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Types of Farming in South Dakota

R.H. Rogers

F.F. Elliott

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C. R.

Bulletin 238

June, 1929

Types of Farming
in
South Dakota

Farm Economics Department
Agricultural Experiment Station
South Dakota State College of
Agriculture and Mechanic Arts
Brookings
cooperating with the
Bureau of Agricultural Economics
United States Department of Agriculture

Digest

Type-of-Farming Areas—An outline and description of the thirteen type-of-farming areas, together with a discussion of the more important factors that have determined the type of farming being conducted in each area, constitutes the first part of this publication.

Typical Farming Systems—The usual “county averages” are inadequate for a thorough study of farms, even within the same type-of-farming area. Special tabulations of Census data provide for more detailed inspection and make possible a more specific analysis of present farming systems.

The Uses of More Complete Information—With more complete information as to the systems of farming followed on farms of different sizes within each area, it is possible to make a more practical application of current information; to plan sound agricultural programs; and to make more specific the results of other lines of research.

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TYPES OF FARMING MAP - SOUTH DAKOTA.

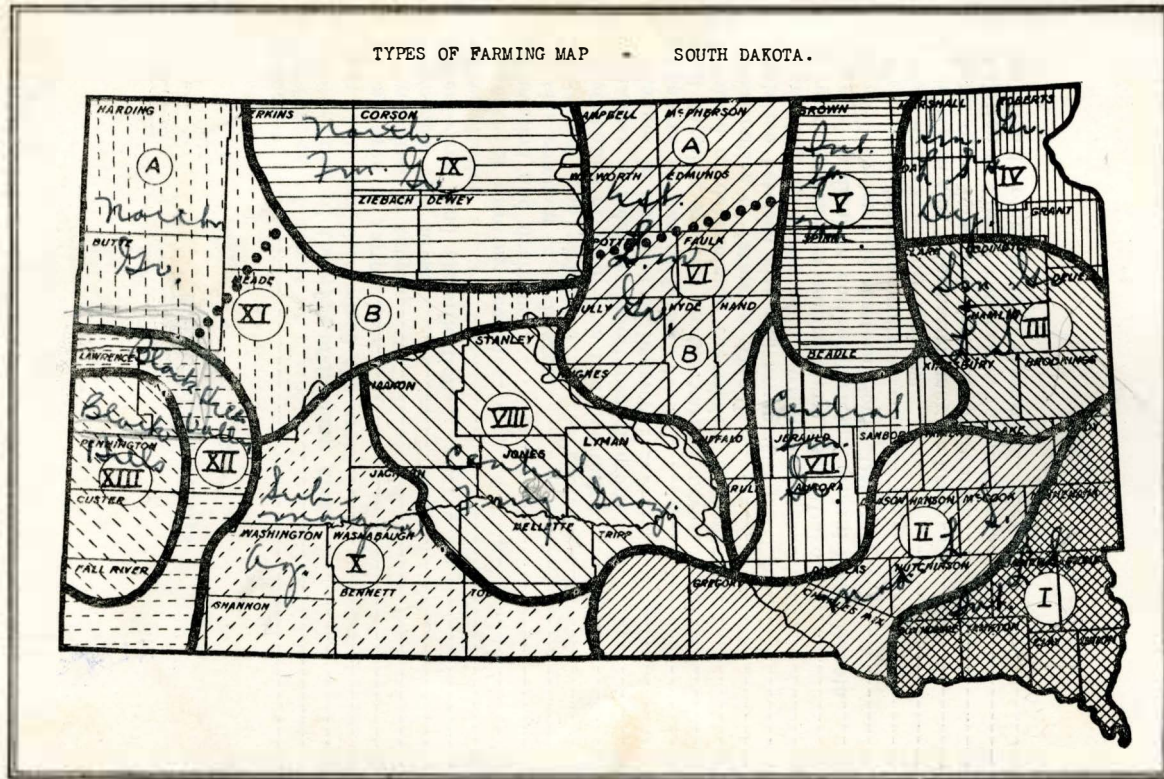


Fig. 1.—TYPE OF FARMING MAP FOR SOUTH DAKOTA.

Many factors indicate that South Dakota has thirteen distinct type-of-farming areas. The influence of the more important of these factors is discussed in the first part of this bulletin.

Types of Farming in South Dakota

R. H. Rogers and F. F. Elliott *

The purpose of this bulletin is three-fold. An accurate cross-section picture of the agriculture of South Dakota is first presented by showing the influence of the natural and economic factors that largely determine the kind of farming that is conducted in the different parts of the State. Secondly, the results of special tabulations of the 1925 Federal Census** material are included to show the typical farming systems followed on farms of various sizes. These data provide a basis for more specific analysis of farm organizations than do the usual county averages of farms of all sizes. Finally, this publication shows how this and similar material may be used by farmers, teachers, extension and research agencies to more definitely apply production and price information in appraising the profitableness of different types of farms. Long-time as well as year-to-year adjustments may also be tested out by following the methods suggested herein.

Meaning of "Types of Farming"

What is meant by "types of farming" and by "type-of-farming areas"? A definition of these terms will give a clearer understanding of the first part of this bulletin which deals with a description of the agriculture in South Dakota. Every farm is organized differently. Perhaps this difference is small—if so, such farms are following the same "type of farming". If the difference is great, a difference exists in the type of farming being carried on. If a large part of the crop area of a farm is in corn, and the chief income on the farm is from hogs to which this corn has been fed, such a business may be called a corn-hog type of farming. If the major part of the farm income is from the cash sale of wheat, such a business may be called an intensive wheat type of farming.

Within certain areas it is often found that a majority of farmers are conducting a similar type of farming. Such a locality may be called a "type-of-farming area", even though within that area, a few farms do not correspond with the usual organization. Therefore, a type-of-farming area is a territory within which a majority of farms are so organized that the type of farming being followed is similar. In any of the areas shown in Figure 1 there may be found some farms that do not correspond with the "mode". This is to be expected and may be explained by any number of factors; but within each area, enough farmers are following practically the same systems and have their farms organized in a similar way so that a type area is justified. The divisions between areas are certainly not definite lines that are exactly fixed and unchanging. "Styles" in farming have changed and will continue to do so; therefore some change in the boundaries of these areas is to be expected.

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** Acknowledgement is made to W. L. Austin, Chief Statistician for Agriculture, Bureau of the Census, for cooperation in making the special tabulations of the 1925 census data.

There are usually several good reasons why a certain kind of farming is carried on in a given locality, rather than some other system. The most important of these reasons are so called "natural factors", over which man has little or no control. The kind of soil and its fertility is very important. So is the amount of rainfall and the length of growing season. The topography of the land, of course, determines to some extent the kind of farming that can be carried on successfully. These natural determinants are discussed in detail further on in this bulletin.

In addition to production factors established by nature, there are man-made, or "economic factors" that play a part in the establishment of, or change in certain systems of farming. Around the cities, large and small, some farms are organized to supply whole milk for this market. Other perishable produce and the more bulky farm crops are also ordinarily produced near the market. Rapid railway service, good year-round roads and trucks have extended the range of this sort of farming. On farms that are farther away, a more concentrated product must be produced and for that reason, butterfat, eggs and livestock are usually products that come chiefly from farms located at some distance from the important consuming centers.

Because of long freight hauls necessary to reach the terminal markets, larger profits are made possible by marketing the more bulky South Dakota farm crops, such as feed grains and hay, in the form of pork, beef, butterfat and eggs. However, within the borders of the State, there has been a combination of these natural and economic forces that have made one part of the State a livestock feeding section, another a wheat area, another where most of the commercial potatoes are grown, and still others where the grazing of either sheep or cattle predominates. In all, thirteen such agricultural sub-divisions of South Dakota's agriculture are apparent—thirteen quite definite type-of-farming areas. These areas are shown in Figure 1, and a brief description of each follows:

Area I. The intensive livestock feeding area.—In the eight counties included in this area, corn is the principal crop, with oats grown on a large acreage. Although some feed crops are sold for cash, much of the feed raised is fed to hogs and beef-cattle. Many farmers feed out each year one or more carloads of cattle that are purchased from western ranches or from terminal stock-yards. The soil, rainfall and growing season are more favorable for diversified farming in this area than any other in the State.

Area II. The moderate livestock feeding area.—This area is similar to Area I, with less corn, oats and livestock feeding, but with more wheat and hay. Many of the farmers in this section produce their own feeders. The farms are larger and a more extensive type of farming is usually carried on.

Area III. The small-grain and live stock area.—Less corn and livestock are produced in this area than in either of the first two, but oats, barley, some rye and flax are produced. In the six counties in this area, most of the commercial potatoes of the State are grown. All of these first three areas are in the Nation's corn belt.

Area IV. The small-grain, livestock and dairy area—Less corn, oats and livestock are grown here than in the first three areas, but more wheat, flax and rye are produced. The production of butterfat in this region is relatively important.

Area V. The intensive spring wheat area—Wheat is the most important single crop in the two counties that make up the larger part of this section. The soil and climate combine to make this an ideal wheat country. More diversity in farming has developed here in recent years, but wheat continues to be of first importance.

Area VI. The extensive small-grain area—Larger farms and extensive grain growing characterize this territory. The northern one-third (A), is similar to Area V, with less wheat, corn, oats and livestock and more flax and pasture land. The rest of this area (B), has more corn and livestock and less wheat and flax than (A). It appears that this entire area is in a period of change from grain farming to more livestock.

Area VII. The central small-grain area—This region may be termed a transition area between II and VI, with less corn, oats and livestock than Area II, and with less wheat and flax than Area VI. Farms are smaller in this area than in Area VI. Lack of sufficient rainfall has seriously reduced crop and pasture yields in this region in certain years.

Area VIII. The central farming-grazing area—Grazing land predominates, but some cropping is done in selected places. This and the following areas lie in unglaciated territory and consequently rather abrupt changes in soil types occur, and the topography is generally more broken than is the case east of the Missouri River. Prairie hay has been an important cash crop from parts of this area.

Area IX. The northern farming-grazing area—Grazing predominates here, but natural factors favor cropping in restricted places. More small grain is produced and less corn grown here than in Area VIII.

Area X. The sub-marginal agricultural area—As a whole, this is the poorest part of South Dakota as far as farming is concerned. The "Bad Lands", located in this area, are very scenic but cannot even be termed good grazing land. The Pine Ridge Indian Reservation is comprised of Washabaugh, Washington and Shannon Counties. Very little agriculture is carried on here. The Rosebud Reservation is in Todd County. Here again, little farming is conducted. Bennett County is an exception in this area, as considerable farming land is found here and small-grain production and stock grazing on an extensive scale have been developed.

Area XI. The northwest grazing area—Sheep raising under range conditions is an important enterprise on many ranches in Butte, Perkins and Harding Counties, (A). Cattle grazing is the principal type of farming carried on in the entire area, with more crops and fewer sheep handled in (B) than in (A).

Area XII. The Black Hills valley area—In the valley surrounding the Black Hills and in other foothill valleys nearby, much variation in farming is found. Some of this land, especially in southern Butte County, is irrigated, where in addition to the more staple crops, sugar-beets, fruits and vegetables thrive. Some large small-grain acreages and alfalfa hay lands have been developed here and alfalfa seed from the dry-land farms is of superior quality.

Area XIII. The Black Hills area—The larger part of the Black Hills is in the National Forest Reserve where grazing and timber cutting permits are granted and careful supervision is exercised. For all practical purposes, no farming is done in this area, and for this reason, throughout this bulletin, reference is often made to the twelve type areas within the State, omitting this last area in a discussion of farming systems.

FACTORS THAT HAVE DETERMINED THE TYPE OF FARMING AREAS

On the next few pages a discussion is made of the more important factors that have determined the type of farming as carried on in the areas just described. The more important natural factors that affect agriculture are discussed more fully than are the economic factors since the effect of the latter, even though very important, are somewhat obscured. This is true because of the fact that dependable and complete information is lacking in regard to price changes, transportation charges, changing cost items, etc.

Land Area in Farms

The percentage of the total land area that is taken up by farms is shown in Figure 2, where it is evident that more of the land in the southeastern quarter of the State is being utilized for agricultural purposes than any other section. This is as expected insofar as soil, rainfall, precipitation and other factors are more favorable in this area than elsewhere in the State. West of the Missouri River, much of the land is submarginal farming land which will continue to be of greatest value as grazing land.

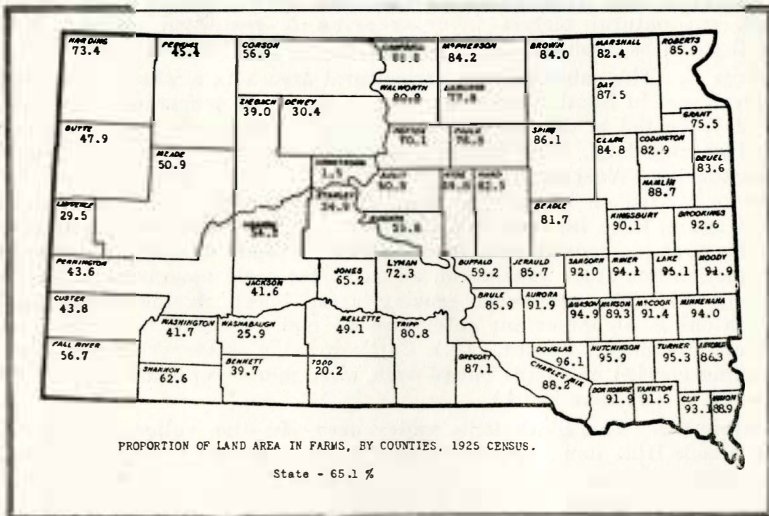


Fig. 2.—LAND AREA IN FARMS.
The percentage of the land area in farms diminishes from the southeastern toward the northwestern corner of the State.

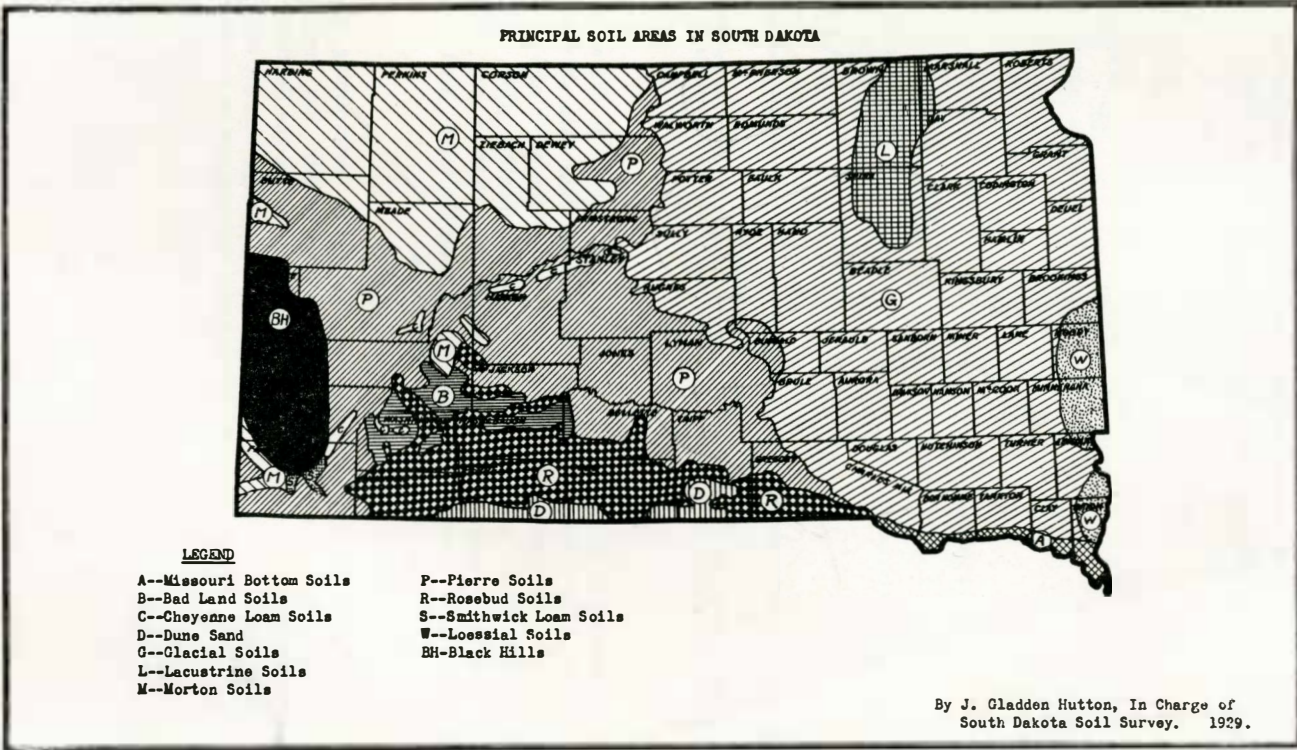


Fig. 4.—PRINCIPAL SOIL AREAS IN SOUTH DAKOTA.
A variety of soil types occur in this State which partly explains why different types of farming are found within certain rather well defined areas.

*The Missouri River divides South Dakota into two great soil areas. The eastern part of the State during glacial time was covered by an ice sheet, the approximate boundary of which is indicated by the Missouri River. The soils east of this stream are therefore weathered largely from glacial drift, except in the extreme southeastern corner where accumulations of wind-blown dust form the parent material, and in part of Brown and Spink counties where the soils are weathered from a glacial lake deposit. There is also a rather narrow area of alluvial soils along the Missouri River.

The soils west of the Missouri are derived largely from the underlying rocks. In the northwestern part of the State the soils have been classified in the Morton soil series, and are derived from sandstones and shales and consist largely of very fine sandy loams with small areas of clay and gumbo.

The soils of the middle portion of western South Dakota are weathered from a very dark clayey shale and are classified in the Pierre soil series. Clays and clay loams constitute the chief members of this series. The soils of the southern part of the western half of the State are derived from lighter colored shales, and are classified in the Rosebud soil series. Fine sandy loams, silt loams and silty clay loams are the chief members of this series.

The Black Hills area has soils typical of mountainous regions. There is much rough stoney land, but many valleys where fertile alluvial loams are found.

The Bad Lands are greatly eroded shales and clays and the chief distinguishing characteristic of this area is its topography.

Small areas of Smithwick loam and Cheyenne loam occur near the Cheyenne River or its tributaries, and while locally important, cover no extensive area. The dune sand along the southern margin of the State is a northward extension of the Nebraska sand hills.

South Dakota lies almost entirely in the Great Plains Soil Province, and the soils usually show an accumulation of calcium carbonate (lime) in the subsoil.

The soils are darkest in color in the eastern part of the State and especially in the northeastern section where the characteristic color is black. Westward, the soils become lighter in color, passing through very dark brown to brown. This color condition is due to climatic influences which determine the character of native vegetation upon which the amount of organic matter or humus in the soil largely depends.

The plant-food content of the surface soils varies greatly with the soil type. The soils darkest in color have the highest nitrogen content. Practically all soil types except very small peat areas in the extreme northeastern part of the State are well supplied with potassium. There is a fair amount of phosphorus present in the soils but in certain areas, particularly in the southeastern part, the available phosphorus is insufficient to meet the demands of crops for maximum yields. However, owing to the lack of sufficient data, no general statement concerning the plant-food needs of the various soils can be made.

*This information in regard to South Dakota soils has been prepared by J. Gladden Hutton, associate agronomist, South Dakota Experiment Station.

The supply of organic matter in the soil is steadily decreasing under the usual systems of farming, and there is an increasing tendency of soils to drift in high winds during dry periods. On steep slopes there is an increasing tendency to erosion by running water. This tendency to erosion by wind and water may be overcome by plowing under a sufficient amount of organic matter.

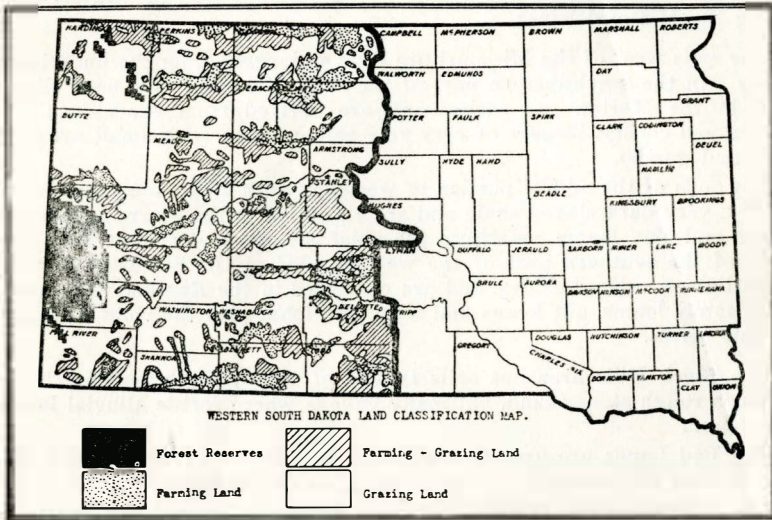


Fig. 5.—WESTERN SOUTH DAKOTA LAND CLASSIFICATION. Much of the western part of the State is best suited to grazing purposes but cropping is successfully conducted in restricted areas.

West River Land Classification

The above map has been taken from a more detailed land classification map made by the Geological Survey; the Department of the Interior cooperating with U. S. Department of Agriculture. This study was made of the Northwest Great Plains and does not include the three western river counties, Lyman, Gregory and Tripp. In this map the national forest reserves are indicated. The farming land, as explained in the detailed drawing, is "tillable land having good soil and located in regions where climatic conditions are suitable for the successful production of grain cereals". The irrigated regions have been included in "farming land". The farming-grazing land is "tillable land located where less favorable soil or climatic conditions prevail, causing crop failures in dry years, thus making the lands principally valuable for a combined use of farming and grazing". The remainder of this section of the State is classed as grazing land, either tillable or non-tillable, that, because of soil, topography or lack of rainfall, is valuable chiefly for grazing purposes.

