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To the Graduate Council:

I am submitting herewith a thesis written by Mohamed Fathi Galal entitled "Skills as a Factor in Livestock Production in Egypt." I recommend that it be accepted for twelve 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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SKILLS AS A FACTOR IN LIVESTOCK PRODUCTION IN EGYPT

A THESIS

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of
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Mohamed Fathi Galal

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CHAPTER I

INTRODUCTION

In the agricultural economy of Egypt the livestock industry has not developed as rapidly as the production of crops. The production of livestock, however, is becoming more important and the Egyptians are rapidly recognizing the value livestock contributes to their livelihood. Its importance is keenly felt when the landlord and peasant experience low prices for their crops, principally cotton, and thus are without an adequate source of income to help offset the instability of their income. Also, the pressing need for organic manures to overcome part of the fertility problem of the land is of great importance to Egyptian agriculture. Soil depletion is of particular significance since crop yields have not improved as they should have in recent years. This has been due partly to the scarcity of available chemical fertilizers during the World War II period when production had to be concentrated on grains to feed the Allied troops, and because the same practices for planting and tilling the soil as were used 5,000 years ago are still predominant.

In order to better understand the role livestock might have in the future development of Egyptian agriculture, it will be helpful if one understands some of the different characteristics and the setting in which the livestock enterprise prevails.

The cultivated agricultural area of Egypt is rather small and insufficient, concentrated in two strips along the Nile River and the Delta. It represents only three percent of the total area of the country, the rest being desert. To give a more accurate picture one can say that in the last fifty years cultivated land acreage increased slightly less than 10 percent while population increased 96 percent. The excessive increase in population, giving a high density in rural population averaging 1,422 people per square mile of cultivated land, adds to the difficulty of owning agricultural land, and increases the number of landless people, tenants and farm laborers. Also, ownership of most of the agricultural land is concentrated among a few land owners. Other than the large land holders, the rest of the agricultural population is either non-owners or own very small parcels of about an acre or less. The alternative for the small landowner to increase his volume of business is essentially one of trying to rent more land to farm for himself or to sub-rent to someone else. This represents an extremely difficult problem in establishing and promoting livestock enterprises.

High rents and high land values further complicate the difficulties of the landless and the small owners and likewise tends to limit the increase in livestock numbers. Evidence of this is that in 1932-33 an annual rent of 5.1 Egyptian pounds¹ (\$20.45) per

¹The Egyptian pound (L. E.) is equal to 100 piastres. At the present time it is equal to \$2.76. In 1932-33 its value was \$4.00.

feddan² was paid, whereas in 1947-48 it had risen to 23.3 Egyptian pounds (\$93.20). In areas adjacent to cities, the annual rent per feddan ranged from 60.0 to 80.0 Egyptian pounds (\$240 - \$360) in 1947-48.

With this limited supply of agricultural land and the competition among the landless and the large and small owners for ownership has resulted in an inflated price for land. This demand is characteristic of the whole population in the aggregate, whether the individual be a farmer, a clerk, a high official, or a doctor -- they all strive for land. Three reasons have accounted for such a characteristic: (1) the inadequate and unregulated market for investments, (2) the fear of risk, which characterizes old agricultural populations, and (3) the social and political power attached to land ownership because of the large number of voters on it.

To alleviate some of the problems associated with pressure on the land, the government has been working on different projects and laws regulating landlord-tenant relationships and have set new goals and programs for the promotion of more and better livestock. The government now provides in limited numbers registered purebred-sires to be used for grade amelioration purposes. Upon request from any landowner or tenant, the sire may be stationed on his farm for a certain period of time for a nominal fee. The effect of such public measures cannot yet be adequately measured. During the past few

²The feddan is the Egyptian measurement of land area. It is equal to 1.038 acres.

years, however, more farmers have been trying to purchase registered purebred or better grade sires to obtain better quality stock and grow into the business. Different and new technologies of production are also being applied to other phases of agriculture. More intensive crop production which is being accomplished in some areas allows more land for pasture crops and thus may serve as a stimulus to livestock production.

One other point should be mentioned. During the past decade there has been a pronounced trend towards more industrialization. Industrial development has been especially active since World War II. Commercial activities and services likewise have increased. Average wages for industrial workers have also been rising. It is expected that these trends will continue and thus help provide some limited opportunities for a small amount of the surplus labor and help improve the economic status of the country. The resulting increase in incomes for some of these people should result in more expenditures for meat and dairy products.

Purpose of the Study

It is recognized that a high proportion of the agricultural population of Egypt is illiterate. The lack of education, of adequate scientific personnel and scientific information on farming is an established handicap to those engaged in agricultural production. No extension service comparable to the system in the United States is

available; consequently, extension work among Egyptian farmers is extremely limited. It is also recognized that considerable skill is required to be a good producer of livestock. Therefore, the purpose of this study is designed to:

(1) Obtain an insight into the importance of skills and know how as a limiting factor to livestock production, and

(2) To appraise livestock production in Egypt, with special emphasis on beef cattle production, and to evaluate the need for skills in the growing livestock economy of Egypt.

Scope of the Study

This study deals with the importance of skills as a limiting factor in beef cattle production. Important economic trends in Egypt affecting the status of the livestock industry are discussed. The economic position of the livestock enterprise in Tennessee and the South is reviewed. A brief survey studying various skills required in producing beef was made in Fayette County, Tennessee, a farming area based primarily on a cotton economy. This study gives an insight into the skills required and a knowledge of how much of the required skills is lacking. After analyzing the importance of these skills, procedures for the benefit of Egyptian farmers are suggested.

Method of Research and Sources of Data

The first phase of the research consisted of becoming familiar with the available sources of material related to general problems

associated with beef cattle production. It was soon ascertained that very little research has been accomplished in the general area of skills as a factor of major importance in livestock production. Numerous studies on various phases of beef cattle production, such as costs of production studies, production practices, and the place of beef cattle in various type of farming systems, however, have been completed. Many of these kind of studies were reviewed to give a background for establishing certain skill areas for study and to aid in formulating the problem.

The second step consisted of developing objectives and formulating hypotheses applicable to the problem. At this time an outline of the study was prepared to serve as a guide to the research.

The third phase involved collecting the necessary data for analysis. It was found that extremely few data were available on the livestock industry of Egypt. Basic information required to appraise accurately the economic position of this industry such as figures on per capita meat consumption, per capita income and expenditures for food is not available. Also, for example, there are no available data on the number of different classes of tenants, share croppers, renters, and other forms of tenure arrangements. Neither are there adequate data on size of individual farms, nor information on the extent of the mobility of the labor. Use, however, was made of many statistics on livestock numbers and trends affecting their increase. The statistics were obtained from annual statistics and census published by the Egyptian government, Ministry of National Economics, Cairo.

Data on the economic position of livestock in Tennessee and the South were obtained from various reports by the U. S. Bureau of the Census of the U. S. Department of Commerce, various statistics published by the Bureau of Agricultural Economics of the U. S. Department of Agriculture, published reports of the Tennessee Department of Agriculture and numerous other bulletins and pamphlets published by different agricultural experiment stations.

Data studying the importance of skills in beef cattle production were obtained through direct interview with 28 beef cattle producers from April 10 to April 20, 1952, in Fayette County, Tennessee. This county was selected because its economy is based principally on cotton. Also, livestock numbers have been increasing considerably in this area during recent years. The sample taken was large enough to satisfy the primary objectives of the study but did not permit fine break-downs or reliable comparisons between different areas or different types of production. Also, the sample was not selected in such a way as to be representative of beef cattle production in Fayette County but merely to check the knowledge of the producers relative to skills required to produce beef.

In developing the study, numerous conferences were held with personnel of the Department of Agricultural Economics and Rural Sociology of the University of Tennessee. Also, personal interviews were held with the white and colored county agents in Fayette County, the supervisors of the Farmers' Home Administration for the county, a local banker, and other agricultural leaders in the area.

Organization of the Study

This thesis is organized into six separate but closely related chapters.

Chapter I describes the setting of the problem, gives the purpose and scope of the study, indicates the method of research and source of data, and the organization of the report.

Chapter II deals with a discussion and analysis of economic trends affecting the development of the livestock industry in Egypt. Basically it briefly describes some of the pertinent agricultural conditions of Egypt, analyzes the relationship between the agricultural land and its population, analyzes the trends in agricultural production, and indicates the impact industrialization is having on agricultural production.

Chapter III discusses the economic position of the livestock industry in Tennessee and the South and some of the factors affecting its development.

Chapter IV contains an analysis of the importance of skills as a limiting factor to beef cattle production in Fayette County, Tennessee.

Chapter V is related to Chapters II, III, and IV, in that it is an attempt to appraise the problem of lack of education and skills in the production of livestock on the part of producers in Egypt. It gives some possible recommendations as to what needs to be done to help improve the status of the livestock production problems of Egypt in so far as skills are concerned.

Chapter VI contains a summary of the results of the study.

CHAPTER II

BRIEF SURVEY OF AGRICULTURAL TRENDS IN EGYPT

Introduction

Egypt is located in Northeast Africa between the twenty-second and thirty-first parallels of north latitude (Figure 1). Being primarily in the temperate zone with only the southern part in the tropics, the country is characterized by a warm climate with very little rainfall. Temperature varies between 100 degrees fahrenheit in the summer to 30 degrees in the winter, with an average of 50 degrees fahrenheit for winters, and 80 degrees for summers. The coldest time is usually between the last part of December to the beginning of February, and the hottest months are July and August. Egypt is considered a rainless country except for the Delta and the northern part along the Mediterranean where rainfall averages eight inches per year. Usually December and January are the months of greatest precipitation. The average rainfall for the country as a whole is 0.1 inches per year with May, June, July, and August being rainless. Rainfall is thus of little economic value to Egypt. The average relative humidity varies from 29 percent in Asswan to 62 percent in Cairo, and 81 percent in the Delta. The wide range of temperature, its moderate average relative humidity and sunshine throughout the year puts Egyptian agriculture in a privileged position and enables the Egyptian farmer to grow a greater variety of crops

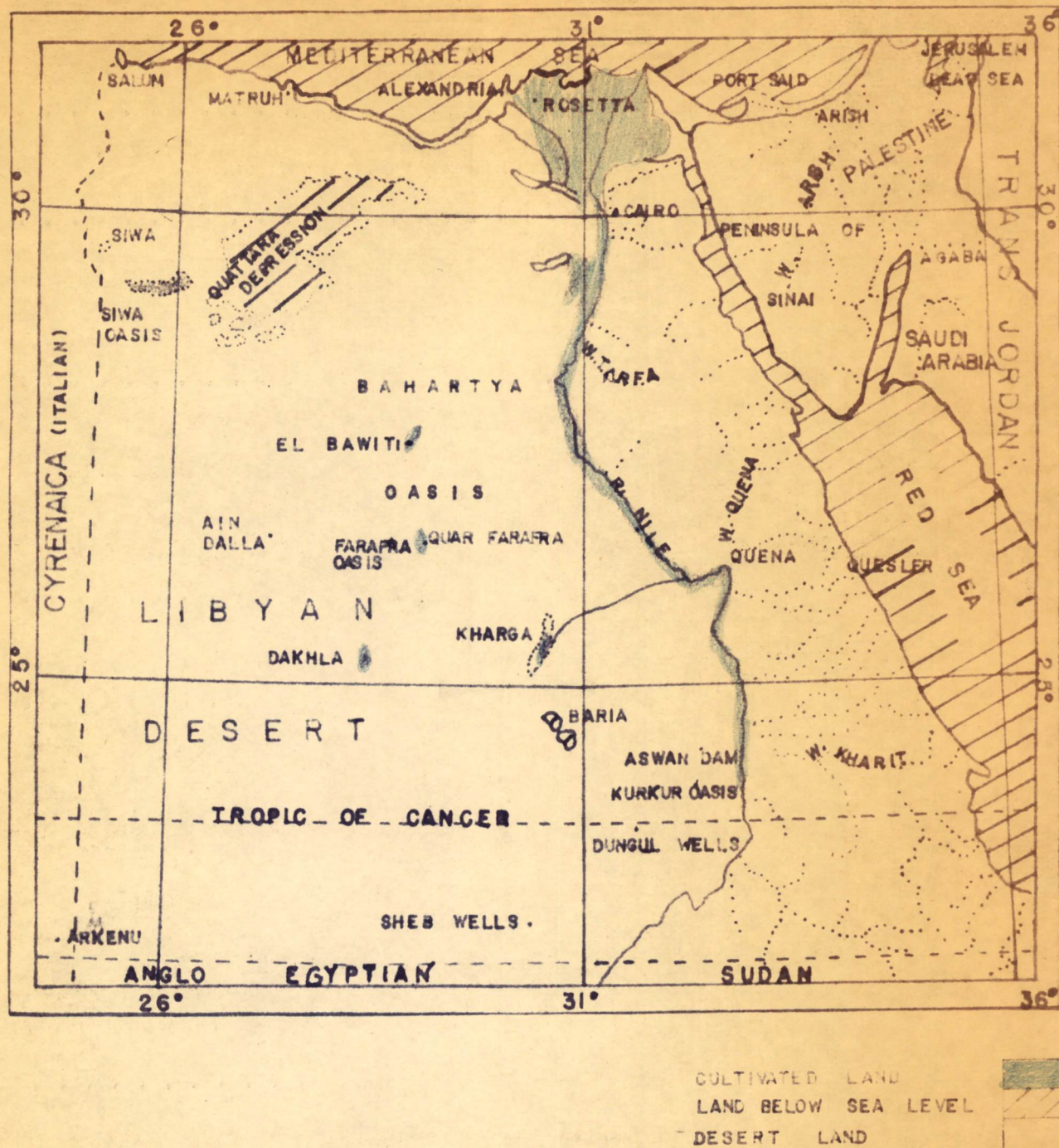


FIGURE 1

EGYPT

than can be grown by farmers in similar areas of the world. The country extends some 650 miles from North to South, with an area of 393,750 square miles, of which only 14,000 square miles are used for habitation.

The Agricultural Land and Population

From a total area of 252,000,000 acres Egypt had only 6,174,163 acres of cultivated land in 1949, or less than three percent of the total area. The total agricultural land owned by individuals and belonging to the government is 8,305,834 feddans (Table I). This amount of land represents two strips stretching along the Nile River on the east and west sides, and the Delta. The remainder of the land is desert. Cultivated land has been expanding very slowly during the past hundred years. It has less than doubled, while the population has increased more than six times. A look at the cultivated and rented land during the 1939-1949 decade gives an indication of the increase of rented land in agriculture and its importance. Data indicate that there was an increase of 180 percent in rented feddans between 1939 and 1949 while the increase in cultivated land was but 8.4 percent (Table II).

Potential Cultivable Land

From the latest available data on agricultural land in Egypt, it is noted that out of 8,305,834 feddans, 2,357,700 feddans are still uncultivated. This uncultivated acreage represents a potential land development project in an area where water resources are abundant.

