

South Dakota State University

## Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange

---

Bulletins

SDSU Agricultural Experiment Station

---

12-1940

# Planning Minimum Sized Ranches and Farms for the Hyde County Area in South Dakota

A. G. Nelson

Follow this and additional works at: [http://openprairie.sdstate.edu/agexperimentsta\\_bulletins](http://openprairie.sdstate.edu/agexperimentsta_bulletins)

---

### Recommended Citation

Nelson, A. G., "Planning Minimum Sized Ranches and Farms for the Hyde County Area in South Dakota" (1940). *Bulletins*. Paper 346. [http://openprairie.sdstate.edu/agexperimentsta\\_bulletins/346](http://openprairie.sdstate.edu/agexperimentsta_bulletins/346)

This Bulletin is brought to you for free and open access by the SDSU Agricultural Experiment Station at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Bulletins by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact [michael.biondo@sdstate.edu](mailto:michael.biondo@sdstate.edu).

# **Planning Minimum Sized Ranches and Farms for the Hyde County Area in South Dakota**



Agricultural Economics Department, Agricultural Experiment Station  
South Dakota State College, Brookings, South Dakota, and  
Bureau of Agricultural Economics, Division of Farm Management and Costs  
United States Department of Agriculture, Cooperating

## Digest

The severe distress which has existed in Central South Dakota from time to time, and particularly during the past decade, has been caused to a considerable extent by operators following a type of agriculture unsuited to the climatic conditions that have prevailed.

This study was made for the purpose of analyzing physical and economic data pertaining to the Hyde County area in Central South Dakota to find what types of agriculture are best suited to the area. With this as a background, an effort was made to determine the minimum size of ranch and farm which will support an average family over a continuous period of years and thus contribute to a more stable agricultural economy.

The study showed that: (1) ranching is probably the most desirable since the precipitation is low, averaging around 17 inches annually, and fluctuates so greatly. However, much of the land in the area has been and still is being cultivated and it appears that with careful management some farming can be continued.

Under ranch conditions (where about 10 percent of the land is in crops) it appears that around 2,560 acres is the minimum which will support a family. Nine hundred and sixty acres is the minimum where extensive farming is practiced (where about 33 percent of the land is in crops) and 640 to 480 acres where intensive farming is practiced (where about 45 percent of the land is in crops).

A number of problems, such as land tenure, large number of small units, fluctuating land values and the tax situation, became evident or were emphasized as a result of the study. While they are all important the problem of the large number of small units stands out since a little more than half the farms in the area are under 500 acres indicating that, in light of the conclusions concerning minimum acreage required to support a family, the population is greater than the area will support.

# Contents

	Page
<b>Why Was The Study Needed?</b> .....	5
Type of agriculture followed not suited to the area	
Many ranches and farms too small	
<b>How The Study Was Made</b> .....	6
Ranchers and farmers assist by giving information	
Technicians also help	
<b>What The Study Showed</b> .....	7
<b>1. Ranching most desirable; some farming will pay</b> .....	7
Climatic hazards make ranching risky, farming uncertain	
Soils generally suited to ranching or farming	
Hills and breaks prevent farming in northeastern and southern sections	
Land use has varied considerably	
Marketing facilities good for non-perishable products	
Many small farms	
High-return, drought-resistant crops desirable.....	10
Reserves to carry through poor periods necessary.....	11
Feed reserves prevent selling breeding stock at low prices	
Financial reserves prevent dependence and distress	
A flexible livestock organization reduces risk.....	11
<b>2. Acreage necessary to support a family</b> .....	11
Depends primarily upon:	
Amount required for family living	
Ability of operator	
Type of unit operated	
Minimum-sized family ranch—2,560 acres.....	12
Expected income from a 3,200 acre ranch	
Minimum-sized family farm in extensive farming sections—960	
acres.....	15
Intensive livestock organization necessary	
Low yields and prices make operation unprofitable	
Minimum-sized family farm in intensive farming section—640	
acres, 480 acres a possibility.....	17
Family might be supported on less than 640 acres	
Minimum size of ranch and farm will depend upon prices, costs	
and yields.....	22
Can ranches and farms presented:.....	23
A. Survive drought and depression periods?	
Cropping system and livestock organization adjusted to conditions	
The 2,560 acre ranch, 1930-39	
The 960 acre farm, 1930-39	
B. Be developed with limited resources available?.....	26
<b>3. Help of society needed to solve problems</b> .....	26
Land tenure	
Large number of small units	
Fluctuating land values contribute to tenancy and small units	
The tax situation	
<b>Appendix Tables</b> .....	29
1. Yields of Grain and Forage per Harvested Acre, Hyde County,	
South Dakota, 1916-39.....	29
2. Acres of the Various Crops in Hyde County, South Dakota,	
1889-1939.....	29
3. Standards Used for Calculating Budgets.....	30
4. Tax per Acre of Land in Holabird and Lincoln Townships, Hyde	
County, South Dakota, 1905-1939.....	32





Reserves of roughage are helpful in tiding over drought periods. As shown in Fig. 3, page 7, low precipitation and drought for two or more consecutive years is relatively common. An operator who is forced to sell roughage-consuming stock in drought periods usually encounters loss since the price is low compared to the purchase price if they are replaced at a later date.

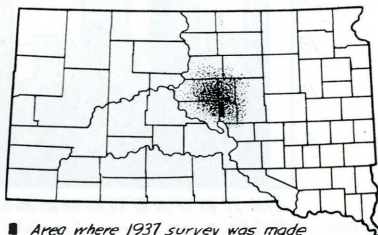
# Planning Minimum Sized Ranches and Farms for the Hyde County Area in South Dakota<sup>1</sup>

Aaron G. Nelson<sup>2</sup>

## Why Was the Study Needed?

Many farmers in the Hyde County area (see Fig. 1) have experienced failure and distress in recent years. Principal causes were:

1. **Present type of agriculture not suited to the area.** This condition has been brought about to quite an extent by the wide variation in the amount of precipitation received. For five years prior to 1920, precipitation was, in general, relatively heavy. During the 1920's, some years were wet and some dry, while the past decade has been the driest on record. In relatively few years, the area changed from one with sufficient precipitation to produce relatively high yields to one with hardly enough precipitation to support a grazing economy. Despite this fact the type of farming has not materially changed.



■ Area where 1937 survey was made  
Fig. 1. The Hyde County Area in South Dakota.

2. **Many ranches and farms too small.** Many operators are trying to make a living by operating about the same acreage as when precipitation was high but are obtaining less than half their former yields.

The condition which has existed in the area during the past decade is not new. It is the worst on record, due partly to the simultaneous occurrence of drought and depression. But other periods of drought and low prices have occurred. It is necessary, therefore, that this fact be recognized and that productive resources be organized in such a way that extreme fluctuations in precipitation and prices will not seriously disrupt the agriculture of the area. In other words, "cooperate with the inevitable."

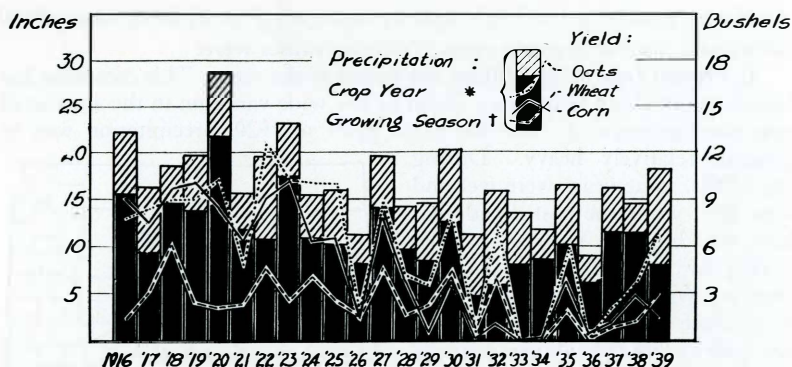
1. The Bureau of Agricultural Economics cooperated in making the study. The Works Projects Administration furnished clerical workers for the tabulation of data and office supervision through Official Project No. 665-74-3-2; Work Project No. 3286.
2. Assistant Economist, South Dakota Agricultural Experiment Station. The author wishes to express his appreciation to the ranchers and farmers in Hyde County who gave information on the 1937 survey and to the two groups who met the spring of 1940 to



## How the Study Was Made

**Ranchers and farmers assisted by giving information.** The 1937 survey (Fig. 1 shows the area surveyed) furnished data on conditions in the area.<sup>3</sup> The spring of 1940 meetings were held with two different groups of ranchers and farmers to discuss tentative ranch and farm plans which had been worked out and to consider yields, prices and costs upon which the farm plans were based.

**Technicians also help.** Prior to these meetings the respective departments of the Experiment Station were contacted and tentative recommendations obtained. The Agronomy Department gave recommendations on land use and crops that should be produced; the Animal, Dairy and Poultry Husbandry Departments gave suggestions on feed requirements and livestock production to be expected. Supplemental data on yields, prices and costs were collected



Source: U. S. Weather Bureau records and appendix table 1.

\* Sept. 1 of previous year to Aug. 1 designated year

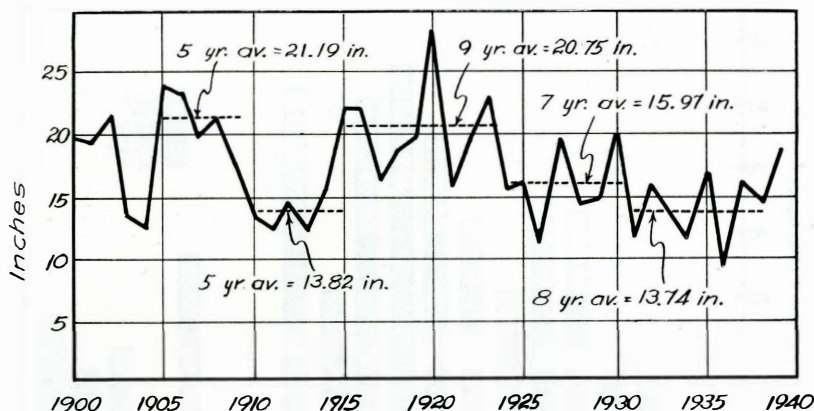
† April to Aug. 31.