Because of such a great variation in the suitability of land for farming purposes, it can be realized that care must be employed if an intelligent application is made of the suggested farming systems for this west-river country. Much of the rough land unsuited for farming, makes ideal range land where sheep, cattle and range horses find protection from cold winds in winter and the heat in summer. In the opinion of the more successful ranchers, some plow land combined with adequate pasture land is desirable throughout this region.

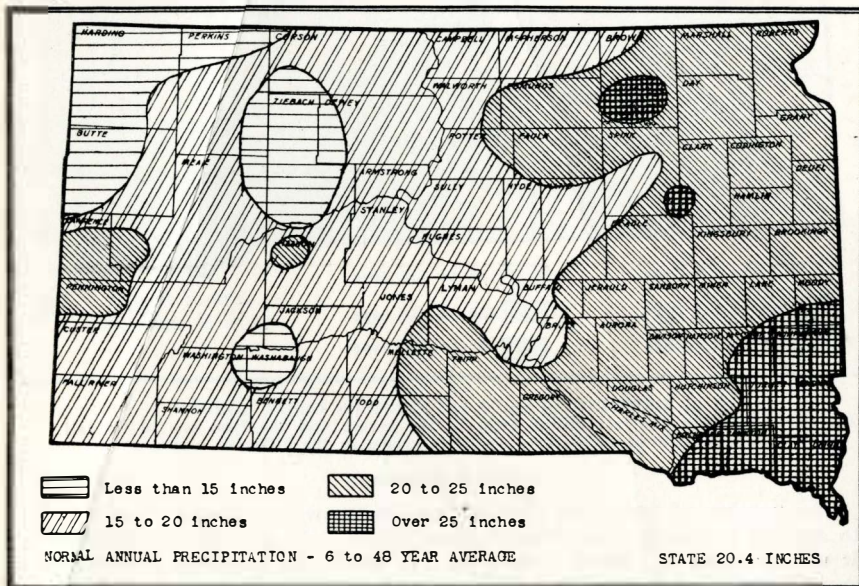


Fig. 6.—TOTAL PRECIPITATION IS IMPORTANT.
 The greatest amount of precipitation occurs in the southeastern part of the State and diminishes toward the north and west.

Precipitation

The importance of total precipitation, both snow and rainfall, cannot be stressed too much as it often accounts for the difference between profit or loss for the year. The greater part of the rainfall over the entire State comes within the growing season in normal years, which is an advantage. The greatest amount of moisture is obtained in the southeastern part of the State and the annual amount diminishes toward the north and west. The presence of the timber-clad Black Hills accounts for the average of over 25 inches in the west-central part of the State. The small areas that are shown in Figure 6 that do not correspond with the surrounding territory as far as precipitation is concerned cannot be satisfactorily explained. The available data, however, shows that these oddities do occur. As more information is gathered in regard to adaptive varieties of crops for semi-arid conditions, it is reasonable to expect an increase in the crop acreage and yields in the areas now affected by insufficient moisture.

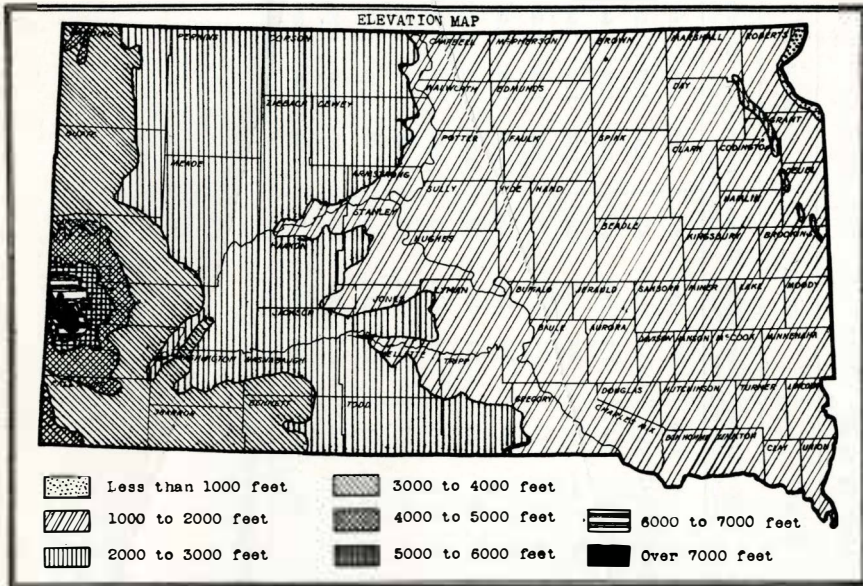


Fig. 8.—ELEVATION AND DRAINAGE.
 The highest land in the State is in the Black Hills—the lowest in the northeastern corner. Drainage has been influenced by glacier action.

Elevation and Drainage

The highest land in South Dakota is in the Black Hills. From over 7,000 feet in places, the general slope is toward the northeast where in Roberts and Grant counties, the elevation is less than 1,000 feet at Big Stone and Traverse Lakes. It would therefore be expected that drainage would generally be from the southwest toward the northeast. In the western half of the State the main rivers do run east and northeast emptying into the Missouri. The Missouri River and the other streams in the eastern part of the State, the glaciated area, flow south and east. The land near the source of the James and Big Sioux Rivers is lower than that where they enter the Missouri River. These rivers have cut gorges in the southern parts of the State through which to pass. The explanation of this phenomenon is the action of the glacier which forced these streams to reverse their original direction of flow.

It is said that most of Brown and Spink counties were formerly in a pre-glacier lake bed. This no doubt accounts for the deep, rich soil generally found throughout Area V. Gravel and stone deposits, large and small lakes, and a generally level topography may also be credited to glacial action in the eastern half of the State.

The western half of South Dakota is unglaciated and "buttes" and "draws" are commonly found. In other words, this country has not been "ironed out" as has the eastern part. Most of the eastern part of South Dakota is actually or potentially crop land, while only selected areas in the west-river country can be plowed.

TABLE I.—YIELDS COMMONLY OBTAINED IN EACH AREA*

Area	CORN			OATS			BARLEY			WHEAT			FLAX			TAME HAY		
	Poor Years	Good Years	Normal Years	Poor Years	Good Years	Normal Years	Poor Years	Good Years	Normal Years	Poor Years	Good Years	Normal Years	Poor Years	Good Years	Normal Years	Poor Years	Good Years	Normal Years
I	25.7	37.3	35.6	29.3	38.0	32.9	22.2	31.3	28.2	7.5	15.0	12.5	6.7	10.3	8.7	1.20	2.18	1.88
II	18.0	33.8	27.9	26.3	35.4	30.5	22.0	29.0	23.4	8.5	13.7	11.3	5.3	9.7	8.4	1.04	1.87	1.65
III	22.6	31.1	27.5	19.9	38.7	30.6	17.6	29.1	20.6	7.5	13.2	10.7	7.9	9.9	8.9	1.43	1.90	1.66
IV	21.2	29.4	25.9	19.0	41.0	29.9	19.6	30.9	22.3	7.8	11.9	10.3	6.5	9.9	8.6	1.43	1.90	1.56
V	21.3	29.5	26.2	27.4	38.9	31.7	13.5	29.7	24.0	5.2	15.3	10.5	7.1	10.0	8.3	1.20	1.85	1.62
VI	18.6	30.0	24.6	25.6	37.2	29.7	17.8	29.5	23.4	6.5	15.4	10.2	5.0	10.4	8.8	1.08	1.90	1.50
VII	12.5	31.3	26.0	25.7	35.1	30.7	20.3	30.1	25.3	7.5	14.8	9.9	5.7	10.4	7.4	1.06	2.06	1.65
VIII	13.0	24.5	22.3	24.1	36.8	30.7	18.5	30.3	26.2	6.0	15.0	10.1	4.4	11.1	7.7	1.02	1.79	1.40
IX	13.9	24.8	19.3	8.3	35.8	29.2	12.2	27.2	19.4	5.9	13.5	10.3	3.5	9.2	7.1	.92	1.79	1.37
X	14.8	24.2	19.9	17.9	37.7	28.0	14.4	31.8	27.1	8.8	14.9	13.1	5.0	11.3	7.0	.92	1.93	1.42
XI	17.6	24.2	21.9	17.8	35.7	28.9	16.1	28.7	24.1	6.0	14.4	10.8	4.2	10.5	6.9	1.07	2.09	1.35
XII	13.6	25.7	21.3	16.5	34.9	29.1	18.5	30.8	25.5	7.6	17.7	13.3	4.3	10.6	6.3	1.06	1.94	1.50

*Division of Crop and Livestock Estimates, United States Department of Agriculture, 1916 to 1927.

Yields Common to Each Area

From data published by the Division of Crop and Livestock Estimates, U. S. Department of Agriculture, the yields that have been obtained in the various areas are shown in Table I. The common yields in poor and good years are included to indicate the range that has occurred during the 12-year period, 1916 to 1927. The normal yield may be taken as the one to expect, and has been used in the systems that are discussed in the latter part of this bulletin. These "normals" are the median or middle-most yield for the period, by areas, and were obtained by inspection of the data.

Although yields are more often the result of the combined influences of the natural production factors previously discussed, they are a most decisive measure by which farmers determine what kind and variety of crops should be included in their farming systems.

It is found, therefore, that the following process has largely accounted for the farming carried on in certain parts of the State. Natural factors limit the crops best suited to a locality as measured by the yield of these crops; the kind and amount of livestock kept are determined to a certain extent by the grain, pasture and roughage available for feed. This similarity, brought about by the process just described, has been used in dividing the State into 13 distinct type-farming areas.

Index of Crop Yields

As has been pointed out, crop yields are not primary, but secondary factors that have influenced the bulk of the farmers in a given locality to follow one farming system in preference to another. It is of interest, however, to see just how significant the yields are for the different crops in each area. To show in one figure the weighted aver-

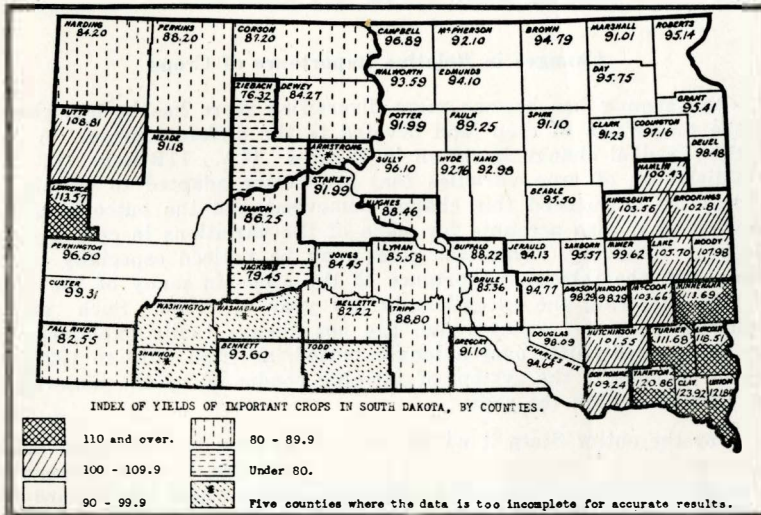


Fig. 9.—AN INDEX OF CROP YIELDS.

A comparison of county yields and acreages of the important crops may be made with the State as a whole. The State index equals 100.

age yield of the most important crops, an index number for each county has been worked out and is shown in Figure 9.

All wheat, corn, oats, barley, flax and tame hay are included, and each figure is the county percentage of the weighted State yield which equals 100. County and State yields from 1916 to 1927, inclusive, weighted by the average acreages from 1923 to 1927, inclusive, were used in making the index. In the southeastern quarter, where production factors are most favorable, the index figures are over 100 per cent. Toward the north and west, the county indices are smaller. The high indices for Lawrence and Butte counties are explained by the high yields from irrigated areas which constitute a large proportion of the crop land.

Distribution of Farm Area and Livestock

In locating the type-area boundaries, the present utilization of the farm area and the kind and number of livestock per 100 acres of farm land, were two very important determinants. In Figure 10, it may be noted that the county percentages of crops and numbers of livestock are quite similar within the different areas. It was this similarity brought about by factors previously discussed, that was largely responsible for the groupings as shown in Figure 1. Heretofore, it has been such county figures that had to be used to show the "average farming" as carried on by counties. That such data may be misleading, or at any rate inadequate, is shown later in this bulletin where more detailed Census information permits a closer study of the variations that are found within counties. Nevertheless from the above chart it can be seen that the problems in the counties that make up the different type-of-farming areas will be very much alike.

Changes in Relative Importance of Crops

As farming has become more diversified there has been a change in the proportion of crop land devoted to the different crops. A part of this gradual change is shown in Figures 11A, 11B and 11C. The establishment of crop varieties that are better adapted to certain localities has influenced this change somewhat and the outcome of the previous year also accounts for some of the variations in crop acreage the year following. This last point may be noticed especially in the changes in the relative importance of the crops in many of the areas in 1927 following the exceptionally dry year of 1926. Such annual variations may be expected and are not always easily explained, but the pronounced shifts over a longer period, as from 1910 to 1927, are due to changes in the system of farming conducted by the majority of the farmers within the area.

For the entire State it will be noted that corn has increased in importance largely at the expense of wheat. This has been the experience in other corn-belt states where corn has forced wheat out toward less productive land, in that corn is a crop that does well within a relatively limited area, requiring more definite soil and growing conditions, while wheat may be successfully grown under conditions where

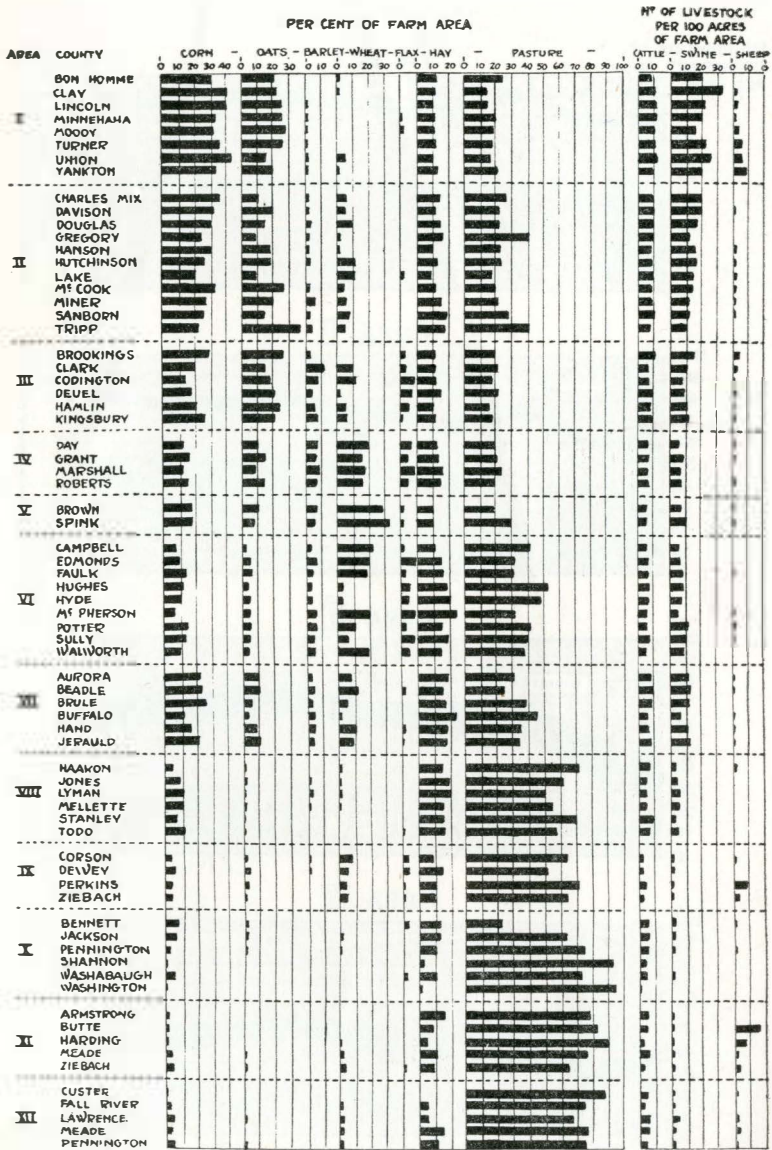


Fig. 10.—DISTRIBUTION OF FARM AREA AND LIVESTOCK. A graphic representation of the 1925 Census data shows the similarity in cropping systems and numbers of livestock within areas; also the differences between areas.

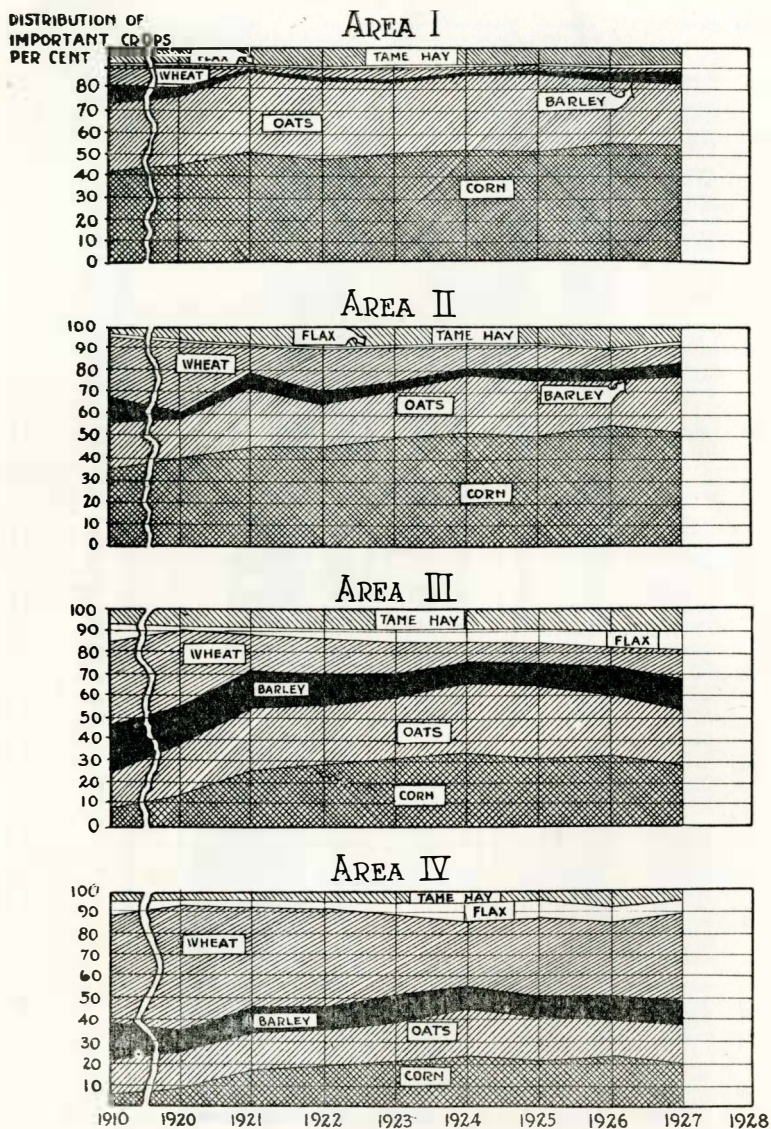
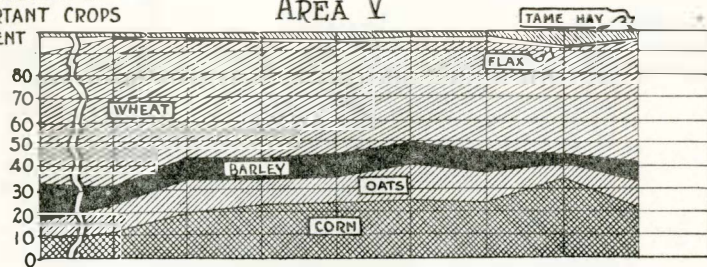


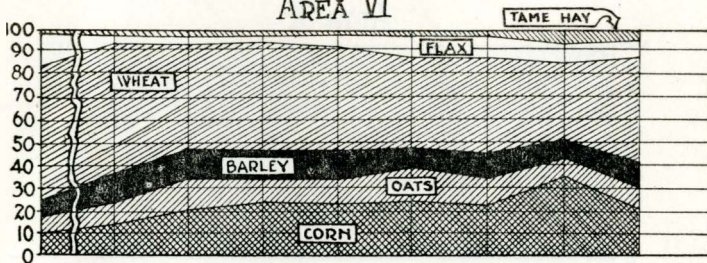
Fig. 11A.—CHANGE IN RELATIVE IMPORTANCE OF CROPS.
The changes within each area indicate how farmers react each year to the various factors of production.

DISTRIBUTION OF
IMPORTANT CROPS
PER CENT

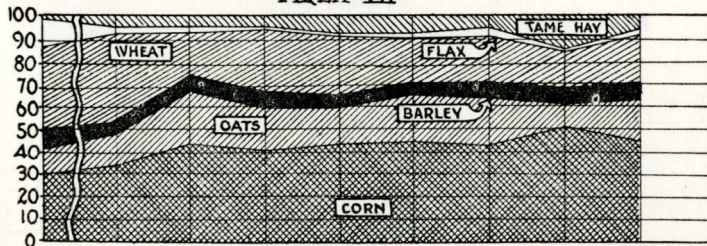
AREA V



AREA VI



AREA VII



AREA VIII

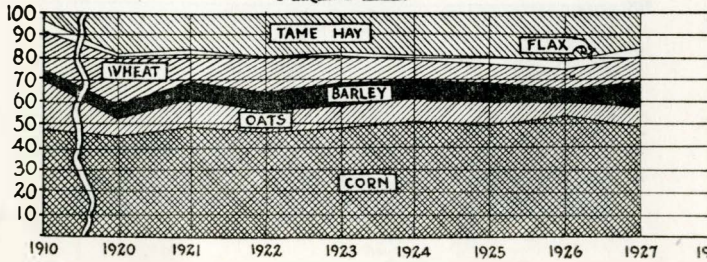
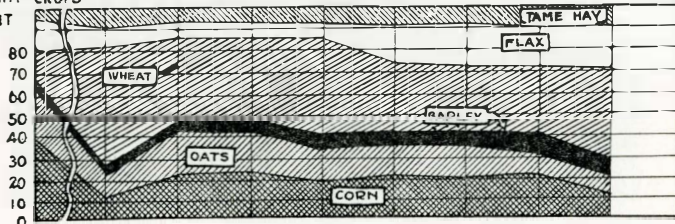


Fig. 11B.—CHANGES IN RELATIVE IMPORTANCE OF CROPS.