Table I

TOTAL AGRICULTURAL LAND, SELECTED YEARS, EGYPT

Years	Cultivated Land (Feddans)		Uncultivated Land (Feddans)		Totals (Feddans)
	Private Property*	General** Utilities	Private Property	General Utilities	
1930	5,466,555	18,589	2,044,102	711,684	8,240,930
1933	5,238,385	36,503	2,231,527	808,686	8,315,101
1936	5,290,612	30,793	2,186,669	813,839	8,321,913
1939	5,321,997	33,687	2,150,936	855,601	8,362,021
	Total Cultivated Land		Total Uncultivated Land		
1945	5,730,323		2,606,920	915,897	8,336,793
1947	5,761,389		2,381,072	644,870	8,142,461
1948	5,938,217		2,404,561	913,694	8,342,778
1949	5,948,134		2,357,700	897,322	8,305,834

* Private property includes government property and waftks.

** General utilities includes buildings, storage space and public utilities.

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

Table II

THE INCREASE IN CULTIVATED AND RENTED AREAS DURING
THE DECADE 1939-1949, EGYPT

Item	1939	1949
	Feddans	
Cultivated area	5,485,114	5,948,134
Rented area	1,286,411	3,610,622
Percentage rented area cultivated	23.5	60.7
Percentage increase in rented area	---	180.6
Percentage increase in cultivated area	---	8.4

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic), and Bulletin No. 6, Agricultural Census of Egypt, October 1949.

The planning and construction of new irrigation canals and drainage systems in this area were started in 1948. Also, Egypt has some excellent prospects for expanding its agricultural land in the Western Desert and part of the Eastern Desert, namely the Sinai presquille and the West-Southern part of the Sinai desert. Reservoirs to hold water from rainfall have been built and lands have been cultivated successfully. These areas are ideal for citrus growing.

Large areas of the Lybian Desert also represent potential land that can be brought under cultivation when water for irrigation purposes is properly managed and made available. Experiments by private land owners and by the experiment station of the Ministry of Agriculture at Borg El Arab, 30 miles west of Alexandria, indicates that the desert can be profitably cultivated where the water is made available. Such is the case of estates like Inchas, Barakat, and Kom Ombo.

During the flood season of the Nile (July and August) great quantities of water are left to pour into the sea which could be used to irrigate approximately 110,000 acres in the Lybian Desert and 175,000 acres in the Alkarmah and Nonbariah Valleys. The water supply from the Nile is by no means completely and efficiently used and is really a strategic factor for the expansion of Egyptian agriculture.

Apart from the Nile there is the subterranean Nile that runs through the Lybian Desert and draws its supply from the Sudd Region. This river differs from the Nile in that its level does not fluctuate during the year. Since it does not discharge its water into the sea,

it does not require the building of elaborate irrigation systems as along the Nile. The subterranean river was known and utilized in Pharaonic times. It runs from south to north through a spongy layer impregnated with water and is estimated at 200 feet thick running between two poreless layers, and therefore its supply is considered almost inexhaustible.

The oases are another area for land development and progress in agriculture. During the Pharaonic times the oases were rich enough to supply the Nile Valley with many agricultural products, particularly wine. Up to the Christian era the oases were still densely populated, having a population estimated at 2,000,000, however, civil wars and Bedouin raids from the West disrupted normal living in the years that followed. Wells, cisterns and canals were destroyed and in 1937 the population was only about 29,000. Since then some improvements in these areas have been made. At the present time in the oases areas, approximately 150,000 acres would be ready for cultivation if there were about 500 wells for irrigation that could be constructed at the cost of about a half a million pounds. Water, however, is not the only important problem. Efficient communications, housing projects and utilities need to be provided in these new developments to encourage orderly migrations to them. As a first step toward the revival of Western Egypt the development of the oases areas could be completed and be producing many needed agricultural products in a maximum of three years.³

³Egyptian Information Bureau, Washington, D. C., Egypt News, Vol. 4, No. 1, January 1952, p. 5.

Population Pressure

Egypt has been essentially an agricultural country since its earliest history, and with the years population has been increasing at a rapid rate. In 1882 the total population was 6,804,021 while in 1950 it had increased to 20,439,000 (Table III). Looking at the rather slow economic development of the country along with this population increase, the present situation does not look very encouraging.

The rural population was 14.4 million in 1947, with a density averaging 1,422 people per square mile of cultivated land crowded within the two narrow strips of land along the River Nile and the Delta. Four provinces in this rural area have a density in excess of 1,800 people per square mile of cultivated land,⁴ while in the districts of Giza, Memufia and Girga the density reached 2,000 people.⁵ Compared with other countries these population densities are extremely high. This population pressure on the limited supply of present available land has overtaxed the land as a source of subsistence and has resulted in a continuous decrease in the level of living among most of the agricultural people.

The structure of land ownership has placed the Egyptian fellah⁶ at an extreme disadvantage. Of a total of 2.7 million landowners in 1949, 72 percent owned one feddan or less amounting to only 13 percent

⁴Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

⁵Egyptian Information Bureau, Washington, D. C., Information Sheet No. 1, 1949, p. 4.

⁶An Egyptian fellah is a small farmer.

Table III

TOTAL POPULATION WITH INCREASE BETWEEN COUNTS, AND PERCENTAGE
INCREASE PER YEAR, EGYPT, 1882-1950

Years	Population Number	Numerical Increase	Percent Increase Per Year
1882	6,804,021	---	---
1897	9,714,525	2,910,504	2.9
1907	11,287,359	1,572,834	1.6
1917	12,750,918	1,463,559	1.3
1927	14,217,864	1,466,946	1.2
1937	15,932,694	1,714,830	1.1
1947	19,092,389	3,159,695	2.0
1948	19,568,000	475,611	2.5
1949	20,004,000	436,000	2.2
1950	20,439,000	435,000	2.2

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

of the total owned cultivated land of 5,948,134 feddans. Less than six percent of the landowners owned over five feddans per owner and approximately 65 percent of the total (Table IV). This maldistribution of land is one of the principal reasons for the extensive tenancy problem in Egypt. The great pressure on the land aggravates the status of the small farmer and results in high land values accompanied by high rents which gives him a very narrow range in which to realize profits from his farming enterprise. Because of the high land values it is very difficult for the small landowners to buy extra land and thus move up the agricultural ladder.

A tendency toward subdivision of the agricultural land into smaller and smaller holdings is another important characteristic (Table V). This trend principally lies in the application of Islamic religious laws to inheritance for the Moslems. These laws rule the division of the land into equal shares for the sons, half a man's share for the daughters and one-eighth of all the estates to the wife.

To relieve some of the pressure on the land it would be highly desirable if more large and small scale industry was encouraged to help absorb some of the surplus labor. Total agricultural production would not be affected adversely by the moving of these workers to industrial jobs.

Table IV

DISTRIBUTION OF OWNERSHIP OF CULTIVATED AGRICULTURAL
LAND, EGYPT, 1949

Feddans	Owners		Area Owned	
	Number	Percent	Feddans	Percent
One feddan and less	1,955,773	71.7	788,604	13.2
1 to 5	618,262	22.7	1,305,302	22.0
5 or more	157,085	5.6	3,854,228	64.8
Total	2,731,120	100.0	5,948,134	100.0

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

Table V

DISTRIBUTION OF FEDDANS BY SIZE GROUPS ACCORDING TO NUMBER OF
OWNERS AND AREA OWNED, EGYPT, SELECTED YEARS

Feddans	1937		1939		1943		1949	
	Number of Owners	Area Owned	Number of Owners	Area Owned	Number of Owners	Area Owned	Number of Owners	Area Owned
One feddan and less	1,710,334	714,821	1,751,587	701,857	1,776,769	733,997	1,955,773	788,604
1 to 5	571,414	1,164,288	571,133	1,191,097	599,170	1,210,291	618,262	1,305,302
5 to 10	84,896	565,212	84,609	568,641	84,531	569,426	79,648	527,136
10 to 20	38,639	519,783	40,494	549,120	40,999	561,184	43,100	584,028
20 to 30	12,048	289,097	11,928	290,110	11,796	286,012	12,747	303,160
30 to 50	9,384	355,751	9,251	355,718	9,301	357,225	9,488	358,615
50 or more	12,451	2,225,317	12,248	2,180,203	11,959	2,141,756	12,102	2,076,289
Total	2,439,171	5,834,269	2,431,250	5,836,746	2,534,525	5,859,891	2,731,120	5,948,134

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

The Egyptian Agriculture

The agriculture of Egypt is based primarily on cotton. Whether it be a wealthy landowner, or a poor or wealthy tenant, emphasis is on the common practice of following the cotton cash crop system of farming. This practice is associated closely with the problem of pressure on the cultivated land and the resulting high rents, which has made it extremely difficult for the fellah to make a decent wage. Rents on the poorer land have been forced to levels almost as high as on the better lands because of this system of farming which has prevailed and the demand for land. The rent is much higher than justified, and in order for the fellah to meet the rental payments he is almost forced to continue to grow cotton from year to year. If improvements can be made in rental arrangements, it might be possible for some of the poorer land to be shifted to other crop production more adapted to it, or to pastures and livestock production, and thus in the long run the landlord and tenant would probably be better off.

Often landowners are not as concerned as they should be about the care of their land. In many cases they are unaware of the practices being followed, or else not interested in how the tenant cares for the land. His interest seems to be primarily in getting the high rent. Generally the tenant doesn't have to pay his rent until crop harvesting time and he tries to minimize the expenses on his farm operations, partly because he thinks he is saving, and partly because he can't afford to pay for important production items because of the lack of capital. As a result, fertilizer applications are not as heavy as they should be and insect

and disease control is overlooked frequently with the results expressed in terms of poor crop yields. Sometimes some of the landlords take the responsibility of providing and see that fertilizer is applied and the insects and diseases controlled, or else pay for the cost of these operations and charge them to the tenant's account. The tenant then generally pays for them when he settles for the value of his crop after it is harvested and sold. These kinds of landlords, however, are few, principally because they too are often limited financially. Often they are absentee landlords, or don't realize the importance of soil conservation, insect and disease control, or the tenant's future worth.

One reason for such a behavior of many of the landowners is associated with the credit problem which is tied to cotton. Most agricultural credit banks and companies that trade in cotton make credit loans to cotton buyers who finance the producers for their production expenses after they agree to sell them their cotton. After the crop is harvested the producers settle their account with the buyer. The same practice of making loans on cotton applies to sugar cane. No loans are made for livestock production. This partly accounts for why farmers continue to grow cotton in spite of its high production costs and dangers of price fluctuations.

Crops

The most important crops grown are cotton, corn, wheat, rice and clover, or the Egyptian berseem.

In addition to cotton being the fundamental source of income for the Egyptian fellah, it is also the principal basis of the country's trade, finance and industry. As such many dangers are inherent in the dependence on this one crop. It is recognized that agricultural policy relative to cotton that was introduced by Great Britain and unanimously approved by the landlord ruling class, which is aimed at exploiting Egypt's special advantages for growing cotton, needs to be reexamined. This is particularly true since the marketing of the cotton depends largely on export trade, and manufacture, consumption and prices are beyond Egypt's control. Diversification in terms of different crops and more livestock will offer a real challenge when the agricultural policy toward cotton is developed in the best interests of the fellah.

Cotton acreage prior to World War II generally ranged between 1.6 to 1.9 million feddans. A sharp reduction, however, occurred during the war years beginning in 1942. Acreage from 1942 to 1945 ranged from 0.7 to 1.0 million feddans and total cotton production was reduced considerably (Table VI). Acreage controls put on by the government, disruption of transport by the war, low relative prices for cotton and the lack of chemical fertilizers were primarily responsible. Since the war cotton acreage has increased until it has regained its pre-war position. Yields per feddan generally range between 5.0 and 6.2 kentars.⁷

⁷One kantar is equal to 315 pounds of cotton.

Table VI

THE PRINCIPAL CROPS OF EGYPT, FEDDANS AND YIELDS PER FEDDAN, 1929-1949

Years	Cotton			Wheat			Corn			Berseem (Clover)			Rice		
	Feddans	Yield Per Feddan		Feddans	Yield Per Feddan		Feddans	Yield Per Feddan		Feddans	Yield Per Feddan		Feddans	Yield Per Feddan	
		Kantar ¹	Ardeb ²		Ardeb ²	Feddans		Ardeb ³	Feddans		Ardeb ³	Feddans		Ardeb ⁴	Feddans
1929	1,841,678	4.62	5.28	1,555,377	5.28	1,846,756	6.82	---	---	---	---	---	315,445	1.411	---
1934	1,731,458	4.36	4.87	1,388,673	4.87	1,572,168	7.61	---	---	1,510,398	---	---	391,693	1.401	---
1939	1,624,817	5.25	6.15	1,446,355	6.15	1,547,549	7.04	---	---	1,693,284	---	---	546,870	1.738	---
1941	1,643,629	4.91	4.99	1,502,382	4.99	1,527,481	6.00	---	---	1,832,051	---	---	448,061	1.350	---
1942	705,840	5.88	5.34	1,576,430	5.34	1,983,077	5.23	---	---	2,078,786	---	---	672,894	1.480	---
1943	712,810	5.01	4.49	1,917,422	4.49	1,950,597	5.04	---	---	1,651,924	---	---	642,121	1.130	---
1944	852,949	5.44	3.82	1,650,965	3.82	1,890,342	5.89	---	---	1,964,639	---	---	619,770	1.390	---
1945	982,435	5.31	4.79	1,646,930	4.79	1,879,060	6.45	---	---	1,874,605	---	---	630,447	1.450	---
1946	1,211,731	5.01	4.89	1,585,997	4.89	1,652,762	6.15	---	---	1,964,862	---	---	631,602	1.550	---
1947	1,254,154	5.08	4.27	1,629,670	4.27	1,607,726	6.23	---	---	1,990,084	---	---	775,775	1.740	---
1948	1,441,455	6.07	4.75	1,515,753	4.75	1,551,358	6.49	---	---	1,976,574	---	---	785,524	1.760	---
1949	1,692,004	5.14	5.40	1,417,160	5.40	1,493,677	5.98	---	---	---	---	---	702,983	1.760	---

¹Kantar = 315 pounds of cotton²Ardeb = 150 kilograms (2.2046 lbs.) or 5.51 bushels of wheat³Ardeb = 140 kilograms or 5.01 bushels of corn⁴Dariba = 445 kilograms or 218 bushels of rice

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1930-1950, (Arabic).

During the war period many people became more aware of different uses for cotton by-products, principally cottonseed cake used chiefly as a substitute fuel for coal and as a feed for livestock. Following the war the first large scale feed manufacturing plant was established in Egypt that used a considerable amount of cottonseed in its operation.

Corn cannot be overlooked as a valuable crop in Egypt because it is the main food for the rural population. Its acreage, however, has been declining except for the few years during the war. Present acreage is generally slightly less than 1.5 million feddans. Yields averaged 6.26 ardeb⁸ per feddan during the 1945-1949 period. The decline in corn acreage is primarily a result of shifting acreage from the production of corn to rice which may be planted as a substitute for corn in the crop rotation in May instead of June or July. The rice is also used as a food and has lately been more profitable to produce than corn. Rice also has more beneficial effects on the land in the rotation than corn because the large amounts of water used in its production help wash some undesirable salts from the land. Corn yields are not as high as they should be primarily because of the lack of chemical fertilizers and organic manures. This was clearly demonstrated during the 1941-1945 war years when yields averaged only 5.72 ardeb per feddan. Improper rotation of corn and wheat stipulated in the acreage control laws during that period also contributed to the lower yields. More and better chemical

⁸One ardeb of corn is equal to 140 kilograms or 5.01 bushels.

fertilizers and modern technology are needed to improve yields. Also, organic manures are needed and these can be supplied only through a better livestock program. Organic manures are necessary to sustain production on this land which has been exploited for over 5,000 years with little or no emphasis on soil conservation.

