RECENT TRENDS OF AGRICULTURE IN KANSAS

by

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INTRODUCTION

Basic climatic fluctuations and power machinery have markedly affected Kansas farm production in recent years. To ascertain whether these and other factors have been sufficiently potent to change certain agricultural trends, the present study was undertaken. Until about 1930 the acreage of various crops and numbers of livestock had shown rather definite trends, but after that time the trends were considerably altered. Most of the changes were in established crops and livestock which were considered as being rather fixed in the farm organizations of Kansas. It was hoped that more definite relationships might be established between these changes and many of the important contributing causes.

The period 1928-32 was chosen as the base period because conditions at that time were fairly stable and the trends during those years resembled those of earlier periods. Also, the Agricultural Adjustment Administration based their program on this period, and the idea has developed that conditions were nearly normal during those years. Another factor was that the data were more readily available for that period.

No material more recent than 1938 was available when this study was started; consequently, it includes the period 1928-38. The data on numbers of livestock; acres, yields, and prices of crops; and machinery were taken from the reports of the Kansas State Board of Agriculture (5) except numbers of livestock for 1937 and 1938, which were calculated from data obtained from the Kansas State Commission of Revenue and Taxation. Rainfall data were from climatological reports of the Weather Bureau of the United States Department of Agriculture (10). Minor items were taken from reports of the Kansas State Planning Board and publications of the Kansas Agricultural Experiment Station.

About the only previous study of this subject in Kansas was made by Hodges (2), who traced the trends up to 1935, but dealt with them over a long-time period and did not emphasize more recent years.

The plan of this study is to trace in detail the trends of the last few years and to determine the effects of such factors as decrease in precipitation, increase in small power machinery, and the introduction of the government program on the trends.

PHYSICAL FACTORS AFFECTING TRENDS

Soils

The soils of Kansas vary widely in origin, fertility, characteristics, and crop adaptation. Changes in the soil usually are so slow that they are not a factor in causing short-time changes in agriculture. However, soils do have a definite effect in determining the type of agriculture that will be established in an area and in modifying the effects of other factors. In some cases, wind and water erosion affect trends during moderately short periods of time. In turn, erosion is affected by type of soil, topography, cover, and weather conditions. Fig. 1 shows the principal soil regions of Kansas. Throckmorton and Duley (7) gave descriptions of these areas substantially as follows.

1. Residual Soils from Shale.--Located in southeastern Kansas. Fairly old soils with distinct clay pan development in most places. Both surface and subsoil drainage poor. Topography level to gently rolling. Gray to light brown in color. Low in lime, organic matter, phosphorus, and nitrogen content.

2. Residual Soils from Limestone, Sandstone, and Shale.--Upland soils of east central Kansas. Topography varies from level to rolling or gently hilly. Heavy clay subsoils except on the more rolling or hilly phases. Most of the area low in lime, organic matter, nitrogen and phosphorus content.

EXPLANATION OF PLATE I

Fig. 1. Soil regions in Kansas.

Fig. 2. Average rainfall in Kansas.

Fig. 3. Average length of growing season in Kansas.

Fig. 4. Type-of-farming areas in Kansas as originally determined (3).

PLATE I

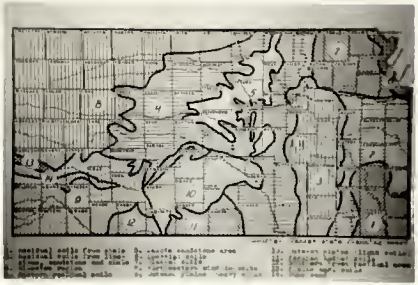

Fig. 1.

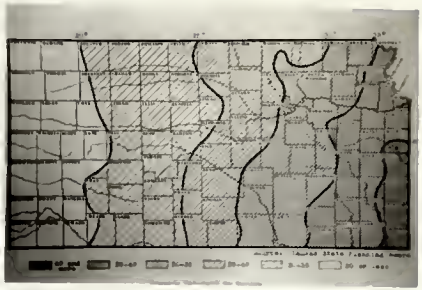

Fig. 2.

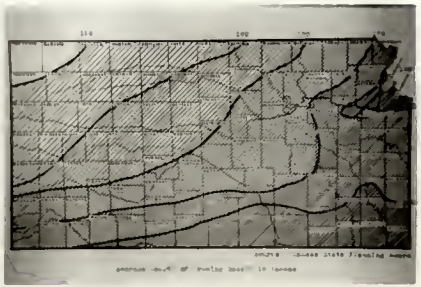

Fig. 3.

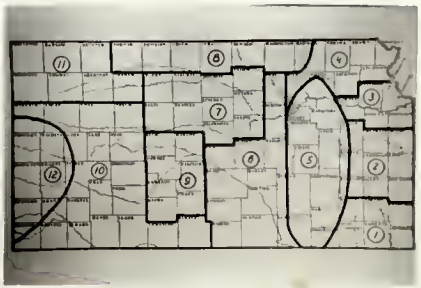

Fig. 4.

3. Bluestem Region.--Soils formed largely from limestone and typically shallow. Topography rolling to hilly. Good farm land in the valleys.

4. Western Residual Soils.--Comprises the area throughout central Kansas. Formed from limestone, sandstone and shale. Topography level to rolling with occasional hills adjacent to larger streams. Soils typically deep. Eroded areas deficient in nitrogen and organic matter, lime and phosphorus becoming deficient in eastern part of the region.

5. Dakota Sandstone Area.--Located in central and north central Kansas. Soils relatively shallow, subject to erosion, drouthy, and low in plant food materials. Topography rolling to hilly.

6. Loessial Soils.--Wind-deposited soils comprising the bluffs adjacent to the Missouri River Valley. Typically deep with open subsoil. Fertility fairly high except in eroded areas. Topography rolling to distinctly hilly. Extremely subject to erosion.

7. Glacial Soils.--Located in northeastern Kansas. Topography broken along southern and western margins of area. Extremely subject to erosion. Typically low in lime and phosphorus content, and in eroded areas deficient in organic matter and nitrogen.

8. Northern Wind Deposits.--Comprise a great area in northwest Kansas. Topography level to rolling except in vicinity of streams. Subsoil open to great depth. Abundant plant food. Subject to wind and water erosion.

9. Outwash Plains (Heavy Soils).--Comprise the southwest corner of the state. Deep subsoil and high content of all plant food materials, but occasional alkali spots.

10. Outwash Plains (Light Soils).--Occur east of the heavy outwash soils. Sandy in nature and open subsoil. Local areas subject to blowing. Acid to neutral in reaction. Becoming low in phosphorus and organic matter. Topography level to gently rolling.

11. Permian Redbed Soils.--Representative of south central Kansas. Fairly fertile to sharply broken areas. Subject to erosion. Becoming deficient in organic matter, nitrogen, and available phosphorus in eroded areas.

12. Southern Brown Residual Area.--Relatively level and fairly high in plant nutrients.

13. Plains Marl Soils.--Occupy the bluffs north of the Arkansas River Valley extending east from the Colorado line. Soils typically drouthy and shallow.

14. Dune Sand.--Local areas throughout the entire southwest portion of the state. Limited to grazing.

15. Bottom Land or Alluvial Soils.--Areas subject to frequent or occasional overflow. (Not indicated on map)

Those of southeastern and east central Kansas are typically heavy, dark in color, subject to frequent overflow, and poorly drained.

Soils of northeast Kansas are subject to frequent overflow but are otherwise productive. Drainage is poor in local areas.

Those of the Kaw River and its larger tributaries vary from almost pure sand to heavy clays but with predominant good drainage.

The valleys of the Arkansas and Cimarron Rivers have soils that vary from the most productive areas of the state to areas that are practically barren. Some areas have excellent loams and sandy loams; other areas have water practically at the surface and local areas of alkali.

Bottom-land soils along the streams of central, north central, and northwest Kansas are generally high above the stream bed and subject to only occasional overflow. They are deep, well-drained, high in plant food materials, and offer an excellent reservoir for the storing of soil moisture.

Topography

The elevation of Kansas varies from less than 1,000 feet in the southeast corner to more than 3,900 feet in the northwest. Most of the eastern and northeastern parts of the state are rolling with local areas of hilly land. Much of the Flint Hills region (Area 5, Fig. 5) is too rough for the extensive use of farm machinery, and, consequently, has been left in pasture. Central and western Kansas are level to gently rolling, making big machinery and large-scale farming the dominant features of agriculture in that area.

Precipitation

The rainfall of Kansas is extremely variable from year to year and in different parts of the state. Fig. 2 shows the average rainfall for Kansas. Normally, it varies from more than 40 inches in the southeast corner to approximately 15 inches in the west. This indicates that there is ample rainfall in the eastern part of the state but that precipitation is the limiting factor in crop production in the western part. Variations from normal are frequent, resulting in wide fluctuations in crop yields.

Growing Season

The usual growing season in Kansas varies from approximately 200 days in the southeast corner of the state to 152 days in the northwest. Fig. 3 shows the change in length of season from one part of the state to another. This change has a pronounced effect on the type of agriculture through limitation of adapted crops and changes in total evaporation.

Yield of Crops

The average yields of crops for Kansas are shown in Table 1. These yields extend only to 1932 but cover a sufficiently long period to indicate normal relationships between the various crops by type-of-farming areas. Including the years since 1930 would lower the averages somewhat, but it is doubtful if the addition of such an abnormal period would improve an understanding of these normal relationships. The deviations from these normals contribute to explanations of the trends found in subsequent sections of this study.

TYPE-OF-FARMING AREAS

Type-of-farming areas in Kansas were first delineated in 1926 by Hodges and Grimes of the Department of Agricultural Economics, Kansas State College, and Elliott of the

Table 1. Average yields of crops in bushels of grain and tons of hay by type-of-farming areas in Kansas (5). /1

Area	Wheat seeded	Wheat harvested	Corn	Oats	Barley	Grain /2 sorghums	Cane hay	Alfalfa	Prairie hay
1	12.8	13.6	17.3	22.3	18.1	17.0	3.2	2.7	1.1
2	14.5	15.3	19.7	23.0	20.5	19.9	3.3	2.7	1.1
3	16.1	16.7	25.2	29.8	23.1	23.6	4.0	2.8	1.1
4	16.2	17.2	25.6	28.4	22.0	23.1	3.4	2.7	1.2
5	15.6	16.6	20.1	26.9	21.4	19.6	3.6	2.7	1.0
6a	13.9	15.0	18.0	26.0	21.6	19.6	3.2	2.5	1.0
6b	12.9	13.8	15.9	24.4	21.1	19.1	3.1	2.6	1.1
7	10.9	12.3	14.0	21.7	18.5	16.5	2.6	2.3	1.0
8	11.7	13.3	17.5	23.2	19.6	17.8	2.7	2.3	1.0
9	11.3	12.6	14.7	21.7	19.9	18.0	2.7	2.6	1.1
10a	8.6	10.4	12.3	16.7	16.3	15.7	2.2	2.6	.9
10b	8.9	10.7	13.5	15.1	15.2	15.9	2.2	2.3	.9
10c	11.0	12.2	13.3	19.7	17.5	16.2	2.8	2.4	1.1
11	8.5	10.4	14.4	17.9	18.3	12.3	2.1	2.4	1.0
12	7.3	9.4	12.7	14.8	16.0	12.7	2.0	2.5	.9
State	12.0	13.3	16.9	22.1	19.3	17.6	2.9	2.6	1.0

/1 Simple averages of the county yields within each area. Averages for wheat, corn, oats, and barley are for 1911-32; sudan, 1916-32; others, 1915-32.

/2 Simple average of kafir, milo, and feterita.

Bureau of Agricultural Economics, United States Department of Agriculture (3). The areas as first differentiated are shown in Fig. 4. Minor revisions have been made, as shown by Fig. 5. Changes have consisted of using county lines as the boundaries of the areas; revision of Areas 6 and 7 into 6a, 6b, and 7; division of Area 10 into three subareas and shifting of Area 12. A brief description of the areas follows./3

AREA 1. General, livestock, cash-grain, self-sufficing, poultry, dairy. Corn and wheat are fairly well balanced with oats of less importance. Corn is supplemented by grain sorghums. Hay and pasture occupy a large part of the area.

AREA 2. General, livestock, poultry, cash-grain, dairy. Corn is more important and oats and wheat are less important than in Area 1. Grain sorghums are relatively important. Dairying is of more than average importance in Allen, Bourbon, and Franklin counties.

AREA 3. General, livestock, dairy, cash-grain, poultry, self-sufficing. Dairying, especially whole milk production, is common. Corn is the predominant grain crop and is followed in importance by wheat and oats. Alfalfa is the chief hay crop. Potatoes, fruit, and truck are grown.

AREA 4. Livestock, general, cash-grain. This area is in the Corn Belt. Corn and hogs are most important with wheat and oats comparatively unimportant. Beef cattle, alfalfa, and poultry are important enterprises.

AREA 5. Range livestock, general, cash-grain. This area includes the long-grass grazing region comprising chiefly the Blue Stem Belt. Corn and sorghums are the chief feed crops. Wheat is sometimes grown on the more level land. Cattle are shipped in for the grazing season. Some cow herds are kept and a small proportion of the steers are fed either on grass or later.

/3 The outstanding types are first listed in order of importance. Animal specialty and stock ranch are not differentiated in all cases but are listed together as livestock.

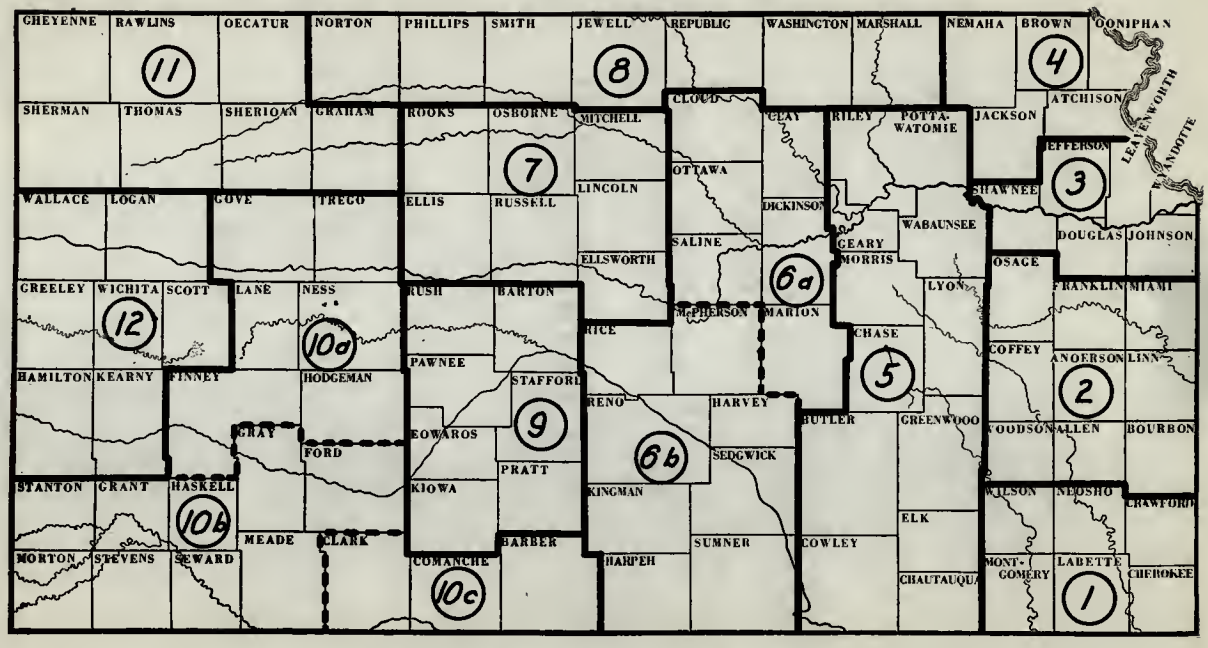

Fig. 5. Type-of-farming areas in Kansas.

AREA 6a. Cash-grain, livestock, general. Wheat production is characteristics of this area. Corn and some grain sorghums are grown. Oats and alfalfa are important crops. Livestock are more important here than in the areas farther west.

AREA 6b. Similar to 6a. Slightly more wheat, less corn, pasture, and livestock but more dairying.

AREA 7. Cash-grain, livestock, general. Wheat is the prominent crop in this area. There is less corn and less oats than in Area 6 but more pasture. Livestock and dairying are of less importance.

AREA 8. Cash-grain, livestock, general. This area includes the western portion of the Corn Belt. Corn and hogs are important. Wheat is more important in the western part of the area.

AREA 9. Cash-grain, some general farming. Wheat is the most important crop in this area, comprising on the average a larger percentage of the farm acreage than in any other area. Considerable corn and sorghums are produced. Livestock are less important than in Areas 8 and 7.

AREA 10a. Cash-grain, some livestock, and general farming. Wheat occupies a large proportion of the crop area. Some corn, barley, and grain sorghums are grown.

AREA 10b. Similar to 10a but more cash-grain and less livestock and general farming. There is more wheat and less pasture. Grain sorghums are of more importance and barley is of less importance.

AREA 10c. Cash-grain, livestock, and some general farming. With less wheat and more pasture, livestock, especially range livestock, is more important than in either Area 10a or Area 10b. The sorghums are the most important of the feed grains.

AREA 11. Cash-grain, livestock, general. Wheat ranks first among the crops in this area but corn and barley occupy important places in the farming systems. Pasture and beef cattle are important.

AREA 12. Cash-grain, range livestock, some general farming. This is the short-grass grazing region. Although thousands of acres have been broken in the last 10 years, a large per cent of the farm land is still in pasture. Wheat is the principal crop. Some barley, corn, and grain sorghums are grown.

DISTRIBUTION OF CROPS AND LIVESTOCK

The maps shown on Plates II to VI, inclusive, show the distribution of crops and livestock for the period 1928-32. This base period was used because the material was available and also because it coincided with that used for the government programs.

Wheat

Wheat acreage is concentrated in central Kansas, extending east to the Flint Hills, northwest into Area 11, and southwest into Area 10b. It is not so prominent in Area 10c or Area 12 because of the large amount of pasture land. Area 10c is rough and largely unfitted for other than pasture, while in Area 12 soil type, low precipitation, and high evaporation are not conducive to large acreages under cultivation. The acreage is small in the eastern and northern parts of the state because of the greater comparative advantage of corn.

EXPLANATION OF PLATE II

Fig. 6. Acres of wheat in Kansas, 1928-32 average.

Fig. 7. Acres of corn in Kansas, 1928-32 average.

Fig. 8. Acres of oats in Kansas, 1928-32 average.

Fig. 9. Acres of barley in Kansas, 1928-32 average.

PLATE II

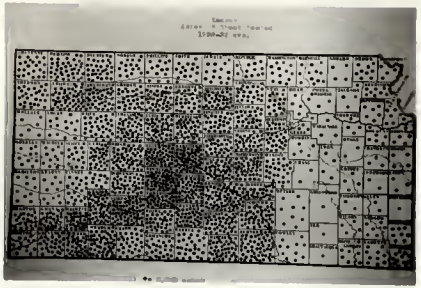

Fig. 6.

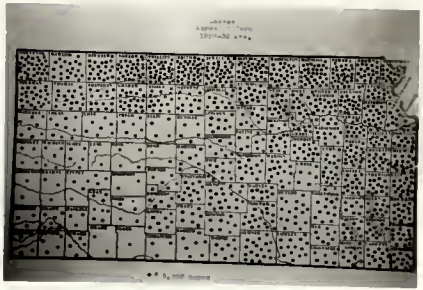

Fig. 7.

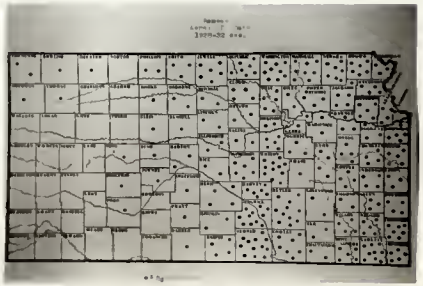

Fig. 8.

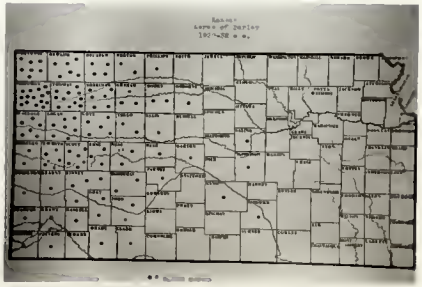

Fig. 9.

Corn

Corn acreage is concentrated largely in eastern and northern Kansas, and is relatively less widespread than wheat. Considerable corn is raised west of the Flint Hills and extending west, south of the Arkansas River. This area has considerable sandy land which is more suitable for row crops than for wheat. The corn acreage extends west along the northern border into extreme northwest Kansas, as climatic factors in that area--such as rainfall and evaporation--make corn more desirable than grain sorghums.

Oats

The acreage of oats is largely in eastern Kansas and immediately west of the Flint Hills. The adaptation decreases toward the west. An examination of Figs. 8 and 9 indicates that, from a geographical standpoint, oats and barley are somewhat supplementary. Both contribute largely to the feed supply. The place of oats, particularly, depends upon excellent feeding qualities and supplementary relationships with other farm enterprises.

Barley

Barley acreage is concentrated largely in the northwest part of the state; this indicates the desirability of other feed grains in other parts of the state. Chinch bugs and winter killing probably are the limiting factors in the eastern half of the state.

Sweet Sorghums

Sweet sorghums are widely scattered over central and western Kansas, extending east into the Flint Hills. Alfalfa is more desirable in northeast Kansas and prairie in the southeast part of the state than are sweet sorghums for feed (Figs. 12 and 14). The use of sweet sorghums for silage has been an important factor in its increasing importance in the state.

Grain Sorghums

Grain sorghums are concentrated in the southwest and southeast parts of the state. The large acreage in these two areas is due to soil and climatic conditions which make sorghum production more reliable than corn.

EXPLANATION OF PLATE III

Fig. 10. Acres of sweet sorghums in Kansas, 1928-32 average.

Fig. 11. Acres of grain sorghums in Kansas, 1928-32 average.

Fig. 12. Acres of alfalfa in Kansas, 1928-32 average.

Fig. 13. Acres of sweet clover in Kansas, 1928-32 average.

PLATE III

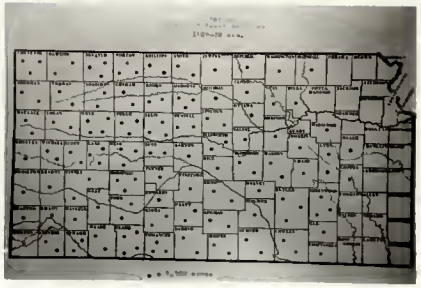

Fig. 10.

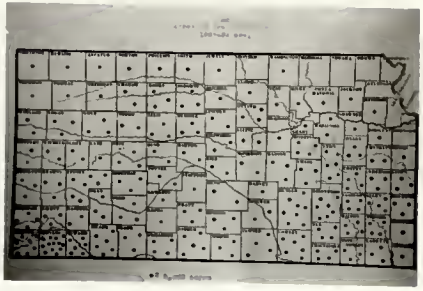

Fig. 11.