Fig. 2. Comparison of Precipitation and Grain yields in Hyde County, South Dakota, 1916-1939. Precipitation probably is the most important factor affecting crop yields.

from published and unpublished material. These recommendations and data were presented to the ranchers and farmers. Some changes were suggested and these were considered by the departments concerned before making final recommendations, the majority of which are compiled in appendix table 3.

discuss ranch and farm plans and the yield, price and cost data upon which these were based; to H. P. Hanson, formerly a member of the Experiment Station staff, who assisted in selection of the areas for the survey, prepared the schedule blank used in the field, supervised the survey and directed preliminary tabulations of the data; to members of the South Dakota Experiment Station and Extension staffs who contributed valuable information, suggestions and criticisms, and particularly to Gerald E. Korzan for checking budgets and figures and to John A. Rohlf who assisted in final preparation of the manuscript; to members of the Bureau of Agricultural Economics, particularly T. S. Thorfinnson, and J. L. Paschal, who gave helpful suggestions and criticisms.

3. Information was obtained on size of unit, farm organization and operation, the pop-



Source: U. S. Weather Bureau records.

Fig. 3. Crop Year Precipitation (September 1 of previous year to August 31 of designated year) at Highmore, South Dakota, 1900-1939. Note the extreme variations from year to year and from period to period.

## What the Study Showed

### 1. Ranching most desirable; some farming will pay

Climatic hazards make ranching risky, farming uncertain.<sup>4</sup> Crop production, as is shown in Fig. 2, is closely related to precipitation, especially that which falls during the growing season. The average precipitation is low, being only around 17 inches, and wide variations occur from year to year and from period to period (Fig. 3). Drought for one or several successive years is not uncommon.

Other hazards, such as hot winds, rust, hail and grasshoppers, are prevalent in the area.

**Soils generally suited to either ranching or farming.**<sup>5</sup> Loams (primarily

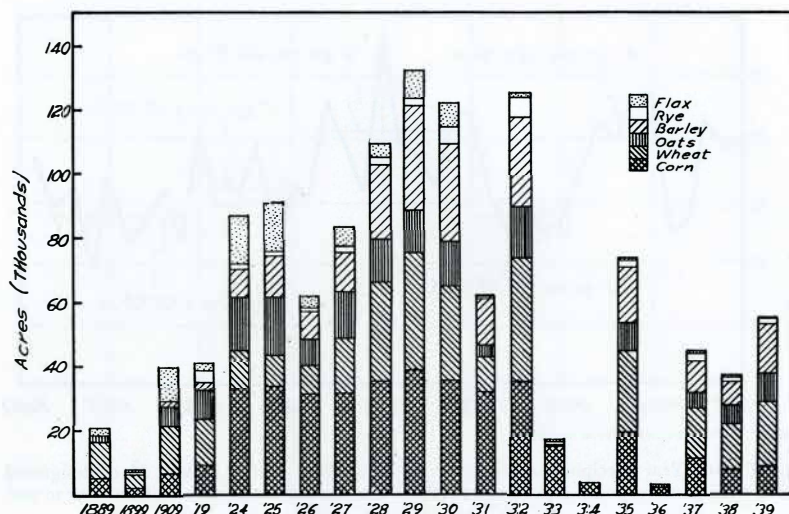
ulation and labor supply, tenure and economic status of the businesses.

In 1937, 73 individuals operated the land in the area surveyed. Of these, 47 were individuals who lived on the farms they operated and will be designated as resident operators; 17 did not live on nor operate the farms themselves but hired the work done, which, in most cases, was only sufficient to draw Government payments; 9 operated land within the township but lived outside. Only data on resident operators was sufficiently complete to use in this report.

Throughout the bulletin, this will be referred to as the 1937 survey.

4. For a detailed discussion of climate in Central South Dakota see: "Planning Minimum Sized Farms for the Beadle County Area in Central South Dakota" by James L. Paschal, Aaron G. Nelson and Olav Rogeness. S. D. Exp. Sta. Bul. 341. 1940.
5. Machlis, J. A. and Williams, B. H., "Soil Survey of Hyde County" S. D. Agr. Exp. Sta. Series, 1925.





Source: Appendix table 2.

Fig. 4. Acres of Grain Crops Harvested in Hyde County, South Dakota, 1889-1939.

Williams and Beardon) are the dominant soils. Some clay and silty clay soils are found in the southern portion of the county. As a whole, the soils are fertile but rather shallow. The subsoil generally is slightly heavier than the surface soil. Loose porous strata underlie some sections and drainage is generally good; however, potholes are common in some sections. Rocks are sufficiently numerous in some parts to interfere with cultivation.

**Hills and breaks prevent farming in northeastern and southern sections.** However, the larger part of the area is, in general, level or gently rolling.

**Land use has varied considerably.** Much land has been farmed but drought periods have caused a shift to drought-resistant feed crops. As shown by Fig. 4, grain crops increased greatly from the time the area was settled until the early 1930's. Since that time the trend has reversed. The grain crop acreage seeded in Hyde County in 1937-39 was probably only about half that seeded in 1929, if allowance is made for the crop abandonment which probably occurred in 1929. (see Fig. 5)

The trend which has taken place in harvested acreage of tame hay and sorghum is shown in Fig. 6. Records are not sufficiently complete to determine just what "tame hay" includes, but it is known that in periods when average precipitation is obtained, a large percentage is alfalfa, clover and tame grasses. In drought periods, however, the small amount that is cut is probably largely grain and weeds.

It is interesting to note the trend of sorghum acreage, which in dry years, has been practically the sole source of roughage from cultivated land.

Table 1. Number of Farms According to Size in Hyde County, S. D. 1920-35<sup>1</sup>

Size Group	1920		1925		1930		1935	
Acres	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Under 100	7		18		27		27	
100 - 174	68		44		75		94	
175 - 259	9		43		29		24	
260 - 499	139		178		181		217	
<b>Under 500</b>	<b>223</b>	<b>48</b>	<b>283</b>	<b>53</b>	<b>312</b>	<b>49</b>	<b>362</b>	<b>62<sup>2</sup></b>
500 - 999	133	29	168	32	212	34	133	23
1,000 or over	107	23	82	15	110	17	86	15
<b>Total</b>	<b>463</b>	<b>100</b>	<b>533</b>	<b>100</b>	<b>634</b>	<b>100</b>	<b>581</b>	<b>100</b>
Av. size of farm	622		622		700		617	

1. Source: U. S. Census.

2. In 1935, 57 percent of the farms in Faulk, Hughes, Potter and Sully counties were smaller than 500 acres. There was probably some free range, however, since only around 75 to 80 percent of the land area was reported in farms.

**Marketing facilities good for non-perishable products.** A hard surfaced highway (U. S. 14) and the Chicago and Northwestern railroad which pass through the area facilitate marketing of such things as livestock and grain. Sections which are not too far removed from market centers would be able to ship out semi-perishable products such as cream and eggs.

**Many small farms.** According to the U. S. Census, the number of farms in Hyde County increased from 1920 to 1930, but showed a decline in 1935 over 1930 (table 1). The reverse appears to be true of size for the period 1920-30. From 1930 to 1935, however, when the number of farms decreased, the size of farm also decreased, indicating desertion of farms or idle tracts of land.

The large number of relatively small farms is especially worthy of note—around half the farms were smaller than 500 acres.

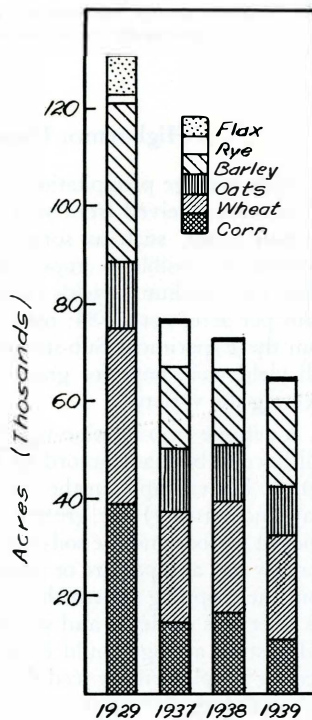
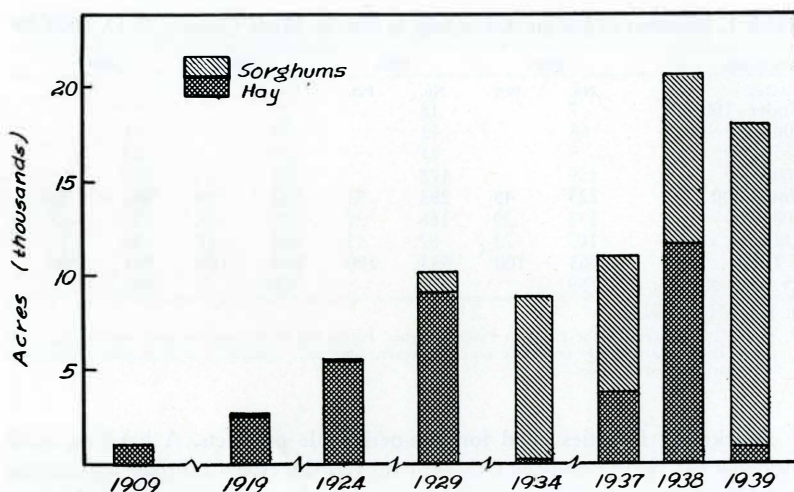


Fig. 5. Acres of Grain Crops Harvested in 1929 and Grain Crops Sown 1937-1939 in Hyde County, South Dakota. There was no abandonment of corn sown in 1929 but there was some with the other grains. (See U.S.D.A., Bureau of Agr. Econ. Crop Reporting Board. Planted Acreage, Crop years 1925-1935. By States, Washington, D. C., August 1936.) Even with some abandonment in 1929, note how much greater the acreage was than in 1937-39.

Source: Appendix table 2.



Source: Appendix table 2.

Fig. 6. Acres of Tame Hay and Sorghum Harvested in Hyde County, South Dakota, 1909-1939. Sorghum acreage has increased considerably in recent years. In dry years it has been practically the sole source of roughage other than native hay.

### High-return Drought-resistant Crops Desirable

Since average precipitation is relatively low, and wide variations occur in the amount received from year to year and from period to period, drought resistant crops, such as sorghums, should be produced, giving as much attention as possible to crops that give highest returns or most feed per acre. Based on "medium" yields (appendix table 3), wheat gives 480 pounds of grain per acre; corn, 784; oats, 640; and barley, 768. Information available from the Experiment Sub-station farm at Highmore indicates that sorghum will yield well, both for grain and roughage, providing care is exerted in selecting the variety.