Wheat is the most important winter crop in Egypt and is the main food of the urban people. In 1949 there was 1,417,160 feddans in wheat. Except during World War II, acreage in wheat has been steadily declining. This decrease in acreage was largely absorbed by an increase in cotton acreage during the same period. During the war years yields were below average for the same reasons corn yields were low. What has been said about fertilizers for corn also applies to wheat. The wheat plant, however, is more sensitive to organic manures and the yield is definitely limited by the amounts of organic manures made available to the land. Average yields for the 1945-1949 period was 4.82 ardebs per feddan compared with 4.66 ardebs during the 1941-1944 war period.

Rice is a food item that is included in the diet of most Egyptians. Its importance as an industrial product, however, has been increasing during the past decade. The industrial uses of rice for starch extraction and in paper manufacturing have given more emphasis to the production of this crop. Also, rice is one of the crops reserved for export to the United States, Switzerland and Belgium because they are scarce money countries in international exchange. Acreage has almost doubled during the last 20 years with approximately 750,000 feddans

now being devoted to its production. Much of the increased acreage has been in Upper Egypt where it has been grown only recently. The lack of knowledge in rice culture, the belief that the climate was too hot and the belief that rice was a crop for poor lands retarded its progress. Evidence, however, indicates that rice can be grown in Upper Egypt and gives as high yields as that grown in Lower Egypt and in the Delta. The primary limitation is the amount of water available for irrigation and malaria control. The danger of malaria makes many people afraid to grow rice and as yet no adequate control program is in force. Most of the increase in rice acreage has been the result of shifting acres out of corn production. It fits well into the rotation and in recent years has been more profitable for the grower. It has been also learned that ground cottonseed cake is an effective fertilizer for rice production and is available in sufficient quantities at reasonable prices. Average yield for the 1945-1949 period was 1.65 dariba⁹ per feddan.

Clover, or Egyptian berseem, is an important crop to the agricultural economy of Egypt because it is used to help maintain the fertility of the soil. It works as a nitrogen fixer and can be used as a green manure crop. Its chief value is for pasture. Livestock are taken to the field to graze on the berseem and at the same time manure the land. It is planted in November and generally always turned under near the end of July. There is a law in Egypt that berseem should not be irrigated in July in order to help prevent the reproduction of the cotton worm which

⁹One dariba of rice is equal to 445 kilograms or 218 bushels.

spends part of its life cycle in the clover fields. Approximately 2 million feddans are planted to berseem each year. Acreage has remained rather steady during the last decade. Yields vary considerably because of the varying number of cuttings a farmer makes, differences in type of land it is planted on and fertilizers used.

Livestock

Livestock have never been an important source of income for the Egyptian agricultural economy. They have, however, been important to the fellah as they furnish him his workstock and his supply of milk and butterfat.

The water buffalo is the most important animal and is used most by the farmers because of their ruggedness, few feed requirements, and the high percentage of butterfat in their milk (7.5 percent). In general, farmers are realizing more the value livestock contributes to their livelihood both in terms of food and valuable organic manures. The limited growth of the livestock industry is tied to the problems associated with the population pressure on the land and the resulting pattern of farm tenancy. Also, the fact that only a very few people have money to spend for meat has not encouraged meat production. Increased industrialization would put more money in the hands of these people. The lack of education and skills also contribute to the limited growth.

Table VII gives an indication as to what is happening to livestock numbers. The latest year for which data are available is 1947. Using 1931 figures as a base the important livestock classes have increased in numbers as follows: Cows, 40 percent; water buffalos, 33 percent; sheep,

Table VII

NUMBER OF LIVESTOCK, EGYPT, SELECTED YEARS

Type of Livestock	Years					
	1931	1934	1937	1941	1943	1945
Cows	792,123	924,208	483,398	991,233	1,202,284	1,265,185
Water buffalos	821,835	887,566	956,216	912,760	1,001,124	1,064,118
Sheep	1,239,111	1,409,000	1,418,946	1,241,964	1,423,772	1,385,045
Goats	636,028	688,361	1,310,986	671,260	759,794	731,642
Hogs	18,604	13,617	36,525	21,044	30,950	40,347
Camels	162,670	155,271	156,804	146,032	174,054	161,799
Horses	35,714	33,798	31,137	30,840	30,896	34,100
Mules	20,527	17,601	22,550	11,883	12,225	15,395
Donkeys	761,222	762,216	1,142,295	778,040	826,796	851,387
						1,125,945

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

34 percent; goats, 57 percent; and camels, 17 percent. Hog numbers more than doubled, however, the numbers are still unimportant being only 50,343. The number of horses and mules declined while the number of donkeys increased 30 percent. Most of these increases have occurred during the past 10 years. The government has taken an active interest in attempting to help promote livestock. It now provides in limited numbers registered purebred sires to be used for grade improvement.

There are no available data on per capita meat consumption or for food expenditures. Trends in meat for consumption, however, can be studied by looking at the number of animals slaughtered in the public abattoirs. These are given in Table VIII. The figures are not impressive, especially if they are compared to the number of consumers. It is noted that there has been an increase in the number of water buffalo and calves slaughtered and a decline in the number of sheep killed. In 1949 these figures for water buffalos were 46,063 slaughtered, for calves, 383,259, and for sheep, 543,752.

Industrial Development

During the last decade Egyptian industry has increased steadily; however, it is still small in terms of the number of industrial establishments and people employed. In 1948, 87,822 industrial establishments were listed. This represented more than twice the number in 1937 (Table IX). The number of wage earners increased by 42 percent during the same period (Table X). Average weekly wages increased

Table VIII

MEAT CONSUMPTION BY TYPES OF LIVESTOCK, ANIMALS SLAUGHTERED IN
PUBLIC ABATTOIRS, EGYPT, SELECTED YEARS

Type of Livestock	Years					
	1934	1937	1940	1943	1946	1949
Bulls	24,900	33,656	30,162	31,800	50,193	53,479
Cows	23,033	16,115	28,210	15,258	27,420	22,895
Water buffalos	30,128	23,152	36,612	40,456	46,289	46,063
Calves	250,843	231,187	291,899	237,283	308,787	383,259
Sheep	650,341	634,324	681,619	350,468	502,125	543,752
Goats	57,958	61,235	42,791	7,107	18,343	31,953
Hogs	12,594	16,055	16,492	50,535	46,082	25,596
Camels	30,313	23,255	17,252	18,260	27,218	43,649

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

Table IX

NUMBER OF INDUSTRIAL ESTABLISHMENTS CLASSIFIED BY NUMBER OF WAGE
EARNERS EMPLOYED PER UNIT, EGYPT, SELECTED YEARS

Year	Industrial Establishments Employing:		Totals
	1 to 4	5 or more	
1937	35,799	7,520	43,319
1942	45,172	7,378	52,550
1945	68,562	9,475	78,037
1948	77,791	10,031	87,822

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

Table X

TOTAL WAGE EARNERS EMPLOYED IN MANUFACTURING, AVERAGE
WEEKLY WAGE AND HOURS WORK PER WEEK, EGYPT,
SELECTED YEARS

Year	Total of Wage Earners Employed in Industry	Average Wages Per Week - Piastres*	Average Hours Per Week
1937	229,119	---	---
1942	284,584	---	---
1944	---	98	50
1945	361,936	---	---
1948	395,035	---	---
1949	---	146	51

*One Egyptian pound equals 100 piastres, equals \$2.76. One piastre equals \$.0276.

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

from 98 piastres¹⁰ in 1944 to 146 in 1949. From 1937 to 1947 the percent of the population that was urban increased from 16.4 to 22.0 percent (Table XI).

Egypt needs more industry of both the small and large scale types. Increased industry is about the only way part of the large surplus of rural labor can be absorbed. This would reduce the pressure of tenants on the limited cultivated area, and finally aid Egyptian farming in meeting the needs of the present and future large population for better living. It has been pointed out that most surplus labor in agriculture could be taken away without affecting the total agricultural production. It has been estimated that the present amount of agricultural products could be produced by only one-fifth of the present number of tenants and farm laborers.¹¹ More industry would provide the opportunity for investment of considerable amounts of capital. Without this opportunity capital would be kept unused in banks or continue to flow into agricultural land investments. This would tend to create greater pressure for land ownership and force land values higher than they are.

Most of the tenants and laborers are idle about half of the year, especially in the basin irrigated areas. In order to enable them to use their free time to better advantage and thus attempt to improve their annual income, rural handicrafts should be developed in many Egyptian villages. These small industries could produce a variety of products using raw materials obtained in different local areas.

¹⁰One piastre is equal to \$.0276. One hundred piastres is equal to one Egyptian pound.

¹¹Mohamad Riad Ghonemy, A Study and Analysis of Farm Tenancy in Egypt, Unpublished Master's Thesis, University of Tennessee Library, Knoxville, Tennessee, 1951, pp. 136-137.

Table XI

NUMBER OF RURAL AND URBAN POPULATION AND PERCENT
URBAN, EGYPT, 1937-1947

Year	Rural	Urban	Percent Urban
1937	13,671,698	2,248,996	16.4
1947	15,606,872	3,434,227	22.0

Source: Egyptian Government, Ministry of National Economics, Department of Statistics and Census, Cairo, Egypt, Annual Statistics, 1940-1950, (Arabic).

CHAPTER III

THE IMPORTANCE OF LIVESTOCK IN THE SOUTH AND TENNESSEE

Livestock in the South

The livestock industry is one of the most important segments of agriculture in the Southern Region.¹² Sales of livestock and livestock products accounted for approximately 64 percent of the cash receipts from farming in the Southern Region during the years 1940 to 1944. In 1948 cash receipts from livestock and livestock products sold from southern farms amounted to 1.8 billion dollars.¹³ Increasing livestock production is also one of the alternatives for expanding the income of southern farmers. The predominantly two-crop (cotton and tobacco) farming in the South, especially with government controlled acreage, leaves a large part of the agricultural land and labor resources in a low state of productivity for the entire year, or a large part of the year. At the same time the income and level of

¹²The states included are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

¹³Master Project Outline, Regional Livestock Marketing Research in the Southern States, Regional Research Project SM-7, Unpublished, 1950.

living of the southern farm population is extremely low.¹⁴ This less productive land and labor could very well be utilized in the production of livestock. Insufficient capital and lack of livestock farm management skills still are the chief limitations. However, recently developed technology, especially in grassland farming could make it possible for southern farmers to compete with farmers in other regions in the production of livestock on a cost basis. Southern agriculture was developed primarily around cash crop farming. When the entire United States was an agrarian nation, cotton and tobacco were produced in the South and exported to Europe in exchange for industrial goods. With the use of slave labor, Southern plantation owners prospered. Then came the Civil War and the slaves were freed, but the pattern of agriculture developed in colonial days has persisted in the South to the present time. Change has been gradual and painful. Southern capital was largely depleted during the Civil War and to this day has not completely recovered.

However, agricultural income derived from the sale of livestock and livestock products relative to crops is increasing in the South. Using 1935-39 average (100) as a base period, cash receipts from livestock and livestock products stood at an index of 331 in 1948 compared with an index of 275 in the United States. At the same time cash receipts from livestock in the South is increasing relative to the nation.

¹⁴The average level of living index (United States = 100) of farm operator families was 65 for the South Atlantic and 48 for the East South Central states in 1945. Agricultural Statistics, 1949, United States Department of Agriculture, Washington, D. C., p. 638.

With the passing of time the United States changed from an agrarian to an industrial nation, but the South lagged behind. Data in Table XII compare the sources of income payments for the South and Non-South. In 1929 agriculture contributed 20.2 percent of total income payments to the South compared with 16.5 percent in 1948. For the Non-South the respective figures were 6.3 percent in 1929 and 8.7 percent in 1948. Income payments from manufacturing represented 12.6 percent of the total in the South compared with 21.0 percent in the Non-South in 1929, while in 1948 the figures were 15.1 percent for the South and 24.1 percent for the Non-South. During the early years of industrial development, industry and wealth became concentrated in the Northeast, while the South continued to produce cotton and tobacco. The southern farm population increased with few alternative opportunities outside of agriculture. The export market for cotton and tobacco declined. These developments partly explain why the South became the nation's main regional economic problem.

As the population pressure on southern farm land increased, the first relief came with a westward movement to new agricultural land. This, however, served to increase the production of cotton and tobacco. The demand for these products did not expand as rapidly as did production; consequently, prices dropped and southern farm income fell. With a continuing high birth rate, the population pressure on the land further increased with no new agricultural lands available. The flow of population from the South was then toward northern industrial centers.

Table XII

SOURCE OF INCOME PAYMENTS IN THE SOUTH AND NON-SOUTH, 1929-1948

Source	Percent of Total			
	1929	1940	1944	1948
South				
Agriculture	20.2	15.2	15.3	16.5
Manufacturing	12.6	13.7	16.8	15.1
Government	8.1	12.7	25.4	16.5
Trade & Service	25.0	25.2	19.9	26.1
Other	34.1	33.2	22.5	25.7
Non-South				
Agriculture	6.3	5.6	7.5	8.7
Manufacturing	21.0	21.6	30.5	24.1
Government	7.2	12.3	15.6	13.3
Trade & Service	24.2	25.2	21.7	27.2
Other	41.2	35.3	24.7	26.7

Source: Computed from reports of the U. S. Department of Commerce.

Finally, industrial centers grew in the South and are now absorbing a part of the surplus farm population. Increasing urbanization and a higher per capita income were the direct results. As can be observed in Table XIII, the percent urban population for the Southern Region increased from 29.6 in 1930 to 32.1 in 1940, and 42.5 in 1950.

Table XIV shows the increase in per capita income which averaged \$330 in 1940 compared with \$812 in 1945 and \$969 in 1950. Population pressure on the land was further relieved during World War II and aided in permitting some of the remaining farmers to build up capital reserves. With more land available per farm unit, coupled with increasing grassland technology and considerable operating capital, southern agriculture could improve its economic status by producing more livestock and livestock products.¹⁵ The market for these products is expanding in the South.

Beef cattle and hogs (except for calves from dairy herds) account for most of the meat animal production in the South. Approximately 14 percent of the United States cattle (other than kept for milk) in 1950 were in the 11 southern states. Or, approximately six million of the 43 million beef cattle of the country were in the South.¹⁶

¹⁵The average size of farms in the Delta States increased 34 percent and in the Eastern Cotton States 12 percent between 1930 and 1945. John M. Fulmer, Agricultural Progress in the Cotton Belt Since 1920, The University of North Carolina Press, Chapel Hill, North Carolina, 1950, p. 47.

¹⁶United States Department of Agriculture, Statistics and Related Data, 1950, Livestock Branch, Production and Marketing Administration, Washington, D. C. November 1951, p. 1.