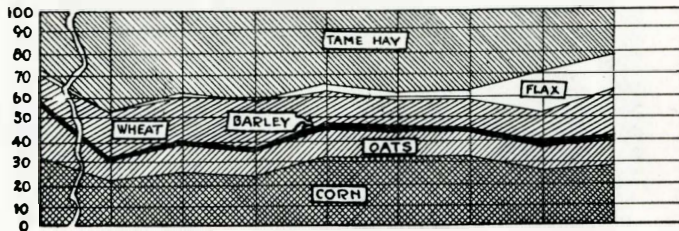
The relative importance of each crop within each area, as well as a comparison of the crop relationships between areas, may be noted in these charts.

DISTRIBUTION OF
IMPORTANT CROPS
PER CENT

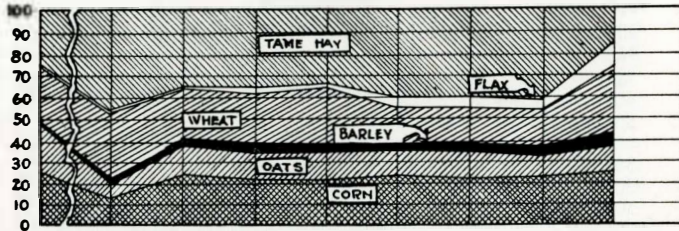
AREA IX



AREA X



AREA XI



AREA XII

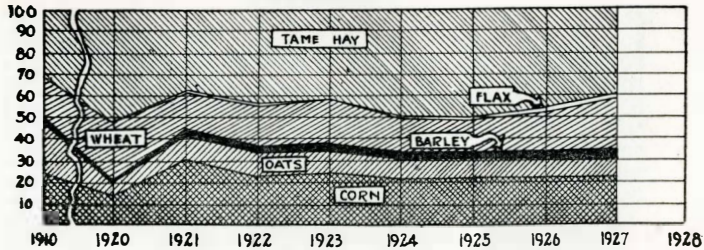


Fig. 11C.—CHANGES IN RELATIVE IMPORTANCE OF CROPS.
The period included in these charts (11A, 11B and 11C) is not long enough to definitely show a trend, although this is indicated in certain instances.

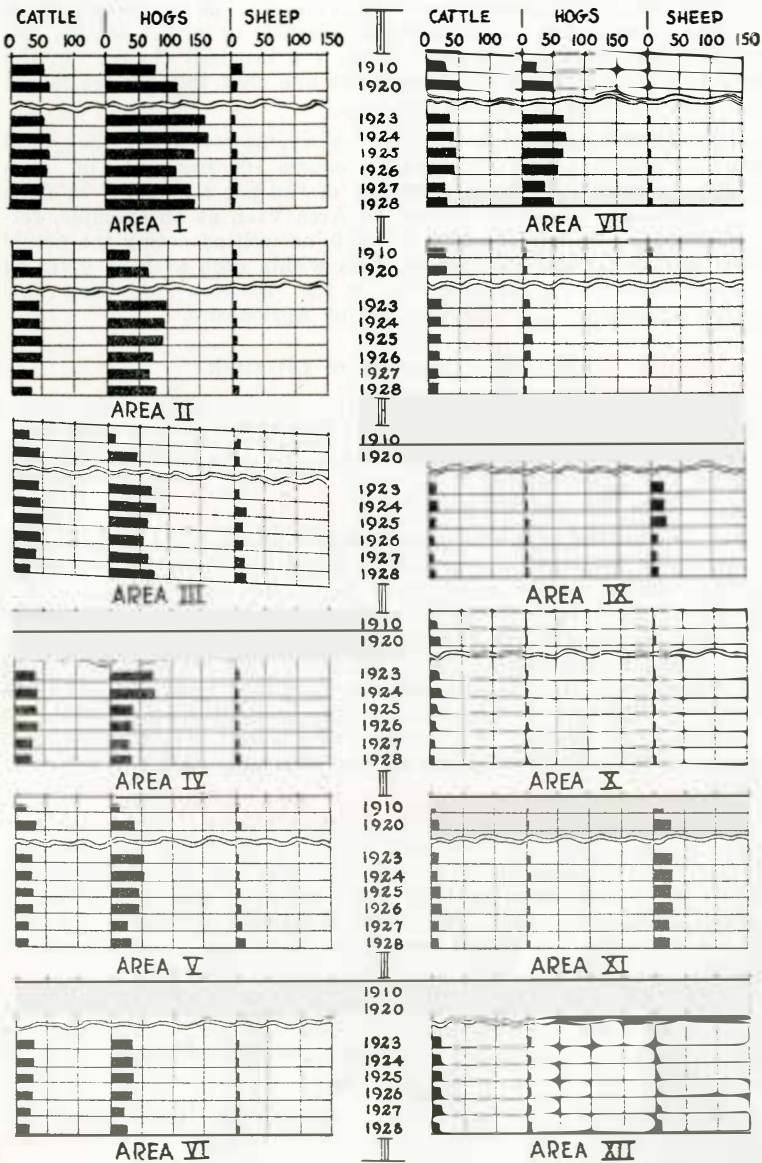


Fig. 12.—CHANGES IN NUMBER OF LIVESTOCK PER SQUARE MILE
 There are more cattle and hogs per square mile in the southeastern part of the State,
 and more sheep in the northwestern part.

corn does not thrive. The increases or decreases in the relative importance of the other crops may be explained by the encroachment of corn, price fluctuations, insect pests or disease, or other factors. In any event, these charts show that there is a constant change in the relative importance of the different crops and that this change is not the same in all parts of the State.

These charts do not tell the whole story, however, as the total acreage in the crops that are included equals 100 per cent in each area. To get an idea of the importance of "50 per cent corn" in Area I as compared to "50 per cent corn" in Area VIII, as an example, reference should be made to Figures 3 and 9, as well as noting the actual acreage in corn for some of the counties within each area as given in the 1925 Census or the latest report by the Division of Crop and Livestock Estimates, U. S. Department of Agriculture.

Changes in Numbers of Livestock

In order to show the density of the livestock population by areas, the total county figures from the recent Census reports and the Division of Crop and Livestock Estimates were used and shown graphically in Figure 12. The numbers of all cattle, hogs and sheep per square mile are shown for the different years.

No trend in livestock numbers is evident because of the short period included in the chart, but it may be noted, especially in the case of hogs, that within certain areas there is a recurrent high and low point with respect to numbers for different years. This is explained by the high and low prices paid for hogs and is known as the "hog cycle". From records for 45 years, this cycle requires on the average about 39 months to be completed, with 24 months of rising prices and 19 months of falling prices. The average may be misleading, however, as the length of the upward or downward movements of the cycles have varied from 15 to 31 months during the period for which records are available.

A similar cycle is followed by beef cattle, but as it takes longer to get in and out of the cattle business than is true of the hog business, a longer period is required for a complete cycle. In the past, this has averaged eight years between high and low points, requiring about 16 years for a complete cycle. With beef cattle, the variations in the length of upward or downward movements in the price and production cycles have been from 6 to 10 years over a 48 year period.

The sheep business has usually required a cycle of approximately nine years, with $4\frac{1}{2}$ years between high and low points. Variations in length of the latter movements have been from 3 to 6 years over a 49 year period.

It may be noted in Figure 12 that there are two important centers of sheep population. One is in the northwestern range area and the other in Area III where considerable sheep feeding is done.

The numbers of hog and cattle are more concentrated in the southeastern part of the State where natural production factors provide an abundance of feed, both grain and roughage.

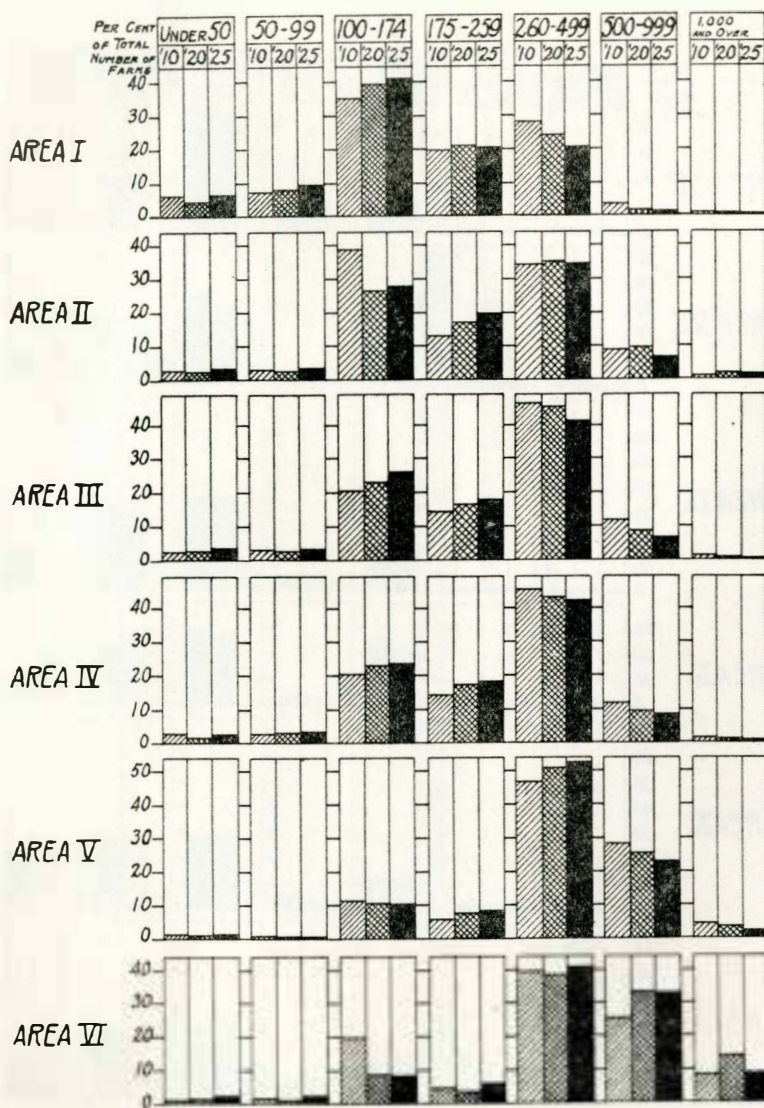


Fig. 13A.—CHANGES IN SIZE OF FARMS.

Because of more intensive cropping systems, farms are smaller in the southeastern quarter of the state than in any other part.

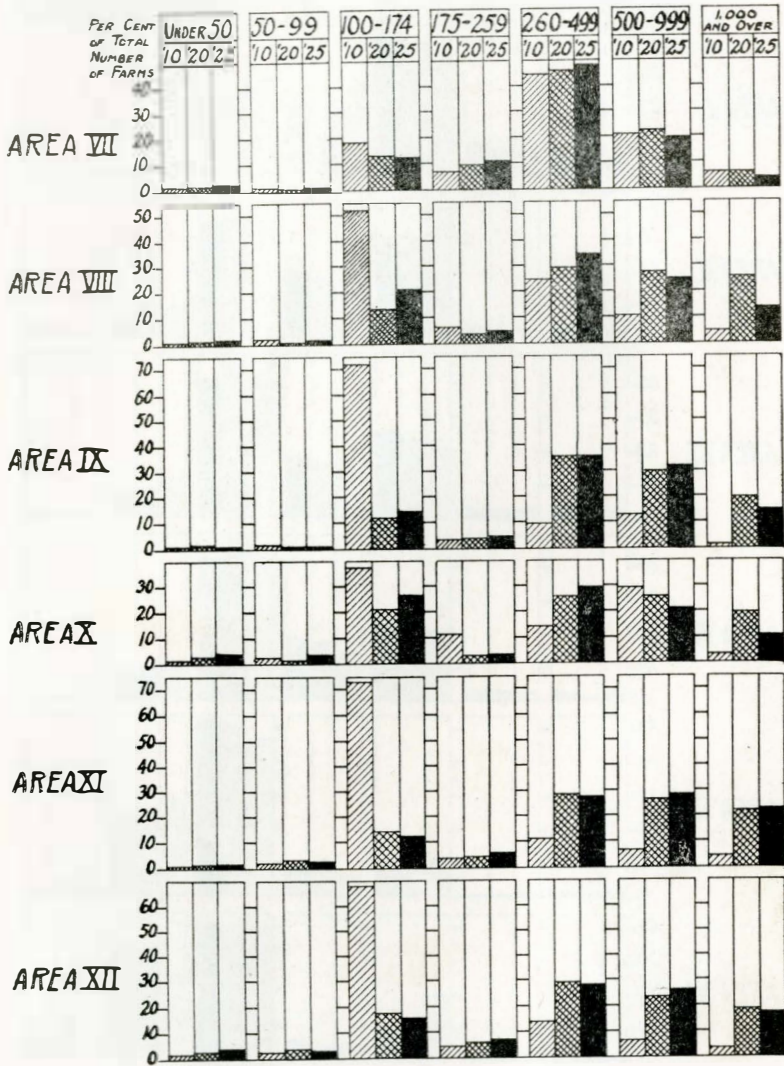


Fig. 13B.—CHANGES IN SIZE OF FARMS.
 Most west river farms are necessarily large to provide adequate pasture for livestock.

Changes in Size of Farms

The tabulations from the Federal Census of 1910, 1920 and 1925 include the number of farms of the sizes shown graphically in Figures 13A and 13B. In these charts it can be seen that the farms are smaller in the southeastern corner and generally increase in size toward the northern and western part of the State. Too few years are included to definitely indicate any trend within the areas, but it may be noted what changes have occurred in recent years.

In 1910 many quarter-section farms were reported in the west-river country where homesteads were still in the name of the original settlers. Before the 1920 census report came out, a great many of these homesteads had either been grouped into larger and more economically operated units or the title had reverted back to the State on account of delinquent tax payments. This indicates the undesirability of this size of farm in the farming-grazing region of the State.

As land values increase, the tendency in older states has been toward smaller and smaller farms. This trend has gone too far in many places and the impossibility of satisfactory returns that naturally resulted has changed the trend in these localities toward larger holdings. It is to be hoped that South Dakota farmers will benefit by this experience of farmers elsewhere in the corn-belt and avoid the mistake of trying to operate too small farms. There is no "best size" of farm that can be generally recommended for any area but there certainly is a "best size" for an individual farmer. This will be a size that will utilize most economically the available capital, labor, equipment, etc. This optimum size will, of course, vary with the type of farming followed, which in turn, is influenced by the natural factors of production.

TYPICAL FARMING SYSTEMS IN DIFFERENT TYPE-OF-FARMING AREAS

The discussion, up to this point, has been concerned primarily with the determination and description of the important type-of-farming areas in South Dakota. The important centers of production of the different crops and livestock have been indicated, but in just what various combinations they are found in the different areas, or on the same and different sizes of farms within each area, has not been shown. In this section of the bulletin the aim is to present in considerable detail the systems of farming followed on the various sizes of farms in each type-of-farming area in the State, as well as to show just about what proportion of the farmers on each size of farm follow each organization.

Although there is a fairly high degree of uniformity within the twelve different type-of-farming areas in the State, it cannot be assumed that the farmers in each area follow the same system of farming. While the organizations followed tend to conform to the dominant type, they do not do so entirely; nor would such uniformity be expected. This

is true for a number of reasons. In the first place, although conditions of production within each area as a whole are fairly homogeneous, in specific localities, and on particular farms, rather wide variations are found. Because of these local variations, farmers find it to their advantage to adopt a system of farming which is considerably different from what the majority of farmers in the area follow. Variations in soil type, drainage, topography, location with respect to market and the like are some of the factors which account for such variations. These, however, are largely purely physical factors.

Another factor of a different sort is concerned with the way different individuals react to given conditions. There are many different types and kinds of farmers. Some farmers are more alert in seeking profits than are others. They react very quickly to a change in the price of the products they are growing and will try to turn the change to their advantage by making rapid adjustments in their production. Others will not change so quickly. They will delay adjusting to the new situation until low returns force them to it; then they change and often find the opportunity has passed. There are still others who do about the same thing year after year believing that what they lose in one year they will more than make up in another.

In every community there always will be found certain farmers who lead the way. They are the first to adopt new methods and practices and to make shifts. Others follow along doing the same thing year after year, lagging from one to several years behind the leaders. It is this difference in the aptitudes of farmers which undoubtedly causes some of the variations in farming systems found in different communities.

A third factor is the variation in the amount of family labor available on different farms. Farmers with large families, seeking to utilize the available labor effectively, are likely to get into a system of farming of a more intensive nature which requires considerable labor. This probably explains in part why some farmers in strictly cash grain areas keep more cows than do others.

The lack of adequate capital or insufficient credit, or both, often keeps farmers from doing what good judgment dictates as advisable in the way of reorganizing a farm business.

Still another factor is that of tenure. A tenant operator does not have complete freedom of choice as to what he shall do. Howsoever desirable he may be of selecting a certain combination of enterprises, he may finally have to do the thing which in his own judgment is not the most profitable for him. Because of insecurity of tenure, a tenant operator also may not feel justified in making permanent improvements in the way of fences, buildings or soil fertility which he would make without hesitation were he differently circumstanced. On the other hand, many land owners do not make desirable changes because of the inability of many tenants to make such changes an asset to both parties concerned.

Tenure may have an effect in still another way. An encumbered owner, for example, through the pressure of financial obligations will be disposed to push his resources to the highest limits of profitableness. He will be quick to take advantage of every opportunity open to him and make changes in his organization if he sees a chance to make great-

er returns by so doing. An unencumbered owner, on the other hand, does not feel this urge in the same way. This is particularly true of those men who have passed the prime of life. They are not interested in squeezing the last possible dollar out of the farm, but are content to work along in a more leisurely manner. Because of this fact they are quite likely to have organizations which vary somewhat from the other group.

These are some of the more important factors which are responsible for some of the variations found in the organizations of farms in a particular area. Although such variations exist, there usually will be found in every area one organization which more farmers follow than any other. This organization is built around the dominant crop or class of livestock in the area. Just what variations are found in these dominant enterprises are shown in the typical farming systems presented for the different sizes of farms in the different areas. Before presenting these typical farming systems in detail, it is desirable to indicate just what they are typical of, and how they were determined.

Method of Determining the Typical Farming Systems

Special tabulations of approximately 4,150 farm records were made from the 1925 Census and used as a basis for the farming systems presented. These records were taken from 67 townships in the 12 type-of-farming areas in the State. Records of all ranches in certain counties were studied in determining the usual systems followed on sheep and cattle ranches. In selecting the townships, special regard was given to their location within each area. Only those townships were taken which were considered representative. Local people familiar with conditions in each area assisted in selecting the townships.

In highly uniform areas, like Area I in the southeastern part of the State, only one representative sub-area was taken. This sub-area included four contiguous townships. In other areas where there was less uniformity, the representative townships were taken at scattered points in the area so as to show the complete range of conditions insofar as possible. The number of records obtained varied depending upon the size of each area and upon its uniformity. A sample of from three to five per cent of all the farms in each area was obtained. The actual number varied from about 150 to 450 farms.

The complete organization of every farm in these representative townships was transferred to specially prepared cards—each card representing one farm. The cards were then sorted, first into size groups and then each size group was sub-sorted and arrayed on the basis of the most important enterprise and then tabulated for further analysis.

Since the method of analysis was the same in all the areas, a description of the procedure followed in one of them will suffice for all the others. For this purpose the records in Area I will be used. A total of 447 farms were taken in four contiguous townships which were representative of conditions within the whole area. The method of analysis was as follows.

Distribution of Farms by Size in Area I.

The farms were first sorted by size to get farms of the same size together and to determine what sizes are most commonly found. Table II shows both the absolute and percentage distribution of the farms by size in this representative sub-area.

TABLE II.—DISTRIBUTION OF FARMS BY SIZE IN REPRESENTATIVE TOWNSHIPS IN AREA I.

Size-Group (Acres)	Number	Per cent
0-50	11	2.5
51-130	58	13.0
131-210	227	50.8
211-290	66	14.9
291-370	67	15.0
371-450	6	1.3
451-530	7	1.5
531-610	1	0.2
611-690	2	0.4
691-and over	2	0.4
Total	447	100.0

The farms ranging from 131 to 210 acres are the most common size of farm, comprising 51 per cent of the farms of all sizes in the sub-area. Most all of the farms in this group are 160-acre farms. There are probably 5 per cent of them either slightly above or below 160 acres. The next important size-groups, in point of numbers, are the 51 to 130, 211 to 290 and 291 to 370 acre-groups. These are the 80, 240, and 320-acre farms respectively, since the major portion of the farms in each group are of that size. These four groups comprise 94 per cent of all the farms. The other sizes of farms are negligible, so far as numbers go.

Relation Between Size and Organization of Farms in Area I.

With the farms sorted into size-groups, the next problem was to determine what the prevailing organizations were on the farms in each size-group and to see if there was any tendency for the organizations to vary on the different sizes of farms; in other words to see if the same crops and livestock were found in the same proportions on the large farms as on the small farms. In order to show this, a frequency distribution was made of the farms in each size-group according to the percentage of the crop area in corn. Since corn is the most important crop in the area, a distribution of the farms according to the amount of corn grown on each farm should show the relationship between the organizations on the different sizes of farms. The results of this frequency grouping are shown graphically in Figure 14.