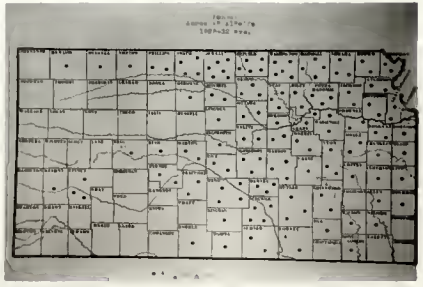

Fig. 12.

Fig. 13

EXPLANATION OF PLATE IV

Fig. 14. Acres of prairie hay in Kansas, 1928-32 average.

Fig. 15. Acres of all hay in Kansas, 1928-32 average.

Fig. 16. Acres of flax in Kansas, 1928-32 average.

Fig. 17. Acres of Irish potatoes in Kansas, 1928-32 average.

PLATE IV

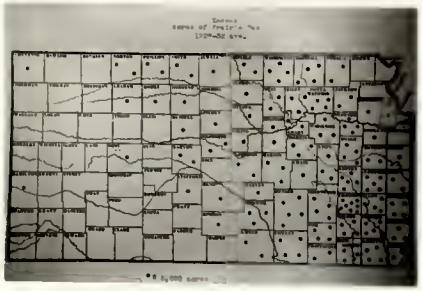

Fig. 14.

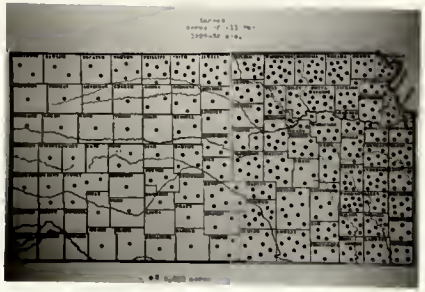

Fig. 15.

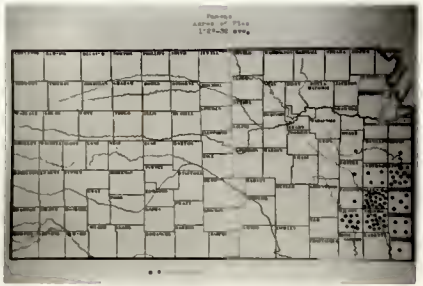

Fig. 16.

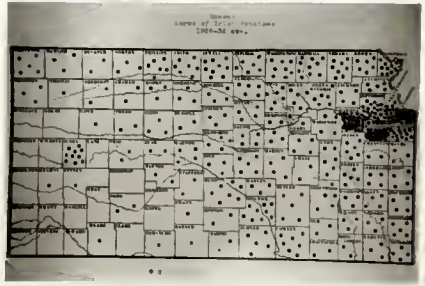

Fig. 17.

Alfalfa

Alfalfa acreage is confined largely to the eastern half of the state. The acreage is low in the southeast corner of the state, due to acidity of the soil and to claypan formations which are not suitable for alfalfa production. The Flint Hills area also is low in alfalfa acreage because of the large amount of pasture and the shallowness of the soil. There is considerable acreage extending westward in Area 8 along the northern border of the state. Considerable alfalfa is raised on the bottomlands in central Kansas and west along the Arkansas River. The small acreage of alfalfa in Finney and Kearny counties is made possible by irrigation.

Sweet Clover

Sweet clover is grown largely in northeast Kansas and in an area extending south in the Flint Hills. Sweet clover is used largely for soil improvement and pasture, a fact which accounts for its use in the Flint Hills region. The soils of southeast Kansas limit its growth there, and west of the Flint Hills the moisture often is not adequate for satisfactory stands.

Prairie Hay

Areas where prairie hay is grown are concentrated in southeast Kansas and extend northwest across central Kansas. Prairie hay makes up the major roughage in southeast Kansas because alfalfa and other legume crops are not adapted to that area. Considerable hay is cut in the Flint Hills region and is used as winter feed for cattle which utilize the pasture in the summer.

All Hay

All hay includes timothy, red clover, sweet clover, tame grasses, alfalfa, cowpeas, millet, soybeans, and sudan. The distribution closely approximates alfalfa and prairie hay combined (Figs. 12 and 14); this indicates that these two crops make up the bulk of the hay used in Kansas. Sweet sorghums replace hay crops in western Kansas (Fig. 10).

Irish Potatoes

Commercial production of Irish potatoes is concentrated in two areas, the Kaw River Valley of eastern Kansas, and Scott county. There is considerable acreage along the lower reaches of the Arkansas River in Sedgwick county and southward which supplies the market at Wichita. The rest of the

acreage is scattered over the state and is largely for home use.

Flax

Flax is a localized crop centered in east central Kansas. Suitable soil and climatic conditions and a linseed oil mill at Fredonia have kept the crop confined to this area. Although linseed oil is on an import basis, the acreage has not been increased rapidly in Kansas, a fact which indicates that other crops are more suitable. However, in some areas flax has a definite place in the farm organizations.

Sugar Beets

There is a localized area of sugar beet production in the irrigated portion of the Arkansas River valley around Garden City, where a sugar beet factory is located. Small acreages are scattered along the Arkansas River but are not of great importance.

Broomcorn

Broomcorn is concentrated in the southwest corner of the state, with a small acreage in east central Kansas. This crop is of minor importance.

EXPLANATION OF PLATE V

Fig. 18. Acres of sugar beets in Kansas, 1928-32 average.

Fig. 19. Acres of broomcorn in Kansas, 1928-32 average.

Fig. 20. Number of horses and mules in Kansas, 1928-32 average.

Fig. 21. Number of milk cows in Kansas, 1928-32 average.

PLATE V

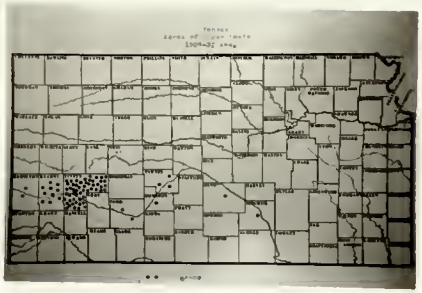

Fig. 18.

Fig. 19.

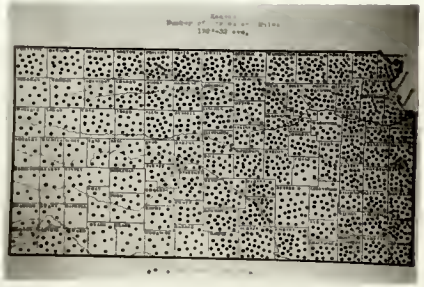

Fig. 20.

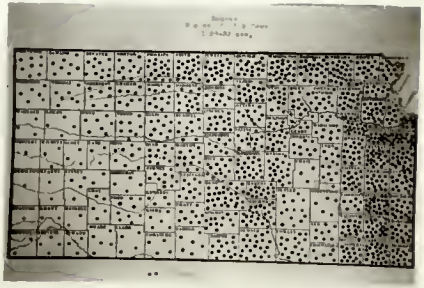

Fig. 21.

Horses and Mules

Horses and mules are fairly evenly scattered over the state except for the Flint Hills and the western part of the state, which are low in numbers of horses. The large number of both horses and tractors in central Kansas reflects the large proportion of the land under cultivation there. Fig. 28 shows the numbers of tractors.

Milk Cows

Milk cows tend to be concentrated in the southeast corner of the state because of the condenseries located there, around the Kansas City market, and around Wichita. The number of milk cows in the Flint Hills area is small because of the large number of beef cattle, and in southwestern Kansas because of the smaller number of farms and a lack of suitable markets. Also, the carrying capacity of pastures in the western area is much less than in the eastern part of the state.

Other Cattle

Other cattle tend to be concentrated in the Flint Hills region, the pasture region of Area 10c, and a minor area in the Dakota Sandstone region of north central Kansas. There

are large numbers in other parts of the state except in extreme western Kansas where the carrying capacity of the pastures is low.

Sheep

Sheep production tends to be spotted within an area in east central Kansas, one in the south central portion, another around Wichita, one in Mitchell county, and a larger scattered region in Areas 11 and 12. Sheep in eastern Kansas are largely in small farm flocks which are used as a minor source of income and to help keep the farms clean. The numbers in the central and western parts of the state are largely a result of the practice of pasturing sheep on wheat during the winter.

Hogs

Hog numbers follow closely the corn-producing area, being concentrated in the eastern, northeastern, and northern parts of the state (Fig. 7). Hogs are fairly widely scattered throughout the state; this indicates that they are an integral part of most farm organizations.

Hens

Hens are fairly widely scattered throughout the state. The numbers are small in the Flint Hills and in west central

EXPLANATION OF PLATE VI

Fig. 22. Number of other cattle in Kansas, 1928-32 average.

Fig. 23. Number of sheep in Kansas, 1928-32 average.

Fig. 24. Number of hogs in Kansas, 1928-32 average.

Fig. 25. Number of hens in Kansas, 1928-32 average.

PLATE VI

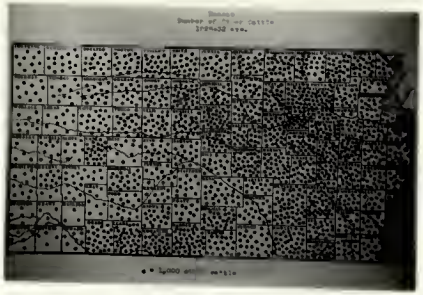

Fig. 22.

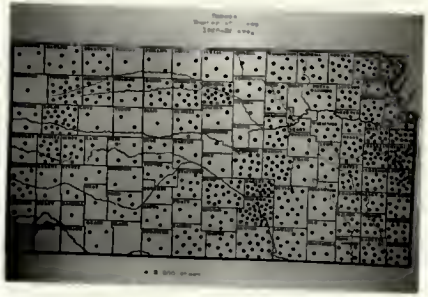

Fig. 23.

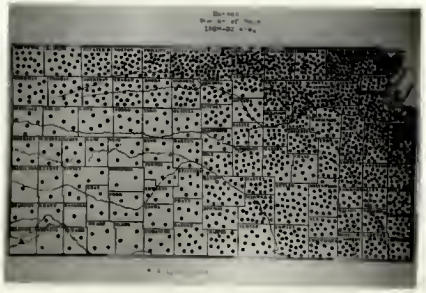

Fig. 24.

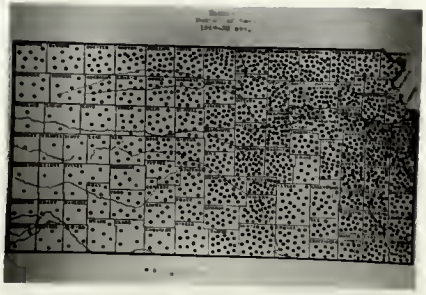

Fig. 25

Kansas. The fact that most of the hens are in small farm flocks indicates the few farms in these areas.

TRENDS OF FACTORS AFFECTING AGRICULTURE

Rainfall

Rainfall during the period 1928-38 was below normal (Fig. 26). The straight-line trend shows that the rainfall decreased .76 inches per year--a total of 8.4 inches for the 11-year period. The change was practically uniform throughout the state and most of the precipitation occurred during the growing season (Fig. 27).

This decrease in moisture has been the major factor causing changes in the farming systems. It made the growing of row crops, especially corn, more hazardous, thereby changing the relative advantage to small grains. This fact is brought out strikingly in the crop trends, which show the wheat acreage increasing and corn acreage decreasing. Moisture conditions affect livestock indirectly by causing shifts in feed crops.

Number of Tractors and Combines

The number of tractors and combines increased much more rapidly in the eastern part of the state than in the western part since most of the areas in the western portion were

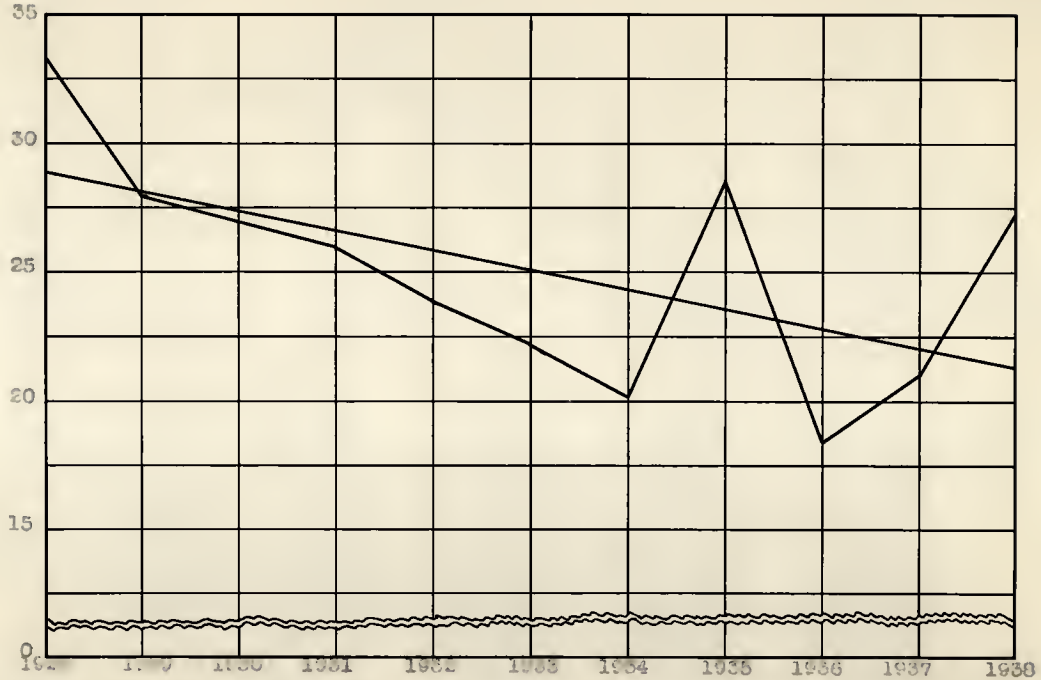

Fig. 26. Average precipitation in Kansas and the straight-line trend, 19[illegible]-38.

already powered with tractors and equipped with combines before 1928. The principal factor causing this increase was the introduction of small tractors and combines, a condition which made it possible for small farmers to use these machines economically. The number of tractors reached a low in 1933 and then increased rapidly (Fig. 28). This decrease before 1933 was the result of low farm incomes in that period; this made it impossible for the farmers to buy new tractors or replace old ones. However, the increase after 1933 was especially rapid. In Area 10b the number of combines decreased at the last of the period. This was caused by the decrease in the number of farms, which means that less power was used to handle the acreage. Coupling this with the fact that horses decreased rapidly (Fig. 56), it appears that this area had stocked machinery too heavily. The number of tractors in other areas in the western part of the state remained relatively steady while the number of horses decreased.

This increase in tractors and combines has had, and will continue to have, a profound effect on agriculture. Although moisture has been the dominant factor in causing shifts from corn to wheat, there undoubtedly are farmers who planted wheat or increased their acreage but would have continued to grow row crops if it had not been for the

EXPLANATION OF PLATE VII

Fig. 27. Precipitation for years and for growing seasons by type-of-farming areas in Kansas, 1928-38.

Fig. 28. Number of tractors and combines by type-of-farming areas in Kansas, 1928-38.

Fig. 29. Average yield of crops by type-of-farming areas in Kansas, 1928-38.

Fig. 30. Average price of crops by type-of-farming areas in Kansas, 1928-38.

PLATE VII

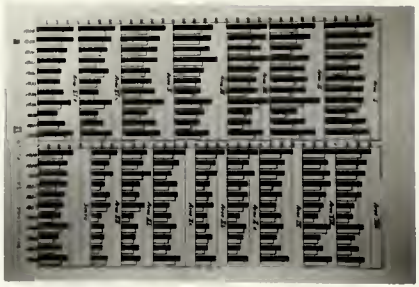

Fig. 27.

Fig. 28.

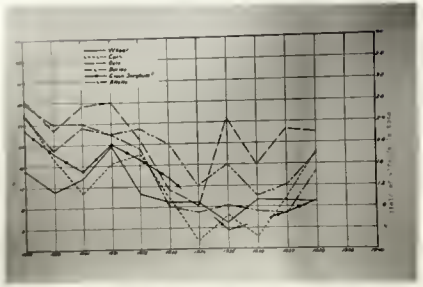

Fig. 29.

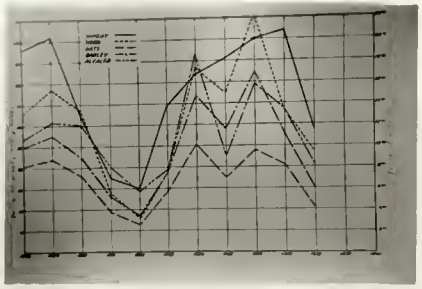

Fig. 30.

introduction of small machines adapted to this purpose. However, small tractors and equipment now are more adaptable to the cultivation of row crops than they were formerly.

The combines and tractors will have an effect on the trend in the future. With conditions favorable to growing corn, farmers will not cease wheat production until the present machinery is useless. Many farmers will not change to more horse-drawn machinery because of preference for power machinery and a shortage of horses.

Yields of Crops

The trend of crop yields tended to be in the same direction as precipitation. All yields decreased rather sharply in 1929 because of decreased moisture. In 1930, row crop yields decreased and small grains increased. This is the result of ample moisture in the spring to mature a good crop of small grains but dry conditions during the summer which cut the yield of row crops. Yields of all crops except barley and alfalfa increased in 1931 as a result of good distribution of rainfall. Barley and alfalfa yields decreased because the total rainfall was inadequate. In 1932, yields of all crops decreased except alfalfa and corn, which increased somewhat. The yields of these crops increased because these crops were planted on the best land

while other crops were planted on less desirable ground. Yields of all crops decreased in 1933 and 1934 and several of the crops, such as corn, were virtual failures in 1934. Yields of all crops except wheat increased in 1935 because of higher precipitation. Because of weather conditions in the fall of 1934, there was heavy abandonment of wheat, which caused wheat yields to decrease. In reality, grain sorghums were a failure in 1934 and 1936, but they were not tabulated as such by the Board of Agriculture. Yields of all crops except wheat decreased in 1936 because of decrease in precipitation. Wheat yields in 1936 increased because high precipitation the year before had made planting conditions favorable in the fall and the crop was matured before it suffered from lack of moisture. Yields of all crops except wheat and barley increased in 1937 because of increased moisture. The yield of wheat decreased because of poor seeding conditions in the fall of 1936 and the yield of barley decreased because of lower rainfall in April and May. Yields of all crops increased in 1938, with the exception of wheat and oats. Wheat suffered from poor seeding conditions and oats lodged as a result of excess moisture during the growing period.

As will be brought out later, there is a direct correlation between the yields of crops in one year and the

acreage the following year. This correlation is especially noticeable in the western part of the state.

Prices of Crops

Prices of many Kansas products are determined largely by factors outside the state. The price of wheat, particularly, is influenced by the world market. Corn prices are more closely linked with local conditions, depending on whether, normally, a large proportion of the corn is fed in areas where raised.

In general, prices tended to fluctuate inversely with crop yields during the period under study. All prices followed the same trend, except wheat prices, which increased in 1935 because of low yields and high abandonment in 1934 and 1935 and the consequent low production. Comparison of Figs. 29 and 30 shows that there was not perfect correlation between yield and price, for in those years when part of the yields increased and part decreased, the prices all were in the same direction, indicating the interrelationship between prices. It is noticeable, however, that price changes were in the opposite direction of changes in the majority of the yields. This situation existed because of the correlation between Kansas yields and the yields in other producing areas. Another factor which entered into prices was the price cycle, which was partly responsible for the low prices

of 1932 and the upward trend afterwards.

The Government Program

The agricultural programs of the federal government have exerted considerable influence on the agriculture of Kansas. These programs have attempted to raise the price of farm products by reducing production. The method employed has been to pay the farmers for the use of the land taken out of cultivation. There also has been an attempt to stabilize agriculture and conserve the soil by giving payments for following soil-conserving practices such as strip cropping, summer fallowing, and contour farming, thereby lessening the risk that is inherent in farming due to weather and other factors.

The first program was under the Agricultural Adjustment Act of May, 1933, and included the wheat reduction program and the corn-hog reduction program. The wheat reduction program provided for a 15-percent decrease in acreage in 1934 from the 1930-32 base. The 1935 program provided for a 10-percent reduction in acreage from the 1930-32 base, while the 1936 program required a 5-percent reduction. The corn-hog program consisted of a pig and sow buying and slaughter program in the fall of 1933. Under this phase of the program, 699,000 pigs were purchased in Kansas.

The corn-hog program in 1934 provided for the reduction, from the 1932-33 base, of 20 percent in corn acreage and 25 percent in the number of pigs. In 1935 a reduction of 10 percent from the base period was required for both corn and hogs. The additional provision was made that the farmers had to produce 25 percent of the normal number of pigs. Also included under the AAA was the cattle-buying program in the summer and fall of 1934, when 591,171 cattle were purchased in Kansas.

This act was declared unconstitutional by the United States Supreme Court in January, 1936, because of the processing tax employed to raise funds to pay the allotments. Congress immediately passed the act providing for the Agricultural Conservation Program. This program still remains in effect.

This program attempts to reduce crops which are classified as soil-depleting--wheat, corn, grain sorghums, barley, oats, flax, broomcorn, and rye. No Agricultural Conservation Program special allotments were made on these crops from 1936 to 1938 except for a special allotment for corn in 1938. The program attempts to increase soil-conserving and neutral crops. Some of the soil-conserving crops are alfalfa and sweet clover; some of the neutral practices are growing sweet sorghums, fallowing, or leaving the land idle.

Tables 2 and 3 show the effect of the Agricultural Conservation Program in Nemaha county. These tables show the percent of change in crop acres and change in numbers of livestock for compliance and non-compliance farms. A study of the last column of Table 2--net change on ACP farms--shows that the program was instrumental in checking the increase in the acreage of wheat. Comparison of this with later data indicates that the program helped to stabilize the trends to some extent. Especially noticeable on compliance farms was the effect of the program in maintaining the acreage of legumes. This had a definite effect on the livestock enterprises and probably lessened the tendency to shift toward cash grain. The program was instrumental in maintaining all livestock except sheep, and the sample on them is so small that the results are insignificant. This maintaining of livestock on the compliance farms is related to the attempts of the program to stabilize the agriculture of the state. It must be recognized that only 50 percent of the crop land in Nemaha county was in the program.

The effects of the AAA are apparent in varying degrees throughout the state. The effect was greater in the counties in the western part of the state where 90 to 95 percent of the farmers were in compliance than in the eastern counties

Table 2. A comparison of the use of land expressed as a percent of crop land and total land for the base period 1928-32 and 1938 on all compliance and non-compliance Nemaha county sample farms, and the indicated effect of the Agricultural Conservation Program on the change in acreage./4

Use of land	74 compliance farms			50 non-compliance farms			Net change on AGP farms
	Percent crop land		Change	Percent crop land		Change	
	1938	1928-32		1938	1928-32		
Corn	30.3	58.6	-27.8	32.3	60.9	-28.1	+ .3
Wheat	26.7	7.5	+19.2	36.2	10.2	+26.0	-6.8
Oats	11.6	12.8	- 1.8	13.3	12.4	+ .9	-2.1
Sorghum	4.9	1.3	+ 3.6	5.6	1.2	+ 4.4	- .2
Millet	2.0	2.4	- .4	1.0	1.4	- .4	0.0
Other non-legumes	5.8	1.5	+ 4.3	4.6	1.9	+ 2.7	+1.6
Alfalfa	11.3	7.3	+ 4.0	5.5	4.9	+ .6	+3.4
Sweet clover	5.0	5.1	+ .5	.9	3.2	- 2.3	+2.8
Other legumes	1.3	3.5	- 2.2	.1	3.9	- 3.8	+1.6
Crop land	100.0	100.0	0.0	100.0	100.0	0.0	0.0

/4 From unpublished paper by Kenneth W. Miller.