A definite crop rotation will be impossible in most cases since adjustments will have to be made according to feed requirements of the livestock organization. For example, in the spring of the year when roughage feed supplies (hay and pasture) are greater than the reserve required to carry through drought periods and the soil moisture is at least normal, the acreage of supplementary hay and pasture or sorghum could be reduced or entirely eliminated from the cropping system that season; similarly, in the spring of the year, if the reserve is depleted and soil moisture is not good, the supplementary hay and pasture acreage could be increased that season. Where grain crops are used for supplementary feed the adjustment probably could partially be made later in the season by harvesting the crop for grain if the season were good or for hay or pasture if such were needed.



### **Reserves to Carry Through Poor Periods Necessary**

**Feed reserves prevent selling breeding stock at low prices.** Forced liquidation of roughage consuming (cattle and sheep) breeding stock is expensive since they must usually be sold at low prices. Rebuilding the herds by saving natural increase requires a long time and if the stock is purchased high prices usually must be paid.

It probably will not be advisable to carry feed reserves for concentrate consuming livestock but the feed should be in the bin before such stock are acquired.

**Financial reserves help to prevent dependence and distress.** By careful, frugal planning operators could probably build financial reserves in good years to assist in carrying through poor years. Such reserves may be in the form of cash, land, feed or equipment or a combination of these.

### **A Flexible Livestock Organization Reduces Risk**

The feed required can be provided to quite an extent by carrying reserves and making adjustments in the cropping system but in periods of extremely high or low precipitation the livestock organization probably will have to be adjusted according to the feed available. Some adjustment can be made when feed is short by selling young roughage consuming stock and culling the breeding herd. When surplus feed is available the young stock might be grown out and fattened. Further flexibility can be obtained if the livestock organization is planned to include concentrate consuming livestock, such as poultry and hogs. Such stock can be increased rapidly and with little cost when surplus feed grain is available and reduced or eliminated entirely when feed is short due to drought.

## **2. Acreage Necessary to Support a Family<sup>6</sup>**

Depends primarily upon:

1. **Amount required for family living.** It is not known exactly how much will be required to support a family in this area over a period of years, but information available indicates that an average of around \$600 per year is about the minimum and this amount includes the products produced on the farm that are consumed in the home. which amount, it is estimated, will vary from around \$70 to \$200, depending on type of farm, leaving from \$400 to

6. Was arrived at by budgeting analysis. Basic data are summarized in appendix table 3. No detailed study was made of the area to determine the parts which should be used for ranching, extensive farming or intensive farming—the people in the area can determine this best and have the opportunity to do it through county land use planning. However, as examples of where the various types are likely to be located it might be stated that ranching probably will be carried on largely in the southern one-third and extreme northern end of Hyde County; the central and north central part of the county probably will be operated as extensive and intensive farms depending primarily upon the ratio of grass to crop land.



#### CATTLE ON THE RANGE IN HYDE COUNTY, SOUTH DAKOTA

Feed reserves, as illustrated on page 4, should be built to carry the breeding stock through drought periods.

\$530 for cash family living expenses.<sup>7</sup> This figure will vary considerably, of course, depending upon such things as size, composition and frugality of family.

The standard of living which can be maintained on this amount is not given as being the most desirable for farm families in the area. Families are living on this amount, however, and therefore it was used in arriving at the approximate minimum size ranch or farm required.

Where substantial payments are to be made on such things as a farm, other debts or savings, larger units probably will be necessary.

**2. Ability of operators.** Average ability was assumed in making the study. Operators with superior ability may be able to make a living on a smaller acreage than is suggested.

**3. Type of unit operated.** The acreage required will depend to quite an extent upon the proportion of the land that is cropped and the productive capacity.

#### Minimum Size Family Ranch—Around 2,560 Acres

Under ranch conditions, where only about 10 percent of the acreage is in crop, 2,560 acres is about the minimum which will support an average family.

A plan and financial summary for such a ranch is presented in Table 2. As recommended above, drought-resistant crops were adopted as far as possible, and a fairly large acreage of supplementary feeds was introduced to insure sufficient flexibility in the cropping system to provide the necessary feed for livestock.

7. This figure was arrived at largely on the basis of expenditures of Farm Security families in the area. See: Kumlien, W. F., and Petheram, Vera, "The Standard of Living of Farm Security Administration Clients in South Dakota." Dept. of Rural Soc., Agr. Exp. Sta. Spec. Cir. Feb. 1940.

Cattle constitute the main enterprise in the livestock organization. No returns were figured for cows milked or chickens since it is doubtful if the average rancher will have economic units, and when less than these are kept, the net return is likely to be relatively small.

**Table 2. Tenant Budget for a 2,560-Acre Ranch in the Hyde County Area, South Dakota (Medium Yields and Prices)**

**Section A. Cropping System<sup>1</sup>, Production, and Feed Supply**

Item	Amount	Production	Tenant Sales	Available for Feed <sup>2</sup>
	Acres	Bu. or T.	Bu.	100 lbs.
Wheat	7	56	36	
Corn, or sorghum, grain	29	406		225
Oats	13	260		77
Barley	54	864		389
Sorghum fodder	29	29		580
Supplementary hay <sup>3</sup>	13	8		160
Supplementary pasture <sup>3</sup>	111			
Native hay	512	205		4,100
Native pasture	1,741			
Farmsteads, etc.	51			

1. Crops given here might be replaced by some other crops which would suit the needs of the individual operator better. For example, part of the small grain acreage might be devoted to grain sorghum or supplementary hay and sorghum fodder might be altered.
2. It was assumed that the tenant purchased the landlord's share of all grain except wheat.
3. This will vary from year to year. When stands can be obtained it may be mostly such crops as alfalfa, sweet clover and tame grasses. In dry years it may be grain or even weeds. The acreage will vary from year to year according to feed requirements.

**Section B. Livestock Organization and Disposition of Livestock<sup>1</sup>**

Livestock and Livestock Products	Number on Farm <sup>2</sup>	Sales <sup>3</sup>		Used in Home	
		Quantity	Dollars	Quantity	Dollars
Horses	4				
Beef Cows	80	13	390		
Yearlings	13	49	2,232	1	46
Calves	64				
Bulls	2				
Hogs	5	5,880 lbs	382	420 lbs	27
Total			3,004		73

1. See appendix table 3 for production standards.
2. The number as of Nov. 1. This livestock organization can, of course, be varied somewhat to conform to the individual operator's likes and dislikes. Some variations are given in the discussion.  
To conform with usual practice in the area, tractor power was assumed but horse power may be more desirable in some cases.
3. It was assumed that young beef cattle were sold at 18 months of age. Some operators may find it more profitable to sell calves, in which case a large number of cows could be kept.  
A horse or colt might be sold occasionally.

**Section C. Tenant's Capital Investment**

Item	Amount
	Dollars
Machinery and equipment	1,667
Feed and seed <sup>1</sup>	3,454
Livestock	6,147
Total	11,268

1. As of November 1. Includes one year's feed reserve for all livestock except hogs in excess of one litter.



Table 2. (Continued)

Section D. Tenant's Expenses		Section E. Summary of Tenant's Income and Expenses	
Item	Amount Dollars	Item	Amount Dollars
Cash expenses:		Crops	25
Cash rent	439	Livestock	3,004
Seed—commercial	89		3,029
Feed <sup>1</sup>	207	Cash expenses	1,490
Tractor fuel, oil, etc.	210		1,539
Twine and threshing	63	Depreciation on Mach. & Equip.	249
Equipment repairs	83		1,290
Auto and trucking	150	Farm income	563
Veterinary	52	Int. on tenant's Investment @ 5%	
Taxes	117		
Miscellaneous	80		
Total	1,490	Farm labor income	727
		Labor (family or hired)	250
		Operator's labor income	477
		Products used in home	73
		Operator's labor earnings <sup>2</sup>	550

1. Includes commercial feed as follows: tankage, \$45.

2. Returns to the ranch operator for his labor in addition to a house to live in and any garden products produced and fuel obtained from the ranch.

Substitutions might be made in this livestock organization according to abilities, likes and dislikes of ranchers. For example, some may prefer or be better situated to raise sheep. Turkeys or chickens might be raised instead of hogs when sufficient concentrates are available. The following labor earnings would be expected:

Substitution Made in the Livestock Organization Presented in Table 2, Section B.	Operator's Labor Earnings
	Dollars
1. Sheep substituted for part of cattle	659
120 ewes and appurtenant young stock were substituted for	
14 cows and appurtenant young stock.	
2. Turkeys substituted for part of hogs	610
200 turkeys were substituted for two litters of hogs.	

It is hard to distinguish between the profitableness of the various enterprises. The above calculations might be interpreted to indicate that sheep are little more profitable than stock cattle and turkeys a little more than hogs, however, it must be remembered that these are only relatively rough calculations and the difference may not be sufficiently great to be significant. Moreover, some items such as the nature of buildings and equipment available, added expense encountered in fencing for sheep and ability of the operator, may offset any increased income which might otherwise be obtained. Each case will have to be considered individually.

**Expected income from a 3,200 acre ranch.** A budget was made for a 3,200 acre ranch using the same assumptions as were used in the 2,560 acre ranch. A copy of this budget may be obtained upon request; the operator's labor earnings are \$934.

Budgets were worked out for a 3,200 acre ranch using the same assumptions as before for everything except yields and prices. When "low" yields (appendix table 3) and "medium" prices were assumed the labor earnings were a minus \$577. When "low" prices and "medium" yields were assumed, labor earnings were a minus \$312. If only "low" yields (including pasture carrying capacity) or prices can be obtained over a period of years, it will be impossible to continue to operate unless costs are drastically reduced.

#### **Minimum Size Family Farm in Extensive Farming Sections—960 Acres**

Where only about one-third of the land is suited for cultivation, 960 acres appears to be about the minimum acreage which will support an average farm family. A plan for such a farm with the expected labor earnings is presented in Table 3. The principles discussed above to be followed in planning the crop and livestock organization were followed in developing this plan.