Table XIII

RURAL AND URBAN POPULATION OF THE UNITED STATES, THE SOUTHERN REGION
AND TENNESSEE, 1930-1950

State	1930			1940			1950		
	Rural	Urban	Percent Urban	Rural	Urban	Percent Urban	Rural	Urban	Percent Urban
	Thousands			Thousands			Thousands		
United States	53,820	68,955	56.2	57,246	74,424	56.5	53,964	95,892	64.0
Southern Region	17,356	7,309	29.6	18,551	8,767	32.1	17,756	13,143	42.5
Tennessee	1,720	897	34.3	1,889	1,027	35.2	1,883	1,449	44.1

Source: United States Bureau of the Census, U. S. Department of Commerce, Washington, D. C.,
Vol. I, Population, 1940, and Preliminary Reports for 1950.

Table XIV

ANNUAL PER CAPITA INCOME PAYMENTS, UNITED STATES, SOUTHERN REGION
AND TENNESSEE, 1940-1950

Year	United States Dollars	Southern Region Dollars	Tennessee Dollars
1940	575	330	316
1941	693	411	410
1942	876	543	521
1943	1,059	676	674
1944	1,161	769	708
1945	1,192	812	876
1946	1,212	810	827
1947	1,294	869	869
1948	1,387	933	906
1949	1,330	883	873
1950	1,436	969	962

Source: United States Department of Commerce, Office of Business
Economics, Survey of Current Business, August 1950, p. 17.

The South has been gaining in cattle numbers in recent years at a more rapid rate than for the United States as a whole. Comparing 1946 with 1950, the South increased beef cattle numbers by almost four percent while the nation as a whole about maintained cattle numbers (0.8 percent decline). Another comparison shows that the percent of the United States beef cattle in the South increased from 13.1 to 13.8 percent during this period.

Approximately 17.2 percent of the United States hogs in 1950 were in these 11 southern states against 16.2 percent in 1946.¹⁷ In terms of numbers the South had approximately 10.4 million hogs compared with 60.5 million in the nation. The South produced slightly more than four percent of the sheep and lambs in the United States in 1950.

Livestock in Tennessee

Historically farm production in the various parts of Tennessee has been rather specialized with major emphasis on cotton, tobacco and corn. Climate, soils, labor supply and prices have combined to make the growing of these crops practicable in the past. However, there are inherent disadvantages in cotton and tobacco as cash crop systems of farming. Frequently labor is not fully employed throughout the year, land and other farm resources are not utilized fully, soil

¹⁷Ibid., p. 2.

fertility is not maintained, and unstable incomes frequently result. To overcome these disadvantages of a one crop system, agricultural leaders are stressing a more diversified farming program in which livestock enterprises play a major part.

The beef cattle industry in particular has made substantial progress in recent years, more than the other major classes of livestock. The January estimate of 1952 indicates 1,658,000 cattle and calves on Tennessee farms which is a record high (Table XV). The current numbers represent an increase of 80,000 head during the past year and a 23,400 increase per year over the average number for the 1941-50 period.

Most of this change in recent years is in cattle other than for milk. The number of milk cows in Tennessee have increased almost continuously since 1867, the beginning of available statistics. Their numbers increased from 160,000 head in 1867 to 564,000 in 1940 and 668,000 in 1952.

A favorable setting for this development has been provided by increased industrialization during recent years in the state resulting in a decreased farm labor supply and an improvement in consumer purchasing power. Also, there has been a decline in acreage of some of the major crops, particularly corn and cotton. The development of pasture mixes better adapted to the climate and soil have been accomplished. Other important contributing factors to this trend have been the effective control of most of the major livestock diseases, a growing demand for livestock and livestock products, and improved production

Table XV

NUMBER OF ALL CATTLE AND MILK COWS ON TENNESSEE FARMS,
JANUARY 1, 1928-1952

Year	All Cattle (Thousand Head)	Milk Cows	Year	All Cattle (Thousand Head)	Milk Cows
1928	957	450	1941	1,259	581
1929	971	461	1942	1,309	604
1930	992	468	1943	1,388	628
1931	1,025	493	1944	1,513	666
1932	1,100	528	1945	1,422	666
1933	1,170	566	1946	1,424	640
1934	1,210	584	1947	1,452	640
1935	1,233	594	1948	1,408	627
1936	1,184	558	1949	1,366	621
1937	1,097	541	1950	1,462	640
1938	1,085	541	1951	1,550	640
1939	1,158	552	1952*	1,658	668
1940	1,211	564			

* Preliminary

Source: Tennessee Department of Agriculture, Department of Statistical Service, Nashville, Tennessee, United States Department of Agriculture, Bureau of Agricultural Economics, Cooperating, Agricultural Trends in Tennessee, 1861-1947, December 1948, and Recent Release.

practices and marketing methods and facilities. In addition, farm leaders, public officials, and educational workers have carried on an intensive educational and development program promoting diversification of farm enterprises to balance crops and livestock so as to better use land, labor, and capital resources, stabilize incomes, and gear farm production to the changing demands on the market.

One way to observe the changes in the state's beef cattle industry with changes in the major crops is to look at the trends in crop acreages and livestock numbers. Land utilization for the period 1925-50 provides a basis for determining what crops and land uses have been declining and making land available for the production of livestock. Cotton, the major cash crop, has had a substantial reduction in acreage, from 1,146,000 acres in 1925 to 630,000 in 1950. Tobacco acreage has remained about the same. During the same period the acreage devoted to all hay, a crop enterprise necessary for the production of livestock, has increased slightly. However, better quality hays have been produced. Alfalfa acreage, for example, has increased from 16,000 acres in 1925 to 158,000 in 1950. Acres in lespedeza increased from 81,000 acres in 1925 to 970,000 acres in 1950.

Another way to measure relative changes in cattle numbers and crops is to compare the acreage of various crop enterprises per 100 head of cattle over a period of years (Figure 2). The change in the ratio of corn acreage harvested per 100 head of cattle has been one of rapid decline, resulting from a decreased corn acreage and an increased cattle population. From 1925 through 1942 the ratio of corn acreage to cattle

ACRES PER 100
HEAD CATTLE

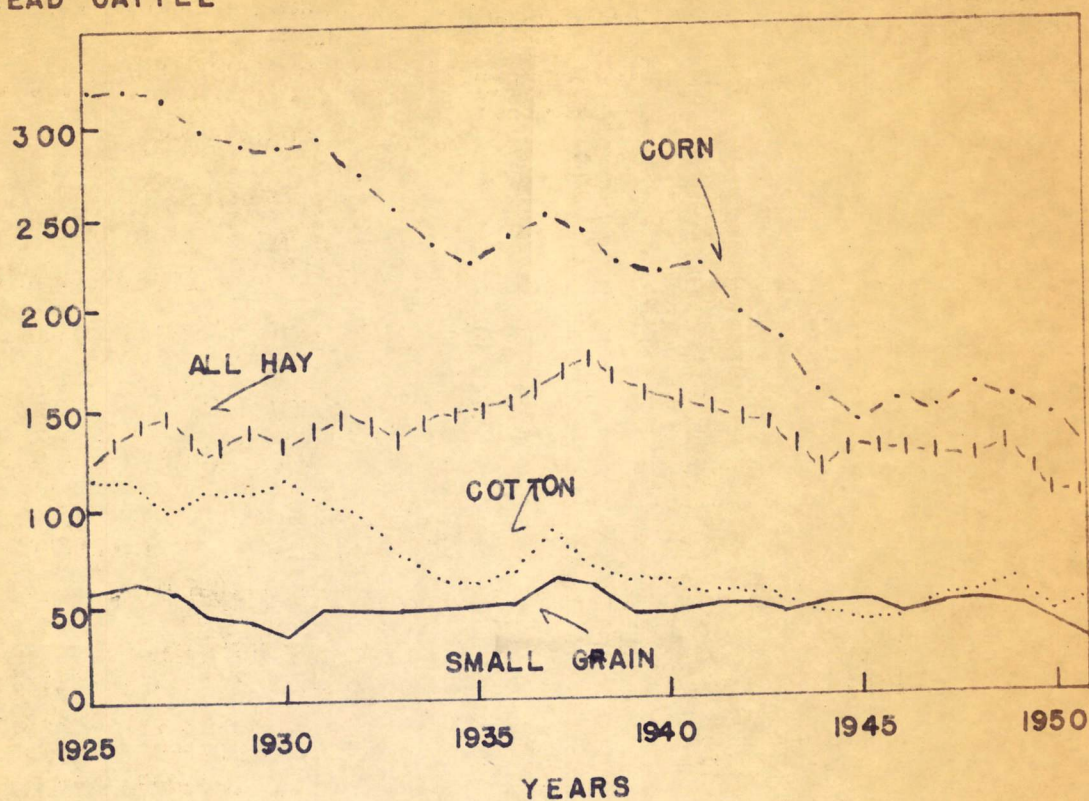


FIGURE 2. ACRES HARVESTED OF SELECTED CROPS PER 100 HEAD OF CATTLE
ON FARMS, TENNESSEE, 1925 - 1951

SOURCE: TENNESSEE DEPARTMENT OF AGRICULTURE, AGRICULTURAL STATISTICAL
SERVICE, NASHVILLE, TENNESSEE, U.S.D.A., B.A.E., COOPERATING

was greater than 2 to 1, reaching a peak ratio in 1926 when there were 319 acres of corn for each 100 head of cattle. From that time through 1951 there was a steady decline, reaching a low of 130 acres of corn to 100 head of cattle in the most recent year. In all probability this ratio will continue to decline for at least the next 25 years.

The changes in the ratio of cotton acreage to cattle have been more irregular and the fluctuations have not been as great. The average ratio for 1925-29 was 109 acres to 100 cattle, as compared with an average ratio of 48 to 100 for the 1945-49 period. During the entire period 1925-51 there has been a tendency for cotton acreage to decrease at about the same rate as cattle numbers have increased.

During the 27 year period 1925 to 1951 the ratio of the acreage of all hay to cattle numbers remained relatively stable when compared with corn, cotton, and tobacco. One would expect this relative stability of the hay-cattle ratio because of the practice of Tennessee farmers conditioning cattle for market on pasture grasses and hay with only little concentrate. This relationship between hay acreage and cattle numbers is to be expected in an area that has a deficit production of concentrate feeds.

A good criterion to measure the relative importance of any farm enterprise from the standpoint of the producer or an area is one that can be measured in dollar income from that enterprise. The money returns from the enterprise provide a measure of relative importance and relative change (Table XVI). Cash receipts from the sale of livestock (cattle and calves, hogs, sheep and goats, poultry) and livestock products (dairy

Table XVI

TOTAL CASH RECEIPTS FROM FARM MARKETINGS AND PROPORTION
FROM LIVESTOCK AND LIVESTOCK PRODUCTS AND CATTLE AND CALVES,
TENNESSEE, 1925-1950

Year	Cash Receipts From Farm Marketings			Percent of Total Cash Receipts From		Percent Receipts
	All Farm Products	Livestock and Products	Cattle and Calves	Livestock and Products	Cattle and Calves	From Cattle and
						Calves Were of
						All Livestock and Livestock Products
	(Thousand Dollars)			(Percent)		
1925-						
29	158,484	65,065	12,116	41.1	7.6	18.6
1930-						
34	93,364	38,309	7,558	41.0	8.1	19.7
1935-						
39	125,012	59,216	14,691	47.4	11.8	24.8
1940-						
44	233,370	114,699	25,658	49.1	11.0	22.4
1945-						
49	425,307	205,723	57,841	48.4	13.6	28.1
1950	430,344	216,811	69,540	50.4	16.2	32.1

Source: U.S.D.A., Agricultural Statistics, 1925-1951.

products, eggs, wool, etc.) amounted to \$216,811,000 in 1950. The value was slightly above that of 1949 and the third largest on record, exceeded only by 1947 and 1948. Sales of livestock and livestock products accounted for half of all cash income received by farmers from the sale of things produced by them. The growing importance of livestock enterprises is indicated by the fact that in the 1925-29 period sales of livestock and livestock products made up but 41 percent of total farm sales.

Cash receipts from cattle and calves have risen about twice as fast as receipts from all livestock and products. For example, in 1950 all livestock and products receipts were up 402 percent from the 1925 level while cattle and calf receipts were up 725 percent. Sales of a larger number of animals, improved quality, and favorable prices are the major reasons for this rapid increase. In 1950, cash income from cattle and calves amounted to \$69,540,000, exceeded only by the record year 1948. This income comprised 32.1 percent of all livestock and livestock products receipts. In 1925 the proportion was only 17.6 percent.

During the last two decades farm income has had an upward trend, greatly accelerated since the World War II period. Income from the beef cattle enterprises has risen particularly fast reflecting not only a rise in the general price level, but also an expanded and improved beef cattle enterprise. Income from livestock has fluctuated less than income from the major crops, providing greater stability to many Tennessee farmers and a more desirable farm enterprise organization for efficient use of the resources available on the farm.

Hogs and pigs are also important in Tennessee. In 1951 there were 1,385,000 on farms. They generally contribute from 10 to 12 percent of the total cash receipts from farm marketings. Sheep numbers are not very important, numbering 270,000 in 1951.

Corollary with the expansion of beef cattle numbers in Tennessee is the fact that industry has likewise improved its position in the state, especially during the last two decades. Cheap available labor, the availability of raw materials, an adequate power supply and the proximity to markets account for most of this favorable development. More industry has meant more disposable personal income in the hands of industrial workers. Closely related to disposable personal income is the expenditures for food with more money being spent for meat when incomes increase. Wilcox¹⁸ points out that, "When consumers have high incomes they spend more for meat and milk." Table XVII indicates the average year to year change in disposable personal income expenditures for food and cash farm income during years of declining income and years of increasing income. Per capita income in Tennessee increased from \$316 in 1940 to \$962 in 1950 (Table XIV). Higher per capita income and meat consumption are also associated with a greater degree of urbanization. In 1930, 34.3 percent of the population in Tennessee was classified as urban compared with 44.1 percent in 1950 (Table XIII).

¹⁸Walter W. Wilcox, "What Makes Farm Prosperity", Farm Policy Forum, Iowa State College Press, Ames, Iowa, Vol. I, No. 4, October 1948, p. 52.

Table XVII

AVERAGE YEAR TO YEAR CHANGE IN DISPOSABLE PERSONAL
INCOME EXPENDITURES FOR FOOD AND CASH
FARM INCOME, 1929-46

	Percentage Disposable Personal Income	Percentage Expenditures For Food*	Percentage Cash Farm Income**
Years of declining income 1930-33 and 1938.....	down 8.8	down 10.4	down 15.1
Years of increasing income Before price control 1934-37 and 1939-41.....	up 12.0	up 10.4	up 13.9
War and immediate postwar 1942-46.....	up 11.6	up 16.0	up 17.5

* Does not include alcohol beverages.

** Does not include government payments.

Source: Walter W. Wilcox, "What Makes Farm Prosperity", Farm Policy Forum, Iowa State College Press, Ames, Iowa, Vol. I, No. 4, October 1948.

Total income payments of proprietors and employees in Tennessee ranged from \$515.8 million in 1933 to \$3,170.6 million in 1950 (Table XVIII). The greatest increases occurred in non-agricultural areas where income payments varied from \$303.9 million in 1933 to \$2,040.2 million in 1950. Government payrolls expanded from \$49.8 million to \$307.7 million during the same period. Growth in the number of industrial establishments and number of employees in Tennessee is shown in Table XIX. There was a 17 percent increase in establishments and 56 percent increase in the number of employees from 1929 to 1947.