That there is but little difference in the proportion of the crop area in corn on the different sizes of farms is quite evident from the chart. This is particularly true on the 80, 160, 240 and 320-acre farms which are the most important size-groups. The 400 and 480-acre farms are not very different but the distribution on these farms is not very reliable since the number of farms is too small. There are only 13 farms of these sizes in both groups, the former having six of these and the latter seven farms. There are also a few scattered small and large farms, but because of the small number they were disregarded.

Thus, so far as the proportion of the acreage in corn is concerned, there is but little difference in the organizations on the different sizes of farms. Most of them have from 40 to 70 per cent of their crop area in corn.

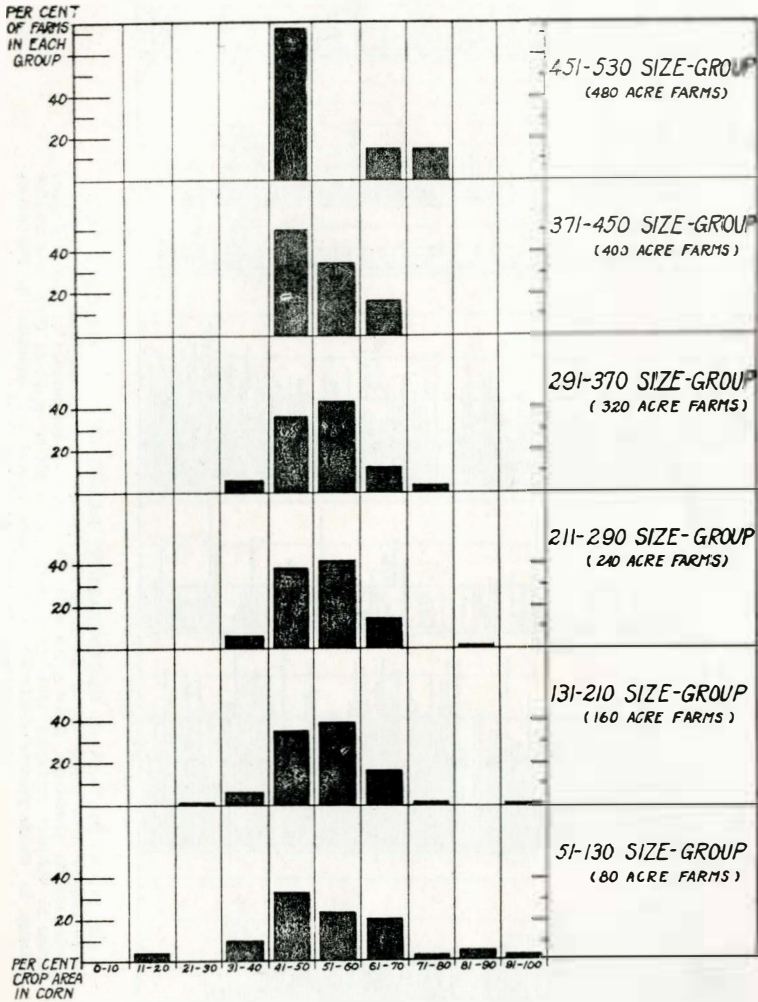


Fig. 14.—RELATION BETWEEN SIZE AND ORGANIZATION OF FARMS. Farms of different sizes in Area I have been sorted on the basis of the percentage of the crop area in corn. It is apparent that there is but little difference in the proportion of the crop area devoted to this crop, regardless of the size of farm, corn occupying from 40 to 70 per cent of the area in crops.

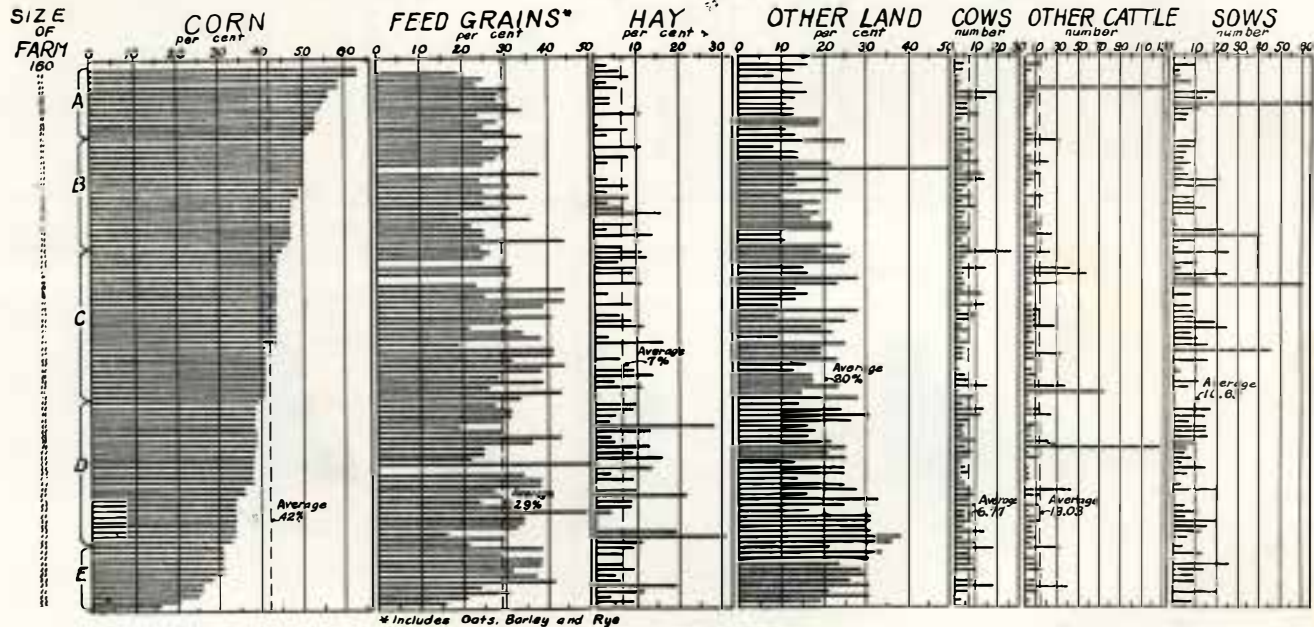


Fig. 15.—VARIATION IN ORGANIZATION; FARMS OF A PARTICULAR SIZE. Even though these farms are of the same size, located in the same area, and producing under similar conditions, there is too wide a variation in the acreage of corn and other crops to warrant averaging them as a group. It is better to divide them into smaller groups in which greater similarity exists. Such groups are indicated by the letters and braces at the left side of the chart.

Variation in Organization on Farms of a Particular Size.

The final problem in determining the typical farming systems was to analyze the farms of a particular size and see what the variations in organization were, and to see if there was any tendency for the farms to center into clearly defined groups. To show this, the farms of each size were arrayed on the basis of the acreage in the most important enterprise. The corn acreage was used in this area for this purpose. The farms were then tabulated in this form. The other crops and livestock were also included so that the complete organization of the arrayed farms could be seen. In Figure 15 is shown graphically such a grouping of the farms for one of the important size-groups in this area.

By this method of sorting, sub-sorting and arraying, the farms of the same size and organization were brought together and the typical groups easily determined.

Probably the first thing about this chart which will attract the readers' attention is the wide variation in organization found on these farms of the same size. They vary from 15 per cent of their crop area in corn to as high as 60 per cent or more; in oats from 15 per cent to 44 per cent; and in hay from 0 to 30 per cent. Obviously an average of all the farms of this size would not be representative of the individual farms from which it was derived. An average (arithmetic mean) of all the farms is not reliable because there are too many farms at the extremes of the range which vary too much from the average to make it trustworthy.

Although there is this wide variation in the organizations of these farms, closer inspection will show a tendency of the farms to group around certain clearly defined centers. Thus beginning at the top of the chart and going down, there is a group of 13 farms which have about 60 per cent of the crop area in corn. Just below this group there is another group of 20 farms with about 50 per cent of the crop area in corn. Likewise below this there is a third group with a larger number of farms (28 farms) with about 45 per cent of the crop area in corn; a fourth group (27 farms) with 35 per cent in corn, and finally a fifth group (12 farms) with around 28 per cent of the crop area in corn. The variation in the other crop and livestock enterprises is also indicated in the chart.

Thus, instead of one "average" farm of this size, there really are five groups of farms which are distinct enough to be kept separate. The range in the acreage of the different crops in these typical groups is much narrower, and an average of the farms in them will really be representative of the individual farms of the group. Instead of taking an arithmetic means (straight average) of these groups, however, it is usually better to take a median (the middlemost item) or mode (the most common item). This can be done by inspection quite accurately, thus avoiding lengthy computations, and at the same time showing the thing which is typical, or most common.

The farms resulting from such an analysis have been termed "typical farms". They are typical of what individual groups of farmers are doing on given sizes of farms who are following essentially the same systems of farming. The same method of approach was followed for

the other sizes of farms in this and the other areas, and farming systems typical of the homogeneous groups on each size of farm in each area are shown.

That an analysis, such as this, adds greatly to the precision and accuracy with which the farming systems of an area can be shown, seems quite clear. Just how these typical farming systems may be used by research and extension agencies in adding to the accuracy and effectiveness of their work will be shown presently.

Using this same method of approach, typical farming systems were set up for the different sizes of farms in the other important type-of-farming areas in the State. These farming systems are presented in detail in Tables III to XXI. For convenience of presentation, the State is divided into three general regions; the feed-grains and intensive livestock feeding region in the southeastern part of the State; the cash grain and livestock region in the central and northeastern part of the State, and the farming-grazing region west of the Missouri River. Special tabulations for typical cattle and sheep ranches have also been made.

**Typical Farming Systems in the Feed-Grains
and Intensive Livestock Feeding Region of
Southeastern South Dakota**

This general region comprises about twenty-five counties in the southeastern part of the State. There is enough variation within the region to warrant the differentiation into three type-of-farming areas (Areas I, II and III) as shown in Figure 1. In general, Area I has more corn and oats than Area II, but less wheat and hay. Area III has less corn than either I or II but has more barley, flax and rye. Potatoes also are more important in this area.

Typical Farming Systems in Area I

As previously indicated, 447 records were taken from four representative townships in Area I. These records were used as a basis for the typical farming systems shown in Table III. Organizations are shown for the 80, 120, 160, 240, 320, and 480-acre farms. Of these, the 160-acre farms are the most common in size, comprising 45 per cent of the farms of all sizes.

On the 160-acre farms there are four distinct organizations or farming systems. The principal difference in these organizations is in the amount of corn grown. The most common organizations followed has from 67 to 75 acres in corn. About 38 per cent of the farmers on the 160-acre farms follow this organization. The other three organizations have 40 to 54, 55 to 64, and 76 to 100 acres of corn respectively, and are followed by 12, 24 and 22 per cent of the farmers. The kinds and amounts of the other enterprises may be obtained by referring directly to the table.

It will be noted that a range is shown for the different classes of livestock. It was necessary to set up two different livestock organizations for the same crop organization in most of the farming systems.

TABLE III.—TYPICAL FARMING SYSTEMS IN AREA I. (1)
Special Tabulations, 1925 Census.

ITEM	80-Acre Farms		120-Acre Farms	160-Acre Farms			240-Acre Farms			320-Acre Farms		480-Acre Farms		
	20-37 Acres Corn	40-52 Acres Corn	35-63 Acres Corn	40-54 Acres Corn	55-64 Acres Corn	67-75 Acres Corn	76-100 Acres Corn	70-90 Acres Corn	91-112 Acres Corn	115-145 Acres Corn	80-110 Acres Corn	114-135 Acres Corn	140-160 Acres Corn	150-185 Acres Corn
Relative Frequency of Type (2)	Per Cent 6	Per Cent 40	Per Cent 90	Per Cent 12	Per Cent 24	Per Cent 38	Per Cent 22	Per Cent 21	Per Cent 45	Per Cent 27	Per Cent 16	Per Cent 36	Per Cent 38	Per Cent 100
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn	30	45	50	50	60	70	85	85	100	120	100	120	150	175
Oats	25	25	30	50	50	50	45	80	75	70	90	90	90	140
Barley														
Winter Wheat														
Spring Wheat														
Flax														
Alfalfa	7	5	9	6	6	5	8	7	10	10	12	15	15	25
Other Tame Hay				10	10	7	2	10	10	15	13	10	15	15
Wild Hay				0-10	0-10	0-10		0-12	0-15	0-10	0-25	0-15	0-10	
Potatoes														
Pasture	13	3	21	30	25	18	15	35	30	15	80	60	30	95
Other Land	5	2	10	12	7	6	5	20	10	5	15	15	15	25
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses	4	4	5	6	6	6	6	8	8	8	10	10	10	12
Cows	4	4	6	6	4-10	5-10	4-12	6	6-14	7-12	10-20	9-15	8-12	5
Cows Milked	4	3	2-5	4-8	3-8	3-6	3-8	5	3-8	3-8	10	5-8	4-8	6
Other Cattle	3	4	6	9	5-10	5-12	6	7	5-12	15	15-30	12	30-50	25-60
Sows	0-10	0-6	0-10	0-14	0-15	0-15	0-15	0-10;10-20	10-20	10-20	0-30	0;10-20	20-30	20-25
Sheep														
Poultry	60-100	100	60-125	125-200	100-150	100-150	75-150	100-125	75-150	75-150	100-125	100-150	75-150	100

The 80-acre farms represent 8%; the 120-acre farms 5%; the 160-acre farms 45%; the 240-acre farms 15%; the 320-acre farms 15%; and the 480-acre farms 1% of the farms of all sizes.

The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

Some farmers had twice as many livestock with the same crop organization as did others. The ranges shown are modal ranges. That is, they represent the most common numbers at each end of the range. The figures consequently indicate the effective, rather than the actual range. Some farmers had about the livestock shown in the smaller figure while others had as many as shown in the larger. This was the most common thing—a few had less than shown and some more.

On the 240 and 320-acre farms, similar variations are found. The most common organization on the 240-acre farms has from 91 to 112 acres in corn. About 45 per cent of the farmers on the 240-acre farms follow this organization. There are two other organizations with both a smaller and larger acreage of corn. On the 320-acre farms there are three common organizations, two of which are about of equal importance so far as the number of farmers following them is concerned. Thirty-six per cent of the farmers on this size of farm follow the first organization which has 114 to 135 acres of corn and 38 per cent follow the second, having 140 to 160 acres of corn. The other organization followed by 16 per cent of the farmers has less corn, only 80 to 110 acres.

Just what are the prevailing organizations on the other size of farms as well as the proportion of the farmers on each size of farm following them may be seen in the table. The relative frequency of the type is indicated by the percentage figures just above the crop acreages. They refer only to the size of farm under which they appear. It will be noted that they do not always total 100 per cent. This is to be accounted for by the fact that in certain cases some of the farms were "freaks" or were too scattered to group, hence were not included.

Typical Farming Systems in Area II.

There were 490 records taken from seven representative townships in different parts of Area II and used as a basis for the typical farming systems shown. Two townships were taken in the northeastern part of the area and the organizations typical of that area are shown in Table IV. Two representative townships were also selected in the central part of the area and three in the western part. The organizations shown in Tables V and VI are typical of those found in each of these sub-areas.

In the northeastern part of the area there is less corn and more oats, barley and wheat than in the central part. Thus on the 320-acre farms, the most common organization has 70 to 90 acres of corn, 80 acres of oats and 50 acres of barley. In the central part of the area, however, the most common organization on the same size of farm has 100 to 115 acres of corn, 50 acres of oats and 0 to 30 acres of barley.

There is less livestock in the northeastern part of the area. The most common organization on the 320-acre farms have 6 to 12 cows and 0 to 12 sows as compared with 10 to 12 cows and 16 to 20 sows in the central area. The nature of the other enterprises handled may be ascertained from Tables IV and V.

In the other sub-area (the western part) the most common organization on the 320-acre farms has about 60 acres of corn, 30 acres of oats and 40 acres of wheat. About 38 per cent of the farmers on 320-acre farms follow this organization. There is another organization on this

TABLE IV.—TYPICAL FARMING SYSTEMS IN AREA II (Northeastern Part) (1)
Special Tabulations, 1925 Census

ITEM	160-Acre Farms				240-Acre Farms	320-Acre Farms				400-Acre Farms	480-Acre Farms
	50 Wheat Acres	35- 50 Acres Corn	60- 85 Acres Corn	50- 80 Acres Corn	30- 65 Acres Corn	70- 90 Acres Corn	95-114 Acres Corn	115-150 Acres Corn	60-105 Acres Corn	80-140 Acres Corn	
Typical Farming Systems.....											
Relative Frequency of Type (2).....	Per Cent 15	Per Cent 46	Per Cent 24	Per Cent 80	Per Cent 13	Per Cent 46	Per Cent 25	Per Cent 13	Per Cent 100	Per Cent 100	
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
Corn.....	0	45	65	65	45	80	100	125	90	110	
Oats.....	45	35	40	50	60	50	80	85	50	75	
Barley.....											
Winter Wheat).....	50	25	0- 25	15	10	35	25	35	40	25	
Spring Wheat).....											
Flax.....											
Alfalfa.....	8	10		12	15	15	8	10	10	25	
Other Tame Hay.....			0- 20		15	10	17		15		
Wild Hay.....	12	10	0- 15	25	75	50	25	15	50	85	
Potatoes.....											
Pasture.....	40	40	25	65	80	70	55	40	125	150	
Other Land.....	5	5		8	20	10	10	8	20	10	
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Horses.....	3	4	5	6	7	7	8	8	8	10	
Cows.....		6- 12	5- 9	8	5- 20	6- 12	8- 20	10- 15	12- 15	20	
Cows Milked.....		4- 7	4- 8	6	6- 10	5- 8	5- 10	4- 8	6- 10	5	
Other Cattle.....		5- 10	8- 12	10- 20	5- 20	5- 20	7- 20	5- 20	10- 25	15- 30	
Sows.....		6- 10	0- 12	7- 10	7- 14	0- 12	0- 8	0- 8	0- 15	10	
Sheep.....		0- 10									
Poultry.....		75-125	100	100-150	80-125	75-150	150-300	100	80-150	100-150	

(1) The 160-acre farms represent 34%; the 240-acre farms 7%; the 320-acre farms 40%; the 400-acre farms 6%; and the 480-acre farms 4% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE V.—TYPICAL FARMING SYSTEMS IN AREA II (CENTRAL PART) (1)
Special Tabulations, 1925 Census.

ITEM	160-Acre Farms		200-Acre Farms		240-Acre Farms		320-Acre Farms				440-Acre Farms	
	36-65 Acres Corn	70-95 Acres Corn	100-120 Acres Corn	120-140 Acres Corn	60-100 Acres Corn	107-140 Acres Corn	60-96 Acres Corn	100-115 Acres Corn	130-175 Acres Corn	180-200 Acres Corn	140-200 Acres Corn	
Typical Farming Systems -----												
Relative Frequency of Type (2) -----	Per Cent 43	Per Cent 35	Per Cent 14	Per Cent 100	Per Cent 50	Per Cent 50	Per Cent 25	Per Cent 28	Per Cent 23	Per Cent 23	Per Cent 100	
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
Corn -----	55	80	110	130	85	120	80	105	150	185	165	
Oats -----				40	40	35	35-70	50	45	50	50	
Barley -----	45	40			20			0-30	15	25	0-40	
Winter Wheat -----	0-30				0-25	0-40	0-50	0-20			0-40	
Spring Wheat -----												
Flax -----												
Alfalfa -----	20	10	12	7	15	20	10	40	20	15	30	
Other Tame Hay -----				0-10	15		45	20	20	20	60	
Wild Hay -----		0-10	0-15									
Potatoes -----												
Pasture -----	25	20	20	25	45	40	85	70	65	30	50	
Other Land -----	5	5	5	5	5	5	15	5	5	5	5	
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Horses -----	4	4	5	6	6	7	8	8	8	8	9	
Cows -----	6	6	7	5	8	6	8	10-15	7	6	6	
Cows Milked -----	4-6	4	7	3	6	4	7	7	5	1	6	
Other Cattle -----	4-8	4	2-4	3-6	8	0-5	10-25	4-20	8	8	10-75	
Sows -----	0;8-10	8-12	10	10-15	12-25	10-30	10-20	16-20	15	10;10-25	20	
Sheep -----												
Poultry -----	150-200	125-200	100	100	75-125	60-200	100-150	200	150-200	50-100	50-300	

(1) 160-acre farms represent 30%; the 200-acre farms 4%; the 240-acre farms 13%; the 320-acre farms 25%; and the 440-acre farms 4% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE VI.—TYPICAL FARMING SYSTEMS IN AREA II (WESTERN PART) (1)
Special Tabulations, 1925 Census.