Table 3. A comparison of the number of livestock per farm for the base period 1928-32 and 1938 on all compliance and non-compliance Nemaha county sample farms, and the indicated effect of the Agricultural Conservation Program on the change in number of head./4

Livestock	74 compliance farms			50 non-compliance farms			Net change on ACP farms
	Percent crop land		Change	Percent crop land		Change	
	1938	1928-32		1938	1928-32		
Milk cows	6.7	4.6	+ 2.1	5.9	5.2	+ .7	+1.4
All other cattle	10.0	16.4	- 6.4	7.9	14.9	- 7.0	+ .6
Sows	4.3	6.7	- 2.4	2.9	6.0	- 3.1	+ .7
All other hogs	8.4	20.2	-11.8	6.2	21.1	-14.9	+3.1
Hens	145.8	135.2	+10.6	137.6	129.5	+ 8.1	+2.5
Sheep	2.9	5.1	- 2.2	.4	.3	+ .1	-2.3
Horses and mules	5.6	6.1	- .5	4.9	6.3	- 1.4	+ .9

/4 From unpublished paper by Kenneth W. Miller.

where only 30 to 40 percent or fewer were in compliance. The compliance was low in eastern Kansas because the farmers had more alternatives, better yields, and fewer failures than farmers in the western part of the state and, therefore, were not so dependent on the programs as a source of income. It also is apparent that many farmers in compliance would have farmed about the same whether they complied with the program or not. A situation of this kind greatly lessens the effect of the program. The acreage thrown out of production in western Kansas has been largely diverted to idle and fallow, while in eastern Kansas the surplus acres were put in forage crops. This tended to maintain roughage-consuming livestock in the eastern part of the state but not in the western part.

Wheat Abandonment

Abandonment of wheat usually is an important factor only in the western one-half to two-thirds of the state. Most of the abandonment in eastern Kansas is intentional; that is, the wheat is planted for fall and winter pasture to be plowed up and put in spring crops. The abandonment in western Kansas results from seeding in poor seed-bed conditions, winter killing, and blowing during the winter. These conditions are directly associated with lack of moisture.

There is a direct correlation between acreage of wheat abandonment and acres of spring crops planted in the western part of the state. As will be brought out in the discussion of the trends of crops in these areas, the acreages of corn, sorghums, barley, and oats increase materially in years of high wheat abandonment.

Size of Farm

The general tendency for average size of farms was to increase from 1925 to 1930; it then decreased slightly by 1935. This tendency was true for most areas of the state, but there were parts where the average increased in all three periods and other parts where the size decreased rapidly from 1930 to 1935.

The increase in average size of farms from 1925 to 1930 was due to the increase in number of large-size farms and the decrease in middle-size farms. This indicates that smaller farms were being incorporated into the large farms. This situation was especially true in the western part of the state where there was some removal of farmsteads. The decrease in size from 1930 to 1935 was largely a result of the rapid increase in the number of small farms as a consequence of the flow of people from cities to small, part-time farms nearby where they attempted to raise a part of their

living and obtain enough work in town to pay their cash expenses. This change was largely in the eastern part of the state around the larger cities. There were areas in western Kansas where the farms continued to increase in average size from 1930 to 1935.

TRENDS OF CROPS AND LIVESTOCK

The trends in the acreages of crops and the numbers of livestock are for the state as a whole and by type-of-farming areas. Plates VIII to XV, inclusive, are the trend charts made up on semi-logarithmic scale so that percentage changes might be shown; therefore, one kind of crop or livestock may be compared directly with another. Some of the trends are fairly uniform throughout the state, with only minor variations from area to area; other trends change radically from one part of the state to another. It may be noted that trends were not nearly so uniform in the western part of the state as in the eastern part; this indicates that the agriculture was not stable and that permanent farm organizations had not been developed in the western areas. Most of the changes in livestock resulted from adjustments in the cropping system or changes in yields caused by factors mentioned. The number of cattle was influenced by the normal cattle cycle, which started and ended with the period

Table 4. Wheat acres abandoned by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	10	11	20	--	11	4	2	32	11	11	36
2	0	12	2	--	9	1	1	23	17	19	47
3	0	6	4	--	26	2	1	24	5	7	19
4	1	4	2	--	10	1	2	6	3	13	35
5	3	10	9	--	11	15	2	25	25	10	71
6a	--	9	7	--	23	37	57	92	75	30	81
6b	49	124	42	--	122	462	18	88	49	44	145
7	118	15	13	--	73	135	338	759	150	114	124
8	30	9	5	3	22	44	125	218	64	80	91
9	57	79	24	--	218	873	193	297	127	262	209
10a	272	13	43	20	290	793	493	989	340	762	420
10b	127	46	200	37	681	1,411	832	1,177	795	1,427	671
10c	29	2	11	7	38	179	119	104	33	120	69
11	731	54	32	98	263	729	485	783	271	517	244
12	111	6	27	6	219	397	325	534	264	536	204
State	1,598	428	449	169	2,036	5,077	2,971	5,150	2,288	3,934	2,446

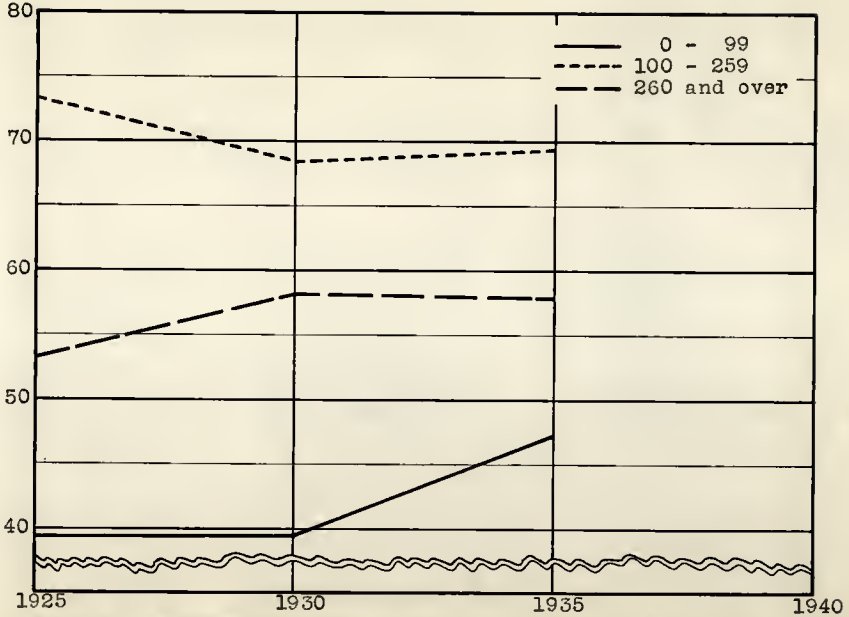

Fig. 31. Number of farms by size groups in Kansas, 1925, 1930, and 1935.

Table 5. Number of farms, total acres in farms, and average size of farms for 1925, 1930, and 1935 by type-of-farming areas in Kansas (8).

Area	1925			1930			1935		
	Number of farms	Acres in farms	Average per farm	Number of farms	Acres in farms	Average per farm	Number of farms	Acres in farms	Average per farm
1	14,015	1,965,313	140	13,783	2,006,662	145	15,347	2,143,233	140
2	19,187	2,917,035	152	19,005	3,176,394	168	20,300	3,177,374	156
3	12,701	1,496,097	118	12,064	1,523,563	126	13,713	1,543,115	113
4	10,698	1,564,769	148	10,583	1,664,774	158	10,976	1,697,749	155
5	20,360	5,105,739	251	21,059	5,600,031	266	22,056	5,917,469	269
6a	12,158	2,631,278	217	12,457	2,831,375	227	12,945	2,752,253	213
6b	18,357	4,197,279	230	18,530	4,421,922	248	19,119	4,367,601	228
7	10,283	3,398,361	330	10,004	3,470,005	347	10,101	3,503,584	347
8	17,035	3,616,256	212	16,493	3,743,347	227	16,791	3,736,093	224
9	8,423	3,040,471	361	8,161	3,190,676	391	9,134	3,549,903	389
10a	5,004	3,256,237	650	5,170	3,371,307	652	5,465	3,409,893	624
10b	5,516	3,152,055	572	5,973	3,639,245	618	6,172	3,787,198	613
10c	2,260	1,606,276	710	2,137	1,672,273	785	2,299	1,779,364	777
11	7,295	3,738,002	513	7,686	4,160,719	542	7,915	4,221,459	536
12	2,730	2,043,961	750	2,906	2,451,594	830	3,368	2,686,823	800
State	166,876	43,729,129	264	166,042	46,975,647	283	174,530	48,809,770	275

under study; but there was little cyclical influence on the other livestock. Horse numbers showed a persistent downward movement in each area, but the rate of decline was more rapid in some areas than in others. In the western part of the state, abandonment of wheat was a major factor influencing acreage of spring crops and numbers of certain livestock, especially sheep.

Kansas

Trends for the state as a whole were not so radical as for individual areas due to the effect of averaging. Corn acreage showed the most persistent trend by increasing slightly to 1933 and then decreasing rapidly for the rest of the period. This decrease after 1933 was occasioned largely by deficient rainfall (Fig. 25). This shows the lag which exists between cause and effect. Rainfall decreased for several years before it had an effect in decreasing the acreage of corn. Although other crops were hindered by dry weather, few of the major crops were so susceptible as corn. The number of hogs is directly linked with corn production. The number decreased in 1930 and 1931, reflecting the low yields of corn in 1929 and 1930 (Fig. 29). This indicates the one-year lag which exists between corn production and hog production. The number increased in 1932 and slightly

in 1933 following the increases in yield of corn in 1931 and 1932 and the increase in corn acreage in 1932 and 1933. After 1933, the number of hogs decreased rapidly along with the decrease in corn acreage and extremely low corn yields. The corn-hog program also was instrumental in decreasing hog numbers after 1933. Trends in wheat acreage were about the opposite of corn, indicating, to a large extent, that wheat and corn displaced each other in the cropping system. As wheat does fairly well under dry conditions, it displaced corn in most areas of the state during the drought period.

Grain sorghums increased until 1935. They are more tolerant of dry, hot weather than corn and became more widely used as a feed grain during the dry years. Sorghums decreased after 1935, however, because of the relatively poor yields.

Oats tended to increase during the period, supporting the conclusions that, under dry conditions, small grains are more reliable than row crops.

Barley acreage decreased slightly until 1930 because of light abandonment of wheat but then increased to 1933 because of heavy abandonment. There was a sharp decline in barley acreage in 1934 because of poor yields in 1933 and relatively less abandonment of wheat. The acreage tended slightly downward from 1934 to 1938 because of poor yields.

Sweet sorghums increased throughout most of the period as a result of the introduction of Atlas and its increasing popularity among farmers.

Alfalfa acreage decreased slightly until 1930 as a result of bacterial wilt. It increased from 1931 to 1935, however, as a consequence of farmers' attempts to increase legume acreages. The decrease after 1935 resulted from dry conditions which made difficult the establishment of new stands or the maintenance of old stands, and from damage by grasshoppers.

Flax and broomcorn are two minor cash crops of the state. The fact that flax increased during the period is a reflection of the farmer's struggle to maintain cash income. Broomcorn acreage fluctuated rather radically. Except in local areas, Irish potato production was largely for home consumption. The decrease in the acreage of this crop indicates unfavorable prices for commercial production and some decrease in population over a large part of the state.

Sweet clover acreage remained fairly uniform until 1934, after which time it declined rather rapidly because of poor moisture conditions.

The number of hens remained steady until 1934, but then decreased because of unfavorable egg prices, the fact that most hens are kept in small farm flocks, and the fact that the number of farmers decreased during this period.

The number of other cattle was affected by the cattle cycle which started upward in 1928 and increased until 1934. The number decreased from 1934 to 1938. This was a short cattle cycle in comparison with 14 to 16 years for a normal cycle. The cycle in Kansas was more pronounced than in the United States as a whole. In 1934 there was some effect of the corn-hog program which decreased hog numbers, and the farmers turned to cattle raising as an alternative.

The number of milk cows followed the cattle cycle fairly closely. The sharp drop in cattle numbers from 1934 to 1935 was due partly to the cattle-buying program of the Agricultural Adjustment Administration whereby large numbers of cattle were purchased in Kansas in the summer and fall of 1934 and in the early months of 1935.

Sheep numbers increased somewhat until 1935 and then decreased except for a slight rise in 1937. The increase until 1935 was due largely to the growth of the lamb-feeding enterprise in the western part of the state. The decrease in 1936 and 1937 was the result of shortage of wheat pasture, while the increase in 1938 reflects the increase in pasture.

The trend in the number of horses was more persistent than for any other type of livestock, being downward throughout the period. The number of tractors increased as the number of horses decreased (Fig. 27). This indicates that,

because of improved tractors and more adaptable sizes, power farming became more popular with farmers.

Area 1

In Area 1 corn acreage remained constant until 1933 and then decreased but did not decrease so much as for the state as a whole, showing the superiority of this area over most of the state as a region of corn production. Wheat acreage decreased in 1930 and 1931 following yields of 8.8 and 12.8 bushels in 1929 and 1930 respectively. It increased slightly in 1932 following a yield of 12.5 in 1931, but declined in 1933 largely as a result of a yield of 11.7 bushels and a corn yield of 20.7 bushels in 1932. The farmers of this area were growing corn whenever possible. Wheat increased in the latter part of the period, replacing corn and increasing more than corn decreased, which indicates that wheat was replacing other crops which decreased such as grain sorghums and alfalfa. The acreage of oats increased in most years of the period, reflecting the superiority of small grains over row crops in dry seasons. Barley acreage upheld this contention by increasing from less than 1,000 acres to more than 10,000 acres, a percentage increase of more than 1,000 percent. There were several causes for this phenomenal increase--need for a feed grain to replace corn;

dry winters during most of the period, which made winter barley successful; increased machinery (tractors and combines) for small grain (Fig. 28); and an absence of clinch burs.

Grain sorghum acreage tended to increase until 1935 and then declined rather rapidly. Grain sorghums are a rather important enterprise in Area 1 and, as they are more drought resistant than corn, the acreage of these crops did not change radically during the period. Alfalfa acreage decreased until 1930, largely as a result of prevalence of bacterial wilt. It increased from 1930 to 1935 by 164 percent, but then decreased rapidly due to dry weather, failure to maintain stands, and damage from grasshoppers.

Sweet sorghum acreages tended to increase during the period, but with some fluctuations. The small acreage and the fluctuations in acreage indicate that sweet sorghums are not an important forage crop in that section of the state. Prairie hay is the major forage crop in this area (Fig. 14). It also is a cash crop of importance. The acreage of flax increased until 1931, then decreased until 1933, after which time it remained fairly steady. The small acreage and its failure to replace other crops show that it is not an important enterprise. Potato acreage was small and remained fairly uniform. The acreage of sweet clover remained relatively steady until 1933 and then declined rapidly because

of drought.

Numbers of hogs followed practically the same trend as for the state as a whole, although they were low in 1931 and 1932. The decline in numbers after 1934 followed the same pattern as that for the state. The trend in the number of hogs was the same as for the state except that it was more pronounced. In this area there was a larger decrease in 1930 and 1931 and a larger rise in 1933 than for the state as a whole. The decrease after 1933 was greater than for the state except that there was a slight rise in numbers of hogs in this area in 1934. The greater fluctuations in numbers show that hogs are a more important enterprise in this area than for the state as a whole.

As a result of the cattle cycle, other cattle showed about the same trend as for the state. Milk cow numbers showed a slightly upward trend until 1935 and then decreased rather rapidly, following the general cattle cycle. This indicates that feed shortage was not acute so early in this part of the state as in other parts because the state trend started downward after 1934. Sheep numbers remained fairly uniform except for a slight rise in the latter part of the period. This indicates that they are not an important part of the agriculture of the area. The trend of the number of horses was downward, although at not so rapid a rate as for the state. The increase in tractors was as rapid as in any

area of the state (Fig. 6).

Area 2

In this area, wheat rose from a position of medium importance to that of the most important crop. Area 2 is more of a corn region than Area 1, as attested by the larger acreage, but the trend was practically identical. Wheat increased a total of approximately 344 thousand acres for the period--357 percent. This was accompanied by an increase in the acreage of oats throughout the period and a spectacular increase in barley acreage after 1934. This may be attributed to factors mentioned for Area 1, but the increase in small grains was larger here because soil conditions are not so favorable as in Area 1 and small grains had not become such an important part of the farm business. The decrease in corn in Area 2 left more land to be used for small grain crops than in Area 1. Grain sorghums were more important than in Area 1, but the trend was practically the same.

Alfalfa is a more important crop than in Area 1 and the acreage did not fluctuate so much although the trend was about the same. A comparison of Areas 1 and 2 as to acreages, especially of wheat and alfalfa, indicates that the more important an enterprise in the agriculture of an area, the less subject it is to change. This upholds the conclusion that enterprises which are best adapted tend to be

EXPLANATION OF PLATE VIII

Fig. 32. Trends of crop acreages for Kansas, 1928-38.

Fig. 33. Trends of numbers of livestock for Kansas, 1928-38.

Fig. 34. Trends of crop acreages for Area 1, 1928-38.

Fig. 35. Trends of numbers of livestock for Area 1, 1928-38.

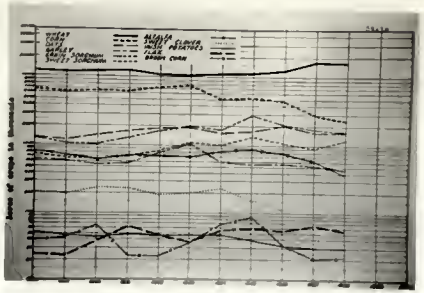

Fig. 33.

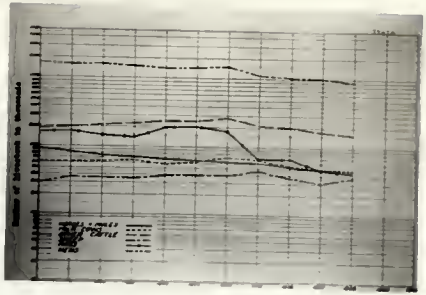

Fig. 35.

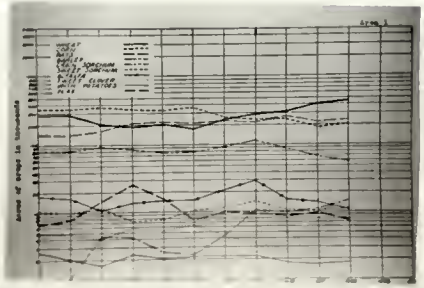

Fig. 34.

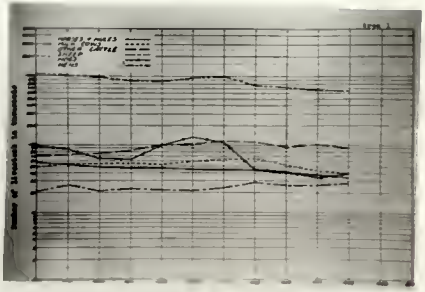

Fig. 36.

located in a particular area.

Flax is an important enterprise in this area and the acreage increased during the period, showing farmers' attempts to secure additional sources of cash income. Sweet sorghums are more important here than in Area 1 and the increase was greater and more uniform.

Sweet clover tended to increase until 1934 as a result of farmers' attempts to maintain legume acreages while the alfalfa acreage was low. The acreage decreased after 1934 because of dry weather. Irish potatoes increased in the first part of the period but declined in the latter part.

The numbers of hens changed approximately the same as in Area 1. Hogs decreased more from 1930 to 1931 than they did in Area 1 or in the state and increased in 1934 instead of decreasing. This increase in 1934 was due to the higher yields of corn in Area 2 which made hogs a more important enterprise and less subject to change. Other cattle followed the cattle cycle but the increase was not so great prior to 1934 as in Area 1. Milk cow numbers followed the trend of other cattle although the change was not so pronounced. Sheep numbers remained steady prior to 1934 but increased in 1935 as a result of attempts to replace other livestock. The number of horses decreased more rapidly than in Area 1. Tractors did not increase so rapidly, but the

number was larger.

Area 3

This area shows a pronounced inverse relationship between the acreages of corn and wheat. The trends of the acreages of the two crops were in opposite directions every year of the period although wheat fluctuated more than corn. The trend of the corn acreage was practically the same as in Area 2 except that it decreased a little more in the latter part of the period. Wheat acreage decreased prior to 1933 and then increased rapidly. This reflects the superiority of corn over wheat in this area because the acreage of corn was maintained until 1933. After 1933, yields of corn were low, and wheat was so much more dependable that corn acreage decreased materially. The acreage of oats tended to increase during the period and barley acreage increased after 1934 although it did not become so important as in Areas 1 and 2. This reflects the desirability of small grains compared with row crops in dry periods. The alfalfa acreage followed the same trend as in Areas 1 and 2 but did not fluctuate so much. This indicates the greater importance of alfalfa in the farm organization and its greater stability in this area. The acreage of grain sorghums increased until 1935, indicating that they were more reliable than corn; but

decreased in 1936 and 1937 following extremely low yields in 1935 and 1936. The acreage increased in 1938, however, following a yield of 13.8 bushels in 1937. The acreages of sweet sorghums increased throughout the period except for 1936. This rapid increase indicates the increased use of Atlas for forage and silage in place of corn.

Area 3 is the major commercial potato production area of Kansas. The trend of the potato acreage was downward, however, because of unfavorable prices and poor keeping quality of the potatoes. Sweet clover decreased until 1932 but increased sharply in 1933 and 1934 because of the attempts to maintain legumes. The acreage decreased rapidly after 1934 because of dry weather.

The trends of the numbers of hens and milk cows were more definitely downward than in Areas 1 and 2. This was influenced by the large amount of commercial production compared to the other areas. During the period of unfavorable feed prices many flocks and herds were reduced. Milk cow numbers did not follow the cattle cycle. Trends of hog numbers remained more steady until 1934 than in Areas 1 and 2, but then decreased about the same amount. They remained relatively steady until 1934 because of the major importance of hogs in this area. Other cattle numbers showed a wider range between the high and low, but the cycle was not so even as in other areas. There was a slight decrease in 1930

EXPLANATION OF PLATE IX

Fig. 36. Trends of crop acreages for Area 2, 1928-38.

Fig. 37. Trends of numbers of livestock for Area 2, 1928-38.

Fig. 38. Trends of crop acreages for Area 3, 1928-38.

Fig. 39. Trends of numbers of livestock for Area 3, 1928-38.