Table XVIII

ESTIMATED INCOME PAYMENTS OF PROPRIETORS AND EMPLOYEES BY MAJOR SOURCE, TENNESSEE

Amount in Millions	Years									
	1929	1933	1939	1945	1946	1947	1948	1949	1950	
TOTAL INCOME PAYMENTS	905.8	515.8	851.9	2494.9	2544.6	2742.1	2924.2	2840.4	3170.6	
Private proprietors & employees	722.3	378.3	629.5	1831.4	1892.1	2079.3	2250.2	2113.4	2336.6	
Agriculture	152.5	74.4	117.8	305.9	346.9	368.5	394.5	317.7	296.4	
Nonagriculture	569.8	303.9	511.7	1525.5	1545.2	1710.8	1855.7	1795.7	2040.2	
Mining	12.9	5.7	12.3	24.2	26.1	33.0	37.8	30.8	34.0	
Manufacturing	151.6	86.6	155.2	527.0	508.8	567.3	617.3	582.7	669.9	
Contract construction	33.1	6.7	25.6	221.7	111.7	138.8	159.9	150.6	200.1	
Trade and service	372.2	207.9	318.6	752.6	898.6	971.7	1040.7	1031.6	1136.2	
Property income	113.4	61.2	89.9	473.3	201.4	224.8	226.8	230.0	253.5	
Government and other income	70.5	76.7	137.2	507.2	468.4	458.4	469.4	519.5	611.9	
Government payrolls	56.3	49.8	79.5	230.4	212.6	213.6	244.4	255.3	307.7	
"Other income"	14.2	26.9	57.7	276.8	255.8	244.8	225.0	254.2	304.2	
Less social security deductions	-0.4	-0.4	-4.7	-17.0	-17.3	-20.4	-22.2	-22.5	-31.4	

Source: Unpublished estimates by the U. S. Department of Commerce. Totals and summary analysis published in Survey of Current Business, August 1951.

Table XIX

NUMBER OF INDUSTRIAL ESTABLISHMENTS, ALL EMPLOYEES,
PRODUCTION WORKERS AND WAGES FOR SELECTED YEARS, TENNESSEE

Year	Number of Establishments	All Employees		Production Workers	
		Average Number for the Year	Salaries and Total Wages Thousands	Average Number for the Year	Total Wages Thousands
1947	3,346	221,454	473,211	192,367	369,920
1939	2,225	152,179	149,525	131,024	108,828
1937	2,083	148,432	136,489	135,073	107,248
1935	1,991	123,436	103,261	112,434	81,246
1933	1,561	n.a.	n.a.	94,909	60,870
1931	1,948	"	"	92,660	74,056
1929	2,855	142,020	149,080	128,400	115,877

Source: U. S. Bureau of the Census, U. S. Department of Commerce,
Washington, D. C., Census of Manufacturers, 1947.

CHAPTER IV

SKILLS AS A FACTOR IN BEEF CATTLE PRODUCTION IN FAYETTE COUNTY, TENNESSEE

Introduction

This chapter is based on a pilot study which was designed to give some insight into skills as a limiting factor in the production and marketing of beef cattle. The main objectives were, first, to determine the relative importance of skills as part of the problem of producing and marketing beef and, second, to find out some of the limitations that beef producers face in regard to production and marketing skills, and, if possible, what relative importance beef producers attach to various skill areas. The data obtained give at least partial answers to such questions as: Were skills a limiting factor in getting into the beef cattle business? Are skills a greater limitation than capital? Does increased knowledge of different skills result in the producer changing his operations? From the experience gained in this brief pilot study it appears that there is a definite place for this approach in studying important factors relating to producing and marketing problems, particularly if care is given to delineate specific objectives.

The area covered by this study was Fayette County, Tennessee. Interviews were held with 28 farmers between April 10 and April 20, 1952. The sample was large enough to adequately satisfy the primary

objectives of the study, but did not permit fine break-downs. The sample was not selected in such a way as to permit reliable comparisons between different areas or between types-of-farming and size of enterprise. The study does not attempt to delineate differences in managerial ability of the beef producers nor does it measure their efficiency in operating their beef enterprises.

In order to study skills as a limiting factor in beef cattle production, certain skill areas were adopted and the farmer was then asked questions relative to skills in these various areas. The skill areas selected were: (1) Selecting the Breeding Stock (2) Managing the Breeding Herd (3) Care of Calves (4) Feeding (5) Parasites and Diseases (6) Housing and Equipment, and (7) Marketing. This chapter is an attempt to point out what farmers indicate as skills and their limitations in beef cattle production in these various areas.

Selecting the Breeding Stock

In response to several questions in the skill area, "Selecting the Breeding Stock" the interviewer was interested in how farmers got started into the beef cattle business and what steps did he take in selecting his breeding stock. In general, it was found that beef cattle production in Fayette County was in terms of rather large herds varying from 50 to 75 head of breeding cows or more, or in terms of a smaller enterprise of less than 25 brood cows.

When farmers were asked, "How did you get started into the beef cattle business?" the general type of replies was something of this nature:

I have been in the beef cattle business for about 12 years. I started from dairying after growing tired of all cotton. I used to plant about 100 acres of cotton -- now have only 40. When I started dairying I soon found out it was too much work if done right, so I gradually shifted to beef. I used a "good" bull on cross bred cows and gradually grew into my 75 cow herd, trying to gradually improve the quality of my cows.

I started in the beef cattle business in 1938. I started by buying 20 head of cows from Texas. Three of us went together and bought two carloads. I didn't know much about cattle, but just picked what I thought looked good to me. From these 20 cows and a few extra I bought on the way, I grew into my present herd of about 200 head of cattle. I found the cattle paid pretty well so now I spend more time with them than I used to. I used to grow about 500 acres of cotton and now I have only 350.

My father died about a year ago so now I take care of my mother's cows and a few I had. We have 28 of them. Two years ago I sold most of my cattle (seven) to get married. I would sure like to go into cattle raising in a big way, but don't have the money.

I started into the beef business about 12 years ago. I bought about 65 head of cows from Texas and purchased about 35 just East of here. The local stock I bought had bang's infestation and I had to get rid of them. Cattle around here are much better now. I didn't have much chance to select the first cows I bought. A person ought to do that. I have a good registered purebred bull to help raise good calves. A cow should give plenty of milk. From this original purchase I gradually grew into the business until now I keep about 100 good brood cows.

I bought my cows just recently in Texas and Nebraska. When I bought my brood cows I personally picked every cow. I was particularly interested in the blood line of the cows from the standpoint of them producing good big calves with good growing qualities. I am interested in their size as young stock because that means more pounds in a shorter period of time.

I have judged many livestock shows, but don't do it any more because I think too much stress is placed on such things as the head and straightness of legs. Growing and fleshing qualities of the animal are often sacrificed at the expense of a good head and legs.

The two most limiting factors to going into beef is capital and know how. One can get capital for livestock a lot easier now than 10 years ago. Banks in Memphis and Jackson will now loan up to 80 percent of the investment for one going into livestock on a sound basis today.

Well, I tell you, I'm a G.I. farm trainee and in my classes I learn a lot about cattle management. I got three cows from my Dad and got a little credit to buy a few more. I now have 14 cows and plan to expand my herd to about 25 cows. That's all the land I have. The only way I can do it is grow into the business.

I got 24 cows -- they are just average. I started with a few cross bred cows and got me a pretty good bull. I saved my heifers and hope to improve my herd by weeding out some of the poor cows and keep my heifers. What I learned about cows was mostly in FFA work. The Farmers' Home Administration Agent has helped me a lot. I wouldn't be in business if it weren't for him. I got all the cows I can handle on the land I got.

I have a one-half share livestock lease. I am only a sharecropper so far as cotton is concerned. I have 240 acres of land leased and my landlord is very interested and puts one-half of everything up for livestock. The Farmers' Home Administration loaned me my share of the money needed for this agreement. I have been under this arrangement for about a year. I bought 26 cows.

My neighbors helped me select my stock. In fact, I took their word for it. Price was the main factor in selection. I plan to expand to about 100 cows when I am able to. I think I can take care of that myself. When I get more cows I plan to cut out the cotton.

I was milking a few cows and sold some cream. I didn't keep up with the milking so got a good bull and started raising calves. I did have 26 cows, but didn't have enough good pasture so sold some of them off. I have 12 now, but would like to have a herd of about 15 good stock cows.

I used to have a dairy herd, but three of my boys went to the Army. I only have one at home now and he doesn't like to farm. I had to shift to beef cattle because it requires less labor. I got 17 cows now and that's all I can handle.

Managing the Breeding Herd

In this general skill area it appeared that considerable variation existed relative to the competency of labor so far as skills were concerned in managing the beef herds. Questions in this area have particular reference to time of breeding, ages of the animal and general questions of handling of the beef herds. In general, it appeared that white labor is much more satisfactory in feeding and caring for the beef herd than colored labor. From the responses of farmers, it appears that managing the herd is more difficult during the winter months than during spring and summer. Special attention, however, was frequently required when the cattle were first turned on to various clover pastures. Representative responses in this general skill area from farmers followed this general pattern of remarks:

My boy and I do all the work on the beef cattle except for seasonal work, particularly putting up silage. I don't find labor very hard to get for this work. I plant my cotton as early as possible so I can get help hoeing it before the other guy needs it. I don't have any difficulty out of the ordinary with my herd. It is not hard to learn to handle beef cattle. It takes someone who wants to do it. I learned more or less by experience with my herd and didn't have any hard problems.

My boy is in the 4-H Club calf program and he has learned quite a bit about raising calves here. It helps too in getting him a start and he likes to work with cows and helps me lots. I don't want to fool with purebred registered cows because they require too much work. They don't give the milk they should to produce feeder calves like I want to.

I go look at my cows only about once a week. The best way, in fact the only way, to go into beef cattle is to have a good herdsman. Lack of skilled labor puts a limit on how many cows I can have. I got so much to do I can see my cows only about once a week. Once in a while I hire a colored man to help my herdsman with the cows. You just have to watch everything they do. They are not interested in cattle. They might do a good job today and then tomorrow never show up.

I and my boy do all the work managing the livestock. Skills are not a problem as far as I am concerned. Experience is the best teacher and there is no substitute for it. What the books say a lot of times just don't work out. You can do one thing one year and everything works out just right. You can do the same thing next year and lots of things may go wrong.

My father taught me how to take care of cows. I have been around them all my life. That stuff the county agent gives out is all right although he doesn't get out this way very often. He spends most of his time with community clubs. We disagree on corn and some other things. He does lots of good though.

I have been around cows since I was eight years old and don't have any real difficulties in managing my herd. I have a good "white" man who takes care of all my feeding.

I don't like my bull — he is a registered Angus, but not the right type. I don't have the papers on any cows I have, but some of them could be registered. I like to breed my cows so that the calves will drop during January, February and March. The cows are ready to give more milk for the calves when the pastures come on and when they need the most.

I have one good negro who has been on the farm all his life. I am going to build a barn for him next year and give him about 20 head and let him take care of them for half. He'll do a good job.

I expect to sell some calves off the cow and to keep some as feeders. I plan on eventually having some to sell every month. I am going to have all the calves to drop in September, October, and November. I expect a 90 percent calf crop and not more than 2 percent death loss. This is one of the keys to raising lots of beef. I figure with my training and experience that I'll have management problems but none that I can't overcome. If there's anything I know something about it's cattle.

A person should have at least 80 percent calf crop. Generally I do a little better. I'd like to have 90 percent. I don't have time to check my cows myself. I have a good herdsman and he keeps me informed. You need a good herdsman. Labor is not keen to observe sick animals and just little things necessary to good feeding.

I don't know much about managing cows. I took Agronomy in school, but I figure I know enough to get by. There is a lot more to handling this livestock than most people think. It takes quite a bit of work. It is expensive to get started too. Take fence for instance; one roll doesn't go very far and it costs plenty.

I let my bull run with the cows all the time. I like to have some calves to sell whenever money runs short. I would like to plan on wintering calves and then selling them as long yearlings at about 18 months. I don't know much about taking care of calves, but I have only been in charge of this herd for a short time and I'm learning fast. I lost eight cows and several calves this winter. I didn't know what caused it. I figure that calf crops should be about 80 percent.

I learned all I know about cattle at my GI training class. There is more to managing a herd than one would suspect. Take calving for instance; it's caused me lots of trouble this winter. I didn't lose any calves, but I really spent a lot of time with the cows this winter; and then take fencing -- it's a big job too. A lot of people don't appreciate this. Last year I ran about a mile of fence and cross fenced those fields over there.

Care of Calves

Considerable skills are involved in the care of calves. In general, the major areas center about care at calving time, dehorning, castration, vaccination and care for minor disorders such as scours and bloat. It is evident that considerable knowledge on the part of farm operators and the labor working with livestock are to some extent lacking in skills relative to these various jobs. It was apparent that colored operators had less skills than white operators. Very little information relative to these skills has been disseminated by the Agricultural Extension Service to the farmers interviewed. Some knowledge in these skill areas became available through 4-H Club programs, the FFA work and in some cases through the GI training educational program. When farmers were asked questions relative to these problems in caring for calves the emphasis was somewhat as follows:

I and the boy vaccinate the calves. It costs only about 10 cents a head. We castrate the bull calves ourselves at about six to eight weeks of age. Four-H Club calf program has taught my boy quite a bit about raising calves. It helps too in giving him a start.

Sometimes I vaccinate for blackleg. I haven't done so recently. I have lost some calves from this but not lately. I castrate the bull calves myself after the calf dropping time is over. They will range from eight weeks to four months of age.

I do my own vaccinating part of the time and the veterinarian does it part of the time for blackleg. Sometimes the vet castrates the bull calves. He uses the emasculator. Sometimes one gets too big and we have to cut him.

I lost some calves from blackleg last year. I have not had them vaccinated for five years. I used to vaccinate them myself, but I am old and got rheumatism in my right hand so now the veterinarian does it all. He does the castration now too. I used to cut them myself.

This year for the first time I have creep fed some of my calves. I learned this from seeing the improved quality and condition of calves that some of my neighbors had who practiced this.

I dehorn my calves and generally castrate them between 30 days and 3 months of age.

If you keep your calves as feeders, separate the steers from the heifers. You don't always get clean castrations and if they are together and the heifer comes in heat you excite the whole herd and run pounds off them.

I just sell calves off cows so I don't think it is necessary to dehorn. The veterinarian does all the castration work and also vaccinates the animals for bangs and blackleg.

I supervise the dehorning, castration and vaccination. That's no problem. There is no good veterinarian around here I can fully trust. A vet can sometimes do more harm than good. I always keep penicillin and other medicines that I know about on hand and administer them myself.

My herdsman does all the dehorning, castrating and vaccinating. He uses the pinchers.

I haven't done any dehorning. I do know how, but I just don't like to do it. I hate to see them bleed. It sort of gets me. I'm going to try to use the rubber band around the horn though. Right now I am using a polled bull. I do the vaccinating for blackleg myself.

I'm going to creep feed some of my calves, but haven't yet. I was going to let the calves come into the old chicken house to creep feed, but the chickens would scratch the feed away. I haven't figured out just yet how I'm going to do it.

My herdsman does the dehorning and castration. He uses "paste" for dehorning. He likes to put the "rubber" on the bull calves as soon as possible after birth. I have a vet do all the vaccination.