As was pointed out in connection with the livestock included in the ranch plan, some operators may not like this livestock organization, and therefore the following substitutions were made and the labor earnings calculated:

<b>Substitutions Made in the Livestock Organization Presented in Table 3, Section B.</b>	<b>Operator's Labor Earnings</b>
	Dollars
1. Substitute sheep for cows milked 88 ewes and appurtenant young stock were substituted for the 10 cows milked and appurtenant young stock.	476
2. Sheep substituted for part of stock cows 120 ewes and appurtenant young stock were substituted for 14 stock cows.	659
3. Cows milked were replaced by stock cows No cows were milked and only stock cows were kept. For a further discussion of this see the text.	296
4. Turkeys substituted for part of hogs A unit of 200 turkeys was substituted for two litters of hogs.	610
5. Turkeys substituted for chickens A unit of 200 turkeys was substituted for the chickens and chicks.	593

As stated in connection with substitutions of enterprises in the ranch organization the choice of the enterprises to be included in the organization will be difficult to make if based on expected income alone. Some of the enterprises appear to give slightly higher returns but it should be remembered that these calculations are, at best, only approximations to what might be obtained under farm conditions and the difference may not be great enough to be significant. Furthermore, factors which could not be taken into consideration in the budgets, such as ability of operators, buildings and equipment available, and added expense necessitated in fencing for sheep, may alter the situation. Each case will have to be considered individually.

**Table 3. Tenant Budget for a 960-Acre Farm in the Hyde County Area, South Dakota (Medium Yields and Prices)**

**Section A. Cropping System<sup>1</sup>, Production, and Feed Supply**

Item	Amount	Production	Tenant Sales	Available for Feed <sup>2</sup>
	Acres	Bu. or T.	Bu.	100 lbs.
Wheat	38	304	150	30
Corn or sorghum, grain	59	826		459
Oats	24	480		142
Barley	45	720		324
Sorghum fodder	38	38		760
Supplementary hay <sup>3</sup>	12	7		140
Supplementary pasture <sup>3</sup>	99			
Native hay	150	60		1,200
Native pasture	465			
Farmsteads, etc.	30			

1. Crops given here might be replaced by some other crops which would suit the needs of the individual operator better. For example, part of the small grain acreage might be devoted to grain sorghum, or supplementary hay and sorghum fodder might be altered.
2. It was assumed that the tenant purchased the landlord's share of all grain except wheat and fed 50 bushels of his own wheat.
3. This will vary from year to year. When stands can be obtained it may be mostly such crops as alfalfa, sweet clover and tame grasses. In dry years it may be grain or even weeds. The acreage will vary from year to year according to feed requirements.

**Section B. Livestock Organization, and Disposition of Livestock and Products<sup>1</sup>**

Livestock and Livestock Products	Number on Farm <sup>2</sup>	Quantity	Sales <sup>3</sup>	Used in Home	Dollars
			Dollars	Quantity	Dollars
Horses	2				
Cows-milked	10	5	150		
Stock cows	20				
Yearlings	5	20	911	1	46
Calves	27				
Bull	1				
Hogs	8	9,660 lbs.	628	420 lbs.	27
Chickens	150	180	99	70	38
Total			1,788		111
Butterfat, pounds		1,450	319	300	66
Eggs, dozen		1,060	148	200	28
Total			467		94

1. See appendix table 3 for production standards.
2. The number as of November 1. This livestock organization can, of course, be varied somewhat to conform to the individual operator's likes and dislikes.  
Some variations are given in the discussion.  
To conform with usual practice in the area, tractor power was assumed but horse power may be more desirable in some cases.
3. It was assumed that not more than 10 cows would be milked by the average operator.  
It was assumed that young beef cattle were sold at 18 months of age. Some operators may find it more profitable to sell calves, in which case a larger number of cows could be kept.  
A horse or colt might be sold occasionally.

**Section C. Tenant's Capital Investment**

Item	Amount
	Dollars
Machinery and equipment	1,577
Feed and seed <sup>1</sup>	2,406
Livestock	2,610
Total	6,593

1. As of November 1. Includes one year's feed reserve for all livestock except hogs in excess of one litter.



Section D. Tenant's Expenses		Section E. Summary of Tenant's Income and Expenses	
Item	Amount Dollars	Item	Amount Dollars
Cash expenses:		Crops	105
Cash rent	193	Livestock	1,788
Seed—commercial	84	Livestock products	467
Feed <sup>1</sup>	302		
Tractor fuel, oil, etc.	202		2,360
Twine and threshing	85	Cash expenses	1,297
Equipment repairs	79		
Auto and trucking	150		1,063
Veterinary	29	Depreciation on Mach. & Equip.	238
Baby chicks	35		
Taxes	63	Farm income	825
Miscellaneous	75	Int. on tenant's investment @ 5%	330
Total	1,297	Farm labor income	495
		Labor (family or hired)	150
		Operator's labor income	345
		Products used in home	205
		Operator's labor earnings <sup>2</sup>	550

1. Includes commercial feed as follows: Chicken mash, \$48; chick starter, \$25; tankage, \$72; less a skim milk credit of \$57.

2. Returns to the farm operator for his labor in addition to a house to live in and any garden products produced and fuel obtained from the farm.

**Intensive livestock organization necessary.** Some operators may be located in a section where about the same proportion of the land can be cultivated as on the 960-acre farm (33 percent) and still desire to keep just beef cattle. As is shown above, the labor earnings would be only \$296 on a 960-acre farm. Under such conditions, it would require around 1,280 acres to support a family. This acreage would give \$687 for operator's labor earnings.

**Low yields and prices make operation unprofitable.** Budgets were worked out to show the effect of "low" yield and price (appendix table 3) on labor earnings on the 960-acre farm. When "low" yields and "medium" prices were used in calculating the budget, labor earnings were a negative \$399. The corresponding figure for "low" price and "medium" yields was a negative \$198. Obviously, individuals cannot continue to operate indefinitely with such low prices and yields. Costs might be reduced but probably not enough to make it possible to continue to operate under such conditions.

#### **Minimum Sized Family Farm in Intensive Farming Section—640 Acres, 480 Acres a Possibility**

In the better parts of the Hyde County area where an intensive type of farming can be practiced (around 45 percent of the land in crops), 640 acres appears to be the smallest acreage which will enable the average operator to support a family. The farm plan and financial summary is given in Table 4. High-return, drought-resistant crops were assumed and a relatively intensive livestock organization was set up.

**Table 4. Tenant Budget for a 640-Acre Farm in the Hyde County Area, South Dakota (Medium Yields and Prices)**

**Section A. Cropping System<sup>1</sup>, Production, and Feed Supply**

Item	Amount	Production	Tenant Sales	Available for Feed <sup>2</sup>
	Acres	Bu. or T.	Bu.	100 lbs.
Wheat	28	224	97	30
Corn or sorghum, grain	78	1,092		606
Oats	15	300		89
Barley	45	720		324
Sorghum fodder	25	25		500
Supplementary hay <sup>3</sup>	15	9		180
Supplementary pasture <sup>3</sup>	84			
Native hay	110	44		880
Native pasture	215			
Farmsteads, etc.	25			

1. Crops given here might be replaced by some other crops which would suit the needs of the individual operator better. For example, part of the small grain acreage might be devoted to grain sorghum, or supplementary hay and sorghum fodder might be altered.
2. It was assumed that the tenant purchased the landlord's share of all grain except wheat and fed 50 bushels of his own wheat.
3. This will vary from year to year. When stands can be obtained it may be mostly such crops as alfalfa, sweet clover and tame grasses. In dry years it may be grain or even weeds. The acreage will vary from year to year according to feed requirements.

**Section B. Livestock Organization, and Disposition of Livestock and Products<sup>1</sup>**

Livestock and Livestock Products	Number on Farm <sup>2</sup>	Sales <sup>3</sup>		Used in Home	
		Quantity	Dollars	Quantity	Dollars
Horses	2				
Cows—milked	10	3	90		
—other	11				
Yearlings	3	14	638	1	46
Calves	19				
Bull	1				
Hogs	10	12,180 lbs.	792	420 lbs.	27
Chickens	150	180	99	70	38
Total			1,619		111
Butterfat, pounds		1,450	319	300	66
Eggs, dozen		1,060	148	200	28
Total			467		94

1. See appendix table 3 for production standards.
2. The number as of November 1. This livestock organization can, of course, be varied somewhat to conform to the individual operator's likes and dislikes.  
Some variations are given in the discussion.  
To conform with usual practice in the area, tractor power was assumed but horse power may be more desirable in some cases.
3. It was assumed that not more than 10 cows would be milked by the average operator.  
It was assumed that young beef cattle were sold at 18 months of age. Some operators may find it more profitable to sell calves, in which case a larger number of cows could be kept.  
A horse or colt might be sold occasionally.

**Section C. Tenant's Capital Investment**

Item	Amount
	Dollars
Machinery and equipment	1,512
Feed and seed <sup>1</sup>	2,180
Livestock	1,996
Total	5,688

1. As of November 1. Includes one year's feed reserve for all livestock except hogs in excess of one litter.

Section D. Tenant's Expenses		Section E. Summary of Tenant's Income and Expenses	
Item	Amount Dollars	Item	Amount Dollars
Cash expenses:		Crops	68
Cash rent	134	Livestock	1,619
Seed—commercial	73	Livestock products	467
Feed <sup>1</sup>	340		
Tractor fuel, oil, etc.	184		2,154
Twine and threshing	70	Cash expenses	1,171
Equipment repair	76		
Auto and trucking	120		983
Veterinary	26	Depreciation on Mach. & Equip.	229
Baby chicks	35		
Taxes	53	Farm income	754
Miscellaneous	60	Int. on tenant's investment @ 5%	284
Total	1,171	Farm labor income	470
		Labor (family or hired)	100
		Operator's labor income	370
		Products used in home	205
		Operator's labor earnings <sup>2</sup>	575

1. Includes commercial feed as follows: Chicken mash, \$48; chick starter, \$25; tankage, \$90; less a skim milk credit of \$57.

2. Returns to the farm operator for his labor in addition to a house to live in and any garden products produced and fuel obtained from the farm.