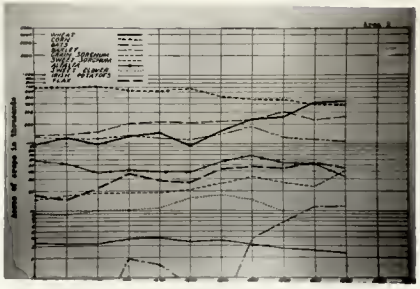

Fig. 3c.

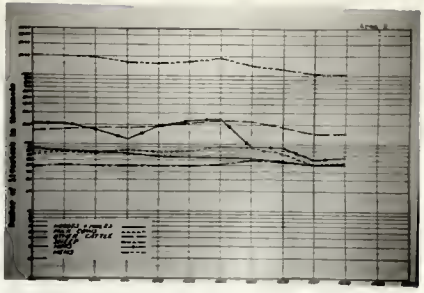

Fig. 3d.

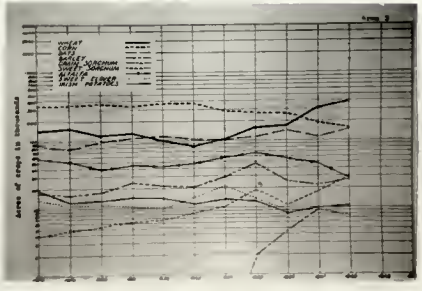

Fig.

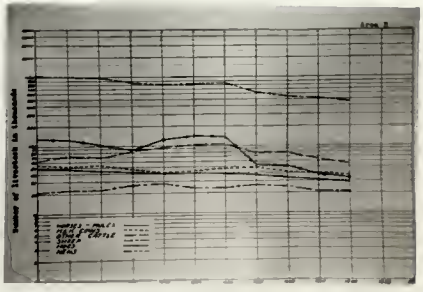

Fig.

and the number remained steady from 1935 to 1936. Sheep numbers increased until 1932 and then tended to decrease. This is in one of the more or less localized areas of sheep production and the number was made up largely of small farm flocks; changes were due largely to temporary decisions by the farmers. The number of horses decreased rather rapidly in this area although tractors did not increase so much as in Areas 1 and 2.

Area 4

Area 4 is the most important corn-producing area of the state, as the uniform acreage during this period indicates. There was a slight increase in corn acreage until 1933 and the decrease after that time was not nearly so rapid as in other parts of the state. Wheat acreage followed about the same trend as in Area 3 by decreasing until 1932 and then increasing rapidly. Apparently, wheat tends to be an emergency crop in this area, replacing other crops in periods when conditions are more favorable for wheat. The acreage of oats did not show so much of an upward trend here, tending upward until 1931, downward until 1934, and then upward again. Farmers appeared to place more faith in wheat as a crop to replace those being discontinued than they did in oats.

Barley acreage increased until 1932, decreased until 1934, and then increased until 1939. This shows that barley, like wheat, is an emergency crop and is used only as a temporary and more or less speculative enterprise in this area.

Trends were similar to Area 3 for the numbers of hens and milk cows although the trend of milk cow numbers was not so definitely downward. The trend in numbers of hens was practically the same as in areas previously mentioned. The trend of the number of hogs was the same as the trend in the rest of eastern Kansas except that it tended upward a little more until 1934, supporting the conclusion that this is a better corn region than other parts of the state. Another increase occurred in 1936, probably as a reaction to the precipitous drop in 1935. The yield of corn also was comparatively good (14.8 bushels) in 1935. Other cattle numbers followed the cattle cycle but the change was not pronounced; this reflects the greater superiority of hogs or other livestock for feeding purposes. Sheep numbers were rather erratic but did not show any trend either up or down, being rather well stabilized in small farm flocks. Horse numbers decreased during the period but not so rapidly as in Areas 2 and 3. Alfalfa acreage followed a more uniform trend here than in other areas. It decreased uniformly until 1932, increased until 1935, and again decreased. The

decrease after 1935 was the result of dry weather and grasshoppers. Although the acreage was small, grain and sweet sorghums increased until 1935, showing the greater reliability of grain sorghums over corn in dry periods and the increasing popularity of Atlas for forage. The acreage of both crops decreased in 1936 following low yields in 1935. Sweet sorghum acreage then increased rapidly in 1937 and 1938 while the grain sorghum acreage remained steady in 1937 and increased in 1938.

Area 5

Area 5 is the largest type-of-farming area in the state and covers the Flint Hills region. The type of agriculture differs from that in the surrounding areas. There is a much larger number of cattle and the other enterprises are tied in with this major enterprise. Corn acreage remained relatively steady until 1933 but declined rapidly after that time, indicating that corn was not so reliable here as in the areas immediately east because the decline was more rapid and started a year earlier. Wheat acreage did not decline so much at the beginning of the period as in other areas and remained fairly steady until 1934, after which time it increased, again illustrating the inverse trends of corn and wheat acreages. Oats acreage shows a

slight upward trend but the trend was not uniform and the acreage dropped in the last two years. The increase in barley acreage has been phenomenal here, from less than 1,000 to 30,000 acres. Grain sorghum acreage increased somewhat until 1935 but decreased during the remainder of the period. This shows conclusively that small grains were more adaptable than row crops in this area during the droughts. Barley replaced corn and grain sorghums as a feed crop and wheat took up surplus acreage which was not needed for feed after the numbers of livestock had decreased. Alfalfa acreage followed the same trend here as in other areas, but the change was not so pronounced. The sweet sorghum acreage increased during the period but not to the same extent as in areas farther east. This was due to the fact that the acreage was large to start with, sweet sorghums being a major enterprise, and the introduction of Atlas merely caused a shift in variety and not a shift from corn to sorghums.

The number of hens did not decrease so rapidly in Area 5 as in areas farther east, since the hen population is made up largely of farm flocks which tend to remain fairly steady. The large numbers of other cattle in Area 5 emphasize the importance of beef cattle in this area. The trend was not so pronounced as in areas previously discussed.

EXPLANATION OF PLATE X

Fig. 40. Trends of crop acreages for Area 4, 1928-38.

Fig. 41. Trends of numbers of livestock for Area 4, 1928-38.

Fig. 42. Trends of crop acreages for Area 5, 1928-38.

Fig. 43. Trends of numbers of livestock for Area 5, 1928-38.

PLATE X

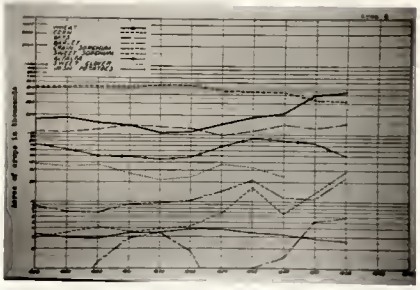

Fig. 40.

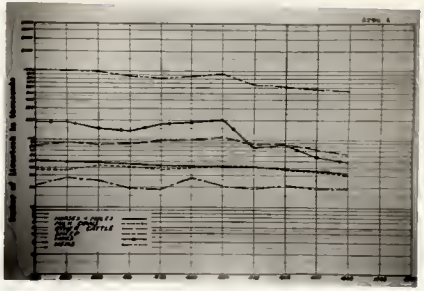

Fig. 41.

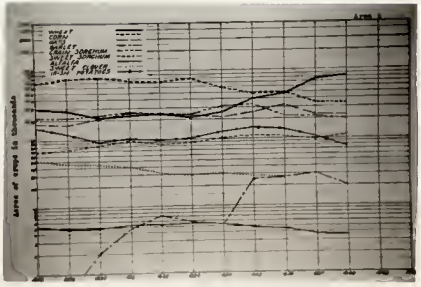

Fig. 42.

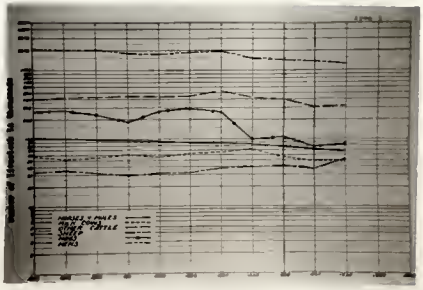

Fig. 43.

Although unusually stable during the first part of the period, the number did fall fairly rapidly after 1934, due to poor pasture conditions and shortages of feed. More favorable conditions toward the end of the period were responsible for greater numbers in 1938. The trend of hog numbers was similar to that in other eastern areas. Milk cow numbers increased slightly until 1935 but decreased afterwards. The small numbers of milk cows are largely in farm herds which are not subject to major changes. Sheep numbers tended to increase during the period, partially replacing hogs and other cattle. The number of horses decreased during the period and the number of tractors increased materially.

Area 6a

Area 6a is more in the wheat area of Kansas, as is shown by the large acreage of wheat. Wheat acreage decreased until 1933, a trend which started in 1927. The increase from 1933 to 1938 was about 590,000 acres; this shows that wheat was replacing other crops during that period. Corn acreage remained fairly steady in the early part of the period, increasing somewhat in 1933 after a yield of 24.7 bushels in 1932. However, it then decreased rapidly due to factors discussed in connection with previously mentioned

areas. Oats acreage remained fairly steady during the period and did not come in with wheat to replace row crops as in eastern Kansas. Barley acreage increased more than 25 times the original acreage during the period. This suggests that the barley region of Kansas has moved eastward, at least temporarily. Grain sorghum acreage increased until 1935, then decreased rapidly. The increase reflects the greater ability of grain sorghums, compared with corn, to withstand dry weather. The decrease after 1935 was due to low yields. Alfalfa acreage remained relatively uniform, compared with other areas of the state, except the extremely rapid decrease after 1936. This was caused by the extremely dry weather that prevailed and made the growing of alfalfa a hazardous undertaking. Sweet sorghum acreage increased until 1935 but decreased in 1936 and 1937 following low yields in 1935 and 1936. The acreage increased again in 1938 following a good yield in 1937. The general increase during the period may be attributed to Atlas; but the small increase, as compared to eastern Kansas, reflects the greater importance and stability of sweet sorghums in this area. Irish potatoes were rather unimportant and tended to decrease over the period.

Hen numbers remained steady until 1934, then declined. This drop at the last of the period was due to the decreased number of flocks and reduction in size of remaining flocks

because of low feed supplies. Cattle are rather important here and the number followed the cattle cycle except for a slight increase in 1936, due to the rather rapid increase in wheat acreage which gave a larger amount of wheat pasture. The yield of corn remained relatively more stable here than in the eastern part of the state, so there was not the large decrease in hog numbers taking place during the early part of the period. The break came a year earlier than in the eastern area because of low corn yields in 1933. There was a large decrease in hog numbers in 1935 and a slight rise in 1936 because of relatively better corn yields in 1935, but the numbers decreased in the last two years of the period. Numbers of milk cows tended to be fairly steady, though slightly upward until 1934 but started to decrease in 1935, reflecting the importance of farm herds in this area. Sheep numbers remained fairly steady and low numbers during the period indicate that they are not an important enterprise in this area. The number of horses decreased persistently during the period.

Area 6b

As the large acreage indicates, this area is in the center of the wheat-producing area of Kansas. Wheat acreage followed the same trend here as in Area 6a, but the change

EXPLANATION OF PLATE XI

Fig. 44. Trends of crop acreages for Area 6a, 1928-38.

Fig. 45. Trends of numbers of livestock for Area 6a, 1928-38.

Fig. 46. Trends of crop acreages for Area 6b, 1928-38.

Fig. 47. Trends of numbers of livestock for Area 6b, 1928-38.

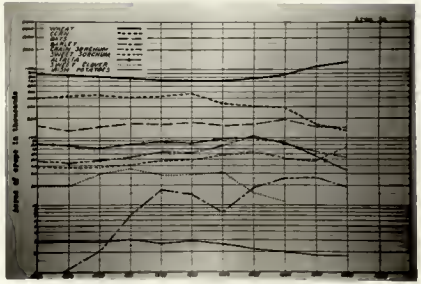

Fig. 44.

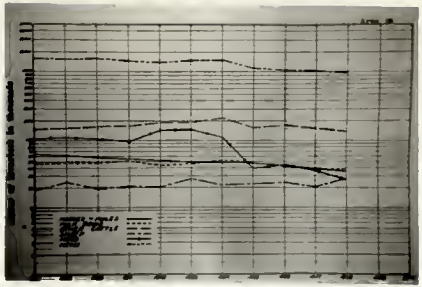

Fig. 45.

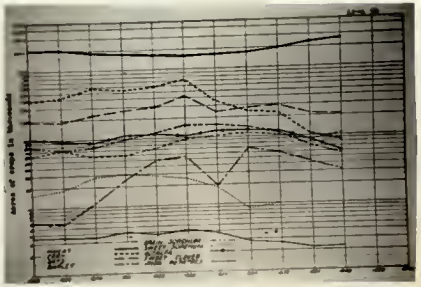

Fig. 46.

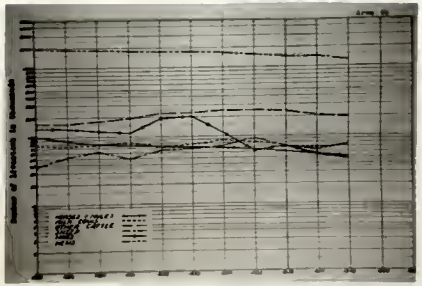

Fig. 47.

was not so rapid. The acreage decreased in 1933 and then increased during the rest of the period, replacing other crops which were rapidly decreasing. The acreage of corn showed an upward trend until 1933 due to a series of relatively good corn yields as compared with eastern Kansas. The rapid decline after 1933 amounted to 84 percent. Oats acreage tended to follow the same trend as corn, although the decrease was not so rapid. The acreage increased until 1933, decreased in 1934, following a year of poor yields, increased slightly in 1935 and 1936, following good yields, and then decreased again the last two years of the period. The acreage of grain sorghums increased until 1933 and then decreased the rest of the period. The acreage of feed grains, corn, oats, and grain sorghums followed the same trend. The numbers of all types of grain-consuming animals increased during the early part of the period and then decreased, following the same trend as the grain feeds. Barley acreage increased rapidly until 1933 but decreased materially in 1934 following a low yield of 9.2 bushels the previous year. The acreage increased again in 1935, however, and then decreased for the remainder of the period. The increase until 1933 substantiates the reasoning that barley was being successfully grown because of an absence of factors detrimental to it. The decrease after 1935 may be

attributed to the decreased need for feed grains. The acreage of sweet sorghums was rather erratic in this period and did not follow any definite trend. These crops are a rather important part of the agriculture of this area. The acreage of alfalfa did not fluctuate so much as in most of the previous areas but followed the same trend. The acreage remained rather steady due to satisfactory soil which does not need lime or fertilizer. As long as moisture conditions are satisfactory, the crop will last for long periods, in contrast to the short life of alfalfa fields in eastern Kansas.

The number of hens decreased uniformly throughout the period but at a relatively slow rate, reflecting the influence of farm flocks. Other cattle numbers followed the cattle cycle although the change was not great and the peak was reached in 1935 instead of 1934, there being little difference in the two years. The number of hogs followed the same trend as in areas previously mentioned except that the decline started more rapidly in 1934. Milk cow numbers remained relatively steady, showing the influence of farm herds. The number of sheep tended to increase during the period, due largely to the increased practice of shipping in lambs to pasture on wheat during the winter. The years of decreases in numbers of sheep, 1931, 1936, and 1937, were

years of short wheat pasture. The number of horses decreased rapidly at the same time that tractor numbers increased rapidly. The number of tractors is large in this area, which would indicate that the area has been and still may be overpowered.

Area 7

Wheat is definitely the most important crop in Area 7, and, as the trend shows, is the most stable. The trend of acreage followed practically the same pattern as in Areas 6a and 6b except for a slight increase in 1930. However, the change was less than in the previous areas. Corn acreage was erratic, decreasing slightly until 1931, increasing in 1932 following a good yield (13.6 bushels), decreasing slightly in 1933, decreasing rapidly in 1934 following a poor yield in 1933, increasing in 1935 following heavy abandonment of wheat acreage, and declining after 1935, a total decline of 89 percent until 1938, when it was a failure. This indicates that corn production in this area is unstable and hazardous. The acreage of grain sorghums followed this same general trend except that it increased from 1931 to 1935 with a large increase in 1935 as a result of the abandonment of wheat. The decrease after 1935 was not so rapid as for corn, indicating that sorghums are a more reliable

crop. The acreage of sweet sorghums also followed this trend with the exception that the changes were not so rapid; and the acreage increased in 1938, due to the fact that the government program allowed sweet sorghums to be planted on neutral land. Oats and barley acreages fluctuated widely without following a definite trend. The sharp drop in 1934 was due to unfavorable planting conditions in the spring and to the government program which was instrumental in getting more land into fallow and feed crops. The slight increase in the acreage of sweet sorghums indicates this fact. Alfalfa acreage remained steady until 1935 and then decreased rapidly. Alfalfa is a minor crop in this area and only a small acreage is adapted to alfalfa; the dry years made it impossible to hold old stands or get new ones started.

The number of hens remained steady until 1934, decreased rapidly until 1936, and then again remained steady. This decrease reflects the drift of farmers out of this area, thereby lessening the number of flocks. The number of other cattle increased until 1934, following the cattle cycle. The number decreased sharply in 1935 as a result of low yields of feed crops in 1934. There was a slight increase in 1936 following good yields for 1935, and then a decrease the last two years of the period. The number of hogs increased in 1929 after a good corn yield in 1928.

They decreased slightly until 1931, increased rather sharply in 1932, and then decreased for the rest of the period. The decreased totaled 92 percent, which nearly eliminated hors from the agriculture of this area. The number of milk cows followed the cattle cycle, but the change was not great. Sheep numbers were rather erratic, increasing slightly until 1930, decreasing sharply in 1931, increasing until 1933, and then decreasing except for an increase in 1936. The sheep in this area were largely lambs wintered on wheat pasture, and the fluctuations were due to the presence or absence of ample wheat pasture. The decrease in 1931 is attributable mainly to poor pasture conditions in 1930 which resulted in a decrease in the number of ewes. The decrease in numbers in the latter part of the period was due to failure of wheat pasture. The number of horses decreased rapidly throughout the period although the number of tractors did not increase rapidly. This indicates, as in other areas, that the region had too much power.

Area 8

Area 8 resembles the eastern part of the state in that corn has been the major crop, but wheat displaced it in the latter part of the period. Corn acreage remained steady until 1936 and then decreased rapidly due to repeated

EXPLANATION OF PLATE XII

Fig. 48. Trends of crop acreages for Area 7, 1928-38.

Fig. 49. Trends of numbers of livestock for Area 7, 1928-38.

Fig. 50. Trends of crop acreages for Area 8, 1928-38.

Fig. 51. Trends of numbers of livestock for Area 8, 1928-38.

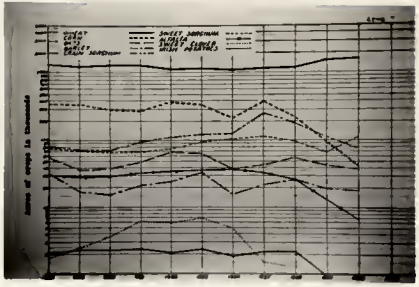

Fig. 49.

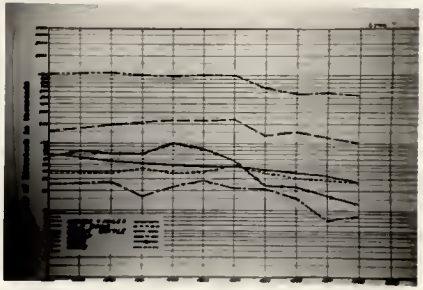

Fig. 49.

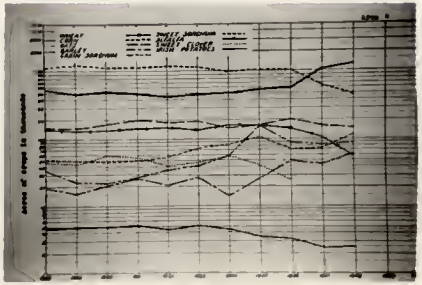

Fig. 50.

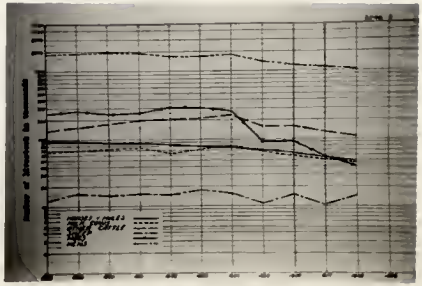

Fig. 51.

failures. This trend indicates that corn has been a stable crop in this area. Wheat acreage remained relatively uniform until 1936 and then increased rapidly. There was a slight increase after 1932, however, indicating that some of the corn was being replaced before the rapid change came. Oats acreage remained relatively steady, indicating that it is a reliable crop in this area. Alfalfa acreage remained practically the same until 1935, after which it declined. The decrease in alfalfa acreage was especially sharp in 1939. The acreage of sweet sorghums increased until 1935, but decreased sharply in 1936 with increases in the last two years of the period. The increase in acreage in 1935 was the result of large abandonment of wheat and the decrease in 1936 was the result of poor yields in 1935. The acreage of grain sorghums decreased in 1929 as a result of the increase in corn acreage, then increased until 1935, but decreased sharply in 1936, the same as sweet sorghums. They remained steady the last two years of the period. Barley was an irregular crop in this area, although the trend of the acreage was upward, indicating that it was being used as a feed grain in place of corn. The acreage of barley decreased in 1929, as a result of the increase in corn, then increased the next two years and decreased in 1932, as grain sorghums increased. Barley acreage increased in 1933 but

decreased in 1934, following a yield of 7.9 bushels in 1933. The acreage increased in 1935, following heavy abandonment of wheat, and continued to increase in 1936. There was a slight decrease in 1937, but the acreage increased again in 1938.

The number of hens followed the same general trend as in most other parts of the state. Hog numbers were maintained in the early part of the period to a greater extent than in other areas of the state because of the more uniform corn yields. They declined about 86 percent after 1933, reflecting the rapid decrease in corn production. Other cattle numbers followed the cattle cycle, increasing until 1934 and then decreasing. They remained steady in 1936. The number of milk cows followed the general trend of cattle numbers except for a decrease in 1932. Sheep numbers were low in this area and remained relatively steady during the period, indicating that they were not a major source of income. The number of horses declined during the period but not so rapidly as in the areas of central Kansas.

Area 9

This area is in the wheat region of Kansas, and the acreage of wheat was more uniform than in any other area. The trend of wheat acreage was similar to the trends of

Areas 6a and 6b, decreasing slightly until 1934 and then increasing. Corn acreage increased rapidly until 1933 because yields were relatively good and there is much sandy land in this area which is adapted to corn production. The acreage decreased after 1933, however, because of low yields or failures. The acreages of barley, sweet sorghums, grain sorghums, and oats followed the same general trend as corn. The acreage decreased in the early part of the period, increasing until 1933 as a result of large abandonment of wheat, decreased in 1934 because of poor yield in 1933, increased slightly until 1936, decreased in 1937 due to poor yields, and increased in 1938. Alfalfa acreage remained steady until 1936 because most of the acreage was in the Arkansas River Valley and, therefore, was not affected to a great extent by shortage of moisture. It dropped rapidly after 1936.