ITEM	160-Acre Farms			240-Acre Farms	320-Acre Farms			400-Acre Farms	480-Acre Farms	720-Acre Farms	
	20-45 Acres Corn	50-70 Acres Corn	78-120 Acres Corn	40-80 Acres Corn	45-75 Acres Corn	80-110 Acres Corn	115-160 Acres Corn	60-100 Acres Corn	80-120 Acres Corn	140-165 Acres Corn	120-130 Acres Corn
Typical Farming Systems -----											
Relative Frequency of Type (2)-----	Per Cent 31	Per Cent 48	Per Cent 19	Per Cent 77	Per Cent 38	Per Cent 34	Per Cent 26	Per Cent 78	Per Cent 57	Per Cent 28	Per Cent 50
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	35	60	100	60	60	95	130	80	100	150	125
*Oats -----	30	20	0-40	30	30	25	25	30	30	30	40
*Barley -----	*	*	*	*	*	30	25	0-30	20	15	0-50
Wheat -----	25	0-20		0-50	40	50	0-50	40	50	80	0-230
Flax -----											
Alfalfa -----	10	5	5	5	10	8	8	5	30	10	40
Other Hay -----	20	15	10	40	70	20	50	70	70	60	80
Potatoes -----											
Pasture -----	30	40	20	60	90	80	60	145	160	120	320
Other Land -----	10	10	5	10	10	12	15	15	20	15	25
Rye -----					0-30						
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	5	5	5	6	6	7	7	7	8	10	11
Cows -----	4-8	4-10	2-8	7-12	8-15	6-10	6-12	8-15	17	14-20	10-25
Cows Milked -----	5	5	0-5	5	5-8	6	6	7-10	6	7	8
Other Cattle -----	0-6	2-8	0-6	5-7	8-15	5-10	6-10	13	25-30	15-25	20-30
Sows -----	5-10	0-5	0-5	0-8	6-12	10-20	5-12	3-6	10-20	10-20	8-30
Sheep -----											
Poultry -----	100-125	50-100	100	100-150	100-150	75-100	100-150	60-125	125-200	75-125	75-200

*Oats and Barley.

(1) The 160-acre farms represent 36%; the 240-acre farms 7%; the 320-acre farms 29%; the 400-acre farms 5%; the 480-acre farms 8%; and the 720-acre farms 4% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

same size farm however followed by almost as many farmers (34 per cent) which has 80 to 110 acres of corn, 25 acres of oats, 30 acres of barley and 50 acres of wheat, and a third followed by 26 per cent of the farmers with around 130 acres of corn and about the same acreages of small-grain crops.

On the other sizes of farms similar variations are to be observed. The nature of these organizations as well as their relative importance, as shown by the proportion of the farmers on each size of farm following them, may be ascertained by referring to the tables.

Where variations exist within an area like this, by selecting townships at scattered points in the area in this way, it is possible to show quite accurately the range in organizations and conditions. Obviously the typical farming systems shown for the three different sub-areas within the larger area give the reader a much better conception of the prevailing conditions than any one of them would have done, or than would an average organization of all farms and types in the area. In the tables, the different sizes of farms are not only kept separate, but the organizations, typical of what specific groups of farmers are doing, are also kept distinct. This method provides an accurate basis for determining the nature and needs of specific groups.

Typical Farming Systems in Area III.

Two representative sub-areas were selected in Area III which includes the six counties of Brookings, Kingsbury, Hamlin, Deuel, Codington and Clark. One of these sub-areas was taken in the eastern part and included 359 farms and the other in the western part with 138 farms. There is enough difference in the organizations in these two sub-areas to justify their being discussed separately. More corn is found in the eastern part of the area and more potatoes and small grain, particularly flax, in the western part.

In Table VII are shown the more common farming systems found in the eastern part of the area. The 320-acre farm is the most common size, but there are almost as many 160 and 240-acre farms. The other sizes of farms are of less importance so far as numbers go, although organizations are presented for the 80, 400 and 480-acre farms. There were 10 to 12 farms over 480 acres in size, but they were two variable both in size and in organization to group.

On the 320-acre farms there are four organizations commonly followed. The principal difference between them is in the acreage of corn grown. There is one organization, followed by about 15 per cent of the farmers, which has about 40 acres of corn, another which is followed by about one-third of the farmers with 70 acres of corn, a third also followed by about one-third of the farmers with 90 acres of corn, and a fourth followed by about one-fifth of the farmers with 130 acres of corn. The other crops on these farms vary but little. On the farms having only 40 acres of corn, there are 30 acres of pasture, however, whereas on the other farms, the pasture runs around 45 to 50 acres.

On the 160-acre farms, there likewise are four organizations with similar variations. The corn acreage varying from 25 acres on the first organization, to 40 acres on the second, to 55 acres on the third, to 70 acres on the fourth. The last three organizations are of about equal

TABLE VII.—TYPICAL FARMING SYSTEMS IN AREA III (EASTERN PART) (1)
Special Tabulations, 1925 Census.

ITEM	80- Acre Farms	160-Acre Farms				240-Acre Farms			320-Acre Farms				400- Acre Farms	480- Acre Farms
	15- 40 Acres Corn	15- 32 Acres Corn	35- 44 Acres Corn	45- 59 Acres Corn	60- 90 Acres Corn	25- 45 Acres Corn	50- 68 Acres Corn	70-105 Acres Corn	30- 51 Acres Corn	60- 78 Acres Corn	80-110 Acres Corn	115-150 Acres Corn	80-140 Acres Corn	80-120 Acres Corn
Typical Farming Systems -----														
Relative Frequency of Type (2)---	Per Cent 66	Per Cent 12	Per Cent 25	Per Cent 32	Per Cent 28	Per Cent 11	Per Cent 39	Per Cent 47	Per Cent 15	Per Cent 33	Per Cent 33	Per Cent 18	Per Cent 94	Per Cent 71
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	30	25	40	55	70	35	60	80	40	70	90	130	110	100
Oats -----	20	30	45	50	45	50	60	65	70	80	75	85	90	95
Barley -----	0- 10	20	20	0- 15	-----	35	20	20	25	40	30	0- 30	30	60
Wheat -----	-----	0- 40	-----	-----	-----	0- 20	-----	0- 30	0- 40	0- 30	0- 30	-----	0- 40	35
Flax -----	-----	-----	-----	-----	-----	0- 10	0- 20	-----	0- 30	0- 20	0- 20	-----	0- 40	0- 20
Hay -----	10	15	15	15	10	25	30	20	35*	35*	35*	35*	35	40
Pasture -----	10	40	25	20	25	35	35	30	80	50	50	45	50	80
Other Land -----	5	10	12	14	10	40	25	15	35	30	25	15	25	40
Potatoes -----	-----	-----	0- 5	0- 4	0- 5	5	1- 10	1- 5	2	1- 5	1- 5	-----	1- 10	1- 3
Rye -----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0- 50	0- 50
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	4	5	5	5	6	6	7	7	8	8	8	8	8	12
Cows -----	2- 6	6	4- 8	5- 12	4- 10	6- 8	5- 12	5- 12	3- 10	6- 14	6- 15	4- 12	8- 20	10- 18
Cows Milked -----	3	4	5	6	6	6	4- 8	7	7	8	8	9	8	8
Other Cattle -----	3	6	4- 10	5- 15	4- 10	6- 15	6- 15	4- 15	5- 13	6- 20	10- 30	10- 20	10- 30	10- 20
Sows -----	3	3- 7	3- 10	5- 10	4- 10	5- 12	7- 15	5- 12	5- 12	6- 12	5- 12	10- 20	6- 12	5- 15
Sheep -----	-----	-----	-----	-----	-----	-----	0- 30	0- 75	0- 25	-----	-----	-----	0- 50	0- 40
Poultry -----	60-120	75-150	75-150	100-150	100-200	100	100-150	100-200	75-125	75-125	75-150	150	75-100	100-200

*Alfalfa Hay on these farms averages 10 acres.

(1) The 80-acre farms represent 4%; the 160-acre farms 27%; the 240-acre farms 22%; the 320-acre farms 29%; the 400-acre farms 4%; and the 480-acre farms 3% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE VIII.—TYPICAL FARMING SYSTEMS IN AREA III. (WESTERN PART) (1)
Special Tabulations, 1925 Census

ITEM	160-Acre Farms			240-Acre Farms		320-Acre Farms			400-Acre Farms	480-Acre Farms
	16-30 Acres Corn	31-50 Acres Corn	55-70 Acres Corn	30-55 Acres Corn	60-90 Acres Corn	25-50 Acres Corn	55-80 Acres Corn	85-110 Acres Corn	50-90 Acres Corn	60-110 Acres Corn
Typical Farming Systems.....										
Relative Frequency of Type (2)	Per Cent 30	Per Cent 38	Per Cent 25	Per Cent 43	Per Cent 52	Per Cent 27	Per Cent 39	Per Cent 29	Per Cent 57	Per Cent 67
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn	25	40	60	40	75	40	70	100	70	100
Oats	40	40	50	75	80	80	100	95	110	180
Barley		0-20		0-20	0-20	0-20	0-30	0-30	0-30	0-30
Flax	25	0-15	0-15	15	0-20	30	0-40		85	45
Hay	25	15	10	30	25	35	45	30	45	45
Pasture	30	48	20	45	30	55	60	50	45	60
Other Land	10	10	10	15	15	60	10	30	15	30
Potatoes	2-10	1-8	1-6	2-9	3-10	2-10	6-15	5-12	15	1-10
Rye						0-20				
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses	5	5	6	6	6	7	9	8	8	11
Cows	8-16	7-12	5-12	6-12	8-13	6-15	14-25	10-25	9-14	15-25
Cows Milked	7	7	5	6	5	6	10	8	9	12
Other Cattle	5-15	8-15	4-12	8-15	7-15	7-20	10-25	10-25	13-35	11-25
Sows	0-10	0-12	6-12	2-10	5-12	3-10	6-15	10-15	10-12	6-15
Sheep								0-50		
Poultry	50-100	75-150	75-125	50-125	100	75-125	75-125	100-200	100-175	100-150

(1) The 160-acre farms represent 38%; the 240-acre farms 15%; the 320-acre farms 28%; the 400-acre farms 3%; and the 480-acre farms 3% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

importance, each being followed by approximately one-third of the farmers. The other enterprises are about the same for the different organizations.

Just what are the prevailing organizations on the other sizes of farms may be ascertained directly from the table.

In the western part of the area, the 160-acre farms are the most common in size comprising 40 per cent of all the farms. The 320-acre farms are next in importance followed by the 240, 400 and 480-acre farms.

On the 160-acre farms there are three common organizations having 25, 40 and 60 acres of corn and followed by 30, 40 and 25 per cent of the farmers respectively. The flax acreage on the farms, it will be noted, varies from 0 to 25 acres. No flax was found on this size of farm in the eastern part of the area. More potatoes also are grown in the western part of the area. The acreage of potatoes on the 160-acre farms varies from 1 to 10 acres as compared with a range of 0 to 5 acres on the same size of farms in the eastern part. There are a few farms in the western section of the area which grow 20 acres or more of potatoes, although the figures given are the common acreages grown.

On the 320-acre farms there are again three organizations commonly followed with a corn acreage varying from 40 to 70 to 100 acres. On these farms there are more cows than on the same size of farm in the eastern section. The cows vary from 6 to 25 on these farms as compared to a variation of from 3 to 15 on the 320-acre farms in the eastern group. There is not much difference in the hog enterprise. There are but few sheep found on any of these farms. The organizations on the 80, 240, 400 and 480-acre farms may be obtained from Table VIII.

**Typical Farming Systems in the Cash Small-Grain
and Livestock Region of Northeastern and
Central South Dakota**

In this general region which comprises approximately 20 counties in the central and northeastern part of the State, wheat, flax and barley are the principal crops grown with some corn and oats. There is more pasture in this region than in the feed-grains and livestock feeding area previously discussed, but there is not as much livestock, particularly hogs, as in that region.

This region is divided into four type-of-farming areas, the chief distinction between them being the amount of wheat and other cash crops grown.

Typical Farming Systems in Area IV.

Two sub-areas were taken in Area IV, one in the southeastern part of the area and the other in the western part. About 330 records were taken in five representative townships and used as a basis for the farming systems shown in Tables IX and X.

In the southeastern part of the area, the 160-acre farms are the most common in size (Table IX). The 320-acre farms are next in importance followed by the 240 and 480-acre farms.

TABLE IX.—TYPICAL FARMING SYSTEMS IN AREA IV. (EASTERN PART) (1)
Special Tabulations, 1925 Census

ITEM	160-Acre Farms			240-Acre Farms			320-Acre Farms			480-Acre Farms
	13- 28 Acres Wheat	30- 55 Acres Wheat	60-100 Acres Wheat	No Wheat	20- 50 Acres Wheat	55- 80 Acres Wheat	25- 69 Acres Wheat	70-110 Acres Wheat	115-165 Acres Wheat	120-200 Acres Wheat
Typical Farming Systems -----										
Relative Frequency of Type (2) -----	Per Cent 22	Per Cent 47	Per Cent 22	Per Cent 27	Per Cent 42	Per Cent 23	Per Cent 30	Per Cent 37	Per Cent 21	Per Cent 100
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	45	35	40	60	45	50	60	70	70	110
Oats -----	25	25	25	85*	40*	50*	80*	55	35*	50*
Barley -----	0- 10	0- 15	---	*	*	*	*	---	*	*
Wheat -----	20	40	75	---	40	65	45	90	140	160
Flax -----	0- 25	0- 15	---	0- 12	---	0- 12	---	0- 20	0- 15	0- 30
Alfalfa -----	5	5	3	8	5	---	---	---	---	---
Other Hay -----	10	15	12	7	35	25	25	30	30	50
Pasture -----	30	25	10	55	55	50	60	55	30	75
Other Land -----	10	5	5	8	8	5	25	5	10	8
Rye -----	---	---	---	---	---	---	0- 30	0- 35	---	0- 30
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	5	6	6	7	7	7	8	8	10	10
Cows -----	7- 12	5- 10	6- 10	5- 10	8- 14	12- 15	6- 12	7- 12	8- 12	12
Cows Milked -----	3- 8	6	6	7	7	8	7	8	8	11
Other Cattle -----	3- 8	5- 10	5- 15	6- 12	10- 20	10- 15	5- 10	7- 12	3- 10	5- 10
Sows -----	6- 8	5- 9	7	6- 15	8- 12	6- 12	4- 12	6- 10	8- 12	3- 10
Sheep -----	---	---	---	---	---	---	---	---	---	---
Poultry -----	50-100	75-150	50-125	60-200	100-200	100-150	100-150	75-150	75-150	60-100

*Oats and Barley.

(1) The 160-acre farms represent 37%; the 240-acre farms 20%; the 320-acre farms 28%; and the 480-acre farms 4% of the farms of all sizes.
(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE X.—TYPICAL FARMING SYSTEMS IN AREA IV. (WESTERN PART) (1)
Special Tabulations, 1925 Census.

ITEM	120-Acre Farms		160-Acre Farms			240-Acre Farms		320-Acre Farms			400-Acre Farms	480-Acre Farms	640-Acre Farms	
	38-48 Acres Wheat	No Wheat	16-35 Acres Wheat	40-70 Acres Wheat	75-120 Acres Wheat	10-45 Acres Wheat	66-86 Acres Wheat	20-70 Acres Wheat	80-130 Acres Wheat	135-207 Acres Wheat	85-150 Acres Wheat	100-180 Acres Wheat	200-260 Acres Wheat	160-230 Acres Wheat
Typical Farming Systems-----														
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Relative Frequency of Type (2)	100	13	27	22	15	25	42	28	41	28	64	52	44	64
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	20	40	25	45	20	25	15	25	30	20	25	30	30	60
Oats -----	10	20	15	15	10	25	35	50	60	45	60	60	60	90
Barley -----	5	15	15	0-20	20	20	20	30	25	25	35	30	30	40
Wheat -----	40		30	55	90	30	70	50	110	160	125	150	225	210
Flax -----		0-15	0-15	0-10		0-10	0-20	30	0-30	0-20		0-30	0-30	0-40
Hay -----	12	20	20	0-20	0-10	50	0-25	40	20	10	50	45	40	70
Pasture -----	25	57	40	15	15	55	50	80	55	45	100	100	65	115
Other Land -----	7	7	10	5	5	30	20	15	10	10	5	50	20	35
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	4	5	5	6	7	6	6	8	8	8	9	10	11	13
Cows -----	6	7-10	3-8	4-8	4-8	3-10	5-8	3-12	5-11	6-10	10-20	7-10	7-12	8-20
Cov.s Milked -----	2	7	2-6	5	0-4	6	4	2-7	3-9	4-7	6-10	7	2-7	3
Other Cattle -----	2-6	5-10	6-10	4-8	0-6	9-12	8-12	7-15	8-15	5-10	12-20	15-25	5-20	8-20
Sows -----	2	2	2-6	3-7	0-5	3-8	4-8	4-10	4-10	4-8	8-15	5-15	5-15	5-20
Sheep -----														
Poultry -----	45	75	50	50-100	50-75	75	40	50-100	75-125	50-80	50-100	50-150	75-100	50-100

(1) The 120-acre farms represent 3%; the 160-acre farms 25%; the 240-acre farms 12%; the 320-acre farms 22%; the 400-acre farms 7%; the 480-acre farms 12%; and the 640-acre farms 5% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

On the 160-acre farms there are three organizations commonly followed having 20, 40 and 75 acres of wheat respectively. The oats, corn, flax and other crops are of about equal importance on the different farms. The farms with more wheat, however, have less pasture.

The livestock, likewise, are quite similar on the different organizations. The most common organization is the one having from 30 to 55 acres of wheat. Approximately one-half of the farmers on the 160-acre farms follow this organization. The other two organizations are each followed by about one-fourth of the farmers.

On the 320-acre farms there are also three common organizations. One of these has 45 acres of wheat, and is followed by 30 per cent of the farmers, the second has twice as much wheat with less oats and waste land and is followed by 40 per cent of the farmers, and the third has still more wheat, 140-acres, and is followed by 20 per cent of the farmers. Some rye is found in the first two organizations, approximately 50 per cent of the farmers having the acreage shown.

Similar variations are found on the 240-acre farms. There are three organizations commonly followed. One of these, followed by about one-fourth of the 240-acre farmers has no wheat, but has a high acreage of oats (85 acres). The second, the most common, followed by 40 per cent of the farmers has 40 acres of wheat, and the third followed by about 25 per cent of the farmers has around 65 acres of wheat. The acreage of the other crops grown may be obtained by referring directly to the table.

Only one organization is shown for the 480-acre farms. There were not enough farms to give a very satisfactory grouping. As a consequence the range shown is pretty wide.

In the western part of the area, the 160-acre farm is still the most common in size. There are four organizations shown varying from no wheat to as high as 120 acres in wheat. The most common organization, followed by about 45 per cent of the farmers, has from 40 to 70 acres in wheat. The next most important organization, followed by about one-fourth of the farmers, has from 16 to 35 acres in wheat. The other two organizations, each followed by 12 to 15 per cent of the farmers, have either no wheat or as much as 90 acres of wheat.

On the 320-acre farms there are three organizations commonly followed. The most common of these, followed by 40 per cent of the farmers, has from 80 to 130 acres in wheat. The other two organizations, each followed by 25 to 30 per cent of the farmers, have from 20 to 70 and from 135 to 207 acres of wheat respectively. The nature of the other enterprises grown on these farms as well as on the other sizes of farms may be ascertained by referring to Table X.

A comparison of the organizations on these farms with those in the southeastern part of the area shows that a greater acreage of wheat is grown in the western part of the area than in the eastern. However, more oats and barley are of importance in the east; also more cattle and hogs. The western part of the area adjoins the intensive wheat area in Brown and Spink counties, and for this reason wheat is more important than further east where oats and other feed crops predominate. In the eastern part of Grant and Roberts counties, the type-of-farming is quite similar to that prevailing in Area III to the south.

Typical Farming Systems in Area V.

This is the intensive spring wheat producing area of the State, and includes all of Brown and Spink counties and parts of northern Beadle and small portions of the adjacent counties to the west. There were 206 records taken from three representative townships in Brown and Spink counties, and used as a basis for the farming systems shown in Table XI.

In this area the half-section farms predominate. On this size of farm the most common organization has around 160 acres in wheat which is the most common crop grown. About 40 per cent of the farmers on this size of farm follow this organization. There are two other organizations of interest. One of these has around 100 acres of wheat and is followed by about one-fourth of the farmers, and the other with 200 acres of wheat, is followed by about one-third of the farmers.

There is not a very wide variation in the other enterprises. Probably the largest variations to be noted are in the corn and pasture acreages. The organization having 100 acres in wheat has 65 acres in pasture, while in the other two, the pasture area includes 25 to 30 acres. The organization with the high acreage of wheat has only 45 acres of corn as compared to 60 and 70 acres on the other two organizations.

Similar variations are found on the 480-acre group which is the next important size in point of numbers. There are three common organizations followed; one has around 160 acres of wheat, another 250 acres in wheat, and the third 325 acres in wheat. About 25, 40 and 30 per cent respectively of the farmers on this size of farm follow these organizations. It will be noted that as the wheat acreage is increased, the corn, oats and hay acreages decrease. The livestock, as would be expected, also decrease as the wheat acreage is increased.

The nature and variation of the organizations on the other sizes of farms may be ascertained by referring directly to Table XI.

Typical Farming Systems in Area VI.

This area comprises all of the counties lying between Brown and Spink counties and the Missouri River and running as far south as, and including portions of Brule, Buffalo and Hand counties (See Fig. 1). There is enough difference in the northern and southern portions of this area to justify separate treatment of the organizations. Approximately 340 records were taken in 10 representative townships in this area; 112 records in the northern part of the area and 229 in the southern part.

In Table XII are shown the organizations typical of the farming systems followed in the northern part of the area. The 480-acre farms are the most common in size, followed by the 400, 600, 320, 640 and 720-acre farms named in the order of their relative importance.

On the 480-acre farms there are three common organizations. These organizations are of about equal importance, as approximately one-third of the farmers follow each of them. Wheat is the dominant crop grown varying from 95 to 150 to 220 acres in the three organizations. As the acreage of wheat increases, the corn and pasture acreage decrease as was the case in Area V. Flax is relatively more important in this area than in any other area in the State. The acreage on the 480-acre farms varies from 15 to 25 acres. The pasture area on these farms is relatively high also, much higher than in Brown and Spink counties.

TABLE XI.—TYPICAL FARMING SYSTEMS IN AREA V (1)
Special Tabulations, 1925 Census.