I have my nephew most of the time do all my vaccination. My cows are not bangs tested. My nephew does the clamping and the dehorning that has been done. I don't know much about these things.

Yes, I vaccinate all my calves for blackleg and septecemia. I like to clamp the bull calves when they are about six weeks old. I dehorn most of them. I have tried to use the rubber band on the horn at the same time I clamp them. It works pretty good. I learned to do this in FFA.

My neighbor vaccinated all my calves for blackleg and septecemia. Some of them were vaccinated twice for septecemia. I think I can do it myself now. My neighbor also clamped them and dehorned them. I helped him. We dehorned 14 of the cows when I got them. I kept them in the barn for a while afterwards.

I haven't done any dehorning. I have seven calves now that need it. I have the veterinarian do all the vaccinating. I do the clamping myself. The calves are about three or four months old when I do this.

Calving has caused me as much trouble as anything. I really spent lots of time with cows this winter. I never lost a calf though. The last one was just born last night. I had lots of trouble with the calves at first too. They all got the scours. I bought 3 calves and I guess they had it and gave it to all the rest. I gave them sulfa tablets. After they got over the scours they did better. A few of them got pneumonia. I had to watch them closely. I treated them with some penicillin. The vet told me how to give it. After scours and pneumonia some of them got "stomachitis." I eventually got them over that. I learned all I know about cattle in my GI training class.

Feeding

Feeding is one of the important skill areas that must be given consideration in beef cattle production. It is evident from the responses obtained that considerable skill is lacking in this general area. It was noted that often not enough feed was produced for the livestock on hand and that in many instances feed had to be purchased that was shipped into the area. In some cases there was a lack of knowledge of what good feed consisted. Feeding skills were rather closely associated with the labor problem and in some instances limited the extent of the development of the beef enterprise. It was apparent that considerable skill was lacking relative to pasture management and problems associated with obtaining good pastures. Common comments among beef cattle producers about feeding practices in this area were as follows:

I can't hire labor that's any good for feeding. You just have to stand over them every time you feed them. Lots of people know enough about how they should feed, but they just don't do it unless you are there to make them do it.

I grow all my hay, corn, and sorghum silage and buy cottonseed meal for my feeding program. Once in a while I hire a colored man to help my herdsman with the feeding. You have to watch everything they do. They are not interested in cattle. They might do a good job today and tomorrow never show up.

I have a good "white" man who takes care of all my feeding. My feed is simply winter pasture, hay and cottonseed meal. I don't use any silage. My cows each get one pound of cottonseed meal a day during the winter.

I'll tell you one thing -- if you are going into the cattle business be sure and have plenty of good winter pasture and water. It is better to have more than you need. Some of my ground was in pasture for 15 years. The ground got too hard. I'm going to subsoil it and plant it to cotton this year. On some of the

rough spots I have tried to put in some seresia. Lespedeza is very important for pasture and hay. I like White Dutch better than Ladino. It is not so bad as far as bloat is concerned.

(When asked why he does not increase the size of his herd, the answer was: "Because I would want considerable pasture in reserve. If I increased my herd to a hundred I wouldn't have enough reserve pasture. It is better to have 100 cows and a reserve pasture than 150 cows and no reserve pasture.")

A negro fed my cattle all winter. He did all right. I checked every day to see if my cattle were properly fed. It is a lot of responsibility. I try to have a good winter pasture with plenty of silage. I feed some cottonseed meal.

One of the major problems is knowing how to get the right pasture. I used orchard grass, fescue and Ladino for my main pasture. I don't put much Ladino in it because of bloat. Lespedeza is my best summer pasture. I like to have half-winter and half-summer pasture. I learned lots of what I know from watching and talking to my neighbors. The county agent wasn't any help.

Two negroes fed for me. They did a good job. I measured the amount they should feed in the way of protein, minerals and crushed corn out to them in buckets the first time and then they followed those directions till I told them to change it. I had to buy lots of hay this year.

Good pastures are necessary. They should be established before one gets any stock. They should not be pastured too heavily.

I don't have any good pasture. I just seeded that old hillside you see over there. There is about seven acres in it and it's not very good. I don't use any silage but I think it is all right. I feed hay and crushed corn with a little cottonseed meal. The cottonseed meal is just too high -- \$4.56 a sack.

I think colored help can feed cows right if you find a man who is really interested in it. I think that they can learn to spot a sick animal if you teach them what to look for. My man does pretty good.

I expect to have my feeding operations highly mechanized by the use of conveyors and overhead trucks at this time next year. I should be in a position to feed 400 cows in an hour's time. A

good feeder needs to feed at regular times within a range of 10 to 15 minutes of the same time each day. I aim to feed at 7:00 in the morning and 5:00 at night. I plan to feed corn silage and hay. I'll grow both of these. I don't plan on growing any grains. I'll have to buy them. There is a surplus of corn North of here and in one area of Mississippi I know of. I'll be able to get what I need there. I'm a strong believer in good pastures and adequate water. I'm getting my pasture started now. It's coming along all right.

I started my pasture with winter grasses and native grass. I buy cottonseed meal. I try to produce all the hay we need. I did have to buy a few loads this year. I like cane and corn silage. The upright silo is far the best. It gets too muddy around trench silos.

The herdsman looks after the feeding. A colored man does the feeding and he does it all right if told. You need a good herdsman. Labor is not keen to observe sick animals and just little things necessary to good feeding.

I don't have any good pastures. I'll have to plant some before I get more cattle. My cows just run in the bottom and are in the woods all winter. They are fat too. I know I don't feed them like I should. Don't you tell them at the University how I do it or they'll come out and get me. I know better. I have so much to do and then you know how my back is (disabled World War II veteran). I don't even feed cottonseed meal. If I get more cattle I should build a silo. It all takes so much money.

Really, I need some good pasture and I'm going to do something about it. You know they didn't teach me much about fescue, Ladino, and other such things that make up these pastures at U.T. I don't know much about the kind of soil I got either. I told Prof. _____ what it was like and he said it just couldn't be. He don't know much about the kind of soil I got either. It cost me five points on one of those exams.

I do the feeding myself. I grow the lespedeza which I cut for hay. I feed my corn, stalk and all, and add additional corn to it. To that I add some cottonseed meal, about a pound an animal per day. They really eat it.

Pastures are most important and to get them requires some skill. I plowed lots of stuff into this ground first. I got some information on how to establish pasture from somebody in Memphis and followed their directions. One field of crimson clover, about 80 acres, froze out last fall. It might reseed itself. I built a big pond in back of my pasture for water. I have some equipment on hand for irrigation and I'll expect to

irrigate when it needs it. I give my cattle salt and minerals in several places in the pasture in those above the ground weather proof containers. I sowed some lespedeza in the pasture after the other grasses came up. I did it with an airplane.

My herdsman is in charge of the feeding. Two negroes help him. Those negroes have to be closely selected and trained in what to do. A common burr headed negro is just no good for feeding. They aren't interested. In addition to pasture, my feed consists of silage and the Purdue Mixture. This Purdue Mixture is really all right. I did not feed any hay. The Purdue Mixture provides mineral and protein and results in the silage (grain) being more completely digested. I plan to build another silo. I alternate feeding lots during the winter time after they get too muddy. I just got done plowing the lots.

I have some lespedeza hay, but mostly soybean hay. I like soybean hay if its got a lot of beans on it. I run it through a chopper and then they eat it better. If I got good soybean hay I don't have to feed so much cottonseed meal. I feed some crushed corn. Silage is for the big feeders. It is good feed, but I can't afford it now.

Pasture is hard to get, but you have to have it. I probably didn't fertilize enough. I don't exactly know how. I went to the county agent. He said he was coming out to see me, but never did.

I bought some 16 percent dairy feed and some cottonseed meal to feed them. I feed lespedeza hay, but I hope to raise some soybean hay too for next year. I crushed corn and fed that too. I do all the feeding myself.

Parasites and Diseases

Parasites and diseases are generally recognized problems in beef cattle production. Considerable skill is required on the part of management to recognize the symptoms produced by diseases and parasites and to take the necessary control measures. In general, beef producers in this area are not conscious of internal parasites. There seems to be an almost complete lack of knowledge in this general area. Most producers are conscious of the disease problem. Many of them do little about it. As

beef cattle production increases in this area more consideration will have to be given by the producers to the problem of parasites and diseases. In asking these farmers about problems in this general area the most common types of remarks were about as follows:

The State tests for bangs disease, that is, if you take advantage of the service they offer. I have had lots of trouble with bangs. I had to get rid of 10 cows three years ago. Replacing them is expensive. I lost a registered purebred bull last year. I don't know what was the matter. He just went to the back of the pasture and died. The veterinarian cut him open and didn't find anything wrong. He died from a hemorrhage. It cost me \$600 to replace him.

I have had considerable trouble with bloat. There is about three ways I treat my cows for bloat. The first thing I do is pull the cow's tongue out as far as I can. You have to pull it hard. If that doesn't relieve them I give them a bottle of kerosene. As a last resort I stick them. I have stuck quite a few of them, but I don't like to do it. I generally mow about a five acre strip of my Ladino about every week during the heavy grazing. The cows eat the dry mowed grass with the green stuff.

I lost a good cow last year. I think it was the old muddy water from the pond that killed her, at least she died by the pond. The other cows drunk it too, but it didn't bother them. It stands to reason that it was the muddy water.

Internal parasites are important in this area. Most farmers don't know anything about them and often their cattle have them and they don't know it. The State law about bangs disease vaccination between four to six months of age is not sufficient. It's a serious problem. The State regulations need to be revised and enforced relative to vaccination at these auction markets and elsewhere.

I lost eight cows this winter and several calves. I don't know the cause, but the vet saved three cows for me. I have considerable trouble with cows "cleaning out" after calving. My calf crop is only about 80 percent.

If you want to know something about cattle you should see my nephew. He lives just down the road a ways. If I have a sick cow I generally call him.

I don't know much about cattle. I generally watch my neighbors and ask them what to do. I had three cows that bloated and called the vet and he told me what to do over the phone and I did it and they got all right. I gave them two tablespoons of turpentine and two of kerosene. I had two more to bloat later and tried the same thing and it worked. I learned the symptoms of bloat real quick. I was also told to keep hay before them when on the clover and I noticed they did generally eat some of that. After I did that none of the others bloated. My calves had something and it went through all of them. I don't know what it was.

Housing and Equipment

Only limited facilities were available for beef cattle in the way of housing and equipment. Not much of either seems to be required for this enterprise. Generally speaking, there is a lack of housing for beef cattle in the area. It is apparent from interviewing the farmers that considerable variation of opinion exists relative to the needs for housing and equipment and the skills associated with handling such a capital investment. Responses from the farmers in this skill area indicated the following type of reaction:

I have been in the cattle and sheep business for over 20 years. I'm going to get out of the sheep business because pasture rotation is not practical on my farm and the building arrangements are not correct. I plan to use these buildings for my beef cattle, but before they will be much good I am going to have to do quite a bit of remodeling. It takes a long time for my boy and I to do all this work and we have so many other things to do.

You don't need many sheds. Lots of times when it is cold and rainy the cows won't go inside sheds that are available. They had rather stay outside.

Trees and a good bank is generally enough shelter. I got a barn up there that would hold 60 head, but it's generally always empty. Cold rain and snow hurt them, but just cold weather don't bother them much.

I don't have any barns for shelter available. I have a good bottom protected with trees and I think that's enough.

My cows don't have a shed. I have only got 15. They run in the bottom and woods all winter.

I don't have a special barn for my cattle. We don't have many bad winter days. They get some protection by standing next to the shed on the sheltered side.

Marketing

In general, the beef producers interviewed in this area were not conscious of any problems or needed skills required in the marketing of their cattle. Part of this is due undoubtedly to the favorable beef cattle prices during recent years and the increased importance of the Memphis market as a marketing center for livestock. It was noted, however, that some different methods were used by farmers in marketing their beef crop and that from their responses some do a better job than others. Comments from these farmers indicated that they were relatively satisfied with the Memphis market and in general were of the nature of these listed:

The market in Memphis is very good. Last year a feeder calf sale was held in October in Somerville. I sold some calves and got about 38 to 39 cents for them. I was very well satisfied with it.

Memphis is an excellent market. There is no problem in buying cows there. It's a good place to sell calves. Feeders are vaccinated before going back to farms. The auction markets should be regulated. They don't make a good market.

Buyers come out and bid on calves for feeders if I have somewhere around 40 of them ready for market. I generally get about three bids. These buyers come from Memphis or sometimes from one of the local auctions. The Memphis market really has improved in the last 10 years. I can buy some pretty good replacement stock around here now.

I don't have very good calves. I don't care for Whiteface or Angus. I just buy some scrub cows and put a good bull in with them and then sell my calves at the auction.

I expect to sell some calves off the cow and to keep some as feeders. I plan on eventually having something to sell every month. I think Memphis is a pretty good market. I may ship some to St. Louis or farther North.

Our market has improved. Some of the first local cattle I bought a year ago had bangs. Cattle around here are much better now. I generally ship mine to Memphis. I like cattle better than all this cotton. They are less expensive. I can't reduce my cotton though because of the investment in my gin and these 60 something cropper houses and store I have. I believe cattle and cotton prices move together. If I had a choice, I would rather be in the livestock end of the business heavier than cotton if prices did fall considerably.

Memphis is a good market — I just take them there.

I sell the calves off the cow after they are about eight months old — they go to Memphis.

I plan to winter my calves and sell them as long yearlings at about 18 months. I guess they'll go to Memphis.

I sell my calves off the tit. I have taken some to the feeder calf sale in Somerville and the rest go to Memphis. The market has been good. I did get some erysipelas in my hog herd by buying some feeder hogs at the Memphis stockyards.

State regulations need to be revised and enforced relative to vaccination at these auction markets and elsewhere.

I sell the calves off the tit. I sell them at the Memphis stockyard. I check the newspaper and radio and price news a few days before they are ready to go to see if I get a fair price for them.

I generally listen to the radio to see what the cattle are bringing before I ship mine. I also keep posted on prices in the paper. Prices don't mean a whole lot because generally you have to sell when your stock is ready.

Summary of Factors Related to Skills

Selecting the Breeding Stock

In this general skill area evidence indicates: (1) Many beef producers lacked considerable knowledge in knowing the skills involved in selecting their breeding stock. A lack of experience and training was evident. Many of them were pushed by the trend toward more cattle and were stimulated by the favorable prices for beef cattle. Farmers who didn't grow into the business frequently accompanied the farmers or had someone select the stock for them from cattle areas of the Southwest or the Great Plains area where they purchased a carload or more. In some cases breeding stock was also purchased locally or from nearby markets.

(2) Many of the beef producers at one time had a small dairy enterprise. In these cases the producers were familiar with livestock and had learned many of the skills required for beef production, mostly from caring and managing their dairy enterprise. In shifting to beef they purchased what they thought was a good purebred bull. Then they produced crossbred calves often saving the best heifers for replacement purposes and in this way generally improve the quality of their breeding stock.

(3) The principal reasons for starting a beef cattle enterprise or shifting from a dairy enterprise to beef were: (a) Labor requirements for dairying are much more than for caring and managing a beef enterprise. Normally much of the work with livestock was done by the operator's sons who had learned the necessary skills from their father.