The number of hens had a slight downward trend throughout the period, this trend being accentuated in the latter part of the period. Other cattle numbers followed the cattle cycle excepting that they reached a high in 1933 instead of 1934 and increased somewhat in 1936. Hog numbers were low and decreased until 1930, increased until 1932, remained steady until 1934, and then decreased. The reasons for this are the same as those given for other areas.

Numbers of milk cows were rather irregular but tended downward during the period. For a similar reason, the number of hens decreased because the number of farmers was decreasing. Sheep numbers increased until 1935, but with a sharp rise in 1935. They declined rapidly after 1935 because of poor feed conditions. The number of horses decreased rapidly throughout the period.

Area 10a

Wheat is the major crop in this region, but the fluctuations were greater than in areas farther east, indicating that even wheat production is not so stable as it might be. The acreage increased until 1931 in response to low yields of other crops. Extremely low wheat prices in 1931 and the relative improvement of the yields of other crops in 1931 and 1932 caused a reaction contributing to smaller acreages of wheat and larger acreages of other crops. Wheat acreage remained steady from 1932 to 1936, after which it started to increase. It decreased in 1938 because of good seeding conditions in the fall of 1937. The acreages of corn, grain sorghums, and sweet sorghums followed the same trend as in other areas. They decreased until 1940 because wheat was replacing them, yielding relatively better. They increased until 1933 because of large abandonment of wheat in 1932

EXPLANATION OF PLATE XIII

Fig. 52. Trends of crop acreages for Area 9, 1928-38.

Fig. 53. Trends of numbers of livestock for Area 9, 1928-38.

Fig. 54. Trends of crop acreages for Area 10a, 1928-38.

Fig. 55. Trends of numbers of livestock for Area 10a, 1928-38.

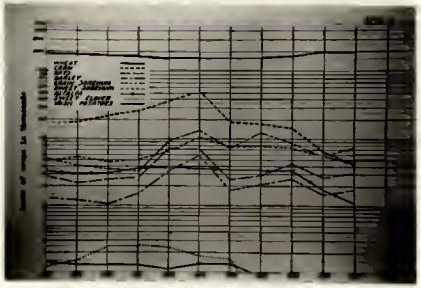

Fig. 52.

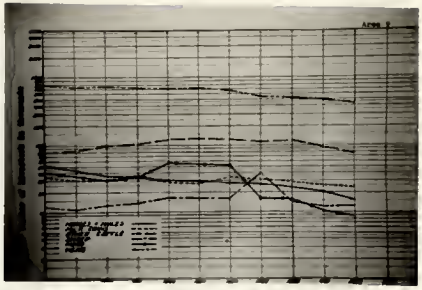

Fig. 53.

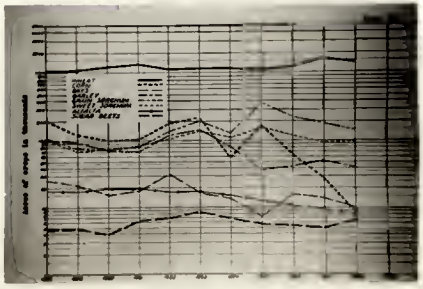

Fig. 54.

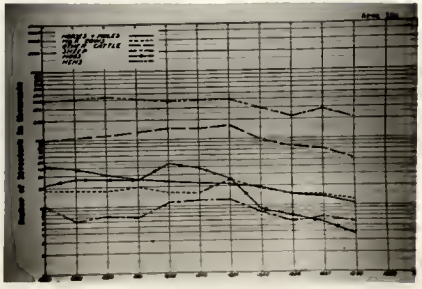

Fig. 55.

and 1933, decreased in 1934 because of poor yields in 1933 and low wheat abandonment, increased sharply in 1935 because of large wheat abandonment, and then decreased rapidly because of low yields and failure. The acreage of barley followed this trend until 1934 for the same reasons. It decreased in 1935, however, due to an extremely poor yield in 1934 (1.7 bushels). It increased then for two years but decreased in 1939 because of extremely poor yields. Oats acreage was low, had a downward trend, and fluctuated materially. It followed the trend of the other crops by increasing to 1930, and then continuing to increase, but only until 1932, after which it declined rapidly until 1935, increased in 1936, and decreased the last two years of the period. The sharp increase in 1936 was due to the fact that the farmers had to work the ground early to prevent blowing and then put it in oats. Alfalfa acreage increased slightly until 1930 and then decreased slowly for the rest of the period. Alfalfa is a relatively unimportant crop in this area and the crop is grown largely under irrigation, which accounts for the relative stability of the acreage.

This is the sugar beet area of Kansas. The sugar beets are grown under irrigation, so were affected mostly by economic conditions rather than climate or other physical factors.

The number of hens remained fairly steady until 1934, decreased until 1936, increased in 1937, and then decreased. This trend is the same as for the state except for the increase in 1937. Other cattle numbers increased rather rapidly until 1934 following the cattle cycle, and then decreased rapidly due to the cycle and to lack of feed. Hog numbers increased in 1929, following a good yield of corn in 1928, decreased slightly in 1930 and 1931, increased sharply in 1932, following a good corn yield, and then decreased rapidly for the rest of the period. Numbers of milk cows were rather irregular. They remained steady the first two years of the period, increased slightly in 1931, decreased in 1932 and 1933, increased sharply in 1934, and decreased for the remainder of the period.

Sheep are a minor enterprise in this area and the numbers fluctuated throughout the period, depending largely on the amount of wheat pasture available.

The number of horses decreased rapidly throughout the period but the number of tractors remained practically steady, indicating that this area was using less and less power.

Area 10b

The acreage of wheat followed practically the same trend here as in Area 10a and for the same reasons. The acreage of other crops followed the general trend of Area 10a but was more erratic. Grain sorghum acreage decreased until 1930 because of the increase in wheat acreage, increased until 1933 because of good yields and heavy abandonment of wheat, and declined sharply in 1934 because of poor yields in 1933 and relatively low abandonment of wheat. The government program was effective in getting more land put into fallow in this area. There was a sharp increase in grain sorghum acreage in 1935 because of the heavy abandonment of wheat and then a slow decline during the last three years of the period. Corn acreage decreased slightly in 1929, increased some in 1930, decreased in 1931, and increased sharply in 1932 because of heavy abandonment of wheat. The acreage decreased sharply for two years due to poor yields, increased in 1935 because of wheat abandonment, and then decreased rapidly for the rest of the period.

The acreage of sweet sorghums decreased in 1929 due to the increase in wheat acreage, increased until 1933 because of relatively good yields in 1932 and heavy wheat abandonment, and decreased in 1934 because of low abandonment.

it increased in 1935, decreased for two years, and increased in 1939 because the government program allowed sweet sorghums to be planted on neutral acres. Barley acreage decreased until 1931, due to the decrease in wheat acreage, increased sharply in 1932 because of wheat abandonment, decreased until 1936 because of poor yields, and increased the last two years of the period due to the rapid reduction in corn acreage.

Broomcorn is a minor crop in this area and, as the fluctuations in acreage indicate, is not a stable crop. Oats are unimportant in this area and the acreage fluctuated without much apparent reason.

Alfalfa acreage was low and remained practically uniform throughout the period, since most of it was grown under irrigation and was, therefore, not subject to changes caused by moisture conditions.

The trend in the number of hens was downward throughout the period, indicating the increase in the number of farmers. Other cattle numbers decreased in 1929 and then increased with the cattle cycle. The decrease after 1934 was rapid, reflecting the lack of feed.

Hog numbers decreased until 1931, due to poor corn yields. They increased sharply in 1932 following a relatively good yield of corn in 1931, but decreased rapidly

after 1933 because of shortage of grain.

Milk cow numbers followed the general trend of other cattle numbers by decreasing until 1930, remaining relatively steady until 1933, increasing in 1934, and then declining sharply.

The number of sheep fluctuated radically in this area. The general upward trend until 1935 was the result of the growth of the lamb-feeding enterprise, while the general decline after 1935 was the result of a shortage of feed. The numbers decreased in 1931 and 1934 because of poor pasture conditions. The number increased in 1937 because of relatively good wheat pasture. The number of horses decreased rapidly throughout the period, although the number of tractors also decreased in the latter part of the period.

Area 10c

Trends in this area have been similar to those in Area 9. Wheat acreage decreased slightly until 1933, the result of a trend which started in 1927, and during which time the acreages of other crops increased. The acreage of wheat increased during the latter part of the period as a result of poor yields of other crops. The acreages of corn, grain sorghums, sweet sorghums, oats, and barley tended to follow the same trend. They increased until 1933, largely

as a result of decreasing acreage and large abandonment of wheat. Acreages dropped in 1934 because of low yields in 1933, but they all increased in 1935 except for corn which tended downward rapidly for the rest of the period because of failure or near failure. The acreage of grain sorghums decreased from 1936 during the rest of the period because of low yields. The acreages of sweet sorghums, barley, and oats increased in 1936 and decreased the last two years, except for sweet sorghums which increased in 1939 as a result of the ruling of the government program allowing them to be planted on neutral acres. Alfalfa acreage was extremely low in this area and remained relatively stable. It increased to 1931 and then tended downward for the rest of the period. This indicates that only small areas are suitable for alfalfa and, due to groundwater or drainage from higher areas, fairly satisfactory stands may be maintained even during dry periods.

Sweet clover is relatively unimportant and, as the trend shows, was a temporary crop. The acreage increased until 1930 because moisture conditions were favorable for the securing of stands and the wheat acreage was decreasing. It decreased after 1930, however, because alfalfa was kept on land which was suitable for legumes. Irish potatoes were unimportant in this area and were raised only for home use.

The acreage decreased because of dry weather.

The number of hens decreased throughout the period as a result of farmers moving from the area. Other cattle numbers did not follow the cattle cycle as in other areas of the state. They remained relatively steady until about 1936 and then decreased the last two years of the period. This failure to increase in the first half of the period probably was due to the effect of decreased carrying capacity of pastures working against the normal cycle. Another factor was the large number of cow herds, which tended to be a more stable enterprise than feeding or grazing cattle. The decrease in the last two years was the result of extreme feed shortage. Hog numbers followed the same general trend as in other parts of the state. They decreased until 1931 because of low corn yields, increased until 1933 because of somewhat better yields of corn and larger corn acreage. They decreased after 1933 except for a slight rise in 1936 following some corn production in 1935. Milk cow numbers decreased during the first part of the period and then increased until 1935, but decreased during the last three years. The decrease in the first part of the period reflects the decrease in number of farmers. The increase and later decrease during the rest of the period was due to the effects of the cattle cycle. Sheep are a rather unstable enterprise in this area. The number of sheep decreased in 1929

EXPLANATION OF PLATE XIV

Fig. 56. Trends of crop acreages for Area 10b, 1928-38.

Fig. 57. Trends of numbers of livestock for Area 10b, 1928-38.

Fig. 58. Trends of crop acreages for Area 10c, 1928-38.

Fig. 59. Trends of numbers of livestock for Area 10c, 1928-38.

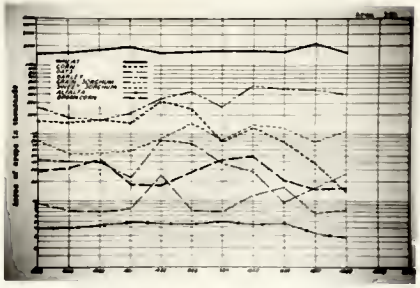

Fig. 56.

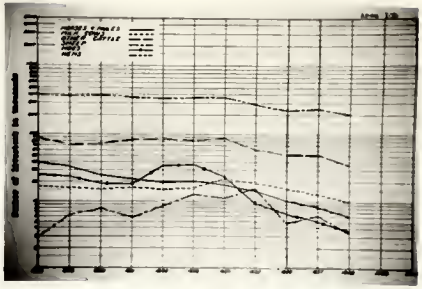

Fig. 57.

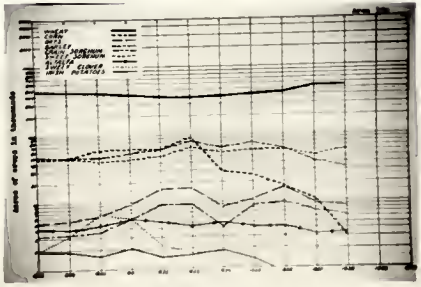

Fig. 58.

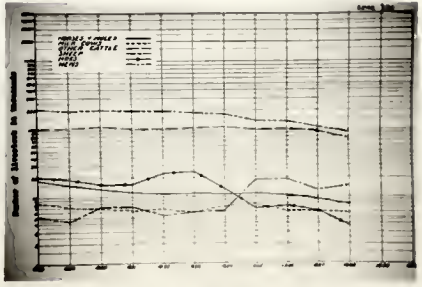

Fig. 59.

but increased rapidly in 1930. They then decreased for two years, increased to 1936, decreased in 1937, and increased in 1938. These irregular changes were the results of the slight emphasis placed on this enterprise, and numbers were largely dependent upon the amount of wheat pasture available although the changes were not entirely dependent upon these factors. The number of horses decreased rather sharply throughout the period.

Area 11

Wheat is an important crop in this area even though its acreage has been rather erratic, indicating that it may be a rather hazardous undertaking. Wheat acreage decreased in 1929, following a poor yield in 1928. It increased in 1930, following a good yield in 1929, remained steady in 1931, and decreased in 1932 in response to extremely low prices for the 1931 crop. Wheat acreage then remained steady until 1935, after which it increased and replaced other crops. Corn acreage decreased in 1929 because of low wheat abandonment and remained steady in 1930. It increased until 1932 because corn yields were relatively good, remained steady in 1933, and decreased in 1934 because of mediocre yields in 1933 and a lower abandonment of wheat than for the previous years. The acreage increased in 1935, largely as a result

of abandonment of wheat. It decreased rapidly for the rest of the period, however, due to extremely poor yields. The acreages of barley, sweet sorghums, grain sorghums, and oats all followed the same trend until 1934. The acreage decreased the first two years due to low wheat abandonment and then increased until 1933, largely as a result of increased abandonment of wheat. The acreage decreased in 1934 because of poor yields in 1933 and relatively low abandonment of wheat.

This is the most important barley area in the state. The acreage declined from 1928 to 1930, increased until 1933 and then declined during the remainder of the period because of poor yields. The acreages of sweet and grain sorghums increased until 1935, largely because of abandonment of wheat. They decreased then for two years because of low yields, but increased again in 1938 due to abandonment of wheat and the ruling of the government program which allowed the farmer to plant sweet sorghums on neutral land. The acreage of oats increased for two years after 1934 and then decreased the last two years of the period. Alfalfa acreage decreased until 1932 largely as the results of dry weather and remained steady in 1933. It increased in 1934 because of favorable seeding conditions in the fall of 1933. The acreage declined after 1935. The acreage of Irish potatoes

was extremely low and the trend was downward.

The number of hens increased in 1929 and 1930 because of relatively large supplies of feed in the form of wheat. They decreased for the remainder of the period except for a slight increase in 1937. This decrease was due to the reduction in number of farms. Other cattle numbers showed very clearly the normal cattle cycle by increasing until 1934 and decreasing the remainder of the period. Hog numbers increased until 1932 because of the relatively good corn yields and the increase in acreage for 1930. They decreased rapidly and persistently after 1932, however, because of the low supplies of grain. The number of milk cows did not show much change, which indicates that their number is dependent largely on farm herds. They increased slightly until 1931, decreased somewhat in 1932, increased until 1934, and then decreased for the rest of the period.

Sheep numbers increased rapidly until 1932, due to the growth of the lamb-feeding enterprise utilizing wheat pasture. They decreased in 1933 because of the failure of the wheat crop. There was a slight increase in 1934 and 1935 and a sharp decrease in 1936 due to poor wheat conditions. Because of good wheat pasture, sheep numbers remained steady in 1937 and increased somewhat in 1938. The number of horses decreased rapidly throughout the period.

Area 12

Wheat acreage increased a total of 37 percent in this area. This indicates that new land was being brought under cultivation due to the killing of pasture. Wheat acreage increased rapidly until 1931 as a result of good yields. The acreage decreased in 1932, however, due to low wheat prices in 1931 and good yields of corn in the two previous years, which caused an increase in the acreage of corn. There was a slight decrease in 1933, followed by a sharp increase in 1934, due to poor yields of other crops in 1933.

Wheat acreage decreased in 1935 because of previous low yields and then increased for two years, replacing other crops which were declining in acreage. The acreage decreased again in 1939, however, due to low yields and the government program. Corn acreage decreased slightly until 1931 due to the increase in wheat acreage. There was a sharp increase in 1932 because of heavy wheat abandonment but a decrease for the next two years due to poor yields. The acreage increased again in 1935 because of wheat abandonment. The decline after 1935 was rapid due to failures. Barley acreage increased until 1930 because of good yields. It decreased in 1931 because of low wheat abandonment but increased the next two years due to increased abandonment.

The acreage decreased rapidly in the next two years because of poor yields. Barley acreage remained steady until 1936, increased in 1937 because of wheat abandonment, and decreased in 1938 because of low yields in 1937 and lower abandonment of wheat.

The acreage of both sweet and grain sorghums followed practically the same trend. They both decreased in 1929 due to the increasing wheat acreage and low abandonment. In 1930 the acreage of grain sorghums decreased and the acreage of sweet sorghums increased. However, both changes were slight. Both acreages increased to 1933 because of relatively good yields and heavy abandonment of wheat. The acreage of grain sorghums decreased and of sweet sorghums remained steady in 1934. Both acreages increased in 1935 because of heavy wheat abandonment, decreased in 1936 because of low yields in 1935 and low abandonment of wheat acreage, remained steady in 1937, and increased in 1938 because the government program allowed sweet sorghums to be planted on neutral land and the reduction in wheat acreage helped increase the acreage of grain sorghums. Alfalfa acreage increased slightly until 1930, but decreased steadily for the rest of the period. The acreage of oats decreased slightly until 1931, increased in 1932 as a result of wheat abandonment, and decreased sharply to 1935 because

of poor yields. The acreage of oats increased sharply in 1936 as a result of early working of the land to control blowing, but it declined in the last two years because of poor yields.

The number of hens increased slightly until 1930 due to the increase in wheat acreage which gave larger supplies of feed and a favorable feed-egg ratio. They remained practically steady until 1934, declined sharply until 1935 and 1936 due to decrease in population and unfavorable feed prices. They increased in 1937 due to lower wheat abandonment and slightly higher yield of wheat in 1936 than in the immediately preceding years. They decreased again in 1938, however. Other cattle numbers did not follow the normal cattle cycle so closely in this area as in other parts of the state. They increased rapidly to 1930, but decreased in 1931 due to poor pasture conditions. They increased then until 1934--the peak of the cycle--and decreased to 1936. There was an increase in 1937 due to the rapid increase in wheat acreage in that year. The number decreased in 1938 at the end of the cattle cycle. Hog numbers increased in 1929 following a good corn yield in 1928 but decreased in 1930 because of lower yields and acreages of corn in 1929. The number increased in the next two years due to good corn yields and increasing corn acreage. From 1932 to the end of

the period they decreased rapidly--a total of 93 percent.

Milk cows are a minor enterprise in this area and the numbers remained fairly constant until 1935. There was a sharp decline in 1936 as the result of the combined forces of the normal cattle cycle, the lowering of feed supplies, and decrease in number of farmers. The number remained steady the last two years of the period. Sheep numbers fluctuated widely. The general upward trend in the first half of the period was due to the growth of the lamb-feeding enterprise and the general downward trend in the last half was due to shortage of feed. The sharp increase in 1929 was due to the large amounts of wheat pasture which were available. They decreased in 1930 due to poor pasture conditions in 1929. There was a sharp increase in 1931 and 1932 as a result of the growth of the lamb-feeding enterprise. There was a decline in 1933 because of low acreage and heavy abandonment of wheat, but an increase in 1934 because of the increase in wheat acreage. The number decreased rapidly in 1935 and 1936 because of heavy abandonment of wheat and poor pasture conditions but remained steady in 1937 and increased in 1938 when wheat pasture was relatively good. The number of horses decreased rapidly throughout the period although the number of tractors did not increase.

EXPLANATION OF PLATE XV

Fig. 60. Trends of crop acreages for Area 11, 1928-38.

Fig. 61. Trends of numbers of livestock for Area 11, 1928-38.

Fig. 62. Trends of crop acreages for Area 12, 1928-38.

Fig. 63. Trends of numbers of livestock for Area 12, 1928-38.

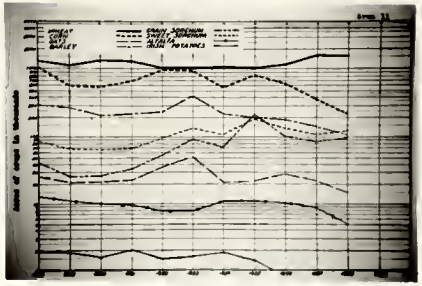

Fig. 60.

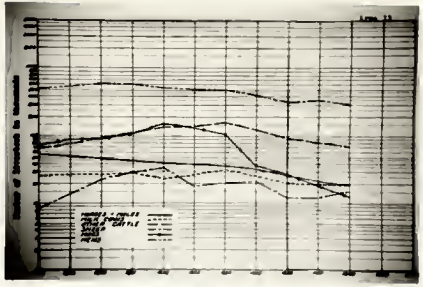

Fig. 61.

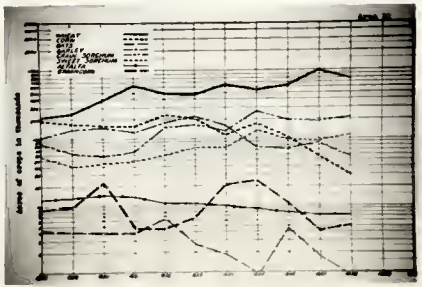

Fig. 62.

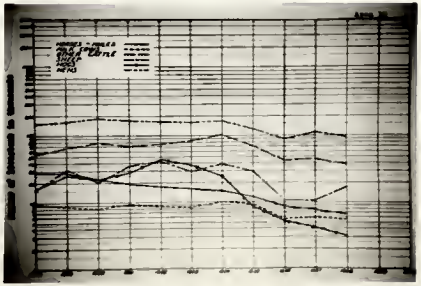

Fig. 63.

BUDGET ANALYSIS

After the trends had been established for each area, budgets were set up to see if the farmers were justified in making the changes in their farming systems. The object was to find out whether the farmers had increased their income, maintained it, or what were the results of changing.

The typical farms used in this analysis were set up for use in the Regional Agricultural Adjustment Project and were selected from the 1931 assessors' rolls. The process consisted of finding the most dominant acreage of a specified crop and then setting up the organization to represent best the group with this dominant acreage.

This study considered the typical farm as set up by the Agricultural Adjustment Project to be the typical system for the period 1928-32. Average yields and prices for 1928-32 were then applied to these systems. To show the change for the period 1928-32, systems were then set up on these typical farms for the period 1934-38. These new systems were set up by calculating the percentage change that had occurred in acres of crop and numbers of livestock from the yearly average for 1928-32 to the yearly average for 1934-38. These percentage changes were then applied to the 1928-32 system and adjusted to make acreages check. Average yields

and prices for 1934-38 were then applied to the new system. The 1934-38 yields and prices were applied to the 1928-32 system to see whether this system was better than the 1934-38 system. The 1928-32 yields and prices were applied to the 1934-38 system to see if the farmers should have changed their systems before they did.

