use of cover crops are evident, and it is obvious that many farmers have successfully combined the theory and practice necessary in agriculture. Large areas of hay and pasture and a plentiful supply of livestock indicate that the encouragement and guidance, plus the many state and federal programs, have benefited the agricultural economy of the area.

This study facilitated a better understanding of the changes that took place by indicating why certain adjustments were made. An agricultural history of the study area should also increase awareness of the transition that occurred there in agriculture from 1860 to 1960.

Once a total awareness is obtained, a foundation is provided upon which fairly accurate projections of the future agriculture of the area can be made, based on what happened in the past.

Total population numbers and the impact of industrialization in the selected area should continue to increase. Industrial plants are being established in the study area, and the availability of cheap electrical power, water and land has encouraged interest. The area appears to have shaken off the pre-Civil War traditions (about 1940), and the citizens have finally realized the advantages that stem from industrial growth.

The three selected counties will not develop equally; Rutherford County appears to be the most promising and will probably experience the fastest and greatest growth. As Nashville's influence continues to stimulate growth, the development of Rutherford will start to influence Maury and Williamson Counties. The trends indicate that the study area is industrializing, and this trend is evident throughout much of Tennessee and the South. The favorable geographic position of the selected area will permit it to capitalize on the expected industrial growth of the United States, providing the local citizens favor the continuation of local industrial expansion.

As total population increases, the agricultural population should continue to decline in proportion. The availability of industrial jobs will encourage farmers and the agricultural labor force to migrate to industry and the farmers who remain will have to increase the size of

their farms and the use of technology to remain competitive. The decrease in farm numbers and increase in farm size should reduce the possibility of the expansion of part-time farming. In the future, the remaining farmers in the study area will be agri-businessmen, and the operation of their business will require a full-time effort.

The type of farming should stabilize, emphasizing livestock and supporting crops. Developments in crop technology will permit greater yields that will support the probable increase in livestock numbers. The composition of animal numbers should change slightly as more beef cattle and swine are raised. The trend towards providing feeder animals should also continue, since other areas have an advantage over the study area in crop production. It appears that the relative peak in dairy livestock numbers has been reached, though the absolute numbers will continue to increase. Boosting production per cow and changing to efficient recommended dairy practices should permit the area to meet future fluid milk and milk product demands with better producing animals.

Based on the expected continuing population growth and the trends of the past it appears that the study area will continue to be an important contributor to the state's agricultural economy. The demand for space for non-agricultural purposes should increase and will probably decrease the available crop acres. Frequently the best farm land is taken when an area experiences industrial growth, and the challenge to the remaining farmers will be greater than that reported

in the past. The awareness gained through a study of an economic history of the selected area indicates that the above changes and growth should occur. The study does not permit the prediction of exact numbers applicable for the future, but does indicate the general direction in which the area is moving and should continue to move.

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