In many cases these sons have left the farm to go to school, work in the city or are serving in the armed forces. In some instances this resulted in a shift from dairy to beef because of less labor required.

(b) In this area where cotton is the main crop, there has been a steady flow of colored and white labor to industrial centers where wages and living conditions have been more attractive. As a result of labor difficulties and lack of farm mechanization many farmers reduced their cotton acreage and substituted the beef cattle enterprise to maintain the productive capacity of their farm and to offset losses of income because of reduced cotton acreage. (c) The high prices received for beef cattle and the growing demand for beef in the South has encouraged many farms to start a beef enterprise or increase the size of their existing enterprise. It has encouraged many farmers to devote more time and land to pasture improvement.

(4) Only in a few instances were producers experienced, specialized men who knew the skills required and the importance of know how in selecting breeding stock.

Managing the Herd

All the beef cattle producers interviewed agreed that skills involved in managing the beef herd were very important and often were the decisive factor in the success or failure of the enterprise. In general, it was found that: (1) Relative to the time and ages for breeding there was a wide range of ideas and practices. Knowledge as to what was the recommended time and age for breeding was lacking, although the

importance of it was recognized. The percent of calving and the percentage death loss reflected this lack of know how. It was expressed by the better trained producers that a good herdsman should have a 90 percent calf crop each year and should not have more than a two percent death loss. With the exception of a few producers, this standard was not met. Most calf crops were from 80 to 85 percent and death rates ran three percent or more.

(2) Labor was recognized as an important problem. Considerable controversy was expressed as to the ability of colored labor to feed and care for the calves and breeding stock. The tendency was to credit white labor for learning the skills faster and doing a better and more regular job than colored labor. Colored labor required very close supervision in feeding and caring for livestock, and only a selected few was interested in learning the necessary skills to do it. Cotton is still predominately the colored farmers' interest. One feature described as a disadvantage in using colored labor was the problem of irregularity in doing their work, that is, they would do a good job for one day, a week or even a month or longer and then some morning never show up. As such it was risky to hire them. In a few instances it was mentioned that some of the colored labor that was interested in livestock learned the required skills rather fast and did a good job in following their employer's instructions. Some large producers felt that one of the most important thing to do was to be sure and obtain a good herdsman.

(3) In some instances the lack of skilled labor seemed to be a limiting factor as to the size of herd. Some producers said they would like to have somewhat larger herds but had to limit the size to skills. This was particularly felt during the winter seasons and when the herd was first put on green pastures in the spring because of certain precautions that had to be taken.

Care of Calves

Many beef producers lacked skills in this area. The study showed that: (1) Many producers did not seem fully aware of the importance of such operations as dehorning, vaccination and especially as to the best time and method of castration. It was detected that not much information on these skills had been given to the producers by the agricultural extension service.

(2) Operations such as dehorning, vaccination, and castration were performed by almost all producers. Either they did the work themselves, hired the services of a veterinarian or had a neighbor or friend to do it for them. Wide variation existed in the minds of producers as to what was the best time for performing the operations. Castration, for instance, was done when the calves were anywhere from a week to six months of age. It was also apparent that many farmers were not taking full advantage of the state program providing vaccination for bangs disease at no charge to them. Vaccination was principally for protection against blackleg, bangs and septicemia.

Dehorning was not practiced as commonly as it should be. The most common method was the use of rubber bands. Some used a paste and some practiced cutting them off after the animal became older. One farmer used a polled bull. Many farmers did not realize the value of this operation.

(3) The care of the cow and calf at calving time was important and required considerable training and skill. The percentage calf crops and percentage death losses indicates that there should be a general improvement in this area.

Disorders, such as scours and bloat, were admitted to be important and that skills were necessary to be able to recognize and take care of them. Some of the farmers had these skills and were able to recognize the cases and treat them, sometimes with the best method and sometimes with old-fashioned practices. They generally learned by asking and observing veterinarians or other experienced persons on what to do. Old-fashioned practices for bloat generally consisted of giving the sick animal straight kerosene, or excessive pulling on the animal's tongue.

Feeding

Feeds are one of the most important input factors in raising beef cattle. How much a producer knows about proper feeding and how skillful he is in this area often determines the final success of his enterprise. Evidence in this skill area indicates: (1) that in many instances farmers started their beef enterprise without having adequate skill for good feeding. Frequently they purchased more cattle than their

pastures could adequately support and did not produce enough hay for feeding during the winter months. As a result feed had to be purchased from the local market or from outside the area.

(2) Practically every farmer stressed the importance of a winter pasture, but were of no general agreement as to what should be the best grass and legume combination for the pasture. The existing pastures, with the exception of a few cases, reflected a considerable lack of skills in knowing how to best start a pasture and to care for its future management. This was particularly true as to fertilization rates. The acreage in good pasture was sometimes a limiting factor of the size of the beef cattle herd.

(3) A wide variety of opinion existed as to what are the best feeds or of what good feeds consisted. Knowledge of best mixtures for feeding was not well known.

(4) The problem of good feeding was often closely associated to obtaining skilled labor or a good herdsman and in some cases was a limiting factor to beef production.

Parasites and Diseases

Considerable lack of skills was evident in this area. (1)
In some instances farmers had lost several animals but did not know why. Some farmers, however, had acquired considerable skill in recognizing different disease symptoms and could administer certain treatment or call a veterinarian. All the producers seemed to recognize the importance of parasite and disease control.

(2) Only one farmer interviewed was conscious of internal parasite problems. This is an area of almost complete lack of knowledge and skill. Some farmers thought that some diseases had come into their herd from calves purchased at auction and terminal markets.

Housing and Equipment

Variations of opinion existed as to the need for buildings as shelter for cattle. Some producers felt that very little or no buildings were required. Those that had facilities indicated that very limited use was made of them by the livestock. A good hedgerow of trees, the shelter of a building, or a bank and some trees was considered all that was necessary for shelter by some producers. The problem took the shape of a managerial one rather than one of skills. It was indicated that during the colder days, better feeding was generally done which helped the animal maintain normal body temperature.

Marketing

Beef producers in this area were not very conscious of skills required in marketing. Favorable beef cattle prices in recent years and the proximity of a large terminal market have resulted in producers not giving much attention to market problems. In general, satisfaction was expressed for the Memphis market. Relative to auction markets, some complaints were registered because of the absence of disease control and sanitation and some dealings that were not considered fair.

Miscellaneous Factors

Knowledge and skills acquired by beef producers were obtained from numerous sources. Among the most important are: (1) the agricultural extension service, (2) federal agencies such as the Soil Conservation Service and Production Marketing Administration, (3) from observing what neighbors and friends have done and by asking them questions, (4) the 4-H Clubs, which were quite effective, (5) the FFA program, (6) the GI farm training program, (7) from publications of private firms such as seed companies, (8) from watching the veterinarian work and in some cases asking him what to do, and (9) from personal experience or from what their fathers had taught them.

Capital is recognized as important in getting into the beef cattle business or in expanding the enterprise. The principal sources that were used by farmers in this area were: (1) loans from commercial banks, (2) savings from previous work and profits from investments, (3) loans from the Farmers' Home Administration and other government agencies, (4) from livestock share leases in which the landlord furnished the necessary capital and equipment, and (5) from capital that was inherited. Cattle have been generally recognized as good security for short term and intermediate type loans. Capital was a more difficult problem for the small producers than the large ones, and the small producers considered it more of a limiting factor to beef production than skills. The large producers, in general, thought skills were more important.

CHAPTER V

POSSIBILITIES FOR A LIVESTOCK PROGRAM IN EGYPT

Factors Limiting Livestock Production in Egypt

Possibilities for development of an expanded livestock program in Egypt are rather limited. Numerous difficulties inherent in the customs, habits of the people, the land policy, and in the pattern of economic development of agriculture are primarily responsible. Most of these barriers to producing more livestock are mentioned in Chapter II. It is well, however, that they be briefly reviewed.

(1) Egypt does not produce enough food for its national consumption. As such, many food staples are imported, a feature which seems irrational for a country with some of the richest soils in the world, a favorable climate, and a large water supply for year around irrigation that has not been exploited.

(2) Ancient methods for tilling the soil are still in use. A high percentage of illiteracy among the people, extremely low incomes, deficient diets, and poor health conditions make it difficult to apply modern technology to food production.

(3) Political instability and foreign occupation at a time when the country was starting a series of progressive developments resulted in a delay of economic and social achievement. Increased effort on the part of the Egyptian people during the last fifteen years has resulted in considerable advance in many areas, but is relatively small compared to what can be done.

(4) The tremendous population pressure on land, the high rents and resulting high land values present an extremely difficult problem. The landlords are in a favorable position because of land scarcity and are concerned primarily with the high rents they can obtain. The rural population in general has almost no alternative opportunity for making a living other than farming their small plots of land. The fact that most of them are illiterate and uninformed leaves them in a poor position to realize the economic impacts of this landlord-tenant relationship. Thus, they do not realize their inferior positions and helplessness in front of the powerful landlords. Tentative legislation was prepared for passing laws regulating landlord-tenant relations, but were rejected as a result of the action of the powerful landlords. Land owners, however, are becoming more fully aware of the need for such public action and laws more equitable to the tenants are expected to be passed.

(5) Lack of capital among the tenants and agricultural laborers and the lack of adequate agricultural credit presents a serious problem to livestock development. Banks do not make loans on livestock. The only loans for agriculture are made to finance either cotton or sugar cane production. The tenant has little security to offer when trying to obtain a loan.

(6) The extremely small-sized farming units, because of the limited supply of land, and the demand for land by farmers and tenants are not favorable to developing a livestock enterprise. It is extremely difficult to provide adequate pastures under the present tenancy arrangements.

(7) According to the writer's experience, skills in livestock production are almost completely lacking. Only a few farmers own livestock. The most popular animal is the water buffalo which is desired because of its producing milk of high butterfat content which is one of the main ingredients used for cooking in Egypt. As such it is very important to the small farmer. Almost equal in number and importance is the cows and bulls which are used for field work. Only a limited familiarity with a few skills required in livestock production are known.

These deterrent factors to livestock production have meant that cattle production has been progressing at a slow rate for the last decade. With the improvement of agricultural credit systems, landlord-tenant relations and skills among farmers, it would be possible in some agricultural areas to produce cattle along with other crops.

Limited Skills Among Egyptian Livestock Producers

It was noted in the Fayette County survey that many skills of managing a beef cattle enterprise were not adequately mastered by the beef producers in that area. This was true even after the educational programs of the county extension service and other various agencies that attempted to teach the necessary skills were in operation for many years. The process of teaching producers the required skills is one that takes a long time. As such, it will undoubtedly be many years before adequate knowledge for good beef production in Egypt is learned. Very limited information has been given tenants on management factors. There is no adequate extension service or other agencies to provide such information.

Very few farmers in Egypt have anything that could be called a herd of cattle. The problem of selecting is thus largely one of selecting an individual cow or calf rather than a number of cattle or a beef herd. Producers are not familiar with the skills involved in selecting a cow.

One common practice in producing meat is purchasing a calf or two at the market and then feeding them to yearlings rather than having a breeding herd. The lack of a market recognizing the value of quality is an important consideration. As such selecting a good quality animal has not meant much in terms of market returns to the Egyptian farmer.

The care of calves is also an area in which the Egyptian tenant lacks skill. Many of them have never heard of dehorning, castration, or vaccination. They are somewhat familiar, however, with the care of the cow at calving time, but they generally follow old and unreliable practices in caring for them which sometimes does more harm than good.

Feeding is a management area where the lack of skills is at a maximum. Permanent pastures do not exist at the present time. No attempt has been made to familiarize the Egyptian farmer with different pasture mixes. With the high rent of land many people graze their cattle on wild grasses that grow about the River Nile and along the irrigation and drainage canals. The only pasturing that is done is on Egyptian clover between November and June. There is, however, an almost complete lack of knowledge about pasture management and about adequate concentrated feeds. It has been only in the last decade that cottonseed meal has been fed to livestock to any degree. Feed manufacturers are now using more cottonseed meal in the different prepared feeds for livestock and poultry.

Know how and skills are almost non-existent relative to parasites and disease recognition and control. The lack of methods of getting

information to farmers and the small number of veterinarians available makes this a difficult area in which proper skills can be learned.

Housing and equipment does not present an important problem because there is very little need for housing in Egypt's moderate climate.

Marketing skills are not appreciated. The importance of sales regulations and disease controls are almost completely overlooked.

Quality is not stressed at the market level and is not demanded to any appreciable extent. The Ministry of Agriculture is making an effort to improve quality at the production level by providing purebred bulls which can be stationed on farms upon request. The Royal Society of Agriculture has been also trying to improve quality by establishing annual contests throughout the different provinces of the country for producing the best livestock. Their main interest is in selecting and improving various species of water buffalo. Some of the feed manufacturing companies are now distributing pamphlets showing methods of feeding and feed requirements for each type of livestock. They also give examples of what might be expected in the way of returns from such enterprises. These pamphlets, however, are sent only to the large producers and landlords who in the past have not been interested in livestock. These bulletins, however, would be of limited help to the small farmer groups because most of them are illiterate. Among these are many who are slightly educated, too lazy to read, or just not interested in livestock.

Under such conditions there is an imperative need for some type of extension service and demonstration work or a youth program to convey the necessary skills and know how to the small farmers. At present government officials equivalent to county agents in the United States

are small in number and not very effective. They know very little about livestock production or they know about it but don't try to promote it because they haven't been told to do so. The adoption of a nation wide uniform policy for beef production would be essential for effective results. Only in recent years have beef cattle been a subject of interest and research in the agricultural experiment stations. Much needs to be accomplished in this area.

Use of Potential Cultivable Lands for Livestock

It was pointed out in Chapter II that considerable amounts of potential land would be available for agriculture if irrigation facilities were provided. Most of these lands are of a sandy soil type and located in desert areas and are not adapted to the production of crops like cotton and wheat. They would, however, make excellent grass land, and the fact that most of these lands are not located near the cotton production areas would more easily permit them to be used for temporary and permanent pastures. The present price of these lands range from \$9 to \$25 per acre and are extremely low in price compared to the rest of the agricultural land. At present these lands are bare. The government and private companies have plans for developing transportation and public utility facilities in these areas. At present these lands are almost unpopulated and with development would tend to attract many people interested in developing land for its farming value rather than owning it for the social and political power associated with ownership. These areas would provide considerable opportunity for the development of rather large herds of

cattle and if properly managed could yield a big increase in the meat supply of the country. Other problems of developing livestock in this area would be that of getting adequate breeding stock. In time, however, this could be overcome. Very little is known about livestock production of the nature that should be carried on in these new areas. With proper planning and foresight, however, it appears that livestock enterprises could be very successful.

Principal problems in developing livestock on these potential lands may be summed up principally as:

- (1) Obtaining good breeding stock,
- (2) The difficulty of establishing pastures, especially when the people know almost nothing about their establishment and management,
- (3) Providing enough land to produce these pastures,
- (4) The lack of capital by the tenant to carry on livestock operations,
- (5) The attitudes of landowners toward tenants. Undoubtedly some legislation would have to be passed regulating the power landlords have over tenants, and
- (6) Providing the necessary skills required.

A Suggested Beef Cattle Program for a Farm in Upper Egypt

This farm is about 1,000 acres in size and has a village with 500 tenant farmers and laborers. The landlord plans on starting a livestock enterprise, with 50 brood cows operated on a share basis with 50 of his tenants.