Some operators may not like the livestock organization suggested above, or they may not be adept at handling the suggested kinds of livestock. Some may not wish to milk cows, others may not want to raise hogs, and still others may think chickens should not be included in the organization. For such reasons, farm plans were worked out where other types of livestock were substituted for those included above (Table 4). The cropping system was unaltered, however, except for small changes needed to balance production and feed requirements. The resulting labor earnings figures of these examples are as follows:

Substitutions Made in the Livestock Organization Presented in Table 4, Section B.	Operator's Labor Earnings
	Dollars
1. Sheep substituted for cows milked	444
88 ewes and appurtenant young stock were substituted for the 10 cows milked and appurtenant young stock.	
2. Sheep substituted for stock cows.	661
97 ewes and appurtenant young stock were substituted for the 11 stock cows and appurtenant young stock.	
3. Turkeys substituted for hogs.	638
A unit of 200 turkeys was substituted for two litters of hogs.	
4. Turkeys substituted for chickens.	620
A unit of 200 turkeys was substituted for the chickens and chicks.	

The selection of enterprises to be included in the organization will be difficult to make, based on expected income alone. As stated above, some enterprises may appear to yield slightly higher returns but it should be remembered that these calculations are, at best, only approximations to what might be obtained under actual farm conditions and the difference between the expected incomes from various enterprises as here given may not be great enough to be significant. Moreover, other factors which could not be taken into account in making the budgets, such as buildings and equipment available, operator's ability, and added expense incurred in fencing for sheep, may offset any additional income which might be expected. Each case will have to be considered separately and the enterprises selected according to the resources available and the way in which they will dovetail together.

**Family might be supported on less than 640 acres.** There may be a possibility of a childless couple or a bachelor getting by on a farm smaller than 640 acres. This would be true especially if the operator owned the place and, therefore, could use interest returns from his investment for living expenses. Where this is true it may be possible to support a family.

Budgets were figured for a farm of 480 acres, using approximately the same cropping system as on the 640-acre farm. When cattle (assuming 10 cows were milked), hogs and chickens made up the livestock organization, the operator-labor earnings were only \$381. (The farm plan may be obtained upon request.) There was, however, an "Interest on tenant's investment" charge of \$240 and a \$50 allowance for labor in addition to that of the operator. If the operator had sufficient investment and family labor so these amounts could be retained, it may be possible for him to support a family.

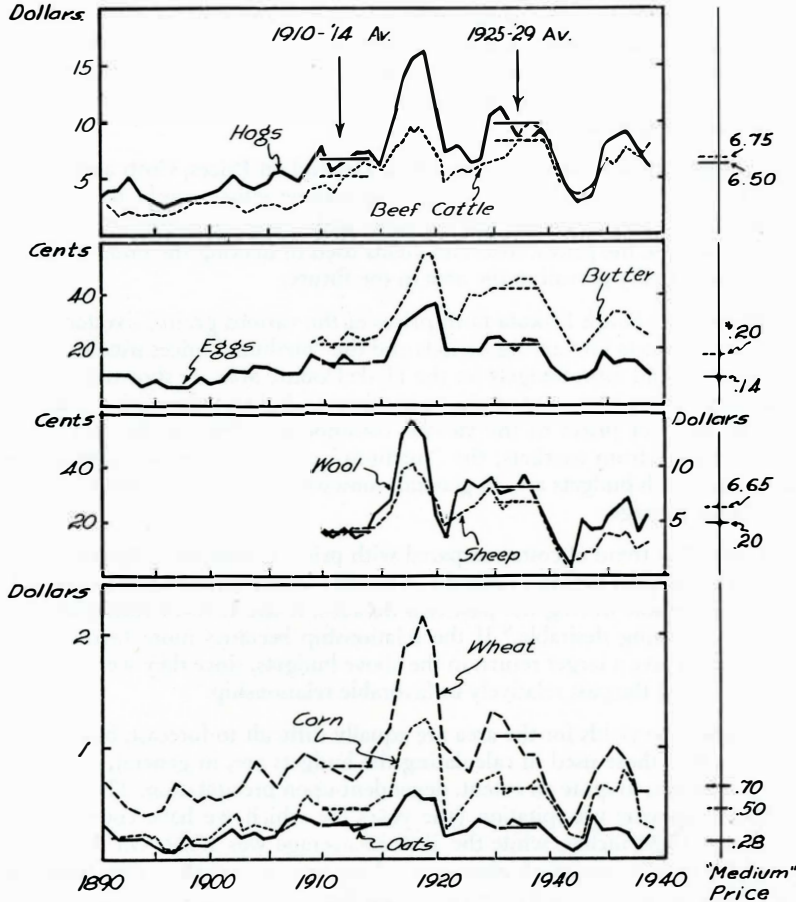
Substitutions might be made in the 480-acre livestock organization as were made in the 640-acre livestock organization. The effect on labor earnings would be similar. If sheep were substituted for cows milked, the operator-labor earnings would be \$292; sheep for other cows, \$438; turkeys for two litters of hogs, \$426; and turkeys for chickens, \$409.

While an operator with only average managerial ability would likely be unable to support a family on less than 640 acres, it is possible that a superior manager would be able to do so. The yields and production standards used in calculating the above budgets were relatively conservative and an efficient and capable operator would be able to increase production. Also, by operating his business so that livestock is ready for market at the time of the year when prices are relatively high, he will be able to increase his income.

To show the approximate effect of efficient production and higher prices on labor earnings, budgets were calculated for a 480-acre farm. When "high" yields were assumed (appendix table 3) and all other items held constant, the labor earnings were \$1,017. When "high" prices were assumed, other items remaining the same, the labor earnings were \$895. If both "high" yields and prices were obtained, the labor earnings would be still higher.

If an operator is able to specialize in livestock which will give high returns, he may be able to support a family on 480 acres, especially if family





Source: S. Dak. Agr. Experiment Station Bulletin 317.

Fig. 7. Farm Prices of Various Livestock, Livestock Products and Grains for South Dakota and "Medium" Prices Used in Calculating Farm and Ranch Budgets for the Hyde County area. The South Dakota farm price is weighted according to location and monthly marketings and therefore is not directly comparable to the medium price for the Hyde County area. The historical series is presented to give a picture of trend of prices, and a general idea of how the "medium" price used for Hyde County compares with the weighted average for the whole State.

\* Most farmers sell butterfat and therefore butterfat price was used in the budgets; but butterfat prices were not available so butter prices were plotted. Butter is usually about 2 cents higher.

labor is available so labor need not be hired. For example, if three units of turkeys (600) were substituted for six litters of hogs on the 480-acre farm, the labor earnings would be increased to \$496. Operators should, however, be fairly sure of their ability to manage highly specialized livestock enterprises before adopting them.

#### **Minimum Size of Ranch and Farm Will Depend on Prices, Costs and Yields**

The foregoing conclusions concerning income which might be expected from ranches and farms of varying sizes and types are entirely dependent upon how close the prices, costs and yields used in making the budgets are to what will actually prevail in the area in the future.

**Prices.** The South Dakota farm prices of the various grains, livestock and livestock products for varying periods and the "medium" prices used in calculating ranch and farm budgets for the Hyde County area are shown in Fig. 7. The figure offers a basis for rough comparison and gives information concerning the trend of prices of the various commodities. Due to the area being located so far from markets, the "medium" prices used in calculating the farm and ranch budgets are, in general, somewhat lower than might be used for a State average.

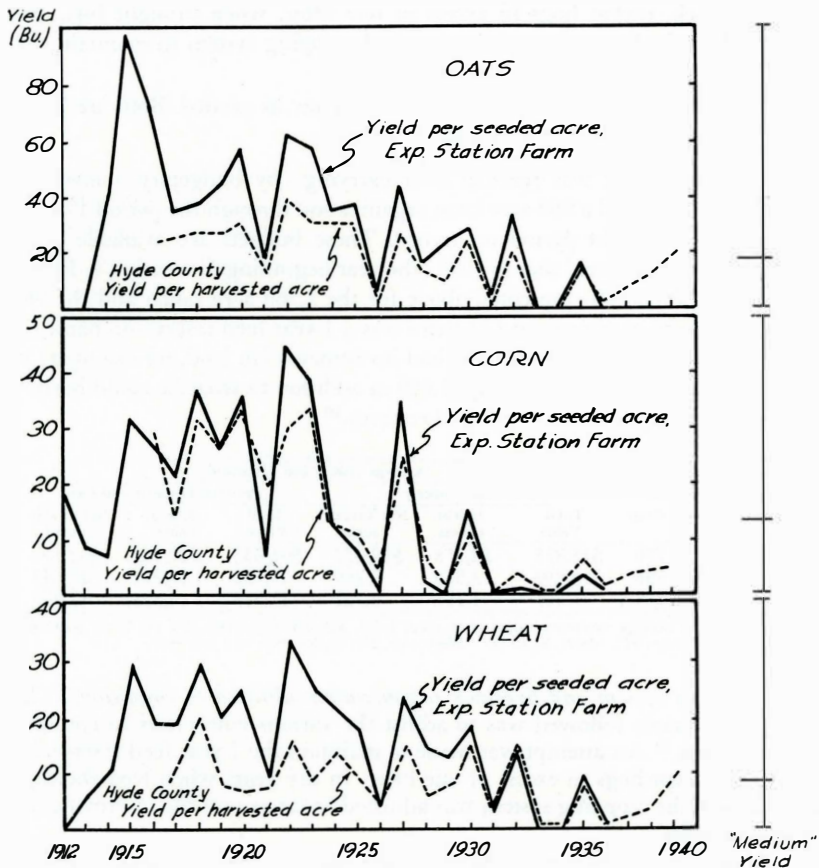
**Costs.** The trend of costs compared with prices is difficult to forecast. The ratio of prices paid to prices received by South Dakota farmers has, in general, been unfavorable during the past two decades, if the 1910-14 relationship is accepted as being desirable.<sup>8</sup> If the relationship becomes more favorable, it will serve to give a larger return in the above budgets, since they were figured on the basis of the past relatively unfavorable relationship.

**Yields.** The yields for the area are equally difficult to forecast, but indications are that those used in calculating the budgets are, in general, conservative. Yields are, to quite an extent, dependent upon precipitation. The 1916-39 average crop year precipitation (the years for which we have county yield data) was 16.84 inches, while the 1900-39 average was 17.22. On this basis, the yields may be slightly higher over a long-time period than they were for the period for which county data are available.