Yields and prices were calculated from the reports of the State Board of Agriculture when available. Some of the yields were calculated from other yields, such as corn fodder which was estimated at 80 percent of forage sorghums. Prices were figured by areas when possible, but in some cases the same price was used throughout the state. Prices of fuel and oil and standards for labor and feed requirements were used as determined for the original budgets. No account was taken of the government program other than its effect in changing trends. The income from the program is not included on the budgets. The form on which the budgets were worked is included in Appendix B.

This analysis shows that in most areas the farmers were not justified in changing their systems. It appears that they would have been better off had they continued with their old organizations. This is not entirely true, however, because feed and pasture were at such a low ebb that it would have been impossible to have maintained the livestock. The

budgets show that the farmers should have purchased feed but this would have been impossible because it was not available and if the farmers had attempted to buy, the demand would have sent the price so high that they could not have afforded to purchase it. Also, to comply with the program, farmers were required to use more soil-building practices, and this caused some change in organizations.

Area 1

The original organization was a 160-acre farm with 15 to 25 acres of corn in Labette county. It had wheat and corn of equal importance, with oats the most important crop, and grain sorghums, alfalfa, sweet clover, soybeans, and prairie hay as minor crops. The livestock consisted of milk and beef cows, hogs, and chickens. Seventeen percent of the farms had tractors.

The 1934-38 system increased the wheat and oats acreage, decreased corn acreage materially, decreased the acreage of soybeans and prairie hay, but kept the acreages of grain sorghums, sweet clover and soybeans steady. Milk cow numbers remained the same, but other cattle numbers increased. The number of hogs, chickens, and horses decreased. The number with tractors increased to 25 percent.

Table 8. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 1 and 2.

	Area 1		Area 2	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	91.0	91.0	86.0	86.0
Wheat	20.0	20.0	5.0	12.0
Corn	20.0	12.5	40.0	26.0
Oats	30.0	34.0	20.0	28.0
Grain sorghums	7.0	7.0	10.0	10.0
Alfalfa	1.0	1.0	2.0	2.5
Sweet clover	1.0	1.0	.0	.0
Other tame hay	.0	.0	3.0	2.0
Soybeans	4.0	2.5	.0	.0
Prairie hay	8.0	7.0	6.0	5.5
Pasture	(50)	(50)	(60)	(60)
Other land	(19)	(19)	(14)	(14)
Livestock	Numbers	Numbers	Numbers	Numbers
Horses	4.0	3.2	4.5	3.4
Colts	.0	.0	.5	.4
Milk cows	5.0	5.0	4.5	4.2
Other dairy stock	2.0	2.6	1.0	1.0
Other cattle	6.0	7.7	13.0	13.6
Sows	1.0	.7	2.0	1.2
Other hogs	2.5	1.7	6.0	3.6
Hens	70.0	55.0	110.0	80.0
Percent with tractors	17.0	25.0	17.0	17.0
Percent with combines	2.0	15.0	--	--

Table 7. Returns for the typical farm in Area 1.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 155.25	$ 180.43	$ 241.33	$ 201.92
Corn	76.63	--	--	52.49
Oats	137.33	91.46	108.49	165.14
Alfalfa	7.30	--	--	--
Pasture	.40	--	--	--
Total crops	377.00	271.89	349.82	419.45
Livestock and products				
Milk cows	210.00	182.00	182.00	210.00
Other dairy stock	56.66	46.58	61.16	74.37
Other cattle	151.89	124.97	165.63	201.47
Sows	71.60	70.20	43.56	39.38
Eggs	50.76	43.51	25.51	29.76
Hens	27.18	21.06	14.04	18.12
Total livestock	568.09	497.22	491.90	573.10
TOTAL RECEIPTS	945.09	769.11	841.72	992.55
Expenses				
Purchased feed	12.64	33.02	120.22	30.58
Crop expense	94.68	90.28	105.51	113.15
Livestock expense	12.70	12.70	11.15	11.15
Fuel and oil	6.41	6.41	9.61	9.61
TOTAL EXPENSES	126.43	142.41	246.50	164.49
Totals				
RECEIPTS MINUS EXPENSES	818.66	626.70	595.13	828.06

Table 8. Returns for the typical farm in Area 2.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 40.68	$ 46.87	$ 112.32	$ 114.66
Corn	237.81	91.18	70.30	181.99
Oats	75.39	30.52	84.18	151.56
Total crops	353.88	158.57	266.80	448.21
Livestock and products				
Milk cows	181.50	157.30	141.70	163.50
Other dairy stock	31.97	26.20	26.20	31.97
Other cattle	378.55	311.21	325.76	396.25
Sows	179.00	198.00	102.96	93.98
Eggs	103.59	88.79	52.79	61.59
Hens	51.34	39.78	37.44	48.62
Total livestock	925.95	821.28	686.85	794.91
TOTAL RECEIPTS	1,279.73	979.85	953.65	1,243.12
Expenses				
Purchased feed	130.88	153.02	202.52	106.39
Crop expense	58.35	54.59	76.33	85.13
Livestock expense	17.62	17.62	13.65	13.65
Fuel and oil	4.55	4.55	6.29	6.29
TOTAL EXPENSES	211.40	229.78	298.79	211.46
Totals				
RECEIPTS MINUS EXPENSES	1,068.33	750.07	654.86	1,031.66

The change in the system of farming in this area was strictly a year-to-year proposition. At the beginning of the period it did not appear that it would pay to change the system because the new system developed did not show a higher return. As time passed, however, it was seen that the old system was not returning so much as it had before and the new system was developed in an attempt to maintain income. The new system did not have any advantage over the old, however, because an attempt was made to increase cash sales of crops and, in so doing, the quantity of feed purchased was increased.

Area 2

The original organization was a 160-acre farm with 40 acres of corn in Anderson county. Corn was the major enterprise with oats second in importance and a fair acreage of grain sorghums. Minor crops consisted of wheat, alfalfa, tame hay, and prairie hay. The setup included both dairy and beef cattle, with beef predominant. Hogs and chickens were more important here than in Area 1. Twelve percent of the farms had tractors.

Under the changed system, wheat acreages more than doubled; corn acreage was reduced by one-third; the acreages of oats and alfalfa increased; grain sorghums remained

steady; and tame hay and prairie hay decreased. Milk cow numbers decreased slightly and the number of other cattle increased slightly. The numbers of hogs, chickens, and horses decreased. The number with tractors increased to 17 percent.

The original system was not maintaining income and from the previous conditions it appeared that a new system would. The new system increased crop sales and decreased livestock receipts but did not return so high an income in the latter part of the period as the old system would have returned because of decreased livestock receipts and increased purchases of feed.

Area 3

The original setup was a 160-acre farm with 30 acres of corn in Leavenworth county. Wheat and corn were of about equal importance, with oats about half as important. Alfalfa, tame hay, and prairie hay were minor crops. The farm had dairy and beef, but with dairy the more important. Hogs and chickens were minor enterprises. Seventeen percent of the farms of this type had tractors.

In the 1934-38 system wheat acreage was increased and corn acreage decreased, both rather materially. Oats acreage remained steady but the acreages of other crops

Table 9. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 3 and 4.

	Area 3		Area 4	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	95.0	95.0	94.0	94.0
Wheat	35.0	50.0	10.0	20.0
Corn	30.0	16.5	50.0	35.0
Oats	15.0	15.5	10.0	11.5
Alfalfa	5.0	4.5	5.0	7.5
Sweet clover	.0	.0	4.0	4.0
Other tame hay	5.0	4.0	5.0	5.0
Prairie hay	5.0	4.0	10.0	11.0
Pasture	(50)	(50)	(55)	(55)
Other land	(15)	(15)	(11)	(11)
	Numbers	Numbers	Numbers	Numbers
Livestock				
Horses	4.0	3.0	5.0	4.0
Milk cows	4.5	3.9	5.0	4.8
Other dairy stock	1.5	1.5	.0	.0
Other cattle	3.5	3.5	7.5	7.2
Sows	1.5	.8	2.5	1.4
Other hogs	3.0	1.6	7.0	4.0
Hens	70.0	43.0	120.0	84.0
Percent with tractors	17.0	23.0	8.0	10.0
Percent with combines	--	--	--	--

Table 10. Returns for the typical farm in Area 3.

	System			
	1929-32		1934-39	
	Results with yields and prices of respective periods			
	1929-32	1934-39	1934-39	1929-32
Sales				
Crops				
Wheat	$ 309.10	$ 436.71	$ 634.94	$ 532.68
Corn	199.65	--	--	88.53
Oats	63.36	34.16	46.01	87.09
Pasture	6.90	6.90	11.20	11.20
Alfalfa	--	--	--	12.28
Total crops	639.07	477.67	692.15	731.57
Livestock and products				
Milk cows	181.50	157.30	126.10	145.50
Other dairy stock	56.27	46.20	46.28	56.27
Other cattle	108.21	88.96	48.96	108.21
Sows	179.00	198.30	87.12	78.76
Eggs	50.97	43.69	11.11	12.96
Hens	27.18	21.06	8.42	10.87
Total livestock	603.13	555.17	367.97	412.57
TOTAL RECEIPTS	1,242.10	1,032.84	1,060.12	1,144.14
Expenses				
Purchased feed	19.07	80.00	56.54	6.80
Crop expense	115.40	113.70	140.09	140.95
Livestock expense	14.98	14.98	10.25	10.25
Fuel and oil	6.74	6.74	9.22	9.22
TOTAL EXPENSES	156.19	221.50	225.10	176.02
Totals				
RECEIPTS MINUS EXPENSES	1,085.91	811.34	835.02	968.07

Table 11. Returns for the typical farm in Area 4.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 103.16	$ 119.77	$ 197.82	$ 185.61
Corn	344.35	22.08	11.77	232.97
Oats	1.26	--	--	--
Alfalfa	4.13	--	10.18	26.74
Pasture	11.20	3.00	20.00	20.00
Total crops	464.10	144.85	239.77	524.32
Livestock and products				
Milk cows	210.00	182.00	171.60	198.00
Other dairy stock	--	--	--	--
Other cattle	246.72	202.83	3.56	4.33
Sows	321.20	356.40	182.16	164.66
Eggs	117.60	100.80	57.60	67.20
Hens	57.38	44.46	27.61	35.64
Total liv stock	952.90	886.49	442.53	469.85
TOTAL RECEIPTS	1,417.00	1,031.34	682.30	994.15
Expenses				
Purchased feed	20.63	20.87	11.69	11.55
Crop expense	55.90	54.56	84.40	87.13
Livestock expense	21.50	21.50	14.94	14.94
Fuel and oil	2.82	2.82	3.23	3.23
TOTAL EXPENSES	110.85	99.75	114.26	116.85
Totals				
RECEIPTS MINUS EXPENSES	1,306.15	931.59	568.04	877.30

decreased. Numbers of other cattle remained steady and all other types of livestock decreased in number.

This was a situation where the change was caused by a year-to-year outlook. The original system did not appear to be maintaining the income, so changes were made to a system which showed promise of being better. However, the new system did not have any advantage after the yields and prices had changed.

Area 4

The original setup was a 160-acre farm with 50 acres of corn in Jackson county. Corn was by far the dominant crop, with wheat, oats, and prairie hay of equal importance but with rather low acreages. Alfalfa, sweet clover, and tame hay were minor crops. This type of farm had both dairy and beef cattle, with the beef cattle predominating. Hogs and chickens were more important than in other areas.

In the latter system wheat acreage doubled and corn acreage decreased materially. The acreages of oats, alfalfa, and prairie hay increased while sweet clover and tame hay acreages remained the same. All classes of livestock decreased in number, with the largest decline in poultry.

This area had a peculiar situation in that the changes cannot be explained on the basis of income. The 1928-32

system shows up considerably better than the other system under both conditions. It appears that the old system was not maintaining the income as time progressed and changes were made in the hope that the income could be maintained. As the change was made and machinery and methods adapted to the new system were developed. A period of time would be required to change back to the old system.

Area 5

This setup was a 320-acre farm with 20 to 40 acres of corn in Chase county. Wheat and corn were of about equal importance, with grain sorghums the major crop. Oats, sweet sorghums, and prairie hay were of about equal acreage and of medium importance. Alfalfa and sweet clover were minor crops. This farm had dairy cattle only to produce for home use, with beef cattle as the major livestock enterprise. Hogs and chickens were minor enterprises. Twenty percent of the farms were with tractors.

Under the adjusted system, wheat acreage doubled and corn acreage was cut in half. The acreages of oats, sweet sorghums, and grain sorghums remained practically steady while alfalfa, sweet clover, and prairie hay acreages decreased. The number of milk cows remained the same and all other types of livestock decreased in number. The number of

Table 12. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 5 and 6a.

	Area 5		Area 6a	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	133.0	133.0	201.0	201.0
Wheat	25.0	46.0	100.0	116.0
Corn	30.0	15.0	40.0	23.0
Oats	12.0	12.0	25.0	25.0
Sweet Sorghums	11.0	12.5	5.0	7.5
Grain Sorghums	35.0	35.0	6.0	8.0
Alfalfa	4.0	3.5	10.0	9.0
Sweet Clover	3.0	1.0	5.0	3.0
Prairie Hay	10.0	8.0	10.0	8.5
Pasture	(165)	(165)	(95)	(95)
Other Land	(22)	(22)	(24)	(24)
	Numbers	Numbers	Numbers	Numbers
Livestock				
Horses	7.0	6.2	6.0	4.4
Milk Cows	1.5	1.5	4.5	4.2
Other Cattle	25.0	23.4	20.0	20.6
Sows	2.5	1.1	3.0	1.4
Other Hogs	9.0	3.9	17.5	8.0
Hens	95.0	73.0	165.0	126.0
Percent with tractors	20.0	27.0	58.0	70.0
Percent with combines	--	--	16.0	30.0

Table 13. Returns for the typical farm in Area 5.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 241.87	$ 282.25	$ 530.45	$ 454.66
Corn	321.18	81.17	119.78	160.59
Oats	--	--	--	12.74
Sweet sorghum - silage	7.77	--	118.62	203.98
Grain sorghum - bu.	37.36	--	--	124.34
Grain sorghum - T.	120.90	38.91	31.23	90.45
Alfalfa	--	2.72	--	1.79
Pasture	44.50	32.50	41.30	57.30
Total crops	773.59	437.15	835.38	1,165.85
Livestock and products				
Milk cows	3.75	3.25	3.25	3.75
Other cattle	821.55	677.70	632.44	769.29
Sows	321.20	356.40	134.64	121.72
Eggs	85.74	73.49	47.29	55.17
Hens	42.28	32.76	22.46	28.99
Total livestock	1,274.52	1,143.60	840.08	978.92
TOTAL RECEIPTS	2,148.10	1,580.75	1,675.46	2,144.77
Expenses				
Purchased feed	20.63	20.87	16.15	9.07
Crop expense	75.28	70.15	94.99	100.78
Livestock expense	23.45	23.45	15.47	15.47
Fuel and oil	12.17	11.73	15.39	15.39
TOTAL EXPENSES	131.53	126.40	142.00	140.71
Totals				
RECEIPTS MINUS EXPENSES	2,016.57	1,454.35	1,533.46	2,004.06

Table 14. Returns for the typical farm in Area 6a.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 917.54	$ 926.59	$1044.09	$1,104.61
Corn	257.56	--	--	137.96
Alfalfa	77.94	--	--	80.70
Oats	--	--	--	109.06
Total crops	1,253.04	926.59	1,044.09	1,412.33
Livestock and products				
Milk cows	147.75	128.05	114.40	132.00
Other cattle	663.05	545.10	561.07	662.50
Sows	371.00	435.60	192.16	164.60
Eggs	173.50	153.00	196.20	123.90
Hens	84.56	65.52	47.27	61.00
Total livestock	1,445.66	1,327.27	1,011.10	1,144.08
TOTAL RECEIPTS	2,698.70	2,253.86	2,055.19	2,556.41
Expenses				
Purchased feed	59.15	300.56	125.71	50.75
Crop expense	156.80	147.12	140.78	152.39
Livestock expense	27.38	27.30	17.03	17.03
Fuel and oil	46.38	37.92	49.72	50.00
TOTAL EXPENSES	289.71	512.90	339.34	270.17
Totals				
RECEIPTS MINUS EXPENSES	2,410.99	1,740.96	1,715.85	2,286.24

farms with tractors increased 7 percent.

The change here was made as a result of decreasing income from the existing system and, from forecasts based on past experience, it appeared that the system as adopted would yield a large income. After the change was made, the income was larger than it would have been under the old system, which supports the change. The larger income under the new system was due to the increase in cash crops.

Area 6a

A 320-acre farm with 95 to 105 acres of wheat in Dickinson county was the setup for this area. Wheat was by far the most important crop, with corn second and oats third. Minor crops consisted of sweet sorghums, grain sorghums, alfalfa, sweet clover, and prairie hay. Both dairy and beef cattle were kept, with beef cattle the more predominant. Hogs and chickens were minor enterprises. Fifty-eight percent of these farms were with tractors.

Under the changed system, wheat acreage increased slightly and corn acreage was cut in two. The acreage of oats remained steady, sweet sorghums and grain sorghums increased, and alfalfa, sweet clover, and prairie hay acreages decreased. Other cattle numbers remained about steady, but

all other livestock decreased. The percent of farms with tractors jumped to 70 percent.

The change in this area resulted from a decreasing income from the old system; and, from the experience of the preceding years, it appeared that a new system would maintain the income. It turned out, though, that the two systems were about equal in the latter part of the period. The new system reduced cash expenses by decreasing the feed purchased but accomplished it by decreasing the livestock; this reduced the receipts.

Area 6b

The original system consisted of a 240-acre farm with 115 to 125 acres of wheat in McPherson county. Wheat was the dominant crop with corn and oats of about equal acreage and of medium importance. Sweet sorghums, grain sorghums, sudan, alfalfa, and prairie hay were minor crops. Beef cattle were twice as important as dairy cattle, with hogs and chickens as minor livestock enterprises. Eighty-seven percent of the farms were with tractors.

In the 1934-38 system wheat acreage increased some; corn acreage was more than cut in half, while the acreage of oats, sudan, alfalfa, and prairie hay remained practically steady. The acreages of sweet sorghums and grain sorghums

Table 15. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 6b and 7.

	Area 6b		Area 7	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	190.0	196.0	170.0	170.0
Wheat	120.0	133.0	80.0	88.0
Corn	30.0	13.5	50.0	31.0
Oats	25.0	27.0	10.0	11.5
Barley	.0	.0	5.0	4.5
Sweet sorghums	2.0	2.5	5.0	7.5
Grain sorghums	5.0	6.0	10.0	19.0
Sudan	1.0	1.0	.0	.0
Alfalfa	10.0	10.0	5.0	4.0
Prairie hay	3.0	3.0	5.0	4.5
Pasture	(35)	(35)	(130)	(130)
Other land	(9)	(9)	(20)	(20)
	Numbers	Numbers	Numbers	Numbers
Livestock				
Horses	5.0	3.6	6.0	3.8
Milk cows	4.0	3.8	7.0	6.2
Other cattle	8.0	10.0	20.0	15.7
Sows	2.0	1.0	2.0	.7
Other hogs	10.0	5.1	6.0	2.1
Hens	165.0	129.0	120.0	77.0
Percent with tractors	87.0	100.0	33.0	42.0
Percent with combines	27.0	36.0	13.0	20.0

Table 16. Returns for the typical farm in Area 6b.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 955.50	$1,102.30	$1,277.04	$1,059.04
Corn	36.50	--	--	32.40
Oats	117.32	--	56.70	158.20
Alfalfa	112.29	34.78	46.37	131.43
Total crops	1,221.61	1,137.08	1,381.01	1,381.07
Livestock and products				
Milk cows	153.00	132.60	122.20	141.00
Other cattle	226.26	186.01	238.42	289.80
Sows	250.80	288.20	113.80	107.40
Eggs	176.50	153.00	109.20	128.10
Hens	84.56	65.52	48.67	62.82
Total livestock	892.92	805.33	637.29	729.12
TOTAL RECEIPTS	2,114.53	1,942.41	2,018.90	2,110.19
Expenses				
Purchased feed	58.50	122.53	175.00	55.35
Crop expense	170.35	175.32	165.08	163.11
Livestock expense	19.90	18.90	12.19	12.19
Fuel and oil	71.01	70.65	86.40	86.40
TOTAL EXPENSES	319.76	387.40	458.67	317.75
Totals				
RECEIPTS MINUS EXPENSES	1,795.77	1,555.01	1,580.23	1,792.44

Table 17. Returns for the typical farm in Area 7.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 696.38	$ 252.32	$ 525.98	$ 766.57
Corn	315.85	--	--	260.40
Oats	18.69	--	11.93	87.73
Sweet sorghum - silage	--	--	--	12.69
Grain sorghum - bu.	--	--	--	132.22
Grain sorghum - T	--	--	--	24.53
Total crops	1,031.42	252.32	537.91	1,284.14
Livestock and products				
Milk cows	219.00	189.80	156.00	180.00
Other cattle	500.92	411.82	318.65	387.60
Sows	179.00	198.00	47.52	42.96
Eggs	107.60	100.80	40.19	57.39
Hens	57.38	44.46	24.34	31.41
Total livestock	1,063.90	944.88	595.70	699.36
TOTAL RECEIPTS	2,095.32	1,197.20	1,133.61	1,983.50
Expenses				
Purchased feed	129.62	307.90	250.95	76.32
Crop expense	131.86	137.47	59.74	53.92
Live tock expense	21.10	21.10	11.77	11.77
Fuel and oil	28.44	22.29	33.76	36.59
TOTAL EXPENSES	311.02	578.76	356.22	178.50
Totals				
RECEIPTS MINUS EXPENSES	1,784.30	618.44	777.39	1,805.00

increased. Numbers of other cattle increased while all other types of livestock decreased in numbers. All of the farms had tractors under this setup.

The change in this area was due to the fact that the old system was not maintaining income and it appeared from previous yields and prices that a new system would. After the conditions had changed with the system, however, the new organization had no advantage over the old. The new system increased the cash sales of crops and decreased livestock receipts.

Area 7

This was a 320-acre farm in Osborne county with 70 to 90 acres of wheat. Wheat was the most important crop, with corn second. Oats, barley, sweet sorghums, grain sorghums, alfalfa, and prairie hay were minor crops. Beef cattle were much more important than dairy cattle, with hogs and chickens as minor enterprises. Thirty-three percent of the farms had tractors.

Under the changed system, wheat acreage increased slightly and corn acreage decreased materially. The acreage of grain sorghums increased about 100 percent. The acreages of oats and sweet sorghums increased some, while barley, alfalfa, and prairie hay acreages decreased. Numbers of all

types of livestock decreased. The number of farms with tractors increased to 42 percent.

This organization in Area 7 was changed, as the old system was not maintaining income and too much feed was being purchased. The new system turned out better than the old would have done, due largely to the fact that livestock were reduced so that feed did not need to be purchased. Crop expenses also were reduced under the new system.

Area 8

This was a 320-acre farm in Phillips county with 95 to 105 acres of corn. Corn was by far the dominant crop, with wheat a poor second. Oats and prairie hay were of medium importance; and barley, sweet sorghums, grain sorghums, alfalfa, and sweet clover were minor crops. All types of livestock were relatively important as compared to other farms. Beef cattle were of more importance than dairy cattle, with hogs and sheep as minor enterprises. Nine percent of the farms had tractors.