(1) The tenants should be selected according to their previous records of production and management. Tenants who already own a cow or more should be given a preference in the program in an attempt to minimize capital expenditures.

(2) The cows should be selected according to the desired requirements. The amount of capital allocated would be important. Either a purebred registered dual purpose sire should be purchased or borrowed from the Ministry of Agriculture for breeding purposes. The original breeding cows would be purchased locally and by using a good sire, the quality of the stock would gradually improve.

(3) Alfalfa winter pastures should be established and supervised by technical personnel. At the same time experiments on permanent pastures other than alfalfa should be undertaken. During the grazing period tenants should each be responsible for the care of his cow.

(4) During the summer and until the next grazing season the cattle should be kept in a barn. All the cows should be assembled in the barn at night. They should be fed under the supervision of technical personnel.

(5) The necessary concentrated feeds should be purchased by the landlord and provided to the tenants on a credit basis.

(6) The care of the cows and calves should be supervised by the local veterinarian. Personnel should be taught to care for the cows and calves. Tenants should be given a chance to learn the different skills required.

(7) The milking operations and milk supply should be centralized in one unit and each tenant must account for his milk as a supply of butterfat.

(8) The calf crop should be split between the landlord and tenant according to agreement. The good heifers should be saved and added to the herd or used for replacement purposes.

(9) The organic manures should be gathered in a special place and then scientifically processed and redistributed to the tenants on a credit basis.

(10) By the time these tenants acquire the necessary skills, they should have accumulated a small amount of capital. Some of them should be able to have as many as five head of cattle. Some of them could pool their resources together and thus have larger herds. As the tenants become independent and able to handle their small operations, the program can be expanded by selecting another group of tenants which would be given the same opportunities.

(11) Ultimately the increase in beef cattle production will depend on the land that can be made available for livestock production.

The tendency for areas to specialize tends in the long run to limit the possibilities of the beef cattle enterprise particularly on rich lands adaptable to cotton production.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Egypt

In Egypt the livestock industry has not developed as rapidly as the production of crops. The Egyptian people, however, are recognizing more and more the value livestock contributes to their livelihood. Limited livestock production in Egypt is primarily accounted for by the population pressure on the land and the associated problems of farm tenancy. Also, the failure of labor to recognize the advantages of mobility, the lack of opportunity to move, and the lack of education and skills required for livestock production are important factors. The results of these factors being present along with the lack of small and large scale industries and extensive commercial activities result in extremely low per capita incomes for the people. Closely associated with low per capita income is expenditures for food. When consumers have high incomes they spend more for meat. As such these factors are closely related to the demand for meat which in turn affects the numbers of livestock produced.

The cultivated agricultural area of Egypt is rather small and insufficient, concentrated in two strips along the Nile River and the Delta. It represents slightly more than six million acres or less than three percent of the total area of the country, the rest being desert. During the last 50 years cultivated land acreage increased less than

10 percent while population increased 96 percent. The increase in population giving high density in rural population averaging 1,422 people per square mile of cultivated land adds to the difficulty of owning agricultural land and increases the number of landless people, tenants and farm labor. Also, ownership of the agricultural land is concentrated among a few landowners. Of the 2.7 million land owners in 1949, 72 percent owned one feddan or less amounting to only 13 percent of the total owned cultivated land or 5,948,134 feddans. Less than six percent of the land owners owned over five feddans per owner and approximately 65 percent of the total. This great pressure on the land aggravates the status of the small farmers and results in high rents accompanied by high land value which allows him a limited range in which to realize profits from his farming enterprise. This represents an extremely difficult problem in promoting a livestock program.

It would be highly desirable if more large and small scale industry were encouraged to help absorb some of the surplus labor. Total agricultural production would not be affected adversely by the moving of these workers to industrial jobs for the present production could be produced by only one-fifth of the present number of tenants and farm laborers. Small industries could produce a variety of products, using raw materials obtained in different local areas.

To alleviate some of the problems associated with pressure on the land the government has been working on different programs and laws designed to regulate landlord-tenant relationships and has set new goals

for the promotion of more and better livestock. The government now provides in limited numbers registered purebred sires to be used for the grade improvement purposes.

The agriculture of Egypt is based primarily on cotton. Emphasis is on the common practice of following the cotton cash crop system of farming because it is the money crop which is used to pay the high rents. The credit problem in agriculture is also closely tied to cotton. No loans are made for livestock production.

Other important crops grown are corn, wheat, rice and clover or Egyptian berseem. The clover is used for pasture and to help maintain the fertility of the soil. The fertility problem is of particular significance since crop yields have not improved as they should have in recent years. This has been due partly to the scarcity of available commercial fertilizer and because the same practices for planting and tilling the soil as were used 5,000 years ago are still predominant.

Figures on livestock production and slaughter are not impressive, especially if they are compared to the number of consumers. Using 1949 figures the number of water buffalo slaughtered for consumption was 46,063, for calves, 383,259, and for sheep, 543,752. Using 1931 figures as a base the important livestock classes have increased in numbers as follows: cows, 40 percent; water buffalo, 33 percent; sheep, 34 percent; goats, 57 percent; and camels, 17 percent. Hogs are unimportant.

The South and Tennessee

Sales of livestock and livestock products accounted for approximately 64 percent of the cash receipts from farming in the Southern Region during the years 1940-1944. In 1948, cash receipts from livestock and livestock products sold from southern farms amounted to 1.8 billion dollars. Livestock production is one of the alternatives for expanding the income for southern farmers. Agricultural income derived from the sale of livestock and livestock products relative to crops is increasing in the South. Using 1935-39 average (100) as a base period, cash receipts from livestock and livestock products stood at an index of 331 in 1948 compared with an index of 275 in the United States. At the same time cash receipts from livestock in the South is increasing relative to the nation.

Approximately 14 percent of the United States cattle (other than cattle kept for milk) in 1950 were in the southern states or approximately six million of the 43 million beef cattle of the country were in the South. The South has been gaining in cattle numbers in recent years at a more rapid rate than for the United States as a whole.

The beef cattle industry in Tennessee has made substantial progress in recent years more than the other major classes of livestock. The general estimate of 1952 indicates 1,658,000 cattle and calves on Tennessee farms which is a record high. Most of the change in recent years is in cattle other than for milk.

Cash receipts from the sale of livestock and livestock products amounted to \$216,811,000 in 1950. Cash receipts from cattle and calves have risen about twice as fast as receipts from all livestock and livestock products.

The Study of Skills

To study skills as a factor in beef cattle production, 28 farmers in Fayette County, Tennessee, were questioned relative to skills required in beef cattle production and marketing.

It was found that many beef producers lacked considerable knowledge of the skills involved in selecting their breeding stock. Only in a few instances were producers experienced men who knew the skills required and the importance of know how in selecting breeding stock. In numerous cases farmers had someone else to select their breeding stock. In other cases producers grew slowly into the beef cattle business by gradually shifting from dairy to beef production.

Skills involved in managing the beef herd were important and often were the decisive factor in the success or failure of the enterprise. Knowledge of the recommended time and age for breeding was lacking, although the importance of it was recognized. The percent of calving and percentage death loss reflected this lack of know how. Most calf crops were from 80 to 85 percent and death rates were three percent or more.

Labor was recognized as an important problem. Considerable controversy was expressed as to the ability of colored labor to feed and care for calves and the breeding herd. The tendency was to credit white labor for learning the skills faster and doing a better and more regular job than colored labor. Some large producers felt that one of the most important things to do was to be sure and obtain a good herdsman. In

some instances the lack of skilled labor seemed to be a limiting factor as to the size of herd.

Many producers did not seem fully aware of the importance of such operations as dehorning, vaccination and especially as to the best time and method of castration. These operations were performed by almost all producers. Either they did the work themselves, hired the services of a veterinarian or had a friend or neighbor to do it for them. Castration was done when the calves were anywhere from a week to six months of age. Farmers were not taking full advantage of the State's program providing vaccination for bang's disease at no charge to them. Vaccination was principally for protection against blackleg, bang's and septecemia. Dehorning was not practiced as commonly as it should be. Disorders such as scours and bloat were admitted to be important. Some of the farmers had the skills of being able to recognize the disorders and treat them, sometimes with the best methods and sometimes with old-fashioned practices.

There were instances when farmers started their beef enterprise without having adequate skill for good feeding. Frequently they purchased more cattle than their pasture could adequately support. Pasture management was recognized as a real problem.

Only one farmer interviewed was conscious of internal parasites being a problem. This is an area of almost complete lack of knowledge and skill. Some farmers thought that some diseases had come into their herd from calves purchased at auction and terminal markets. In some instances farmers had lost animals and didn't know why.

Variations of opinion existed as to the need for buildings as shelter for cattle. Some producers felt that very little or no buildings were required. A good hedgerow of trees, a shelter of the side of a building, or a bank and some trees was considered all that was necessary for shelter by some producers. The problem took the shape of a managerial one rather than one of skills.

The beef producers were not very conscious of skills required in marketing. In general, satisfaction was expressed for the Memphis market.

Knowledge and skills acquired by beef producers were obtained from numerous sources. What farmers had learned from personal experience, or from what their fathers had told them, the agricultural extension service and other federal agencies were the most important sources of information.

Capital was recognized as an important factor in getting started in the beef cattle enterprise or in expanding it. Cattle have been generally recognized as good security for short-term and intermediate loans. Capital was a more difficult problem for the small producers than the large ones, and the smaller producers considered it more of a limiting factor to beef production than skills. The large producers in general thought skills were more important.

Possibilities for Livestock in Egypt

Possibilities for development of an expanded livestock program in Egypt are limited. Numerous difficulties inherent in the customs,

habits of the people, the land policy and the pattern of economic development of agriculture are primarily responsible. Livestock production has been progressing at a slow rate during the last decade.

Skills in livestock production are almost completely lacking. Only a few farmers own livestock. Feeding and pasture management are areas where lack of skills are at a maximum. Many farmers have never heard of dehorning, castration or vaccination. Hardly any farmer has had the experience of selecting a breeding cow. Knowledge relative to recognition and control of parasites and diseases are almost non-existent. Quality is not stressed at the market level nor demanded to any appreciable extent by consumers.

There is an imperative need for some type of extension service and demonstration work or a youth program to convey necessary skills and know how to farmers. At present, government officials equivalent to county agents in the United States are small in number and not very effective.

Some of the potential cultivable lands could be used for livestock production. These lands, however, must first be developed. The problem of getting adequate breeding stock and qualified farmers to handle them would have to be solved. Very little is known about livestock production or the nature in which it would be carried on in these new areas.

Large landholders that are interested in livestock could probably engage successfully in the livestock program if proper planning and management were done. This would require considerable skill and educational work among the tenants before it could work successfully.

BIBLIOGRAPHY

- American Geographical Society. "Egypt," Focus, Vol. II, No. 4, New York, December 15, 1951.
- Aull, George H. "Employment Prospects in Southern Agriculture," Southern Economic Journal, April 1947, Vol. XIII, No. 4.
- Elack, John D., et al. Farm Management. New York: The Macmillan Company, 1949.
- Bolton, Bill. The Beef Cattle Enterprise in Selected Parishes of the Mississippi River Delta Cotton Area of Louisiana, 1950, Louisiana Agricultural Experiment Station, Baton Rouge, Louisiana, D.A.E., Circular No. 132, December 1951. (Mimeographed.)
- Bonser, H. J., Cole, William E., and Landess, W. M. "Some Social Effects of Industrialization on Rural Life." Unpublished excerpts from a sub-committee report prepared by the University of Tennessee, Department of Agricultural Economics and Rural Sociology, on agricultural development, 1951.
- Egyptian Government. Annual Statistics, 1940-1950, (Arabic). Cairo: Ministry of National Economics, Department of Statistics and Census.
- _____, Agricultural Census of Egypt, October 1949, Bulletin No. 6.
- Egypt Information Bureau. Egypt News, Vol. 4, No. 1. Washington: January 1952.
- _____, Information Sheet No. 1, 1949.
- Ely, Richard T. and Wehrwein, George S. Land Economics. New York: The Macmillan Company, 1940.
- Fulmer, John M. Agricultural Progress in the Cotton Belt Since 1920. Chapel Hill: The University of North Carolina Press, 1950.
- Ghoney, Mohamad Riad. "A Study and Analysis of Farm Tenancy in Egypt." Unpublished Master's thesis, Department of Agricultural Economics and Rural Sociology, The University of Tennessee, August 1951.

- Harris, J. T. and Penny, N. M. Some Economic Factors Relative to Livestock Marketing in Georgia. Georgia Experiment Station, Experiment, Georgia, Mimeo Series 31, October 1950.
- Hecht, Reuben W. and Barton, Glen T. Gains in Productivity of Farm Labor. Washington: United States Department of Agriculture, Technical Bulletin No. 1020, December 1950.
- Hubert, Giles A. "A Framework for the Study of Peripheral Economic Areas," Journal of Farm Economics, Vol. XXVIII, No. 3, August 1946.
- Krause, O. E. Wisconsin Calf Production and Marketing. Wisconsin State Department of Agriculture, Madison, Wisconsin, 1951.
- Luebke, B. H. Trends in Livestock Production in Tennessee by Type of Farming Areas. Tennessee Agricultural Experiment Station, Knoxville, Tennessee, Rural Research Series, Monograph No. 228, August 1947.
- Master Project Outline. "Regional Livestock Marketing Research in the Southern States." Regional Research Project SM-7, Unpublished, 1950.
- McVay, Frances. Factory Meets Farm in North Carolina. North Carolina Agricultural Experiment Station, Raleigh, North Carolina, Technical Bulletin No. 83, 1947.
- Renne, Roland R. Land Economics. New York: Harper and Brothers, 1947.
- Stearns, Oscar. Some Economic Aspects of Beef Cattle Production in the Piedmont of Georgia. Georgia Experiment Station, Experiment, Georgia, Bulletin 269, June 1951.
- Tennessee Department of Agriculture. Agricultural Trends in Tennessee, 1861-1947. Nashville: Department of Statistical Service, United States Department of Agriculture, Bureau of Agricultural Economics, cooperating, December 1948 and recent releases.
- United States Department of Agriculture. Agricultural Statistics. Washington: U. S. Government Printing Office, 1925 to 1951.
- _____, Statistics and Related Data, 1950. Washington: Livestock Branch, Production and Marketing Administration, November 1951.
- _____, Shifts in the Trade in Western Slaughter Livestock. Agriculture Information Bulletin No. 14, Washington, D. C., 1950.

United States Bureau of the Census. United States Census of Agriculture, Tennessee, 1945 and 1950, Department of Commerce, Washington, D. C.

_____, Population, 1940, Vol. I, and Preliminary Reports, 1950.

_____, Census of Manufacturers, 1947.

United States Department of Commerce. Survey of Current Business.
Office of Business Economics, Washington, D. C., August 1950 and August 1951.

Wilcox, Walter W. "What Makes Farm Prosperity," Farm Policy Forum.
Ames: Iowa State College Press, October 1948, Vol. I, No. 4.

Zayat, Abdel Fattah. "Land Tenure in Egypt." Unpublished Master's thesis, Department of Agricultural Economics and Rural Sociology, The University of Tennessee, August 1949.