Another indication that the yields used were conservative is the yields obtained on the South Dakota Agricultural Experiment Sub-station farm at Highmore. These yields are presented graphically in Fig. 8, along with estimated yields per harvested acre for Hyde County (by the State and Federal Crop and Livestock Reporting Service) and "medium" yields used in calculating the budgets. *The yields per harvested acre for the county are lower than yields per seeded acre on the Experimental farm.* This is not due to the Experimental farm being inherently more productive, for, according to the history of Hyde County, at the time it was presented to the State this farm "was known as the poorest farm in the township."<sup>9</sup>

8. "Local Market Price Movements in South Dakota, 1930-39" U.S.D.A. Agricultural Marketing Service in Cooperation with the S. D. Dept. of Agr.

9. Perkins, John G., "History of Hyde County" p. 201. 1908.



Source: Appendix table 1 and S. Dak. Agr. Exp. Station Bulletin 325.

Fig. 8. Comparison of Actual Yields of Oats, Corn and Wheat per Seeded Acre on the Experiment Sub-Station Farm at Highmore, and Estimated Yield per Harvested Acre for Hyde County. The "medium" yields used in calculating the farm and ranch budgets are also given to facilitate a general comparison.

The plots upon which these yields were obtained received no treatment, but they were properly cultivated and kept free from weeds, and care was taken to eradicate rodents and insects.

#### Can Ranches and Farms Presented:

A. Survive Drought and Depression Periods? The answer is yes provided the operator:

- (1) Can support his family on \$600 (which includes farm products used in the home) and is able to farm efficiently and economically.
- (2) Has at least a 1-year feed reserve of grain and roughage on hand for all

livestock, except hogs in excess of one litter, when drought hits, and adjusts the livestock organization and cropping system to maintain this as far as possible.

- (3) Maintains a cash reserve or is able to borrow as needed. Both are likely to be required to survive drought periods.

This conclusion was reached after carrying (by budgetary analysis) a 2,560-acre ranch and a 960-acre farm organization through the period 1930-39—the worst drought period on record. These budgets are available upon request. It was assumed that in 1930 (the year beginning November 1, 1939): (1) the organizations presented above for the 2,560 acre ranch and the 960 acre farm were in operation; (2) there was a 1-year feed reserve on hand (2-year supply); (3) that the operator had investments (in land, for example) so that he could borrow as much as \$1,000 in addition to what he could borrow on his livestock, machinery and feed reserves.<sup>10</sup>

Number of Farms	Av. Acres per farm		Average Assets and Liabilities					
			Personal Property			Personal Property and Land		
			Total Value	Indebt- edness	Net Invest- ment	Total Value	Indebt- edness	Net Invest- ment
5	2,664	770	\$15,855	\$2,378	\$13,477	\$46,652	\$14,462	\$32,190
15	944	596	10,849	3,580	7,269	27,936	12,292	15,644
25	503	335	7,407	1,185	6,222	17,512	4,553	12,959

The following average inventory values were used: Land, \$25 per acre; cows, \$77 per head; yearlings, \$39; calves, \$14; sows, \$17; wheat, \$1.10 per bushel; oats, 30c; barley, 40c; and corn, 60c.

*Cropping system and livestock organization adjusted to conditions.* The general principle followed was to adjust the various enterprises to conform to conditions.<sup>11</sup> An attempt was made to maintain the 1-year feed reserve for all stock except hogs in excess of one litter. In dry years when feed shortage threatened, the cropping system was adjusted as far as possible to provide the required feed.

Since concentrate-consuming livestock can be decreased and increased quite rapidly and with relatively little expense while changes in roughage-consuming breeding livestock is usually very costly (if reductions are made by sales and increases by purchases) or slow (if increases are made by saving natural increase), the policy followed was to reduce concentrate-consuming livestock or eliminate them entirely in dry years and adjust the cropping system to provide forage for the roughage-consuming stock, especially for the breeding herd. By following this policy, the acreage of forage crops was considerably increased some years and of grain crops decreased. Some of these years, part of the supplementary hay acreage would likely be weeds or grain crops which were not sufficiently good to harvest.

10. Records available on 45 farms in North Central South Dakota for the year 1930 indicate that this assumption is probably justified.

11. It was assumed that it would be too costly for the average operator to purchase feed in dry years, since it would likely have to be shipped in. This might be done in some cases, especially grain, but the conclusions would not be changed materially.



When the carry over of roughage became greater than the 1-year reserve requirement and spring moisture was good, the acreage of forage crops was decreased and of grain crops increased. As the supply of grain increased, concentrate-consuming stock was increased or added to the organization. Such stock could be hogs, chickens, turkeys or young cattle and sheep to feed out and fatten. Hogs and chickens were used in the example, but the choice would depend upon the operator. The pertinent point to note is that this stock was not required until the grain was in the bin. For example, sows were not bred to farrow unless grain was already in the bin to feed out the hogs; chicks were not bought unless there was sufficient feed for them.

*The 2,560-acre ranch, 1930-39.* Due to feed shortage it was necessary to reduce the beef breeding herd by  $\frac{1}{3}$  from 1935 to 1937. The number of cows was still low in 1939, but heifers were available to bring the breeding herd up to normal in 1940.

The financial strain was considerable during the period. The average labor earnings for the 10-year period was a minus \$252. Although operating expenses were reduced somewhat they still remained relatively high and it was necessary to borrow quite heavily during the latter part of the period. The net worth decreased around \$5,800 from the beginning of 1930 to the end of 1938 (\$5,109 of this was used for family living expenses) but during 1939 it was increased by around \$1,700. It appears, therefore, that with a few favorable years the loss in net worth could be regained. If another series of unfavorable years come before the net worth is rebuilt it is doubtful if operation can be continued unless costs can be materially reduced.

The period 1930-39 contained an unusually large number of years of both drought and depression. It is seldom that drought occurs so many years in succession. If the years after 1934 had been good, the organization would have come through quite well.

Since both drought and depression occurred simultaneously during the period 1930-39, the question might be asked, "What would have been the picture if only drought had occurred and 'medium' prices had been obtained?" Budgetary calculations indicate that the returns would have been improved. The labor earnings would have averaged a minus \$104 instead of a minus \$252, and the decrease in net worth would have been about \$1,600 less.

*The 960-acre farm, 1930-39.* The roughage-consuming breeding herd was carried through the 10-year period with only a slight reduction in 1935 and 1936. The young stock and concentrate-consuming livestock were sold when the feed supply was short, however, and this, along with the low prices, caused severe financial strain on the organization in some years. The expenses decreased some, but not nearly so much as the receipts. As a result, it was necessary to borrow on assets.

The average labor earnings for the 10-year period were a minus \$72. The net worth decreased around \$4,600 (\$3,972 of this was used for family living expense) but allowance was made for machinery depreciation so as to keep it in good condition and the breeding herd was intact at the end of the period so a farmer could have operated efficiently and made good returns if sufficient

moisture did come. The \$4,600 decrease in net worth was hard on the organization, but in both 1930 and 1931 around \$1,000 remained to build a reserve or pay debts after all expenses, including family living, had been paid. The inventory also increased these years so the net worth might be rebuilt if a few good years come, but if poor years continue this type of farming probably will have to be discontinued unless costs can be greatly reduced.

#### Can Ranches and Farms Presented:

**B. Be Developed With Limited Resources Available?** The lack of capital on the part of farm operators, and tenants in particular, is one of the greatest difficulties to be met in establishing farm and ranch units as planned above. The value of machinery and equipment of the average operator was practically nil in 1937 and livestock numbers were very low. A similar study made on the Beadle County area in Central South Dakota, indicated that a good operator on the minimum sized farm in that area (480 acres) would be able to build up an organization as planned, provided he had approximately \$1,000 equity in productive items such as livestock and equipment.<sup>12</sup> But it would require a 7-year period, assuming average conditions, and he would have to be able to obtain relatively liberal credit. Similar conclusions will likely apply in the Hyde County area.

### 3. Help of Society Needed to Solve Problems

The ranch and farm plans presented above were made just as applicable to actual conditions as possible. Things that are somewhat under the control of the individual operator, such as yields, production and operating efficiency, were set at levels it is believed the average operator can obtain. But there are difficulties beyond the control of the individual operator which must be overcome if units such as those planned above are to be established and maintained—if a stable, self-supporting agriculture is to exist in the area. The aid of people living in the area, land owners and the State and Federal government will be required to solve these problems.

**Land Tenure.** One of the most important of these problems is the present status of land tenure. According to the 1937 survey, only 16 percent of the land operated in the area surveyed was owned by the operator.<sup>13</sup> The remaining 84 percent was owned by individuals, corporations and Government agencies and was broken up into 220 separate tracts of land.<sup>14</sup>

---

12. Paschal, James L., Nelson, Aaron G., and Rogeness, Olav, "Planning Minimum Sized Farms for the Beadle County Area in Central South Dakota." S. D. Agr. Exp. Sta. Bul. 341 p. 33-38, 1940.

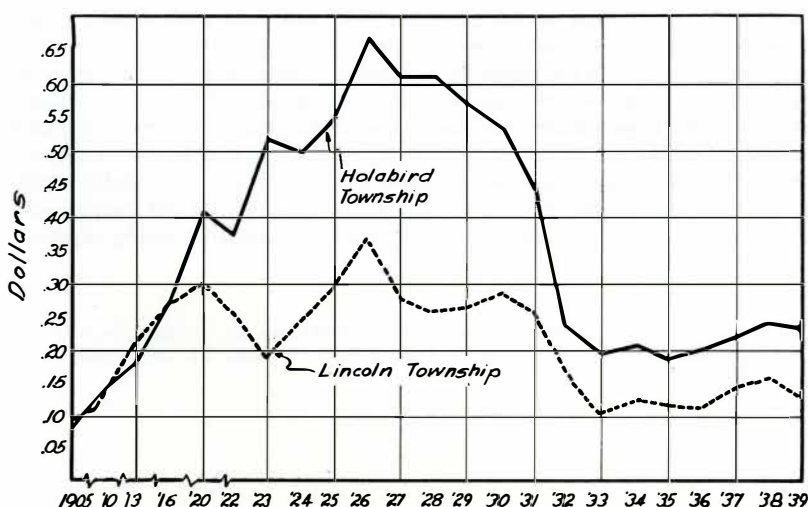
13. Operator held the title. Information not obtained on mortgage status.

14. Taken from an unpublished report, "Farm Tenancy in Central South Dakota," a brief summary of tenancy information obtained in the 1937 survey, made by Joseph M. Stensaas, Div. of Land Econ., B. A. E.