ITEM	160-acre farms		240-acre farms	320-acre farms				400-acre farms		480-acre farms			560-acre farms		640-acre farms		800-acre farms	
	25-75 acres wheat	80-120 acres wheat	60-127 acres wheat	60-120 acres wheat	125-179 acres wheat	180-240 acres wheat	120-190 acres wheat	200-300 acres wheat	140-200 acres wheat	215-280 acres wheat	300-360 acres wheat	220-300 acres wheat	315-380 acres wheat	200-310 acres wheat	325-410 acres wheat	271-375 acres wheat	450-525 acres wheat	
Relative Frequency of Type (2)	Per Cent 41	Per Cent 41	Per Cent 89	Per Cent 27	Per Cent 38	Per Cent 33	Per Cent 56	Per Cent 39	Per Cent 26	Per Cent 40	Per Cent 30	Per Cent 55	Per Cent 36	Per Cent 23	Per Cent 54	Per Cent 50	Per Cent 38	
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
Corn -----	30	20	40	70	60	45	75	60	110	90	65	100	70	95	90	140	145	
Oats -----	25	20	15	20	25	20	* 50	30	45	35	25	40	25	35	40	50	50	
Barley -----	15	-----	20	25	20	0-20	-----	25	25	30	0-30	50	35	30	25	50	25	
Wheat -----	60	100	100	100	160	200	160	250	165	250	325	250	350	250	370	340	460	
Flax -----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	0-60	-----	0-50	-----	
Hay -----	0-20	-----	20	20	0-30	0-30	10	0-15	50	20	15	20	0-10	25	30	50	40	
Pasture -----	20	10	35	65	25	30	70	20	65	35	30	65	60	150	65	120	60	
Other Land -----	5	10	10	20	20	15	35	10	20	20	5	25	16	40	20	30	20	
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Horses -----	6	6	7	8	8	9	9	10	12	13	14	11	11	13	13	15	16	
Cows -----	3-6	0-4	3-6	3-8	3-6	4-9	3-8	2-5	4-6	4-8	2-7	4-12	5	8-20	3-9	5-12	5-9	
Cows Milked -----	3	0-4	4	2-6	2-5	3-6	3	2-5	4	2-6	2-6	3	5	2-6	3-6	5	5	
Other Cattle -----	2-4	0-5	3-7	2-6	3-8	0-8	4-10	2-4	6-12	4-8	4-8	5-10	2-5	9-15	2-6	5-15	4-10	
Sows -----	0-8	0-5	10-20	5-12	7-15	5-12	8-20	7-12	10-20	10-20	6-10	7-14	10-15	12-20	10-20	20-30	20	
Sheep -----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Poultry -----	50-100	0-100	100-150	50-125	50-150	50-125	50-125	75-125	50-100	75-150	75-150	50-100	75-150	150-200	50-125	75-100	100-150	

(1) The 160-acre farms represent 12% ; the 240-acre farms 4% ; the 320-acre farms 27% ; the 400-acre farms 9% ; the 480-acre farms 13% ; the 560-acre farms 5% ; the 640-acre farms 12% ; and the 800-acre farms 8% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

*Oats and Barley.

Similar variations are found on the other sizes of farms. Thus on the 400-acre farms, wheat varies from 100 to 170 acres, on the 320-acre farms from 70 to 115 acres, on the 600-acre farms from 140 to 225 acres and so on for the other farms. There is less variation in the other crops and livestock. (See Table XII).

In the southern part of the area, including Potter, Sully, Faulk, Hughes, Hyde, and parts of Hand, Buffalo and Brule counties, there is to be noted a smaller acreage of wheat and flax and more corn and livestock in the organizations than are found in the organizations in the northern part of the area just discussed. (Compare Tables XII and XIII.)

The 320-acre farm is the most common size in this section. There are four common organizations found in this group. The most common organization followed by about 40 per cent of the farmers has 65 acres in corn, 40 acres in oats and 45 acres in wheat. The next most important organization followed by about one-third of the farmers has 50 acres in corn, 25 acres in oats, and 90 acres in wheat. The other two organizations are of about equal importance. One has 80 acres in corn, 50 acres in oats and no wheat, and the other has 50 acres in corn, 25 acres in oats and 100 acres in wheat. Approximately 12 to 15 per cent of the farmers on this size of farm are following one or the other of these organizations.

The 640-acre farm is the next most important size. It likewise has four organizations. The corn acreage on these farms does not vary much. Most of the farms have from 100 to 125 acres in corn. There is considerable variation, however, in the wheat acreage. Thus, one of the organizations has 50 acres of wheat, another 105 acres, a third 180 acres, and the fourth 285 acres. There is also considerable variation in the hay and pasture acreages. Apparently when the wheat acreage increases the hay and pasture acreages decrease. The number of livestock varies somewhat on the different farms but is relatively more constant than either the wheat or hay and pasture acreages.

The variations on the other sizes of farms as well as the proportion of the farmers following each may be obtained directly from Table XIII.

Typical Farming Systems in Area VII.

This area comprises Jerauld, Aurora, the major portion of Beadle and parts of Kingsbury, Sanborn, Brule, Buffalo and Hand counties. This area on the whole is not as productive as are the other areas discussed in this region excepting Area VI in certain years. Approximately 200 farms were taken in five representative townships in this area and were used as a basis for the typical organizations shown in Table XIV.

The half-section farm is the dominant size with the 160 and 480-acre farms of next importance, followed by the 240, 400, 640, 800 and 1,280-acre farms.

On the 320-acre farms there are three common organizations found. The most common of these, followed by about 40 per cent of the farmers, has 70 acres in corn and 40 acres in wheat, 35 acres in oats, 15 acres in barley and 40 acres in hay. The other two organizations have about the same amount of small-grains but vary considerably in the acreage of corn. One has 50 acres in corn and the other 100 acres of the same crop. About one-fifth of the farmers on this size of farm follow the former and one-third the latter organization.

TABLE XII.—TYPICAL FARMING SYSTEMS IN AREA VI. (Northern Part) (1)
Special Tabulations, 1925 Census.

ITEM	160-Acre Farms		320-Acre Farms		400-Acre Farms		480-Acre Farms		600-Acre Farms		640-Acre Farms		720-Acre Farms	
	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat	Acres Wheat
Typical Farming Systems-----	55-100	49- 90	97-142	67-135	150-230	75-120	130-160	200-260	110-170	180-240	100-170	100-185	225-350	
Relative frequency of Type (2)-----	Per Cent 75	Per Cent 46	Per Cent 54	Per Cent 44	Per Cent 56	Per Cent 35	Per Cent 35	Per Cent 30	Per Cent 46	Per Cent 38	Per Cent 91	Per Cent 45	Per Cent 55	
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn-----	0- 25	35	25	30	20	40	35	20	25	40	30	30	40	40
Oats-----	0- 10	20	25	15	10	0- 20	25	15	45	25	25	30	15	15
Wheat-----	75	70	115	100	170	95	150	220	140	225	150	160	270	270
Barley-----	0- 12	15	15	10	25	35	15	25	*	20	30	30	35	35
Flax-----		15	0- 15	10	15	20	25	15	20	30	40	30	15	15
Hay-----	15	40	40	80	40	66	60	60	130	60	120	110	90	90
Pasture-----	40	120	85	150	110	200	120	125	200	200	200	320	250	250
Other Land-----	10	5	10	5	10	20	50	5	35	5	45	10	5	5
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses-----	5	8	8	9	9	10	10	10	11	13	13	12	16	16
Cows-----	0- 5	5- 8	6	6- 12	4- 8	7- 14	6- 12	6- 12	4- 10	6- 12	8- 16	10- 20	12- 13	13
Cows Milked-----	0- 4	6	5	7- 10	7	8	9	8	6	8	8	9	10	10
Other Cattle-----	0- 5	3- 8	5- 7	7- 13	6- 9	6- 12	6- 12	8- 11	6- 15	6- 12	10- 16	10- 15	10- 15	10- 15
Sows-----		3- 8	5- 15	4- 18	0- 8	5- 20	0- 8	0- 6	0- 6	0- 5	0- 15	0- 8	0- 10	0- 10
Sheep-----				0- 20										
Poultry-----	75	40	60- 75	50-100	60-100	75-200	40-100	50-100	75-150	75-150	100-150	100-150	100-150	100-150

(1) The 160-acre farms represent 7%; the 320-acre farms 12%; the 400-acre farms 14%; the 480-acre farms 23%; the 600-acre farms 12%; the 640-acre farms 10%, and the 720-acre farms 10% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE XIII.—TYPICAL FARMING SYSTEMS IN AREA VI. (Southern Part) (1)
Special Tabulations, 1925 Census.

ITEM	160-acre farms		240-acre farms		320-acre farms			480-acre farms		640-acre farms			760-acre farms			960-acre farms		
	15-40 acres wheat	45-100 acres wheat	40-120 acres wheat	0-10 acres wheat	30-40 acres wheat	75-110 acres wheat	135-170 acres wheat	50-110 acres wheat	120-210 acres wheat	25-65 acres wheat	75-125 acres wheat	140-200 acres wheat	230-315 acres wheat	50-107 acres wheat	142-175 acres wheat	295-560 acres wheat	60-100 acres wheat	300-425 acres wheat
Relative Frequency of Type (2)	Per Cent 53	Per Cent 37	Per Cent 73	Per Cent 16	Per Cent 39	Per Cent 33	Per Cent 12	Per Cent 33	Per Cent 41	Per Cent 29	Per Cent 18	Per Cent 26	Per Cent 18	Per Cent 21	Per Cent 26	Per Cent 21	Per Cent 55	Per Cent 45
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	40	30	50	80	65	50	50	80	75	120	100	110	100	90	130	120	150	100
Oats -----	25	0-25	25	50	40	25	25	60	55	60	40	45	40	50	40	40	40	45
Barley -----	0-20	-----	20	30	0-15	25	20	0-40	0-30	35	0-40	25	15	50	35	30	40	20
Wheat -----	25	65	60	-----	45	90	150	75	160	50	105	180	285	75	160	320	85	360
Flax -----	0-20	0-30	0-30	-----	0-50	-----	-----	-----	-----	0-40	0-50	-----	-----	-----	20*	10*	70*	0-50*
Hay -----	30	0-40	30	70	60	50	0-20	75	50	150	50	80	90	90	70	70	60	160
Pasture -----	20	25	40	80	75	70	55	150	75	200	260	165	85	390	285	140	500	225
Other Land.	5	10	5	10	10	10	10	20	20	10	20	35	25	15	10	30	15	30
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	0-5	0-5	0-6	0-8	0-7	0-8	0-8	0-8	0-8	0-13	0-11	0-14	0-12	0-14	0-14	0-14	0-20	0-15
Cows -----	0-5	0-8	0-10	6-10	8-12	5-10	5-10	5-15	7-12	10-20	10-20	8-20	7-15	10-20	12-30	8-18	20-30	8-20
Cows Milked -----	0-5	0-6	6	6	7	6	3	5	6	6	6	8	7	5	12	7	0-8	-----
Other Cattle -----	0-7	0-7	0-10	5-10	5-12	5-10	0-6	5-15	5-15	15-25	10-25	10-25	5-12	15-40	10-40	8-15	30-60	15-20
Sows -----	0-10	-----	0-10	5-10	7-15	5-12	0-5	10-25	3-10	15-30	10-20	8-16	6-15	10-30	10-25	6-16	25	10
Sheep -----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	60	100-125	100-200	50-100	75-150	100-200	50-125	100
Poultry -----	75-125	0-50	100	50-100	50-125	60-100	75-100	75-150	50-125	50-125	-----	-----	-----	-----	-----	-----	-----	-----

*Rye and flax.

(1) The 160-acre farms represent 8%; the 240-acre farms 5%; the 320-acre farms 22%; the 480-acre farms 12%; the 640-acre farms 17%; the 760-acre farms 8% and the 960-acre farms 5% of the farm of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE XIV.—TYPICAL FARMING SYSTEMS IN AREA VII (1)
Special Tabulations, 1925 Census

ITEM	160-acre farms			240-acre farms			320-acre farms			400-acre farms		480-acre farms		640-acre farms		800-acre farms	
	20-45 acres corn	50-65 acres corn	70-110 acres corn	50-70 acres corn	83-110 acres corn	30-55 acres corn	60-80 acres corn	85-130 acres corn	63-95 acres corn	105-122 acres corn	40-75 acres corn	80-135 acres corn	70-100 acres corn	60-215 acres corn	80-120 acres corn	175-225 acres corn	
Typical Farming Systems																	
Relative Frequency of Type (2)	Per Cent 35	Per Cent 35	Per Cent 23	Per Cent 55	Per Cent 45	Per Cent 18	Per Cent 42	Per Cent 31	Per Cent 41	Per Cent 41	Per Cent 26	Per Cent 66	Per Cent 43	Per Cent 37	Per Cent 50	Per Cent 40	
All Crops	Acres 35	Acres 58	Acres 90	Acres 65	Acres 90	Acres 50	Acres 70	Acres 100	Acres 75	Acres 115	Acres 65	Acres 100	Acres 85	Acres 200	Acres 115	Acres 200	
Corn	35	58	90	65	90	50	70	100	75	115	65	100	85	200	115	200	
Oats	10-40	25	0-25	20	75	30	35	45	30	40	30	60	50	65	110	70	
Barley	*	*	*	15	*	15	15	*	0-25	15		0-40	15			*	
Wheat	0-40			40	30	35	40	30	65	85	50	70	50-100	110		30	
Flax						0-50											
Alfalfa	15	15	5	15	10	10	15	10	10	30	20	20	30	10	30	15	
Other Hay	25	20		15	20	50	25	50	50	25	110	75	125	50	120	75-200	
Pasture	25	30	30	60	35	90	100	70	135	70	195	125	250	180	400	350	
Other Land	10	10	10	10	10	30	20	15	30	20	15	10	10	25	20	10	
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	
Horses	4	6	6	7	7	7	6	8	10	10	10	12	10	10	8-16	11	
Cows	6-10	6-11	3-10	8-15	6-10	8-16	10-20	8-15	10	15	6-15	10-20	6	15	25-60	40	
Cows Milked	3	6	4	5-10	4-10	4-10	6	6	8	10	4-8	8-15	0-3	8	8	0-5	
Other Cattle	0-10	0-10		6-15	0-6	5-12	8-15	5-12	15-20	18	14-21	10-20	25	15-20	20-60	30-45	
Swine	0-10	12-16	0-7	6-15	4-10	6-10	8-15	6-12	18	15	6-12	10-20	12-20	5-15	12	10-30	
Sheep																	
Poultry	40	75-150	60-120	75-150	75-150	60-150	100-200	75-150	100	150-300	75-150	100-175	75-150	150	100-150	100	

*Oats and Barley.

(1) The 160-acre farms represent 15%; the 240-acre farms 10%; the 320-acre farms 27%; the 400-acre farms 8%; the 480-acre farms 13%; the 640-acre farms 7%; and the 800-acre farms 5% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

On the 160-acre farms there is a variation from 35 to 58 to 90 acres of corn. Likewise on the 480-acre farms there is one organization with 65 acres in corn and another with 100 acres in the same crop. On the 640-acre farms the corn acreage also varies widely; from 85 acres in one organization to 200 acres in the other. The amounts of the other crops grown and the numbers of the different classes of livestock handled, both on these and the other sizes of farms may be obtained by

Typical Farming Systems in the Farming-Grazing Region West of the Missouri River

The region west of the Missouri River is quite different from the areas east of the river which have been discussed. Although grazing is predominant throughout the region, considerable cropping is carried on in the valleys and along the bottoms of the Cheyenne, White, Moreau and Belle Fourche rivers, as well as on some of the table-land. In order to show this range in conditions and type-of-farming, it is necessary to keep the cropping and strictly grazing areas separate. Accordingly, townships representative of the cropping areas were first selected and tabulated separately to determine the farming systems typical of the range in conditions found, and then other townships showing the strictly grazing and ranching types were selected, and the ranch organizations analyzed to determine the organizations typical of those conditions.

Typical Organizations Where Farming is Carried On.

There is enough difference in the conditions and types found to justify a division of the region into six different areas (Areas VIII to XIII). The nature of these differences will be discussed as the organizations for the areas are presented. The typical organizations found in the cropping areas will be discussed first.

Typical Farming Systems in Area VIII.

This area has more cropping in it than any other part of the west-river country. It includes Haakon, Stanley, Jones, Lyman, Mellette, the northern part of Todd and Tripp counties and part of Jackson county. Representative townships were selected in different parts of these counties and used as a basis for the typical farming systems shown in Table XV.

Organizations have been set up for various sizes of farms. Of these farms the 160, 320 and 480-acre farms are the most common.

On the 160-acre farms there are three predominant organizations. One of these, followed by about one-third of the farmers, has 30 acres in corn, 125 acres in pasture and 5 acres in other land. The second has 25 acres of corn, 0 to 18 acres of oats, 10 acres of hay and 110 acres of pasture and other land. About one-fourth of the farmers follow this organization. The third organization has the same amount of oats as the second one discussed, but has 40 acres of corn, 30 acres of hay and 85 acres of pasture and other land. About 40 per cent of the farmers follow this organization and it is the most common one found. The nature of the livestock organization may be obtained from the table.

TABLE XV.—TYPICAL FARMING SYSTEMS IN AREA VIII. (1)
Special Tabulations, 1925 Census.

ITEM	160-acre farms			320-acre farms			400-acre farms	480-acre farms	640-acre farms	800-acre farms	960-acre farms	1280-acre farms	
	no hay 30 A. Corn	16 acres hay; 25 Acres Corn	20-55 Acres hay; 40 A. corn	20-45 Acres Corn	50-80 Acres Corn	0-65 Acres Corn	50-130 Acres Corn	30-50 Acres Corn	60-120 Acres Corn	40-80 Acres Corn	30-70 Acres Corn	30-80 Acres Corn	50-80 Acres Corn
Relative Frequency of Type (2)	Per Cent 32	Per Cent 25	Per Cent 39	Per Cent 100	Per Cent 100	Per Cent 43	Per Cent 36	Per Cent 46	Per Cent 42	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 82
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn	30	25	40	30	65	35	65	40	80	60	50	40	60
Oats		0-18	0-18	0-20	0-20	0-40		0-15	0-20	25	25	0-40	0-50
Barley				0-20	0-50			0-15	0-20	0-30	25	0-40	0-50
Wheat				0-30		0-35		0-60	10-50	0-60	40	0-40	0-40
Flax													
Hay		10	30	60	40	0-65	0-95	40	100	125	165	250	220
Pasture	125	100	80	180	170	300	230	340	270	340	475	610	900
Other Land	5	10	5	10	10	10	10	10	10	25	20	20	50
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses	5	6	5	6	7	8	8	8	8	10	12	16	16
Cows	5-15	1-10	0-7	5-10	5-10	4-10	4-10	5-12	10-20	10-20	15-20	20-30	20-40
Cows Milked	4-10	5	4	7	7	6	6	3	5	10	10	12	12
Other Cattle	5-15	4-8	0-6	5-10	0-10	5-10	5-10	5-15	7-15	10-25	15-35	20-40	30-60
Sows	0-4		0-7	5-10	8-15	0-10	0-10	6-12	6-12	7-12	6-12	12-20	6-10
Sheep													
Poultry	50	25-50	25-100	50-150	50-150	35-100	35-100	50-100	50-100	75-150	50-100	50-100	50-100

(1) The 160-acre farms represent 25%; the 320-acre farms 18%; the 400-acre farms 8%; the 480-acre farms 13%; the 640-acre farms 5%; the 800-acre farms 9%; the 960-acre farms 4%; and the 1280-acre farms 9% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

On the 320-acre farms there are two organizations which are of about equal importance so far as the number of farmers following each is concerned. One of these has 30 acres of corn, 0 to 30 acres of wheat, and 60 acres of hay, while the other one has 65 acres of corn, no wheat, and 40 acres of hay. The other crop and livestock enterprises on the two organizations are about the same.

On the 480-acre farms similar variations are evident. Two organizations are of outstanding importance. One has 40 acres of corn, 40 acres of hay and 350 acres of pasture and other land, while the other has 80 acres of corn, 100 acres of hay and 280 acres in pasture and other land. The first organization has 5 to 12 cows, and the latter has from 10 to 20. The other livestock and crops are about the same on the two organizations.

On the larger farms, the corn acreage is not very different from that on the smaller farms, but the hay and pasture acreages are larger. There are also a greater number of cows. See Table XV for the nature of these organizations on the other sizes of farms.

Typical Farming Systems in Area IX.

This area is composed of Corson, Dewey, most of Perkins and the northern part of Ziebach counties. There is some farming conducted in this area, although most of the land is still in range. The nature of the farming systems is shown in Table XVI. These typical farming systems are based on 228 farms taken from four representative townships in the area.

The farms found in this area are larger than those found in the other areas already discussed. The 480-acre and 640-acre farms are the most common sizes, although there are practically as many 1,280-acre farms.

On the 480-acre farms there are two common organizations. One of these, followed by about 60 per cent of the farmers, has 30 acres of corn, 20 acres of oats, 45 acres of wheat, 20 acres of barley, 0 to 30 acres of flax and 100 acres in hay. The other organization has about the same acreage of corn, oats, flax and barley, but has 100 acres of wheat and 40 acres of hay. There are also more livestock in the first organization.

There are two common organizations on the one-section farms. These are of about equal importance so far as numbers go. The principal difference to be noted between the two organizations is in the wheat, hay and pasture acreages. One of the organizations has 35 acres in wheat, 70 acres in hay and 430 acres in pasture, and the other one has 90 acres in wheat, 50 acres in hay and 270 acres in pasture. The latter organization has a little more corn. The livestock are about the same on the two organizations.

Just what variations are found in the organizations on the other sizes of farms may be obtained directly from the table.

Typical Farming Systems in Area X.