In the 1934-38 system, wheat acreage increased materially and corn acreage decreased by 33 percent. The acreage of oats remained the same while the acreages of barley, sweet sorghums, and grain sorghums increased, and alfalfa, sweet clover, and prairie hay acreages decreased. Numbers

Table 18. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 8 and 9.

	Area 8		Area 9	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	187.0	1 7.0	335.0	335.0
Wheat	35.0	53.0	300.0	301.0
Corn	100.0	67.0	15.0	7.5
Oats	10.0	10.0	5.0	4.5
Barley	5.0	9.0	.0	.0
Sweet sorghums	6.0	10.0	5.0	7.0
Grain sorghums	6.0	17.0	10.0	15.0
Alfalfa	5.0	4.0	.0	.0
Sweet clover	5.0	4.0	.0	.0
Prairie hay	15.0	13.0	.0	.0
Pasture	(120)	(120)	(40)	(40)
Other land	(13)	(13)	(25)	(25)
	Numbers	Numbers	Numbers	Numbers
Livestock				
Horses	6.0	4.3	2.0	1.2
Milk cows	6.0	5.3	2.5	2.3
Other cattle	15.0	14.0	6.0	6.5
Sows	4.0	1.7	.5	.2
Other hogs	10.0	4.2	.5	.2
Hens	175.0	125.0	0.0	57.0
Percent with tractors	9.0	14.0	90.0	100.0
Percent with combines	--	--	96.0	100.0

Table 19. Returns for the typical farm in Area 8.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 320.96	$ 18.27	$ 492.64	$ 485.79
Corn	696.96	--	80.31	655.46
Oats	26.19	--	9.10	40.56
Barley	6.09	--	.65	32.06
Prairie hay	1.51	--	--	--
Sweet sorghum silage	--	--	--	153.17
Grain sorghum - T	--	--	--	224.88
Total crops	1,051.70	18.27	582.70	1,591.92
Livestock and products				
Milk cows	177.00	153.40	126.10	145.50
Other cattle	424.59	349.06	299.04	363.75
Sows	393.80	435.00	162.36	146.73
Eggs	192.51	165.01	104.99	122.49
Hens	90.60	70.20	46.20	60.40
Total livestock	1,278.50	1,173.27	738.29	838.92
TOTAL RECEIPTS	2,330.26	1,191.54	1,321.99	2,430.84
Expenses				
Purchased feed	71.60	157.58	150.47	46.99
Crop expense	72.79	63.03	77.65	105.20
Livestock expense	27.40	27.40	15.34	15.38
Fuel and oil	6.58	6.58	11.96	11.96
TOTAL EXPENSES	178.37	254.59	255.46	179.53
Totals				
RECEIPTS MINUS EXPENSES	2,151.89	936.95	1,066.53	2,251.31

Table 20. Returns for the typical farm in Area 9.

	System			
	1927-32		1934-38	
	Results with yields and prices of respective periods			
	1927-32	1934-38	1934-38	1927-32
Sales				
Crops				
Wheat	$2,049.09	$1,754.88	$1,812.30	$2,279.81
Corn	118.56	--	20.25	59.28
Oats	7.59	--	--	14.72
Grain sorghum - bu.	24.35	--	6.24	90.21
Grain sorghum - T	37.64	--	--	11.40
Sweet sorghum	--	--	--	60.96
Total crops	3,037.23	1,754.88	1,838.79	3,116.38
Livestock and products				
Milk cows	48.75	42.25	33.15	38.25
Other cattle	135.76	111.61	122.96	140.35
Sows	17.90	19.80	-15.34	-14.32
Eggs	64.74	55.49	27.90	32.55
Hens	33.22	25.74	14.09	19.33
Total livestock	300.37	254.89	183.15	224.16
TOTAL RECEIPTS	3,337.60	2,009.77	2,021.94	3,330.54
Expenses				
Purchased feed	81.07	126.51	79.39	67.44
Crop expense	22.72	27.05	7.97	6.64
Livestock expense	5.80	5.80	4.42	4.42
Fuel and oil	275.98	275.98	225.59	225.59
TOTAL EXPENSES	385.57	435.34	317.37	304.09
Totals				
RECEIPTS MINUS EXPENSES	2,952.03	1,574.43	1,704.57	3,026.45

of all types of livestock decreased and the decline in hogs was especially heavy. The number of farms with tractors increased to 14 percent.

The change in this area resulted from the fact that it appeared that a new system would maintain the income better than the old. The new system not only was better at the beginning of the period but also gave a higher income after the change in yields and prices. The new system surpassed the old system in having more cash crops. It is doubtful if the new system would be so good as the old over a longer period of time.

Area 9

A 400-acre farm with 290 to 300 acres of wheat in Pratt county was the setup for this area. Wheat accounted for 89 percent of the crop land. A low acreage of corn was second, with grain sorghums third and oats and sweet sorghums making up small acreages. Livestock were not important. Beef cattle were of more importance than dairy cattle, but the number of both was small. Both the hog and the chicken enterprises were small. Ninety percent of the farms were with tractors.

The new system kept the wheat acreage uniform but decreased the corn acreage by one-half. The acreage of oats

decreased but sweet sorghum and grain sorghum acreages increased. Numbers of other cattle increased, but all other types of livestock decreased. All of the farms had tractors during this period.

By forecasting possible conditions in the future from conditions in the early part of the period under study, it appeared that a new system would yield a larger income than the one being followed. As it turned out, the new system did give a larger income in the latter part of the period than the old system would have given. The new system increased the cash sales of crops and lowered the amount of feed purchased. It is probable that if the old system had continued, the cost of feed would have been greater due to increased demand.

Area 10a

The original setup was a 640-acre farm with 220 to 360 acres of wheat in Lane county. Wheat was the predominant crop in this area with barley a poor second. Sweet sorghums were second and corn and grain sorghums were low. Beef cattle were four times as important as dairy cattle, and hogs and chickens were minor enterprises. Ninety-one percent of the farms had tractors.

Table 21. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 10a and 10b.

	Area 10a		Area 10b	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	400.0	400.0	480.0	480.0
Wheat	330.0	330.0	400.0	410.0
Corn	10.0	4.0	20.0	6.0
Oats	.0	.0	10.0	8.0
Barley	30.0	16.0	10.0	6.5
Sweet sorghums	20.0	21.0	20.0	24.0
Grain sorghums	10.0	21.0	20.0	19.5
Alfalfa	.0	.0	10.0	8.0
Pasture	(200)	(200)	(120)	(120)
Other land	(40)	(40)	(40)	(40)
	Numbers	Numbers	Numbers	Numbers
Livestock				
Horses	5.0	2.5	3.0	2.2
Milk cows	5.0	4.7	4.0	3.8
Other cattle	20.0	15.5	20.0	18.2
Sows	2.0	.7	1.0	.4
Other hogs	6.0	2.1	5.0	2.0
Hens	100.0	69.0	60.0	40.0
Percent with tractors	91.0	100.0	83.0	8.0
Percent with combines	55.0	78.0	72.0	74.0

Table 22. Returns for the typical farm in Area 10a.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$2,593.36	$ 652.06	$ 704.96	$2,851.73
Corn	3.36	--	--	26.07
Barley	140.25	--	--	32.73
Sweet sorghum	19.36	--	--	302.64
Pasture	7.20	7.20	49.50	49.50
Grain sorghum - bu.	--	--	--	88.92
Grain sorghum - T	--	--	--	6.71
Total crops	2,756.53	659.26	754.46	3,165.35
Livestock and products:				
Milk cows	135.00	117.00	105.30	121.50
Other cattle	500.92	411.82	316.06	384.45
Sows	179.00	198.00	75.24	68.02
Eggs	92.76	79.51	42.30	49.35
Hens	45.30	35.10	20.59	26.59
Total livestock	952.98	841.43	559.49	649.90
TOTAL RECEIPTS	3,711.51	1,500.69	1,303.95	3,815.25
Expenses				
Purchased feed	133.46	348.59	406.50	107.68
Crop expense	252.95	255.73	130.62	129.22
Livestock expense	10.80	10.80	10.13	10.13
Fuel and oil	206.92	206.92	246.74	246.74
TOTAL EXPENSES	612.13	830.04	793.99	493.77
Totals				
RECEIPTS MINUS EXPENSES	3,099.38	670.65	509.96	3,321.48

Table 23. Returns for the typical farm in Area 10c.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$3,497.00	$1,800.00	$1,[illegible].74	$3,524.42
Corn	177.84	--	18.06	53.35
Oats	.70	--	27.72	49.14
Barley	17.91	--	--	30.63
Sweet sorghum	60.55	--	--	549.42
Grain sorghum - bu.	87.01	--	65.[illegible]	112.61
Grain sorghum - T	.46	--	--	14.54
Alfalfa	128.19	78.20	51.[illegible]	13[illegible].84
Total crops	4,087.65	1,[illegible]80.10	[illegible],065.[illegible]	4,533.75
Livestock and products				
Milk cows	93.00	80.60	72.20	84.00
Other cattle	494.63	406.64	367.[illegible]	447.41
Sows	71.60	79.20	7.92	7.16
Eggs	36.75	31.50	4.[illegible]	8.76
Hens	21.14	16.38	7.02	[illegible].06
Total livestock	717.12	614.82	460.37	556.39
TOTAL [illegible]ECEIPTS	4,774.77	2,494.42	2,526.19	5,090.14
Expenses				
Purchased feed	109.79	288.56	81.08	84.26
Crop expense	135.30	190.10	122.33	101.47
Livestock expense	12.95	12.95	[illegible].62	[illegible].62
Fuel and oil	247.[illegible]	247.[illegible]	263.20	263.26
TOTAL [illegible]PENSES	505.93	739.59	535.[illegible]	537.61
Totals				
[illegible]CEIPTS MINUS EXPENSES	4,218.84	1,454.83	1,990.[illegible]	4,552.53

In the changed system wheat acreage increased only slightly, but corn acreage was decreased 60 percent. The acreage of barley decreased by half, sweet sorghums remained steady, but grain sorghums doubled in acreage. Numbers of all types of livestock decreased materially. All of the farms had tractors.

Forecasting from the early part of the period, it appeared that a new system would yield a larger return because of larger crop sales. As it turned out, however, the new system was poorer than the old, showing that the farmers would have been better off if they had stayed with their old system. The reasons the new system did not turn out as well as expected were that there was little advantage in cash grain crops because of dry weather; and even by lowering the livestock and cutting the receipts, more feed had to be purchased.

Area 10c

The original setup was a 640-acre farm in Clark county with 360 to 440 acres of wheat. Wheat made up a large percentage of the crop acreage. Corn, sweet sorghums, and grain sorghums were equal in acreage, and oats, barley, and alfalfa had small acreages. Beef cattle were much more important than dairy cattle, with hogs and chickens minor

enterprises. Eighty-three percent of the farms were with tractors.

In the new system, the acreages of wheat and sweet sorghums increased slightly. Corn acreage decreased by 70 percent. The acreage of oats, barley, grain sorghums, and alfalfa decreased somewhat. Numbers of all types of livestock decreased. Tractors increased by only 5 percent. It appeared in the early part of the period that a new system would increase the income or at least maintain it better than the systems then being used. The new system would increase the cash sales of crops. Although the new system did not maintain the income very well, it did yield a larger return in the latter part of the period than the old system would have yielded. The new system increased the sales of crops slightly and decreased the feed purchases over what the old organization would have been. It is probable that the cost of feed purchased would have been higher if the old system had continued because of increased demand.

Area 11

The original setup for this organization was a 640-acre farm in Thomas county with 280 to 320 acres of wheat. Wheat was the most important crop, with barley second and corn a close third. There were small acreages of grain and sweet

Table 24. Organization of typical farms for the periods 1928-32 and 1934-38, Areas 11 and 12.

	Area 11		Area 12	
	1928-32 system	1934-38 system	1928-32 system	1934-38 system
	Acres	Acres	Acres	Acres
All crops	445.0	445.0	245.0	245.0
Wheat	300.0	325.0	80.0	115.0
Corn	60.0	41.5	60.0	25.0
Barley	75.0	54.5	60.0	30.0
Sweet sorghums	5.0	9.0	30.0	48.0
Grain sorghums	5.0	15.0	15.0	27.0
Pasture	(175)	(175)	(1000)	(1000)
Other land	(20)	(20)	(35)	(35)
	Numbers	Numbers	Numbers	Numbers
Livestock				
Horses	6.0	3.4	12.0	5.3
Colts	.0	.0	2.0	.3
Milk cows	3.0	2.6	5.0	4.1
Other cattle	10.0	11.0	50.0	43.0
Sows	2.5	1.0	2.0	.7
Other hogs	6.0	2.3	10.0	3.3
Hens	6.5	44.0	75.0	54.0
Percent with tractors	61.0	73.0	30.0	47.0
Percent with combines	65.0	88.0	10.0	19.0

Table 25. Returns for the typical farm in Area 11.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$1,912.35	$1,040.34	$1,187.83	$2,071.68
Corn	391.10	--	14.00	328.72
Barley	428.99	--	53.84	203.95
Pasture	61.40	61.40	81.00	81.09
Sweet Sorghum	--	--	--	10.16
Grain sorghum - bu.	--	--	--	50.62
Total crops	2,783.84	1,101.74	1,337.85	2,751.16
Livestock and products				
Milk cows	51.00	44.20	28.80	33.00
Other cattle	236.49	194.48	215.33	281.38
Sows	232.70	249.40	79.20	71.60
Eggs	52.50	45.00	12.29	14.34
Hens	24.16	18.72	8.69	10.48
Total livestock	596.85	550.74	344.31	411.30
TOTAL RECEIPTS	3,380.69	1,652.48	1,681.96	3,162.46
Expenses				
Purchased feed	191.36	419.53	190.51	140.53
Crop expense	8.95	1[illegible].12	12[illegible].00	118.17
Livestock expense	17.33	17.33	9.44	9.44
Fuel and oil	164.77	164.77	208.48	209.48
TOTAL EXPENSES	372.41	619.75	536.11	477.62
Totals				
RECEIPTS MINUS EXPENSES	3,008.28	1,032.73	1,143.85	2,684.84

Table 20. Returns for the typical farm in Area 12.

	System			
	1928-32		1934-38	
	Results with yields and prices of respective periods			
	1928-32	1934-38	1934-38	1928-32
Sales				
Crops				
Wheat	$ 513.32	$ 60.48	$ 144.65	$ 703.33
Corn	313.47	--	--	133.10
Barley	137.76	--	--	111.55
Sweet sorghum - silage	58.59	--	--	128.52
Pasture	572.00	572.00	659.20	659.20
Grain sorghum - bu.	--	--	--	208.78
Total crops	1,605.14	632.48	803.85	1,944.48
Livestock and products				
Milk cows	135.00	117.00	81.90	94.50
Other cattle	1,269.04	1,043.29	893.77	1,099.62
Sows	177.00	195.00	43.56	38.38
Eggs	57.75	49.50	24.30	23.35
Hens	30.20	23.40	13.71	17.82
Total livestock	1,670.99	1,428.19	1,057.24	1,273.67
TOTAL RECEIPTS	3,276.13	2,060.65	1,861.19	3,223.15
Expenses				
Purchased feed	303.55	1,293.07	781.65	163.59
Crop expense	26.29	34.22	179.25	172.31
Livestock expense	31.00	31.00	16.89	16.89
Fuel and oil	44.01	44.01	69.76	69.76
TOTAL EXPENSES	304.85	1,432.30	1,047.55	422.55
Totals				
RECEIPTS MINUS EXPENSES	2,971.28	628.35	813.64	2,800.60

sorghums. Beef cattle were more important than dairy cattle hogs were a medium enterprise, and chickens a minor enterprise. Sixty-one percent of the farms had tractors.

Under the 1934-38 system, wheat acreage increased somewhat, corn and barley acreages decreased materially, while the acreages of sweet and grain sorghums increased--grain sorghums increasing threefold. Numbers of all types of livestock decreased excepting other cattle which increased slightly. The number of farms with tractors increased to 73 percent.

In this area the old system was not maintaining the income and the organization was changed to one that appeared better under the changing conditions. The new system increased the sale of crops, compared with the old organization, and reduced the purchases of feed through reduction in livestock numbers. The new system would not have been as good as the old organization in the early part of the period.

Area 12

The original setup was a 1,280-acre farm with none to 160 acres of wheat in Wichita county. Wheat was the major crop but corn and barley were close seconds, with sweet sorghums third and a good acreage of grain sorghums. The

pasture acreage was exceptionally large here. Beef cattle were ten times as important as dairy cattle and hogs and chickens were minor enterprises. Thirty percent of the farms had tractors.

In the new system the acreage of wheat increased materially while corn and barley acreages decreased by about one-half. Acreages of sweet sorghums and grain sorghums increased. Numbers of all types of livestock declined. The number of farms with tractors increased by 17 percent.

This area had difficulty in maintaining income with the original system and it appeared that a new organization would yield a larger income. The new system increased the crop sales and decreased feed purchased. The fact that the new system would not have been so good in the early part of the period indicated that the farmers were justified in changing.

SUMMARY AND CONCLUSIONS

1. Trends of Kansas agriculture can be understood best by a study of study of the type-of-farming areas and the factors which underly their delineation. The most important of those factors have been classified as physical or economic. Some of these factors, such as soil and topography, remained essentially fixed while others, such as

precipitation and the government program, changed continually.

2. In this study a consideration was given to the type-of-farming areas with the underlying factors: the distribution of crops and livestock for the five-year period 1928-32; the changes by areas in acreages of crops and numbers of livestock from this base period to 1938; and the factors which caused these changes. Also, an effort was made to evaluate the changes in terms of organization and income of typical farms by areas.

3. Precipitation was the most important factor affecting trends. The amount of rainfall decreased during the period, causing lower yields. This resulted in a shifting of crop acreages and a lowering of livestock numbers because of feed shortage.

4. The number of tractors and combines increased in the eastern part of the state but tended to remain steady or increase only slightly in the western part. This increase was due to the more successful use of tractors during the dry period and the introduction of small machines which made it possible for the operators of small- and medium-sized farms to own these implements.

5. Yields of crops are dependent largely on rainfall and the two tend to follow the same trend. Prices of the

various crops were closely related and also tended toward the same trend. Prices are influenced by business cycles, yields and acreages, world supplies of farm products, and numerous other factors. Prices influence acreages largely for cash crops such as wheat, in Kansas.

6. The government program was influential in stabilizing the trends. It exerted more influence in the western part than in the eastern part of the state because of the larger participation in the west. The program limited the acreage of wheat and increased that fallowed in the west. It helped maintain legumes and soil-building practices in the east. The greatest effect on livestock was the buying of cattle and hogs as an emergency measure.

7. Wheat abandonment during the winter affects the acreage of spring crops planted the following spring. As most of the abandonment is the result of dry weather, this factor is closely linked with rainfall. This was important only in the western half of the state.

8. While size of farm has not been an important factor in causing trends, it has contributed some influence. There was an increase in the number of both small and large farms and a decrease in the number of medium-sized farms.

9. Trends in crop acreages tended to be similar in adjoining areas but there were wide differences from one part

of the state to another. Wheat tended to replace corn throughout the state, with wheat increasing more rapidly in the eastern than in the western part. Wheat acreage tended to decrease during the early part of the period in western Kansas. Corn acreage decreased more rapidly in the western than in the eastern part. This change was due to the relatively better yields of wheat during the dry period and the increase in small grain machinery. Barley acreage increased rapidly and oats acreage increased slowly in the eastern part of the state while both tended to decrease in the western part. The alfalfa acreage was maintained better in the eastern part of the state than in the west but it declined in all areas during the latter part of the period. The acreage of sweet sorghums tended to increase throughout the state due to the introduction of Atlas and the provision under the government program whereby sweet sorghums might be planted on neutral acres.

10. Livestock trends included a decrease in the number of hens because of unfavorable feed-egg ratios and a decrease in the number of farms, thereby lowering the number of flocks. The decrease was most rapid in the western part of the state. Cattle numbers increased until 1934 and then decreased following the trend of the normal cattle cycle.

The increase was not so rapid and the decline was greater in the western part of the state because of an extreme shortage of feed. The number of hogs tended to decrease until 1931 because of poor corn yields, but to increase until 1933 due to better corn yields and the feeding of low-priced wheat. They decreased rapidly after 1933 because of shortage of feed. The decrease was greatest in the western part of the state where hogs nearly disappeared. The number of horses decreased throughout the period, the decrease being more rapid in the western part of the state. Sheep numbers remained relatively steady in eastern Kansas but fluctuated according to the amount and condition of wheat pasture in the western part of the state.

11. The budget analysis indicated that as conditions changed during the period, the farmers adjusted their organizations in an attempt to maintain cash income. The changes consisted of decreasing the livestock and increasing cash crops. It appears that in most areas the old organization was more preferable than the new system and that, as soon as ample feed and pasture can be obtained, the farmers should increase their livestock and go back to their old systems.

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APPENDIX A

Table 27. Precipitation in inches by type-of-farming areas in Kansas, 1928-38 (10).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	44.1	42.1	37.2	34.3	31.5	35.9	34.3	35.0	28.3	36.5	39.0
2	40.9	37.4	28.8	35.9	31.2	34.0	32.3	44.5	24.0	31.8	40.6
3	37.2	35.9	30.5	33.5	29.7	26.5	27.3	38.0	22.1	32.0	32.1
4	36.8	35.2	33.6	41.1	28.2	26.2	24.0	34.4	27.2	22.9	32.0
5	42.0	36.2	34.4	34.4	27.4	28.2	30.4	39.4	23.0	31.1	35.9
6a	34.8	30.9	26.9	24.1	27.7	19.6	17.8	30.5	17.7	20.7	28.8
6b	34.8	34.4	23.8	27.1	22.6	21.8	24.3	31.0	18.8	26.3	32.0
7	31.8	27.7	23.5	23.7	23.4	16.3	15.1	24.8	16.5	19.0	24.2
8	29.1	22.9	24.9	25.1	20.9	19.2	15.2	24.8	15.2	17.8	25.3
9	30.9	25.8	23.5	20.5	20.1	15.3	19.6	21.9	15.3	19.0	26.2
10a	28.6	19.4	25.6	18.8	19.0	19.2	11.3	17.1	14.2	11.5	19.5
10b	27.9	18.0	19.8	13.3	15.8	16.2	10.6	12.2	13.3	10.8	18.4
10c	30.2	24.2	17.3	22.5	22.9	15.2	17.2	21.8	17.4	16.8	25.7
11	23.5	20.8	27.4	17.0	16.4	21.0	10.5	16.1	12.4	16.6	17.6
12	25.7	17.1	21.4	13.3	18.0	1 .3	9.9	12.8	13.4	11.6	16.1
State	33.4	28.0	26.9	25.9	23.8	22.2	20.0	28.5	18.3	20.9	27.3

Table 28. Number of tractors by type-of-farming areas in Kansas, 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937 [5]	1938 [5]
1	2,267	2,374	1,929	2,141	1,811	1,506	1,589	2,173	2,840	4,143	4,361
2	2,474	2,749	2,581	2,829	2,661	2,159	2,392	2,996	3,837	4,681	5,407
3	1,779	1,938	1,862	1,811	1,741	1,498	1,494	1,768	2,145	2,936	3,510
4	1,571	1,884	1,921	1,961	1,846	1,306	1,393	1,830	2,278	2,968	3,540
5	3,927	4,303	4,275	4,525	4,068	3,268	3,742	4,468	5,525	6,802	8,174
6a	4,505	5,415	5,280	5,168	5,064	4,637	4,986	5,265	5,892	6,706	7,667
6b	8,211	9,763	9,645	9,595	9,294	8,673	9,130	10,294	11,097	12,515	13,330
7	2,957	4,010	4,416	4,673	4,538	4,363	4,625	4,865	5,037	5,646	6,161
8	2,208	2,663	2,806	3,097	3,095	2,[illegible]99	2,808	3,350	4,183	5,062	6,291
9	5,158	6,177	6,208	6,248	6,177	5,029	6,117	6,057	6,473	6,810	7,322
10a	2,465	2,732	2,930	3,301	3,376	3,210	3,618	3,428	3,336	3,[illegible]48	3,530
10b	3,447	4,106	4,269	4,793	4,665	4,290	4,868	4,461	4,288	4,611	3,446
10c	1,263	1,612	1,486	1,465	1,543	1,375	1,415	1,443	1,556	1,687	1,743
11	2,914	3,010	3,099	3,579	3,530	3,412	3,500	3,564	3,762	4,249	4,277
12	825	1,000	1,033	1,300	1,516	1,473	1,754	1,736	1,577	1,9[illegible]7	1,884

[5] Data from Kansas State Tax Commission.
[6] Estimates for Ford County.