The number of tracts rented per tenant varied from one to 20, the average being about three. For a period of only one year, 180 of the 220 tracts were leased. This results in very frequent moving by operators. About one fourth of the operators included in the 1937 survey had been on the farm they were then operating but two years or less and nearly half had been on their farms only five years or less. Moving is costly, and it is practically impossible to accumulate feed reserves when moving so often, since feed—especially roughage—would be very costly to move any distance. Moreover, frequent moves are hard on the family, the land, the farmstead and the community. If permanency of tenure could be achieved, either through ownership or through leasing, one of the greatest obstacles to a permanent agriculture would be removed.

**Large number of small units.** Many of the operating units in the area are probably too small to support a family, and therefore the population is greater than the area will support. According to the U. S. Census around half the farms are under 500 acres (Table 1, page 9) and this study shows the minimum sizes of units required to support an average family to be around 2,560 acres for ranches, 960 acres where extensive farming is practiced and 640 to 480 acres where intensive farming can be followed.

The problem may not be as serious as it appears however. As explained above some free range is available in some parts of the area which would make some of the units larger than reported by the census. Another consideration



Source: Appendix table 4.

Fig. 9. Average Tax per Acre of Land in Holabird and Lincoln Townships Hyde County, South Dakota, 1905-1939.

is that some of the smaller units probably are operated by individuals or childless couples and such cases may be able to get along on less than the minimum acreages suggested above.

**Fluctuating land values contribute to tenancy and small units.** These fluctuations are, of course, largely caused by the variations in prices and precipitation. In periods of high precipitation and prices profits are high and land values rise. A smaller acreage is required to support a family, speculation sets in, and units are often broken up and sold and grassland plowed. Periods of low precipitation and low prices follow, with the result that land values drop, mortgages are foreclosed, and severe distress follows.

**The tax situation.** In recent years, especially, taxes have been very burdensome and in many cases they have become delinquent, and the land has reverted to the county.<sup>15</sup>

Taxes on agricultural property have not remained constant relative to farm income. The average tax per acre of land in Holabird and Lincoln Townships in Hyde County for given years from 1905 to 1939 is shown graphically in Fig. 9. A comparison of this figure with Fig. 7, which shows prices received by farmers, and Fig. 8, which presents crop yields, shows that taxes have had a tendency to follow prices and yields, but that they have not fluctuated with variations in yield and price in individual year or even 2-year periods, and there has been a lag of a year or two before taxes followed the general trend of agricultural income.

A second point to be noted in the chart is that while the tax per acre decreased considerably during the past decade it still remains high relative to earlier periods. A part of the taxes has been spent for consumption goods (goods which are used and do not bring any direct monetary returns), which is all good and well if the people of the area so desire. However, they must be paid for, and money which is spent for these things cannot be spent for others. If such public expenditures continue to rise, farms will have to be continually increased in size to provide the increased income required to meet expenses. Some reduction might be made in other expenses, but it is doubtful if this could be done without moving people out of the area, for the ranches and farms planned above provided only a minimum amount for living expenses.

---

15. The policy of the county in renting land to individuals for less than the taxes (in order that some revenue might be obtained from the land) has contributed to tax delinquency.



## Appendix Tables

Table 1. Yields of Grain and Forage per Harvested Acre Hyde County, South Dakota, 1916-1939<sup>1</sup>

Year	Corn	Durum Wheat	Spring Wheat	Oats	Barley	Rye	Flax	Sorghum Forage	All Tame Hay <sup>2</sup>	Native Hay
	Bu.	Bu.	Bu.	Bu.	Bu.	Bu.		Ton	Ton	Ton
1916	30.0		4.6	26.0	20.3		8.0			
1917	15.0		10.0	28.0	26.0	20.0	4.0			
1918	32.0		20.0	30.0	26.0		12.0			
1919	28.0		8.0	30.0	25.0	10.5	9.0			
1920	33.5		7.0	34.0	21.0	10.5	11.5			
Av. 1916-20	27.7		9.9	29.6	23.7	13.7 <sup>3</sup>	8.9			
1921	21.0		7.5	16.0	17.5	14.0	5.5			
1922	30.0		15.5	41.5	33.0	16.5	10.0			
1923	34.0		8.7	34.0	24.0	10.0	11.0			
1924	11.7		13.6	33.9	22.8	10.9	8.6			
1925	11.9	9.5	8.5	33.0	23.0	10.6	4.5			
1926	4.9		5.0	6.0	3.6	3.7	3.5			
1927	26.0		15.0	29.2	27.0	20.8	8.9			
1928	7.7	6.5	5.5	14.0	10.3	9.2	4.3			
1929	1.8	6.7	7.4	11.9	9.6	8.0	2.6			
1930	12.5	11.5	14.8	26.4	24.4	11.4	4.0	1.3 <sup>4</sup>	.9 <sup>4</sup>	.5 <sup>4</sup>
Av. 1921-30	16.2	8.6 <sup>3</sup>	10.2	24.6	19.5	11.5	6.3			
1931	.5	2.1	2.6	1.9	3.3	3.2	.5	.4 <sup>4</sup>	.2 <sup>4</sup>	.1 <sup>4</sup>
1932	3.8	12.6	13.1	23.4	20.0	12.2	3.2	1.2 <sup>4</sup>	.8 <sup>4</sup>	.6 <sup>4</sup>
1933	.5	0.0	0.0	0.0	0.0	1.0	0.0	.2 <sup>4</sup>	.1 <sup>4</sup>	.1 <sup>4</sup>
1934	.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0 <sup>4</sup>	0.0 <sup>4</sup>	0.0 <sup>4</sup>
1935	7.3	6.0	6.5	19.8	10.8	11.2	1.7	.9 <sup>4</sup>	.5 <sup>4</sup>	.3 <sup>4</sup>
1936	1.8	0.0	0.0	0.0	0.0	1.6	0.0	.3 <sup>4</sup>	0.0 <sup>4</sup>	.3
1937	3.9	3.7	2.7	7.0	7.0	4.0	1.0	.7	.7	.45
1938	4.5	6.0	4.0	12.0	11.0	8.0	4.0	1.2	.85	.35
1939	5.0	9.0	10.0	22.0	16.0	6.0	3.0	.9	.9	.8
Av. 1931-39	3.0	4.4	4.3	9.6	7.6	5.2	1.5	6.4	.45	.3
Av. 1916-39	13.6	5.7 <sup>3</sup>	7.9	20.0	15.9	9.2 <sup>3</sup>	5.0	7.1 <sup>3</sup>	.5 <sup>3</sup>	.35 <sup>3</sup>

1. Farm Production and Prices, 1890-1926, Agr. Exp. Sta. Bul. 225.

South Dakota Agr. Statistics, 1924-1936, U. S. D. A. (Unpublished)

South Dakota Agr. Statistics, Annual Reports, 1937-1939, U. S. D. A.

2. Considered to be the same as supplementary hay.

3. Average for years reporting.

0.0 Yields placed at zero. Crops known to be complete failures or nearly so.

4. Yields were estimated after a study of State yields, discussions with farmers in the area, and a study of farm records kept in the wheat area of the State (north central South Dakota).

Table 2. Acres of the Various Crops in Hyde County, South Dakota, 1889-1939

Year	Corn	All Wheat	Oats	Barley	Rye	Flax	Total
Grain Crops <sup>1</sup>							
Harvested Acres							
1889	5,377	10,444	1,447	189	51	3,304	20,812
1899	2,342	4,483	445	158	00	00	7,428
1909	7,067	14,456	6,217	874	4	10,731	39,349
1919	9,371	14,338	8,899	2,858	3,172	2,309	40,947
1924	33,700	10,800	16,800	9,100	1,100	15,400	86,900
1925	33,700	9,600	17,600	13,800	700	15,400	90,800
1926	31,700	8,500	8,500	8,700	600	3,900	61,900
1927	31,200	17,700	14,700	11,600	2,000	6,200	83,400
1928	35,200	30,900	13,700	23,000	2,300	4,700	109,800
1929	38,700	36,600	13,500	32,600	2,000	8,000	131,400
1930	35,800	28,700	13,900	31,300	4,600	7,600	121,900
1931	33,000	9,500	3,600	14,000	900	200	61,200
1932	34,700	39,100	15,500	28,500	6,100	500	124,400
1933	16,200	100	00	00	500	00	16,800
1934	3,600	00	00	00	00	00	3,600
1935	18,100	24,800	8,800	17,500	3,400	300	72,900
1936	1,900	00	00	00	300	00	12,200
1937	10,900	15,200	5,000	9,800	3,000	100	44,000
1938	7,700	13,800	6,000	7,400	2,000	20	36,920
1939	8,800	19,300	9,000	15,000	1,800	10	53,910
Grain Crops <sup>1</sup>							
Seeded Acres							
1937	14,700	22,600	13,000	17,000	9,100	370	76,770
1938	16,100	23,200	11,300	16,200	6,300	40	73,140
1939	11,000	21,600	10,200	17,200	5,000	20	65,020

1. Data prior to 1924 was obtained from the U. S. Census. 1924-36 was obtained from unpublished data put out by the Crop and Livestock Reporting Service. 1937-39 was obtained from the Annual Reports of the Crop and Livestock Reporting Service.

Table 2 (Con't.)

Tame Hay and Sorghums  
Harvested Acres<sup>2</sup>

Year	Tame Hay	Sorghums <sup>3</sup>	Total	Year	Tame Hay	Sorghums <sup>3</sup>	Total
1909	1,224	00	1,224	1934	127	8,818	8,945
1919	2,683	205 <sup>4</sup>	2,888	1937	3,800	7,200	11,000
1924	5,590	34	5,624	1938	11,550	8,950	20,500
1929	9,072	1,044	10,116	1939	1,000	16,800	17,800

2. 1909-34 from the U. S. Census; 1937-39 from Crop and Livestock Reporting Service.