This area includes Shannon, Bennett, Todd, Washington, Washaugh, and portions of Pennington, Haakon and Jackson counties. There is little cropping carried on in this area excepting in a part of Bennett county. The northern portion of the area includes the "Bad

TABLE XVI.—TYPICAL FARMING SYSTEMS IN AREA IX (1)
Special Tabulations, 1925 Census

ITEM	160- Acre Farms	240- Acre Farms	320- Acre Farms	480-acre farms		260- Acre Farms	640- Acre Farms	800- Acre Farms	960- Acre Farms	1280- Acre Farms		
	20 Acres Wheat	30 Acres Wheat	40 Acres Wheat	45 Acres Wheat	100 Acres Wheat	50 Acres Wheat	25-40 Acres Wheat	70-125 Acres Wheat	90-200 Acres Wheat	75-250 Acres Wheat	30-60 Acres Wheat	95-200 Acres Wheat
Relative Frequency of Type (2)	Per Cent 85	Per Cent 100	Per Cent 100	Per Cent 56	Per Cent 38	Per Cent 100	Per Cent 48	Per Cent 48	Per Cent 94	Per Cent 100	Per Cent 57	Per Cent 20
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn	15	25	25	30	25	20	30	45	25-70	60	25-70	40-100
Oats	20	25	20	20	30	25	30	30	20-60	40	25-50	20-75
Barley	0- 15		10	20	0- 40	0- 20		15	15-40	30	20	0- 40
Wheat	20	30	40	45	100	50	35	90	90-200	125	40	150
Flax	0- 40		0- 20	0- 30	0- 30	0- 20	0- 20	20	0- 30	0- 50	0- 30	0- 60
Hay	15	10	20-40	100	40	60	70	50	50-160	80-150	60-140	100-180
Pasture	60	140	170	200	225	360	430	270	280-500	460	*	*
Other Land	10	10	20	40	20	35	40	100	20- 60	100	700-1200	660-960
Rye				0- 30	0- 20			20	0- 50			
Livestock	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses	8	7	6- 12	6- 12	5- 7	6- 15	6- 12	8- 12	5- 12	6- 15	7- 13	7- 18
Cows	0- 6	4- 12	6- 15	7- 15	5- 11	10- 25	6- 12	6- 20	6- 20	12- 25	20- 35	20- 30
Cows Milked	3	0- 5	6	5- 10	5	5- 12	7	6- 10	4- 12	8- 15	5- 12	10- 15
Other Cattle	0- 5	3- 8	6- 15	8- 20	5- 10	10- 24	6- 20	6- 24	15- 30	10- 25	20- 45	25- 45
Sows	0- 3	0- 8	2- 8	2- 8	0- 5	3- 10	2- 6	4- 10	0- 10	5- 10	6- 12	5- 7
Sheep												0-300
Poultry	30-60	25-75	50-100	50-100	60-125	75-150	75-125	75-125	75-125	50-125	50-100	100-150

*Pasture and Other Land.

- (1) The 160-acre farms represent 12%; the 240-acre farms 3%; the 320-acre farms 14%; the 480-acre farms 16%; the 560-acre farms 4%; the 640-acre farms 13%; the 800-acre farms 8%; the 960-acre farms 5%; and the 1280-acre farms 10% of the farms of all sizes.
- (2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE XVII.—TYPICAL FARMING SYSTEMS IN AREA X. (1)
Special Tabulations, 1925 Census

ITEM	80-Acre Farms	160-Acre Farms		320-Acre Farms		480-Acre Farms	640-Acre Farms	800-Acre Farms
	7 Acres Corn	0-8 Acres Corn	10-20 Acres Corn	0-15 Acres Corn	20-50 Acres Corn	10-30 Acres Corn	0-8 Acres Corn	25 Acres Corn
Typical Farming Systems	7	0-8	10-20	0-15	20-50	10-30	0-8	25
Relative Frequency of Type (2)	Per Cent 79	Per Cent 73	Per Cent 27	Per Cent 62	Per Cent 38	Per Cent 92	Per Cent 92	Per Cent 100
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn	7	5	15	10	35	20	5	25
Oats							0-20*	
Barley	3			0-10	0-30	0-20		
Wheat		0-5	0-10					
Flax								
Hay		0-10	20	30	50	35	40	200
Pasture	65	140	110	250	215	400	585**	550**
Other Land	5	5	10	25	10	15		
Livestock	No.	No.	No.	No.	No.	No.	No.	No.
Horses	8-40	5-25		6-15	6	5-10	4-12	12-25
Cows			0-12		0-8	0-12	0-10	14-50
Cows Milked						0-8	0-8	10
Other Cattle			0-6		0-12	0-15	0-12	12-50
Sows			0-8		0-5	0-10	0-9	2-4
Sheep								
Poultry		0-25	25-50	0-20	50-100	0-75	0-75	50-100

* Oats and Barley.
** Pasture and Other Land.

(1) The 80-acre farms represent 10%; the 160-acre farms 34%; the 320-acre farms 18%; the 480-acre farms 9%; the 640-acre farms 9%; and the 800-acre farms 4% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organizations.

Lands", and the southern part the Pine Ridge and Rosebud Indian Reservations. Townships which would show such cropping as is carried on were selected in these counties and the farming systems shown in Table XVII are typical of what is done.

On the 160-acre farms, which is the most common size, there are two outstanding organizations. The most common of these, followed by approximately three-fourths of the farmers, has 5 acres in corn, 0 to 5 acres in small-grain cut for hay, 0 to 10 acres in other hay, and 145 acres of pasture and other land. The only livestock kept are from 5 to 25 horses and 0 to 25 poultry. On the other group there is more farming carried on; there being 15 acres of corn, 0 to 10 acres of small-grain cut for hay, 20 acres of alfalfa, and 120 acres in pasture and other land. There are a few horses, cattle, hogs and poultry.

On the 320-acre farms similar variations occur. There are two organizations of importance—one with 10 acres in corn, 30 acres in hay and 275 acres in pasture and other land, and on the other, 35 acres in corn, 50 acres in hay and 225 acres in pasture and other land. About 60 per cent of the farmers follow the first organization and 40 per cent the latter on the 320-acre farms.

On the 480, 640 and 800-acre farms, only one organization is shown, the nature of which may be noted in the table. On the 800-acre farm group there is much more livestock and a larger acreage in hay.

Typical Farming Systems in Area XI.

This area is made up of Armstrong, Harding, Butte and parts of Ziebach, Meade and Perkins counties. This area is divided into two sub-areas based on the difference in sheep and cattle populations. Sub-Area A, including Harding and Butte counties, is the principal sheep ranching region of the State, while more cattle are found in sub-area B. This whole area is preponderantly grazing land except for small areas scattered here and there.

Table XVIII indicates the nature of the cropping systems. There is also shown some larger farms where ranching is more important. On the 160, 320, 480 and 640-acre farms, hay is the principal crop enterprise. This is largely alfalfa. Some corn is grown—as much as 20 acres on some of the farms, and also some small-grains, mostly oats and barley. Cattle is the principal livestock kept. On farms up to 640-acres, the usual number of cows kept varies from 5 to 25 head with about as many other cattle.

On the larger ranches ranging from two to seven or eight sections, hay is still the principal crop ranging from 25 to 250 acres. About 20 to 25 acres of corn are grown and some oats and barley, usually 15 to 40 acres. There are more cows found on these larger ranches varying from 10 to 30 head on the two and three section ranches to 25 to 75 head on the larger outfits. There are also some sheep. They vary from no sheep to as high as 1,250 or 1,700 head. There are a few hogs and a few poultry raised, but they are not of much significance.

TABLE XVIII.—TYPICAL FARMING SYSTEMS IN AREA XI (1)
Special Tabulations, 1925 Census.

ITEM	160-	320-Acre			480-Acre		640-	800-	960-	1280-	2000-	4320-
	Acre Farms	Farms			Farms		Acre Farms	Acre Farms	Acre Farms	Acre Farms	Acre Farms	Acre Farms
Typical Farming Systems -----	15-50 Acres Alfalfa Hay	20-60 Acres Alfalfa Hay	70-140 Acres Alfalfa Hay	24- 45 Acres Alfalfa Hay	80-154 Acres Hay	50-195 Acres Hay	50 Acres Hay	65-200 Acres Hay	25-200 Acres Hay	40-250 Acres Hay	70-250 Acres Hay	4320- 4760- Acres Farms
Relative Frequency of Type (2) -----	Per Cent 99	Per Cent 62	Per Cent 37	Per Cent 50	Per Cent 50	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100
All Crops -----	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	0- 20	20	20	20	20	20	10- 40	20	0- 25	20	20	25
Oats -----								10	15	15	0- 25	
Barley -----		25							0- 25			40
Wheat -----			0- 10							0- 20		
Flax -----												
Alfalfa -----	30	45	100	35	85	60						
Other Hay -----					40	50-195	50	150	25-200	40-250	100	
Pasture -----	110	220	175	440	345	510	715	1100	1900	4150	4590	
Other Land -----	5	10	10	5	10	10	2	75	5		5	
Livestock -----	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	3	4	5	4	8	8	7	10	8- 35	10- 35	20	
Cows -----	0- 5	6- 12	5- 10	6	12- 20	5- 25	0- 10	8- 15	10- 30	10- 30	25- 75	
Cows Milked -----	0- 4	0- 8	7	6	10	6	6	6	6	6	2	
Other Cattle -----	0- 5	0- 12	8- 12	0- 10	5- 25	10- 35	10- 15	10- 35	30- 75	30- 75	40-100	
Sows -----	0- 2	0- 8	0- 5		0- 2	1- 5	3	5- 13	0- 6	0- 6	0- 6	
Sheep -----									0-1700	0-1700	1250	
Poultry -----	0- 50	50	10- 50	30- 80	30- 75	30- 75	40	30	50- 75	50- 75	40	

- (1) The 160-acre farms represent 12%; the 320-acre farms 17%; the 480-acre farms 9%; the 640-acre farms 9%; the 800-acre farms 5%; the 960-acre farms 7%; the 1280-acre farms 13%; the 2,000 to 2,200-acre farms 9%; and the 4,320 to 4,760-acre farms 7%; of the farms of all sizes.
- (2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

Typical Farming Systems in Area XII.

This area includes the land between the Black Hills on the west and the Bad Lands and ranching area on the east and north. There is quite a bit of farming done in this area. The nature of the organizations followed in the cropping areas is shown in Table XIX. Most of the irrigated land in the State is found in this area but because of the fact that the irrigated section is relatively unimportant as far as acreage is concerned and because of the rather wide variation in the crops grown, no irrigated farms have been included in the discussion.

On the 160-acre farms there are two organizations commonly followed, the chief differences between them being in the acreage of hay grown and in the number of cattle kept. Each of these organizations has about 25 acres of corn, 0 to 15 acres of oats and barley and 15 acres of wheat, but one of them has 15 acres of hay and the other 45 acres. The one with the large acreage of hay also has more cattle, 16 to 20 head of cows as compared with 0 to 5 head on the other organization. On the 320 and 420-acre farms, about 40 acres of hay are grown and from 35 to 40 acres of corn, 20 to 40 acres of oats and barley. The 320-acre farm group has no wheat, but the 420-acre group has about 50 acres. There is also more pasture and livestock on the 480-acre farms. The nature of the organizations on the larger farms may be ascertained by referring directly to the table.

Area XIII includes the Black Hills. About the only agriculture carried on in the Hills is the grazing of cattle. This grazing land is leased by the government to cattle men at a nominal charge. Close supervision is exercised by the Federal Forest Reserve officials.

Typical Ranching Organizations in Western South Dakota.

Cattle Ranches.—As a basis for determining organizations typical of the cattle ranching areas west of the Missouri River, a sample of 568 ranches was taken in the four northwestern counties of Butte, Meade, Harding and Perkins. The complete organization of all ranches in these counties having 100 or more cattle was taken. Ranches having less than this number of cattle were assumed to derive most of their income from farming, hence were not considered.

In Table XX are shown the typical ranching organizations in this area as determined from these data. It will be noted that total number of cattle is used as the measure of size rather than acres in ranch. This seemed advisable since it was observed there was not a very close correlation between the size of the ranches in acres and the total number of cattle handled. Oftentimes as many cattle were reported on a small ranch as on one five to ten times as large. The presumption is that the rancher reported only the land owned and did not always report free range or the land leased.

Grouping on this basis of total cattle, the most common size of ranch had from 100 to 125 head of cattle—slightly more than one-third of the ranches were of this size. The next important sizes had from 126 to 150, and from 151 to 200 head of cattle respectively. Each of these sizes represented about one-fifth of all the ranches. The other sizes were of less importance, varying from four to ten per cent of all the ranches.

On each of these different sizes there was considerable variation in the number of cows handled. Thus on the 100 to 125 cattle size, the number of cows varied from 30 to 75 head. The percentage of the

TABLE XIX.—TYPICAL FARMING SYSTEMS IN AREA XII. (1)
Special Tabulations, 1925 Census

ITEM	160-Acre Farms		320-Acre Farms	420-Acre Farms	480-Acre Farms	640-Acre Farms	800-Acre Farms	1280-Acre Farms
Typical Farming Systems	11-22 Acres Hay 25 A. Corn	35-54 Acres Hay 25 A. Corn	40- Acres Hay 25 A. Corn	40- Acres Hay 40 A. Corn	25-65 Acres Hay 15-50A. Corn	0-40 Acres Corn	25-60 Acres Corn	25-70 Acres Corn
Relative Frequency of Type (2)	Per Cent 44	Per Cent 31	Per Cent 66	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100	Per Cent 100
All Crops	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Corn -----	25	25	35	40	15- 50	0- 40	50	40
Oats -----	0- 15	10	40	20	10	0- 20	0- 30	0- 20
Barley -----	*	*	*	*		10	20	
Wheat -----	15	15		50	10- 25	0- 35	20- 55	15- 60
Flax -----								
Hay -----	15	45	40	40	25- 65	0-20-65	15- 50	60-100
Pasture -----	90	60	200	250	350	450-575	660	850-1450
Other Land -----	5	5	5	20	10	5	20	5
Livestock	No.	No.	No.	No.	No.	No.	No.	No.
Horses -----	5	7	7	7	7	8	8	15
Cows -----	0- 5	16- 20	4- 15	7- 15	10- 25	8- 20	8- 15	15- 30
Cows Milked -----	3	8	0- 8	9	8	4	8	7
Other Cattle -----	0- 3	16- 30	15	7- 17	10- 30	25- 40	7- 18	25- 50
Sows -----	0- 10	0- 5	0- 6	0- 5	0- 5	4	5- 20	0- 8
Sheep -----								
Poultry -----	75-100	50	50-125	75-150	50-125	60-150	100	75-175

(*) Barley and oats.

(1) The 160 acre farms represent 16%; the 320-acre farms 8%; the 420-acre farms 8%; the 480-acre farms 11%; the 640-acre farms 8%; the 800-acre farms 10%; and the 1280-acre farms 14% of the farms of all sizes.

(2) The percentage figures indicate the relative number of farmers on each size of farm who follow the particular organization.

TABLE XXA.—TYPICAL CATTLE RANCHING ORGANIZATIONS IN NORTH WESTERN SOUTH DAKOTA (1).
Special Tabulations, 1925 Census.

ITEM	100-125 Cattle					126-150 Cattle			
	30 Cows	40 Cows	50 Cows	60 Cows	75 Cows	40 Cows	60 Cows	75 Cows	
Typical Ranching Organization-----	30 Cows	40 Cows	50 Cows	60 Cows	75 Cows	40 Cows	60 Cows	75 Cows	
Relative Frequency of Type (2) -----	Per Cent 17	Per Cent 26	Per Cent 28	Per Cent 17	Per Cent 6	Per Cent 29	Per Cent 57	Per Cent 8	
Livestock Organization	Number	Number	Number	Number	Number	Number	Number	Number	
Cows	25- 35	36- 45	46- 55	56- 65	67- 86	35- 43	50- 69	70- 85	
Calves	24- 35	22- 40	24- 38	30- 45	10- 25	30- 40	30- 50	30- 50	
Heifers	10- 20	10- 20	10- 15	10- 20	0- 15	15- 30	10- 25	10- 20	
Steers	15- 30	15- 30	10- 20	0- 8	0- 10	24- 40	10- 25	15- 20	
Sows	1- 6	0- 6	0- 6	0- 5	0- 8	0- 10	0- 7	0- 4	
Sheep (4)									
Poultry	25	25- 100	25- 100	30- 100	10- 50	25- 50	30- 75	100- 115	
Acres in Ranch	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	
Pasture	830-2120	640-2200	930-2530	860-1720	800-2000	1440-3200	1160-3000	360-2145	
Corn	480-1800	500-1500	850-2400	460-1375	730-1800	1150-2920	920-2580	285-2000	
Wheat	0- 10	15- 40	15- 30	0- 20	0- 15	0- 30	0- 35	10- 30	
Oats and Barley	0	0- 20	0- 20	0- 30	0	0- 30	0- 30	0	
Small Grain Cut for Hay	0- 25	20	20- 30	0- 40	0- 15	0- 30	0- 25	0- 20	
Hay	6	0- 10	0- 15	0- 20	0- 10	0- 30	0- 15	0	
	70- 200	80- 200	20- 240	60- 225	95- 180	75- 220	80- 320	10- 110	

TABLE XXB.—TYPICAL CATTLE RANCHING ORGANIZATIONS IN NORTHWESTERN SOUTH DAKOTA (1)—Continued.
Special Tabulations, 1925 Census.

ITEM	151-200 Cattle			201-250 Cattle		251-300 Cattle		301-400 Cattle		401 Cattle and Over	
	50 Cows	60 Cows	80 Cows	80 Cows	100 Cows	95 Cows	120 Cows	115 Cows	170 Cows	150 Cows	250 Cows
Relative Frequency of Type (2)---	Per Cent 22	Per Cent 32	Per Cent 42	Per Cent 31	Per Cent 50	Per Cent 53	Per Cent 41	Per Cent 50	Per Cent 50	Per Cent 48	Per Cent 26
Livestock Organization	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Cows -----	40- 55	56- 68	70- 95	75- 87	90- 108	70- 100	115- 160	100- 125	150- 200	125- 175	200- 300
Calves -----	40- 60	35- 55	25- 50	70- 80	60- 100	75- 85	85- 100	75- 100	75- 120	100- 135	175- 200
Heifers -----	15- 30	15- 25	15- 30	20- 35	20- 35	35- 50	15- 35	25- 40	35- 50	40- 70	50- 100
Steers -----	25- 50	25- 50	20- 45	35- 50	20- 40	50- 75	0- 45	50- 85	10- 50	100- 150	(3)
Sows -----	0- 5	0- 6	0- 8	0- 1	0- 7	0- 2	0- 6	0- 5	0- 1	0- 4	0- 2
Sheep (4) ---	50- 125	20- 75	35- 125	20- 50	25- 75	30- 75	25- 60	60- 100	40- 100	25- 75	60- 100
Poultry ---	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Acres in Ranch	1120-3200	1160-2580	1560-3520	2400-3610	980- 3160	4350- 6035	1940- 4100	3200- 5000	1100- 5200	4980-10300	3600- 8900
Pasture -----	825-3000	730-2450	1340-3158	2100- 3300	710- 2503	3825- 5800	1610- 3777	2725- 4435	960- 4840	4380- 9500	3259- 8586
Corn -----	0- 20	0- 30	10- 30	0- 10	20- 35	0	0	10- 35	10- 30	0- 25	0
Wheat -----	0- 15	0- 25	0	0	0- 15	0	0	0- 15	0- 20	-----	-----
Oats and Barley ---	0- 25	0- 25	0- 25	0- 15	10- 25	-----	-----	-----	-----	-----	-----
Small Grain cut for Hay	0	0	0	0	0- 15	0- 25	0- 25	15- 25	0- 30	0- 30	0
Hay -----	75- 225	75- 220	35- 225	120- 250	150- 250	200- 300	200- 300	150- 350	100- 250	150- 300	200- 300

(1) Inasmuch as the census records include only land owned or leased and do not report the free range used, acres in ranch is a poor measure of size in this section of South Dakota. Because of this fact, size of the ranch is determined by the total number of cattle handled. Grouping on this basis, 35% of the ranches in the sample taken had 100 to 125 cattle; 20% 126 to 150 cattle; 18% 151 to 200 cattle; 10% 201 to 250 cattle; 5% 251 to 300 cattle; 4% 301 to 400 cattle; and 7% 401 cattle and over. The sample includes all the ranches in Butte, Meade, Perkins and Harding Counties having 100 or more cattle.

(2) The percentage figures indicate the relative number of ranchers on each size of ranch who follow the particular organization.

(3) Wide range, 0 to 300 steers.

(4) Sheep are found on 20 to 30 per cent of the ranches, and range from a few head to as high as 2000 head.

ranches having the different numbers was as follows: 17 per cent, 30 cows; 26 per cent, 40 cows; 28 per cent, 50 cows; 17 per cent, 60 cows; and 6 per cent, 75 cows. The variation in the other classes of cattle is also shown in the table as well as the variation in the acres in ranch and in the different crops grown.

A range, it will be noted, is shown in all cases. This range is one of modes rather than extreme items. That is to say, the first figure in the range represents the most common number (or acres) found at the lower end of the range, and the second figure the most common number found at the upper end of the range.

On the other sizes of ranches, variations of a similar nature are found. Thus in the 126 to 150 cattle group, 57 per cent of the ranches had 60 cows; 29 per cent, 40 cows; and 8 per cent, 75 cows. On the 151 to 200 cattle ranches, 42 per cent had 80 cows; 32 per cent, 60 cows; and the remainder around 50 cows, and so on for the other sizes.

Sheep Ranches.—Sheep were found on 20 to 30 per cent of the cattle ranches, but varied widely in number. They ranged from a few head up to as high as 2,000 head or more. These sheep organizations, however, do not reflect accurately the situation on the typical sheep ranches, inasmuch as the sheep enterprise is of minor importance, relatively, on these ranches just considered.