Table 29. Number of combines by type-of-farming areas in Kansas, 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	22	19	43	63	78	80	95	161	188	460	806
2	2	21	2	22	116	72	69	117	128	440	767
3	0	12	13	41	43	26	41	48	82	208	359
4	2	5	7	50	53	55	83	76	76	304	613
5	86	135	201	239	275	282	323	479	402	875	1,644
6a	385	938	1,402	1,655	1,677	1,605	1,791	1,870	1,907	2,541	3,258
6b	2,911	4,238	4,671	4,789	4,764	4,726	4,916	4,962	5,217	6,313	7,169
7	731	1,420	2,371	2,982	3,014	2,908	3,084	3,109	2,888	3,275	3,824
8	80	189	342	550	572	557	561	677	650	1,028	1,768
9	3,039	4,103	4,702	4,920	4,940	4,688	4,542	4,457	4,440	4,847	5,014
10a	472	1,008	1,684	2,283	2,385	2,223	2,403	2,186	1,985	2,349	2,184
10b	1,801	2,495	2,979	3,234	3,366	3,079	3,309	2,933	2,606	2,835	1,890
10c	78	950	1,079	1,080	1,129	1,026	1,039	962	980	1,069	1,075
11	732	927	1,466	2,148	2,218	2,090	2,072	1,965	1,838	2,106	2,131
12	182	171	341	630	844	800	907	751	642	838	858

Table 30. Average yields of crops in Kansas, 1928-38, in bushels (5).

Crop	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Wheat seeded	15.3	11.2	13.7	19.7	10.6	9.0	8.9	5.1	9.4	9.2	9.0
Wheat harvested	17.1	11.4	14.2	19.8	12.2	11.3	9.9	8.2	12.0	11.6	10.5
Corn	26.4	17.4	10.8	16.4	19.1	9.8	1.7	6.5	2.4	9.6	18.4
Oats	28.7	22.8	27.4	28.1	20.8	11.4	8.2	24.8	15.0	22.6	22.1
Barley	25.8	19.0	23.3	21.9	19.1	8.1	7.0	8.3	7.2	6.7	14.8
Grain sorghums[1]	22.9	18.4	15.0	20.0	17.0	13.6	[2]	3.6	[2]	6.9	9.1
Alfalfa[3]	2.8	2.4	2.4	2.2	2.3	2.0	1.2	1.6	1.0	1.2	1.8

[1] Simple average of kafir, milo, and feterita.
[2] Very little grain produced in 1934 and 1936.
[3] Yield expressed in tons rather than in bushels.

Table 31. Average prices of crops in Kansas, 1928-38 (5).

Crop	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Wheat, bu.	$ .96	$ 1.02	$ .64	$ .35	$ .30	$ .69	$ .84	$ .91	$ 1.00	1.04	$ .53
Corn, bu.	.66	.77	.67	.28	.16	.38	.87	.75	1.12	.67	.47
Oats, bu.	.41	.44	.36	.19	.13	.20	.51	.35	.48	.41	.21
Barley, bu.	.50	.55	.45	.26	.17	.38	.74	.58	.85	.56	.30
Alfalfa, T.	10.76	12.36	12.04	8.04	5.75	7.72	18.56	9.05	14.83	13.43	8.10

Table 32. Acres of wheat by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	277	283	205	188	202	175	232	288	308	400	447
2	97	125	97	131	146	92	152	235	258	411	472
3	139	159	122	132	100	84	109	158	178	316	353
4	171	181	152	136	107	111	143	188	211	307	427
5	298	277	213	237	248	210	255	393	473	748	838
6a	861	857	829	795	746	721	716	786	862	1,135	1,255
6b	2,079	2,061	1,870	1,783	1,688	1,571	1,604	1,759	1,980	2,373	2,554
7	1,290	1,223	1,285	1,281	1,145	1,180	1,084	1,124	1,183	1,502	1,596
8	569	473	521	499	435	477	501	558	530	1,075	1,246
9	1,835	1,883	1,809	1,709	1,576	1,593	1,484	1,544	1,630	1,948	1,984
10a	1,038	1,078	1,208	1,331	1,118	1,150	1,164	1,090	1,178	1,551	1,380
10b	1,414	1,857	1,740	1,963	1,537	1,594	1,686	1,643	1,594	2,118	1,532
10c	455	444	434	408	388	376	395	419	432	542	543
11	1,293	1,157	1,319	1,288	1,026	1,026	1,073	1,001	1,159	1,500	1,528
12	216	241	381	622	492	452	648	540	610	988	789
State	12,031	11,904	12,184	12,503	10,952	10,812	11,228	11,731	12,681	17,104	16,933

Table 35. Acres of corn by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	335	336	334	338	327	360	263	241	248	197	203
2	662	674	712	630	627	673	527	472	4[illegible]	[illegible]8	379
3	342	340	361	329	363	364	284	266	260	194	156
4	509	511	528	521	561	554	454	437	431	330	319
5	669	737	837	728	727	726	592	473	499	348	358
6a	391	424	431	401	419	459	328	301	293	163	129
6b	393	422	581	544	591	746	348	249	227	108	86
7	358	343	297	280	391	345	219	386	229	93	43
8	1,127	1,225	1,153	1,162	1,201	1,176	986	1,016	1,008	655	483
9	171	181	228	271	376	539	181	173	143	67	42
10a	80[illegible]	123	100	107	188	225	57	171	6[illegible]	27	8
10b	19[illegible]	142	163	145	319	244	73	125	75	36	14
10c	47	48	62	66	64	91	29	25	18	11	3
11	1,063	588	566	689	[illegible]07	950	559	834	615	362	223
12	188	171	162	156	230	203	113	171	105	56	30
State	6,634	6,324	6,544	6,377	7,338	[illegible],925	5,01[illegible]	5,339	4,680	2,905	2,456

Table 34. Acres of oats by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	140	139	161	214	220	209	231	215	286	218	229
2	133	135	152	205	220	213	221	233	305	232	256
3	90	79	99	113	122	107	104	113	141	113	146
4	112	111	121	137	135	123	99	117	140	125	147
5	179	172	206	256	248	227	212	251	310	232	226
6a	136	128	147	169	167	173	154	161	193	148	143
6b	191	183	238	269	298	424	245	274	294	220	207
7	57	36	38	49	68	65	38	43	56	42	38
8	147	146	175	196	179	188	145	162	199	157	148
9	28	22	25	27	73	70	25	29	44	27	32
10a	25	21	15	18	32	17	14	7	16	14	10
10b	9	7	7	8	25	7	7	12	16	7	7
10c	5	5	6	9	16	16	8	11	16	9	8
11	25	21	22	23	36	52	21	22	28	22	16
12	4	4	4	4	6	3	2	1	4	2	1
State	1,300	1,209	1,413	1,697	1,845	1,894	1,526	1,654	2,028	1,568	1,615

Table 35. Acres of barley by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	/10	1	4	4	3	2	4	10	10	11	14
2	/10	/10	/10	2	2	1	1	4	7	12	12
3	/10	/10	/10	1	1	/10	/10	2	4	9	7
4	/10	1	1	3	3	2	/10	1	1	5	6
5	1	/10	2	5	7	6	25	5	28	30	20
6a	1	1	2	7	17	14	8	19	25	25	19
6b	6	6	12	25	47	55	19	68	59	42	32
7	33	18	18	22	25	33	16	22	26	20	18
8	19	16	20	26	21	26	14	25	49	43	63
9	13	12	11	15	34	58	17	21	25	15	18
10a	103	94	74	70	121	147	81	37	42	61	41
10b	43	40	40	23	82	75	37	28	9	15	25
10c	3	3	4	6	9	9	4	9	10	7	6
11	307	261	215	228	244	418	220	169	192	143	115
12	105	135	144	127	176	221	158	74	72	86	56
State	684	608	545	564	792	1,067	593	544	557	514	452

/10 Less than 500 acres.

Table 36. Acres of grain sorghums[1] by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	81	81	92	86	77	78	90	117	87	70	58
2	128	128	124	137	128	121	141	185	124	119	109
3	18	16	18	24	22	21	29	46	25	22	26
4	9	7	7	9	10	10	15	21	12	11	23
5	213	215	234	259	248	243	305	327	225	217	195
6a	47	43	48	64	74	73	88	108	81	64	53
6b	80	72	78	100	123	152	152	139	113	72	56
7	80	73	71	93	114	122	127	205	134	118	77
8	34	23	22	26	35	41	57	157	86	82	66
9	54	40	36	53	91	177	74	128	89	57	45
10a	107	77	74	82	141	200	131	367	226	106	144
10b	254	182	182	214	344	441	259	848	481	456	404
10c	51	48	40	57	63	81	68	78	65	41	33
11	42	26	26	33	56	92	70	222	102	84	97
12	68	63	59	67	150	164	130	282	185	185	214
State	1,286	1,091	1,100	1,304	1,671	1,978	1,734	2,968	2,095	1,720	1,620

[1] Kafir, milo, and feterita except for 1934, in which grain sorghums were not reported separately by type.

Table 37. Acres of saccharine sorghums by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937 [12]	1938 [12]
1	11	10	12	7	8	10	11	14	11	11	12
2	15	17	19	19	19	21	25	32	26	23	40
3	4	5	5	6	7	8	11	19	11	17	29
4	3	3	4	3	4	4	7	15	7	13	28
5	68	72	92	95	84	87	102	109	106	98	117
6a	39	37	38	41	47	49	58	64	52	46	76
6b	61	70	59	60	71	97	104	114	104	82	111
7	78	70	67	69	76	93	105	118	98	89	112
8	52	49	47	50	56	73	84	109	71	74	120
9	49	55	46	50	68	106	76	79	75	59	75
10a	102	71	76	84	106	143	111	156	124	92	97
10b	80	83	53	59	86	140	83	141	124	77	113
10c	45	46	43	45	50	68	57	61	62	50	61
11	89	69	88	70	98	138	115	181	136	108	125
12	56	40	44	48	60	75	75	132	95	94	116
State	752	667	665	706	840	1,112	1,024	1,355	1,102	919	1,231

[12] Acres seeded for forage and acres harvested for syrup.

Table 38. Acres of alfalfa by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937 [1]	1938 [1]
1	18	16	11	14	14	15	21	29	15	14	12
2	59	53	37	41	40	39	56	68	54	53	32
3	58	51	39	45	43	45	58	67	56	46	27
4	71	62	50	50	44	47	68	88	81	76	50
5	155	126	94	102	99	101	128	144	137	105	77
6a	84	76	71	80	88	84	97	99	88	56	33
6b	108	95	90	115	119	108	126	120	124	87	61
7	30	28	28	32	34	36	38	34	26	13	7
8	139	134	137	146	140	144	163	161	146	108	58
9	33	30	31	37	39	36	35	33	33	17	11
10a	18	18	20	20	17	18	15	12	11	9	8
10b	4	4	4	5	4	4	5	4	5	3	3
10c	4	4	4	6	5	4	5	4	4	3	3
11	13	12	10	10	8	8	11	11	10	9	5
12	12	13	14	14	11	11	10	9	8	7	7
State	806	722	640	717	714	700	836	892	798	606	394

[1] Acres harvested.

Table 39. Acres of prairie hay by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	112	100	106	114	102	112	114	121	118	105	109
2	188	178	178	176	170	164	168	174	162	151	160
3	36	37	35	34	34	34	33	34	31	27	30
4	23	22	22	22	23	23	24	20	21	19	21
5	196	205	193	185	184	190	195	198	182	164	176
6a	53	51	47	44	45	45	46	45	42	34	38
6b	57	54	51	49	49	48	50	48	49	42	44
7	35	31	24	23	25	26	25	25	26	18	19
8	89	90	82	83	82	82	90	87	77	53	60
9	20	18	15	16	16	17	15	17	10	13	16
10a	4	5	3	5	17	5	4	7	4	5	6
10b	4	4	4	2	4	4	3	3	2	2	3
10c	1	1	1	/1	1	1	1	1	/D	1	1
11	11	14	12	13	10	16	17	12	8	5	7
12	5	5	5	6	10	6	5	6	11	6	9
State	834	824	778	772	770	773	788	796	751	645	697

/D Less than 500 acres.

Table 40. Number of horses and mules by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	56	52	49	47	47	44	44	43	40	38	33
2	86	81	76	73	67	66	65	63	58	52	51
3	48	46	43	42	39	41	38	37	33	31	28
4	51	48	47	45	42	42	42	40	38	36	32
5	107	104	98	96	92	90	88	84	79	73	67
6a	65	61	58	55	52	49	49	47	42	40	35
6b	102	88	80	77	73	71	69	67	61	55	47
7	70	65	56	53	50	47	46	41	37	33	27
8	94	92	89	87	84	80	77	71	64	56	49
9	53	43	34	32	30	30	27	26	23	20	15
10a	43	37	30	26	24	23	22	19	15	14	11
10b	39	33	24	22	20	20	18	15	10	8	6
10c	18	15	13	12	11	11	11	11	11	9	8
11	56	53	49	44	41	40	37	33	26	22	19
12	28	28	25	20	18	16	15	12	9	8	7
State	916	846	769	731	690	670	648	609	546	495	435

Table 41. Number of milk cows by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	49	54	55	55	52	59	62	65	52	43	40
2	74	79	75	84	77	80	91	89	73	50	56
3	55	51	54	46	40	43	47	48	42	39	37
4	37	36	43	42	37	40	42	42	36	34	31
5	58	53	55	60	57	63	66	71	56	50	48
6a	47	48	48	51	44	46	53	48	42	3[illegible]	38
6b	77	74	78	83	71	78	88	82	74	69	72
7	39	38	37	43	35	39	48	36	31	29	27
8	66	70	71	76	64	71	80	69	5[illegible]	51	46
9	33	30	31	35	28	27	33	32	28	25	24
10a	18	18	18	20	17	17	25	18	15	15	12
10b	17	17	15	17	15	16	22	19	16	15	10
10c	9	7	7	6	7	8	7	8	6	6	6
11	26	27	27	29	24	28	33	25	21	20	19
12	10	8	8	9	9	8	10	9	5	6	6
State	615	610	622	656	577	621	707	661	556	488	472

Table 42. Number of other cattle by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	71	73	75	84	101	104	110	114	84	102	92
2	161	172	182	181	189	206	253	225	185	141	142
3	63	73	69	84	94	101	107	79	80	65	56
4	81	91	85	87	97	101	113	86	88	73	84
5	396	421	424	440	434	441	532	417	328	311	321
6a	146	153	169	171	189	192	226	160	174	153	138
6b	163	158	176	193	226	229	244	249	243	208	193
7	154	173	193	215	229	229	239	136	150	124	104
8	130	151	174	194	202	207	234	157	158	131	113
9	80	83	98	104	124	126	123	114	117	94	78
10a	98	110	118	131	146	144	170	97	77	72	52
10b	69	70	74	83	85	82	89	61	52	52	36
10c	104	107	117	107	106	111	112	102	106	96	76
11	67	78	96	120	135	141	168	129	95	82	71
12	55	66	79	71	76	83	109	71	43	46	38
State	1,858	1,979	2,129	2,265	2,433	2,497	2,811	2,197	2,060	1,750	1,574

Table 45. Number of sheep by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	21	25	21	23	22	21	23	28	25	25	28
2	47	51	49	48	48	49	51	60	56	52	52
3	21	22	22	26	28	24	24	26	24	22	20
4	22	28	25	20	19	28	21	19	21	19	19
5	35	34	32	29	31	32	37	39	41	36	51
6a	18	24	20	22	20	27	21	23	24	20	27
6b	38	51	61	50	66	69	71	92	71	55	77
7	25	26	27	17	23	20	22	21	15	7	8
8	12	16	14	15	15	18	16	12	15	11	14
9	12	12	13	13	17	17	16	39	14	12	13
10a	11	6	7	7	12	12	13	8	6	7	6
10b	3	6	8	6	9	13	11	16	5	6	3
10c	5	4	7	7	5	6	6	19	19	13	15
11	8	13	23	30	34	18	20	21	12	12	16
12	10	32	20	35	42	30	40	39	11	11	17
State	281	350	349	348	381	392	392	452	389	308	366

Table 44. Number of hogs by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
1	99	89	65	65	100	131	113	44	42	34	40
2	218	213	168	123	193	237	246	90	90	60	65
3	129	127	104	88	124	130	136	52	52	33	33
4	192	185	148	135	176	188	201	78	87	50	50
5	266	273	232	184	269	295	260	101	111	70	84
6a	108	120	109	98	145	148	110	40	45	38	26
6b	138	132	122	118	195	201	119	62	72	55	50
7	65	77	78	70	101	82	57	24	23	17	13
8	347	274	260	252	312	301	273	94	94	58	40
9	41	34	30	33	57	53	33	16	16	11	9
10a	22	26	26	25	44	37	25	9	7	6	4
10b	25	24	19	19	35	36	24	9	7	5	4
10c	20	18	16	16	23	24	13	7	7	6	4
11	74	80	93	111	158	131	109	37	27	16	13
12	16	25	28	28	45	37	25	9	5	4	3
State	1,647	1,706	1,476	1,363	1,973	2,040	1,753	672	685	485	438

Table 45. Number of hens by type-of-farming areas in Kansas (thousands), 1928-38 (5).

Area	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937[1]	1938[1]
1	1,082	1,012	883	890	868	953	996	770	718	676	654
2	2,046	2,006	1,882	1,655	1,669	1,659	1,912	1,410	1,269	1,058	1,055
3	1,048	1,022	997	875	805	822	846	623	558	517	450
4	1,030	1,021	1,000	877	827	864	913	661	637	530	540
5	2,159	2,042	2,064	1,835	1,762	1,875	1,956	1,494	1,401	1,390	1,225
6a	1,611	1,517	1,503	1,449	1,362	1,440	1,498	1,157	1,076	1,035	970
6b	1,901	1,801	1,889	1,798	1,746	1,740	1,700	1,502	1,423	1,408	1,245
7	1,078	1,097	1,100	1,015	981	1,011	1,003	693	660	592	541
8	1,806	1,855	1,950	1,898	1,713	1,718	1,812	1,389	1,220	1,148	1,030
9	794	747	759	735	707	715	672	543	517	490	425
10a	385	403	433	407	380	386	396	290	221	270	209
10b	386	378	393	368	350	356	357	281	240	249	202
10c	203	190	201	195	194	189	175	137	132	112	90
11	620	583	619	601	580	523	519	400	354	350	304
12	149	170	180	174	168	162	173	129	99	114	96
State	16,286	15,927	16,110	14,772	13,980	14,423	14,928	11,498	10,400	10,008	9,036

[1] Calculated from reports of the Kansas State Commission of Revenue and Taxation.

APPENDIX B

Area_____ Farm No._____

County_____ Size_____

Type_____

Comparison of the Organization
of the
Typical and Suggested Systems

Crops	1928-32 System		1934-38 System	
	Acres	Production	Acres	Production

Livestock	Number		Number	

Farm No._____

Area_____ Size_____

County_____ Type_____

Comparison of the Returns
on the
Typical and Suggested Systems

	1928-32 System		1934-38 System	
	Condition			
	1928-32	1934-38	1934-38	1928-32
Expected Sales				
Crops:				
Livestock and products:				
Expenses				
Purchased feed				
Crop expense				
Livestock expense				
Fuel and oil				
Other machinery expense				
Hired labor				
Taxes				
Totals				
Receipts minus expenses				
Products used in home				

Area _____

County _____

Farm No. _____
Size _____
Type _____

PRODUCTION AND DISPOSAL OF CROPS

Kind	Acres	Yield per Acre	Total Production	Disposal of Crop						
				Quantity Fed	Quantity Seeded	For Sale or Storage	Price Series		Value	
Totals										

S-1138-3

Area _____

County _____

Farm No. _____

Size _____

Type _____

ACREAGE AND CASH EXPENSES FOR CROPS

Crops	Acreage	Seeds and Plants			Other Expenses				
		Quantity	Cost		Kind	Unit Price		Quantity	Cost
Total	xxxxx	xxxxxx				xx	xx	xxxxx	

S-1138-4

Area _____ Farm No. _____

County _____ Size _____

Type _____

PRODUCTION AND DISPOSAL OF LIVESTOCK AND LIVE-STOCK PRODUCTS

Kind of Live-Stock	Number	Total Production	Disposal of Product						
			Used on Farm	Used in Home	Sold				
					Quantity	Price		Value	
Totals	xxx	xxxxx	xxxx	xxxx	xxxx	xxxxxxxx			

S 1138-5

Area _____

County _____

Farm No. _____
Size _____
Type _____

LIVESTOCK FEED REQUIREMENTS PER YEAR

Kind of Animal	Number	Roughage Required				Grain Required		Protein Supplement	
		Tons Non-Legumes	Tons Legumes	Tons Silage	Acres Pasture	Corn or Sorghum	Barley or Oats	Kind	Amount
Horses & Mules									
Colts									
Dairy Cows									
Other Dairy Stock									
Other Cattle									
Sows and Gilts									
Sheep									
Hens									
Totals									

Area _____

County _____

Farm No. _____

Size _____

Type _____

CASH EXPENSES FOR LIVESTOCK

Kind of Livestock	Number	Purchased Feed				Other Exponses		
		Kind	Quantity	Cost		Kind	Cost	
Totals								

S 1138-7

647

Area _____ Farm No. _____

County _____ Size _____

Type _____

180

SUMMARY OF LABOR, FUEL, AND OIL

Kind of Crop	Acres	Hours			Gallons	
		Man	Horse	Tractor	Fuel	Oil
Total for Crops						
Kind of Livestock	Number					
Total for Livestock						
Grand Total						

S 1138-8