3. Includes grain, which is a relatively small acreage and is not always given separately.

4. Kafir, sorghum, etc., for forage.

Table 3. Standards Used for Calculating Budgets<sup>1</sup>

## Section A. Yield per Acre and Tractor Hours, Seed and Twine Required per Acre

Crop	Yield per Acre <sup>2</sup>			Tractor Hours <sup>3</sup>	Seed Used	Twine Used <sup>4</sup>	Thresh- ing Charge
	High	Medium	Low				
Wheat	12 bu.	8 bu.	4 bu.	1.8	3/4 bu.	2 lbs.	.06
Oats	28 bu.	20 bu.	12 bu.	1.8	1.5 bu.	2 lbs.	.03
Barley	24 bu.	16 bu.	8 bu.	1.8	1 bu.	2 lbs.	.04
Corn grain	20 bu.	14 bu.	6 bu.	2.6	1/8 bu.		
Sorghum fodder	1.5 T.	1.0 T.	.5 T.	3.6	8 lbs. <sup>5</sup>	1 1/4 lbs.	
Tame hay	1.0 T.	.6 T.	.3 T.	1.5	.5		
Native hay	.6 T.	.4 T.	.2 T.	.5			
Tame pasture				1.0	.6		

1. These standards are not the same as those used in S. Dak. Agr. Exp. Sta. Bul. 341 in all respects. The reasons for this are (1) The basic data upon which they are based are not the same in all cases (e.g. yields) and (2) They were discussed with two groups of ranchers and farmers in Hyde County who suggested some changes, largely in feed requirements. These suggested changes were considered by members of the South Dakota Experiment Station and the present standards arrived at.

2. These yields were arrived at after a study of information secured from farmers, the county yields as reported by the Crop and Livestock Reporting Service, the AAA committeemen's estimates of wheat yields, and production obtained on the Experiment Sub-station on farm at Highmore. "High" and "low" yields do not represent extreme variations.

3. Tractor cost for fuel, oil and grease was estimated to be 30 cents per hour. This includes all operations connected with crop.

4. Twine was figured at 9 cents a pound.

5. Seed for sorghum fodder was estimated to be 4 cents per pound.

6. Seed for tame hay and pasture was estimated to be \$.65 per acre.

Section B. Annual Feed Requirements per Head of Livestock<sup>1</sup>

Livestock	Grain Pounds	Roughage Pounds	Native Pasture <sup>2</sup>		
			Farm Conditions Acres	960 Acres	Ranch Conditions Acres
Horses	1,500	5,000	8	10	12
Milk cows <sup>3</sup>	1,000	6,000	8	10	12
Beef cows	50	4,000	8	10	12
Yearlings	0	3,000	6	7.5	9
Calves (dairy calves 550) beef	400	1,500	2	2.5	3
Bull	500	4,000	8	10	12
Ewes and ram <sup>4</sup>	35	500	1.0	1.25	1.5
Lambs kept for replacement <sup>4</sup>	0	500	1.0	1.25	1.5
Lambs (first summer)	0	0	.5	.75	1.0
Sow and litter <sup>5</sup>	6,500	0	2	2.5	3
	300 Supp. <sup>6</sup>				
Laying hens—units of 150 <sup>7</sup>	9,180				
	1,610 Supp. <sup>6</sup>				
Baby chicks (109) to 26 weeks	2,430				
	270 Supp. <sup>6</sup>				
Turkeys—unit of 200	12,283				
	2,600 Supp. <sup>6</sup>				

1. These standards were arrived at by the Animal, Poultry, and Dairy Husbandry Departments of South Dakota State College after considering Hyde County Rancher and Farmer estimates.

2. One acre of tame pasture was figured as equal to two acres of native pasture. Fields are pastured after harvest in addition to grain acreage.

3. A 175-pound butterfat production per cow was used.

4. The shearing cost was estimated to be 15 cents per head.

5. It was assumed that 1,260 pounds of pork would be produced per litter.

6. At 3 cents per pound.

7. Egg production was estimated to be 10.5 dozen per hen.

Section C. Weights at Which Livestock was Marketed<sup>1</sup>

Livestock	Weight Pounds	Livestock	Weight Pounds
Old cows	1,000	Pork per litter	1,260
Feeder lambs	65	Poultry	5
Long yearlings	675		

1. These weights were established arbitrarily after consultation with individuals who were familiar with the agriculture of the area.

### Section D. Price of Crops, Livestock, and Livestock Products<sup>1</sup>

Crop	Low	Medium	High	Livestock and products	Low	Medium	High
	Dol.	Dol.	Dol.		Dol.	Dol.	Dol.
Wheat, bu. <sup>2</sup>	.47	.70	.93	Turkeys, lb.	.09	.14	.19
Oats, bu.	.20	.28	.37	Cull cows, 100 lbs.	2.00	3.00	4.75
Barley, bu.	.29	.43	.57	Long yearlings, 100 lbs.	4.50	6.75	9.00
Corn, bu.	.33	.50	.67	Calves, 100 lbs.		7.20	
Native hay, ton	3.00	5.00	7.00	Old ewes, per head	2.25	3.50	4.75
Tame hay, ton	3.00	5.00	7.00	Feeder lambs, 100 lbs.	4.35	6.65	8.85
Sorghum fodder, ton	3.00	5.00	7.00	Hogs, 100 lbs.	4.33	6.50	8.67
				Sows, 100 lbs.		5.00	
				Chickens, lb.	.08	.11	.14
				Butterfat, lb.	.15	.22	.29
				Eggs, doz.	.09	.14	.16
				Wool, lb.	.16	.20	.24

1. These prices were established after a study was made of past prices and price relationship.

2. Wheat feed was inventoried on a basis comparable with other feed grains.

### Section E. Machinery<sup>1</sup>

Item	Original Cost	Estimated Life	Depreciation		Original Cost	Estimated Life	Depreciation
	Dol.	Yrs.	Dol.		Dol.	Yrs.	Dol.
Tractor—2 plow	1,000	10	100	Saddle <sup>2</sup>	50	16	3
Tractor plow	110	9	12	Stacker	100	14	7
Disc (single)	125	15	8	Rake <sup>3</sup>	50	16	3
Harrow	45	20	2	Sweep rake <sup>4</sup>	30	15	2
Grain drill	200	18	11	Feed grinder	30	15	2
Grain binder	350	16	22	Wagon <sup>5</sup>	100	24	4
Corn planter	75	15	5	Manure spreader	150	14	11
Corn cultivator	110	15	7	Harness set <sup>1</sup>	50	10	5
Mower <sup>1</sup>	100	15	7	Cream separator	100	15	7
				Miscellaneous	200	10	10

1. Assumed to be necessary for the 480- and 640-acre farm. More of some items were included on the larger farms as indicated.

Machinery repair per year was estimated to be 2.5 percent of original cost, 1937 prices. For calculating capital investment, machinery was inventoried at one half its original cost.

2. Two on ranches.

3. Two on ranches.

4. Two on 960-acre farm and three on ranches.

5. Two on all farms.

### Section F. Livestock Inventory Values

Livestock	Value	Livestock	Value
	Dollars		Dollars
Horse	75	Chickens, per 100	50
Cow, average	44	Sow	15
Yearlings, 18 months	44	Ram	40
Bull	200	Ewe	7
Calf, 6 months	20		

### Section G. Miscellaneous Expenses

Item	Dollars	Item	Dollars
<b>Taxes</b>		960-acre farm	150.00
1.5 percent of livestock and equipment investment		2,240-acre ranch	200.00
<b>Veterinary expense</b>		2,560-acre ranch	250.00
Horses	.75	3,200-acre ranch	300.00
Hogs, per litter	1.00	<b>Rent (unless otherwise stated)</b>	
Calves	.25	Sorghum, per acre	.60
Other cattle	.18	Tame hay or pasture, per acre	.60
Sheep	.20	Native hay or pasture, per acre	.14
Lambs	.10	Farmstead, etc.	.60
Turkeys	1.50 per 100	Grain crops	1/4 of crop
Chickens	1.50 per 100	<b>Death loss</b>	
<b>Farm auto and truck expenses per year for<sup>1</sup></b>		Cattle (other than calves)	1 %
480-acre farm	100.00	Ewes	5 %
640-acre farm	120.00	Chickens	20 %
960-acre farm	150.00	Chicks	20 %
2,240-acre ranch	150.00	Turkeys (0-8 weeks)	10 %
2,560-acre ranch	150.00	(8 - 28 weeks, when sold)	8 %
3,200-acre ranch	150.00	<b>Calf Crop</b>	
<b>Labor</b>		Ranches	80 %
480-acre farm	50.00	Farms	90 %
640-acre farm	100.00	<b>Lamb crop</b>	100 %

1. Does not include portion chargeable to household.

**Table 4. Tax per Acre of Land in Holabird and Lincoln Townships, Hyde County, South Dakota, 1905-39<sup>1</sup>**

Year	Holabird Township			Lincoln Township		
	Assessed Value per Acre	Levy	Tax per Acre	Assessed Value per Acre	Levy	Tax per Acre
	Dollars	Mills	Dollars	Dollars	Mills	Dollars
1905	3.94	19.10	.075	3.78	21.90	.083
1910	7.06	17.85	.126	6.45	18.15	.117
1913	17.04	10.30	.176	17.84	11.40	.203
1916	17.66	15.27	.270	17.65	14.97	.264
1920	35.69	11.35	.405	29.09	10.15	.295
1922	30.89	12.13	.375	24.77	10.00	.248
1923	33.36	15.27	.509	22.77	8.41	.191
1924	27.68	17.80	.493	23.65	10.24	.242
1925	27.86	19.38	.540	23.65	12.34	.292
1926	30.00	21.97	.659	19.84	18.45	.366
1927	24.75	24.33	.602	19.78	13.96	.276
1928	24.97	24.17	.604	19.79	12.87	.255
1929	25.00	22.42	.560	19.92	13.07	.260
1930	23.75	22.38	.532	20.54	13.67	.281
1931	18.18	24.69	.449	15.50	16.39	.254
1932	9.73	24.02	.234	9.32	17.29	.161
1933	8.49	22.78	.193	7.57	13.63	.103
1934	7.00	29.37	.206	5.98	21.35	.128
1935	7.00	26.95	.189	6.01	19.37	.116
1936	8.04	24.85	.200	6.75	16.72	.113
1937	8.93	24.13	.215	7.36	19.34	.142
1938	7.68	30.92	.237	7.72	20.43	.158
1939	8.15	28.24	.230	7.21	17.90	.129

1. Assessed value per acre was obtained from the records of Hyde County, and the levy from the "Recapitulation of Tax Levies" sheets for years when these were available and from the county records for other years.