In order to present a more accurate picture of what is found on typical sheep ranches, additional records were taken for Perkins, Meade and Harding counties—the important centers of range sheep production in the State. The organization of all ranches, 304 in number having 200 head or more of sheep in these counties were obtained and used as a basis for the typical organizations shown in Tables XXI A and XXI B.

The total number of sheep handled apparently is a better measure of size than are acres in ranch. Grouped on this basis, the ranches were sorted into 10 groups, the most important of which had from 501 to 750 head of sheep. Each of these 10 groups was sub-divided according to the number of ewes kept. Thus on the 501 to 750 total sheep group, there were five fairly common systems in operation. One-third of the ranches of this size had around 410 ewes; two others, each comprising one-fifth of the total, had 325 ewes and 510 ewes respectively; while the other groups, comprising 15 and 10 per cent of the total, had 600 and 160 ewes respectively.

Similar variations are to be noted in the other size-groups, the nature of which may be ascertained by referring directly to the tables.

TABLE XXIA.—TYPICAL SHEEP RANCHING ORGANIZATIONS IN NORTHWESTERN SOUTH DAKOTA (1)
Special Tabulations, 1925 Census

ITEM	200-300 Sheep		301-400 Sheep			401-500 Sheep				501-750 Sheep				
	150 ewes	200 ewes	260 ewes	220 ewes	300 ewes	375 ewes	300 ewes	400 ewes	460 ewes	160 ewes	325 ewes	410 ewes	510 ewes	
Relative Frequency of Type (2)-----	Percent 15	Percent 38	Percent 38	Percent 27	Percent 55	Percent 12	Percent 24	Percent 47	Percent 13	Percent 10	Percent 20	Percent 33	Percent 22	Percent 15
Livestock Organizations	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Ewes	140- 175	195- 215	225- 300	175- 225	250- 325	350- 400	225- 325	350- 425	440- 475	140- 200	300- 380	380- 450	480- 550	590- 670
Lambs	50- 100	50- 150	50- 80	50- 150	50- 125	70- 150	100- 150	0-40- 80	0- 6	400- 470	250- 400	200- 265	100- 200	140
Rams and Weathers	4- 7	4- 9	5- 9	5- 10	5- 10	5- 15	5- 10	8- 15	0- 15	0- 15	5- 10	10- 15	10- 20	10- 20
Cows	5- 20	5- 10	15- 30	8- 20	0- 10	2- 9	1- 5	10- 25	2- 12	3- 15	0- 2	5- 12	3- 8	20- 30
Other Cattle	0- 30	3- 15	5- 20	20- 50	0- 15	3- 18	3- 12	0- 30	1- 6	3- 12	0- 5	2- 15	15	15- 30
Sows	0- 8	0- 4	0- 2	0- 5	0- 3	0- 2	0- 2	0- 4	0- 1	0- 6	0- 1	0- 5	0- 3	0- 2
Poultry	40- 80	30- 80	25- 75	50- 125	25- 50	50	25- 75	25- 50	40- 60	75- 150	25- 60	25- 75	25- 75	25- 100
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Acres in Ranch	320-1360	200-3200	160-2720	320-2400	320-2560	160-2320	320-2880	320-3640	240-2380	160-1520	320-4086	400-4960	160-3920	400-3600
Pasture	220-1290	60-2970	100-2500	160-2225	250-2220	80-2200	275-2270	200-3500	60-2220	100-1360	220-3920	340-4200	130-3600	250-3400
Corn	20	10- 30	45- 90	20- 50	40- 80	10- 20	0- 40	0- 50	0- 40	0- 90	0- 40	10- 30	0- 40	10- 60
Wheat	0- 40	0- 30		0- 20	0- 25		0- 10		0- 35			0- 20		
Oats & Barley	10	10- 20	0- 40	0- 25	0- 50	0- 12	0- 50	0- 30	0- 25	0- 40	0- 40	0- 30	0- 40	10- 50
Hay	50- 100	20- 125	30- 100	50- 100	50- 150	50- 80	50- 150	50- 125	70- 150	50- 200	75- 150	25- 350	40- 250	60- 150

- (1) Grouping the ranches on the basis of the total number of sheep handled, there are 9 groups, 15% of which have from 200 to 300 head; 13% have from 301 to 400; 12% have from 401 to 500; 18% have from 501 to 750; 10% have from 751 to 1000; 8% have from 1001 to 1250; 6% have from 1251 to 1500; 10% have from 1501 to 2000 and 5% have from 2001 to 3000 head.
- (2) The percentage figures indicate the relative number of ranchers on each size of ranch who follow the particular organization.

**TABLE XXIB.—TYPICAL SHEEP RANCHING ORGANIZATIONS IN NORTHWESTERN
SOUTH DAKOTA—(Continued)**
Special Tabulations, 1925 Census

ITEM	751-1000 Sheep			1001-1250 Sheep		1251-1500 Sheep		1501-2000 Sheep			2001-3000 Sheep	
	400 ewes	625 ewes	850 ewes	800 ewes	100 ewes	975 ewes	1300 ewes	1100 ewes	1400 ewes	1700 ewes	1600 ewes	1800 ewes
Typical Ranching Organization Relative Frequency of Type (2)-----	Percent 23	Percent 40	Percent 27	Percent 46	Percent 43	Percent 42	Percent 53	Percent 27	Percent 37	Percent 23	Percent 40	Percent 33
Livestock Organizations	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number	Number
Ewes -----	200- 450	550- 700	750- 900	700- 900	1000-1200	800-1050	1100-1400	1000- 1250	1300- 1500	1600- 1800	1400- 1700	1800- 2100
Lambs -----	400- 600	200- 275	0- 30	250- 400	150- 200	400- 600	200- 300	600- 900	450- 600	200	700- 1000	530- 600
Rams and Wethers	40- 70	15- 25	20- 30	20- 35	25- 50	20- 50	30- 50	25- 75	30- 60	30- 70	30- 50	40- 70
Cows -----	3- 6	20- 40	2- 7	20- 40	6- 10	50- 80	3- 6	0- 10	15- 20	2- 10	20- 25	35- 150
Other Cattle -----	3- 10	20- 40	1- 6	30- 70	50- 130	100- 120	0- 9	0- 12	0- 15	0- 15	25- 50	75- 330
Sows -----	0- 5	0- 4	0- 1	0- 3	0- 2	0- 2	0- 3	0- 5	0- 3	0- 1	0- 2	0- 2
Poultry -----	50	30- 75	20- 75	30- 60	0- 100	25- 75	25- 100	30- 60	30- 150	25- 50	30- 75	40- 60
Acres in Ranch	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Pasture -----	480-3200	320-6200	900-3600	1200-5720	3000-7200	600-7080	1280-13280	880- 8320	1400- 9680	2400-11200	2500-11500	6400-11920
Corn -----	220-3065	220-5950	260-3080	1120-5600	2900-6980	500-6450	1200-13080	725- 8000	880- 9260	1980-10850	2380-11275	5800-11400
Wheat -----	30	10- 30	0- 30	0- 35	10- 40	10- 50	0- 40	0- 35	0- 60	0- 50	0- 40	15- 45
Oats & Barley -----	0- 40	0- 20	0- 30	0- 20	20- 60	15- 60	0- 15	0- 30	0- 30	0- 25	20	15- 50
Hay -----	75- 200	75- 200	100- 150	50- 150	75- 200	400- 480	125- 250	125- 250	400- 640	200- 300	60- 150	200- 450

WAYS IN WHICH THESE TYPICAL FARMING SYSTEMS MAY BE USED

Attention will be directed in the remaining pages to some of the uses to which the information on these typical farming systems may be put. The discussion will be divided into three parts—the relation of typical farming systems to (1) long-time systems of farming and agricultural programs, (2) the application of the agricultural outlook, and (3) other lines of research work in agricultural economics.

Relation of Typical Farming Systems to Long-time Systems of Farming and Agricultural Programs

A great deal of attention has been given in recent years by research and extension agencies to the development of long time systems of farming and agricultural programs in particular states and local areas. The aim of these programs has been to bring about a better adjustment in the organizations and practices of the rank and file of farmers with the view of making farming more profitable. If such programs are to be effective they must first correctly appraise the needs of the particular group or groups advised; and secondly, in the light of present and prospective conditions, recommend changes in organizations and practices which will lead to a more profitable adjustment of production to meet the demands of the market.

The diversity in organization of farms in different areas and on the same size of farm in each area as shown in the foregoing tables is evidence enough that the "needs" of all farmers are not the same. Blanket recommendations for an average of all farmers in an area obviously are likely to be misleading because an average of farms varying so widely will not be representative. No doubt, one important reason why farmers have not always acted upon the recommendations of advisory agencies is due to the fact that they felt such recommendations did not apply either to their conditions or their needs. By sorting farms of the same size and organization together in the same type-of-farming areas as has been done in this study, a more accurate basis is provided for testing out the effect of different possible or proposed programs of work in each area.

Thus these typical farming systems are the starting point in working out detailed farm organization studies or in arriving at long-time systems of farming for a particular area.

Starting with these typical farming systems and applying to them the yields and production practices prevailing, or likely to prevail in each area, as well as the best information on the long-time outlook for the prices of the different products and cost goods, a basis is provided for determining what changes should be made in them in order that the greatest returns may be obtained over a period of years.

Just how this works out in a specific case is illustrated in the following example:

This illustration is taken from the northern part of Area VI. In this area the 480-acre farm is the dominant size. In Table XII, it will be noted that there were three organizations commonly followed on this size of farm in 1924. The chief distinction between them is in the amount of wheat grown, although variations are found in some of the other enterprises; the organization with the lowest wheat acreage, for example having more feed crops and livestock.

TABLE XXII.—BUDGET FOR A TYPICAL 480-ACRE FARM (20% IN WHEAT) IN THE NORTHERN PART OF AREA VI

CROP DISPOSAL						
Crop	Acres	Yield Bus.	Production Bus.	Used for		Salable Surplus Bus.
				Feed Bus.	Seed Bus.	
Corn -----	40	23	920	915	5	
Oats -----	10	25	250	228	22	
Barley -----	35	20	700	644	56	
Wheat -----	95	10	950		105	845
Flax -----	20	8	160		10	150
Hay -----	60	1 T.	60 T.	60 T.		
Pasture -----	200					
Other -----	20					

FEED REQUIREMENTS AND LIVESTOCK DISPOSAL

Livestock	Number	Corn		Oats	Barley	Hay	Protein Feeds	Salable Surplus
		Bus.	Bus.	Bus.	Tons	Lbs.		
Horses -----	10	443	200		22			
Cows Milked	8	80	28	64	20	200		1,120 lbs. B. F. 2 cows
Other Cattle	12	40		30	18			3,600 lbs. beef
Sows (75 pigs)	12	872*		400		3,000		15,000 lbs. pork
Poultry -----	200	30		150				500 lbs. poultry 700 doz. eggs

* 550 bushels of corn purchased.

SUMMARY OF RETURNS

Crop Sales:—			
Wheat -----	845 bus. @ \$1.10 per bu.	\$ 930	
Flax -----	150 bus. @ 1.90 per bu.	285	
Total			\$1,215
Livestock Sales:—			
Butterfat, 1,120 lbs. @ \$.40 per lb.		\$ 448	
Hogs, 15,000 lbs. @ \$8.00 per cwt.		1,200	
Cows, 2 head @ \$40 each		80	
Beef, 3,600 lbs. @ \$7.00 per cwt.		252	
Eggs, 700 doz. @ .25 per dozen		175	
Poultry, 500 lbs. @ .15 per lb.		75	
Total			2,230
TOTAL CROP AND LIVESTOCK SALES			\$3,445
Expenses:—			
Labor, 6 months @ \$50.00		\$ 300	
Threshing		273	
Twine, 423 lbs. @ .14 per lb.		69	
Corn, 550 bus. @ .55 per bu.		303	
Protein feeds, 1.6 tons @ \$50 per ton		80	
Miscellaneous stock expense		50	
Total			\$1,066
RETURN ABOVE THE CASH EXPENSES WHICH VARY WITH CHANGES IN THE ORGANIZATION			\$2,379

Using the first of these organizations with the average prices prevailing the past five years, a budget of receipts and expenses is first made to illustrate the method. Yields and practices typical of the area have also been used. This organization has 40 acres in corn, 0 to 20 acres in oats, 95 acres in wheat, 35 acres in barley, 20 acres in flax, 60 acres in hay, 200 acres in pasture and 20 acres in other land; 10 horses, 8 cows, 6 to 12 other cattle, 5 to 20 sows and 75 to 200 hens.

Having information on yields, production practices and prices, it is easy to calculate in this way just about what returns can be expected from any typical organization such as this. It will be noted no overhead expenses such as taxes, interest, etc., have been charged; also that no machinery expense has been included. The returns shown in the table are consequently not net returns. To get a net figure it would be necessary to consider all of these other expenses, and were they taken out the returns would be much lower than shown. In working out a prospective income and expense statement for farms such as this in which the primary objective is to determine whether one organization will likely be more profitable than some other, it is necessary to consider only the expenses which vary as the organization is changed.

This is really the way the farmer figures when he is deciding whether to follow one particular organization or some other. He knows that by shifting from one crop to another, or in varying the proportion of the same crop, that all overhead expenses will remain practically constant so long as the shifts are minor ones. Of course, if a shift is made from one type of farming to an entirely different type, then it would be necessary to take into consideration all of the overhead expenses which would change with the shift in type as well as the other operating expenses.

It will be noted in Table XII that in this organization as well as in the others shown for this size of farm, that two livestock organizations are shown for each crop organization.

In using these organizations it should be remembered that they represent the most common occurrence (acreage, number, etc.) on a homogeneous group of farms, and do not show even the extremes within the group. An attempt was made in all cases to keep the range of the group within narrow limits so that the mode or average of the group would be fairly representative of the various items.

Those finding difficulty in getting the feed grains to balance up with the upper range in livestock shown should keep this explanation in mind and should either step up the acreages or take care of the deficit through purchased feeds. Should the first alternative be used, a range equal to that shown for the crop on which the farms are arrayed in the table could be assumed for each of the feed crops in each typical group. This will take care of most discrepancies which will arise and is the most accurate way to do it, since the range of the different crops in each typical group is usually as wide as that shown for the arrayed crop, except possibly in the case of wheat, for which a range is sometimes shown that is wider than for the feed grains.

In this illustration the upper range in all the livestock except hogs has been used, and some feed purchased. This expenditure for feed is probably more than the typical farmer spends on this size of farm in

this area. The typical farmer probably does not feed as heavily as the feeding standards used in this calculation. In case he has a scarcity of feed, he likely will get along by feeding less and avoid such expenditures for feeds.

By following this same general method of procedure, the returns from the other two organizations on the 480-acre farms in this area are calculated. One of these has 150 acres in wheat, or 30 per cent of the farm area, while the other has 220 acres in wheat, or 45 per cent of the farm area. The same yields and prices are used as in Table XXII. Thus we get a direct comparison of the probable returns from these three typical farming systems and can attribute the difference in returns directly to the differences in organization, since prices of products and cost factors as well as production practices are held constant.

By using long-time prices, the relative returns to the three organizations are as follows:

Organization No. 1 (20 per cent of farm area in wheat)	--\$2,379
Organization No. 2 (30 per cent of farm area in wheat)	- 2,424
Organization No. 3 (45 per cent of farm area in wheat)	- 2,698

It is apparent from these calculations that at these prices and yields there is not much difference in the returns which can be expected from organizations 1 and 2. Organization No. 3 on the other hand shows somewhat higher returns.

Following this same general method of computation, a farmer can estimate very closely with given yields and conditions of production on his own farm, and at prevailing or prospective prices, just about what returns he can expect from any organization he might handle on his farm. Research and extension agencies using these typical farming systems also can arrive at definite conclusions regarding the probable returns which can be expected from them, or various modifications of them, from the long-time standpoint.

Relation of the Typical Farming Systems to the Application of the Annual Agricultural Outlook

In addition to using these typical farming systems as the starting point in farm organization studies, and in determining what is the best system of farming to follow from the long-time standpoint, they may also be used in testing out the probable effect of a change in price upon the returns to be expected from them in any particular year. That is, they afford an excellent means of determining what adjustments would likely be profitable in any particular year in the light of the annual outlook for prices in that particular area.

Table XXIII illustrates how the relative profitableness of these three organizations may vary under different sets of price relationships.

In the first column of the table, long time average prices are used. This is the same set of prices as was used in the previous illustration. In the second column the returns are shown which could be expected if high livestock and average grain prices prevail. With long-time prices (those prevailing the past five years) the organization having 20 per cent wheat would yield the smallest return of any of the three. When livestock prices are high (hogs at \$12.00, cattle at \$10.00 and butterfat at \$.45

TABLE XXIII.—RETURNS FROM DIFFERENT ORGANIZATIONS ON THE SAME SIZE OF FARM AT VARIOUS PRICES FOR DIFFERENT PRODUCTS.

ITEM	Unit	Probable returns above cash expenses which vary with changes in organization when prices are as follows:		
		Long-time average prices	High Livestock prices and average grain prices	High cash-grain prices and average livestock prices
		Dollars	Dollars	Dollars
Corn -----	Bu.	0.55	0.55	0.55
Oats -----	Bu.	0.32	0.32	0.32
Barley -----	Bu.	0.50	0.50	0.50
Wheat -----	Bu.	1.10	1.10	1.30
Flax -----	Bu.	1.90	1.90	2.20
Hogs -----	Cwt.	8.00	12.00	8.00
Cattle -----	Cwt.	7.00	10.00	7.00
Butterfat -----	Lbs.	.40	.45	.40
Poultry -----	Lbs.	.15	.15	.15
Eggs -----	Doz.	.25	.25	.25
Returns to organization				
with 20% wheat		2,379	3,163	2,592
with 30% wheat		2,424	2,845	2,749
with 45% wheat		2,698	3,064	3,122

instead of \$8.00, \$7.00 and \$.40 respectively) this organization shows the largest return of any of the three organizations. The reason for this is quite plain. This organization has more livestock than either of the other two and when livestock prices are high, it naturally will show a bigger increase in returns than either of the others, which depend more on cash-grain for income.

In the third column, the price relationships are just reversed. Instead of high livestock prices with average grain prices, high grain prices and average livestock prices are used. The effect of this, as would be immediately suspected, is that the organizations with less livestock and more cash-grains would show to better advantage than would the one with a large amount of livestock but with little grain.

The conclusions from the illustration are obvious. Namely, farmers in this area when confronted with an annual price outlook such as shown in the first column would find it to their advantage to follow an organization more like the one having 45 per cent of the farm area in wheat and the other crops as shown. If the outlook indicated that livestock prices were likely to be good, then the organization with more livestock and less wheat would be more promising; or lastly, if the outlook were for high grain prices and average livestock prices, then it would be advantageous to have an organization with more of the cash crops.

Of course under such conditions, the ideal situation would be to make these adjustments, but farmers cannot always do the thing which seems to be most advantageous. Numerous difficulties arise which will work against it or possibly prevent it altogether. There will be certain men, however, who can make minor adjustments in the right direction at the right time, and they should be assisted in doing so, or at least shown by extension agencies what is advantageous, so they may take advantage of the opportunity whenever possible.

In this area the farmer has a number of alternative opportunities open to him. Inasmuch as wheat, flax, barley and oats are very similar in their labor and material requirements, as well as in the time at which

they demand attention, it is possible to shift from one to the other of these crops without causing any appreciable difference in the operation of the farm. If the outlook for any of the crops is more favorable than for the others, a farmer can easily increase his acreage of this crop at the expense of the crop or crops with a less favorable outlook, and thereby add to the farm income.

With certain classes of livestock similar adjustments can be made. This is particularly true of hogs. It is not very difficult to get in and out of hogs and farmers, frequently by making only a small change in the magnitude of the hog enterprise, can add considerably to their income. The important thing is to make the shift at the right time and in the right direction. With the large amount of information now available on factors affecting hog prices and supplies which is boiled down in the annual outlooks, extension agencies can greatly assist farmers in determining what probably will be the best thing for them to do under particular prospective price conditions for any one year.

With cattle it is more difficult, since it takes more time to get in and out of the cattle business. Yet even here, farmers who feed cattle can vary their practices to advantage within very short periods of time. They can vary the size and grade of cattle they feed out, the length of time they feed them, etc., and take advantage of particular price situations favorable to a certain practice. By taking farming systems typical of what is being done, it is possible to test out in this way the probable effect of an annual change in the price of any commodity upon the returns to be expected from the farming system in which that commodity is included. By interpreting the outlook to the farmer in this way, in terms of an organization with which he is familiar, its meaning and significance will be more clearly understood.

Relation of Typical Farming Systems to Other Lines of Research

There are still other ways in which the results of this type-of-farming study may be used. Having the agriculture of a state divided into areas of similar types of farming enables those making local studies to know just about how wide an application can be made of the results. Without having accurate knowledge of the variation within each area, doubts as to the extent to which generalization could be made would possibly arise. Standards as to methods and practices in handling particular enterprises can also be set up with greater precision and definiteness if confined to type-of-farming areas.

Likewise income studies will be more definite and usable if they are analyzed from the standpoint of homogeneous areas and for different types and sizes of farms within the area instead of by a composite grouping of all types and sizes in the same area, or from scattered areas in the state. Studies made with the view of determining the relationship between changes in price and supply in particular areas also will be more realistic and trustworthy if made with the type-area as the unit. By localizing such studies to areas where farmers are doing pretty much the same thing, it is reasonable to suspect that the price-supply relationships will be more clear cut.

In addition to these uses from an economic standpoint, specialists in other lines of agricultural research should find them useful in providing a cross-section picture of farming conditions in the different areas of the State which will be of assistance to them in planning their experiments. With experiments on rotations, crop varieties, feeding practices, soil fertility and the like, planned with the view of throwing light upon problems within specific type-areas, a wealth of information will become available which will be of direct application in determining what is the best system of farming and the best practices to follow in each area.