The problem of the unsuccessful dry farm in the northern Great Plains
by Harold G Halcrow

A THESIS Submitted to the Graduate Committee in partial fulfillment of the requirements for the degree of Master of Science in Agricultural Economics
Montana State University
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Abstract:
A large percentage of the dry farms in the Northern Great Plains are not returning an income to the operators which will enable them and their families to maintain a reasonable standard of living. This study endeavors to discover, verify and analyze some of the causes and remedies for this situation. It is found that these farmers are unsuccessful because they have failed to sufficiently adapt their farm organizations to the natural conditions which exist in this area. This failure may be due to a variety of factors but in general a lack of economic and biological knowledge has been complemented by a lack of skill in the application of this knowledge to the vicissitudes of nature.

Although various reasons have caused farm failure, it is found that many characteristics are peculiarly associated with these more unsuccessful farmers of this area. Their farms are small and of low quality. Over two—thirds of them are below 560 acres in size and the grade or quality of lend is not above average. Crops and livestock are raised on a small scale and farm practices are not the best. These farmers are handicapped by poor buildings, unreliable water supplies, low power, and poor machinery. Sociological analysis shows that these people tend to be in the older age groups and in rather poor health. Birth rates are low; the average number of persons per family 5.75, but obese people are not greatly handicapped by lack of schooling. A large majority of the people settled here between 1908 and 1918 and have been farming since then. At the present time most of the unsuccessful farm operator: are heavily in debt and have liwtle equity in farm property, but there is a wide range in individual situations. Furthermore, most of thete people a u being supported by governmental funds; in 1956, nearly three-fourths of their average total money income was supplied by the Federal Government.

A state of unsuccessful socialism is perpetuated by the benificence of the Federal Government, but the situation should and probably can be improved by farm changes. Reorganization based on the physical and economic characteristics of the lend means that these farms should be made larger or else elimim ted and in many cases the type of farming should be changed.

This involves the readjustment of people to new farm organizations and in some cases to new homes. But these social, economic, and financial problems which perplex these people have a bearing on the rest of the- social organization and it behooves society to recognize these problems and to offer aid in their solution.

THE PROBLEM OF THE UNSUCCESSFUL DRY FARM IN THE NORTHERN GREAT PLAINS

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HAROLD HALCROW

A THESIS

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FOREWARD

In the words of Aldo Leapold, "Civilization is not . . . the enslavement of a stable and constant earth. It is a state of mutual interdependent cooperation between human animals, other animals, plants, and the soils, which may be disrupted at any moment by the failure of any one of them. Land despoliation has evicted nations and can on occasion do it again.... It thus becomes a matter of some importance, at least to ourselves, that our dominion, once gained, be self-perpetuating rather than self-destructive."

THE PROBLEM OF THE UNSUCCESSFUL DRY FARM IN THE NORTHERN GREAT PLAINS

ABSTRACT

A large percentage of the dry farms in the Northern Great Plains are not returning an income to the operators which will enable them and their families to maintain a reasonable standard of living. This study endeavors to discover, verify and analyze some of the causes and remedies for this situation. It is found that these farmers are unsuccessful because they have failed to sufficiently adapt their farm organizations to the natural conditions which exist in this area. This failure may be due to a variety of factors but in general a lack of economic and biological knowledge has been complemented by a lack of skill in the application of this knowledge to the vicissitudes of nature.

Although various reasons have caused farm failure, it is found that many characteristics are peculiarly associated with these more unsuccessful farmers of this area. Their farms are small and of low quality. Over two-thirds of them are below 360 acres in size and the grade or quality of land is not above average. Crops and livestock are raised on a small scale and farm practices are not the best. These farmers are handicapped by poor buildings, unreliable water supplies, low power, and poor machinery. Sociological analysis shows that these people tend to be in the older age groups and in rather poor health. Birth rates are low; the average number of persons per family 3.75, but these people are not greatly handicapped by lack of schooling. A large majority of the people settled here between 1908 and 1918 and have been farming since then. At the present time most of the unsuccessful farm operators are heavily in debt and have little equity in farm property, but there is a wide range in individual situations. Furthermore, most of these people are being supported by governmental funds; in 1936, nearly three-fourths of their average total money income was supplied by the Federal Government.

A state of unsuccessful socialism is perpetuated by the benificence of the Federal Government, but the situation should and probably can be improved by farm changes. Reorganization based on the physical and economic characteristics of the land means that these farms should be made larger or else eliminated and in many cases the type of farming should be changed. This involves the readjustment of people to new farm organizations and in some cases to new homes. But these social, economic, and financial problems which perplex these people have a bearing on the rest of the social organization and it behooves society to recognize these problems and to offer aid in their solution.

PART I. INTRODUCTION

The Area

The northern Great Plains region, as considered in this study, includes the contiguous parts of five states, (figure 1). The area includes that part of Montana which lies east of the Rocky Mountains, the northeastern quarter of Wyoming, the northwestern corner of Nebraska and that part of the Dakotas which lies west of the ninety-eighth meridian except for the small locality in north central North Dakota. The area contains approximately 178,000,000 acres of land. It is estimated that about 22,000,000 acres of this land are or have been under cultivation in recent times. 1/

There is a wide variation in the soils of this region. However, these soils are generally low in humus. Pedologically speaking, they are youthful in that they have not developed well defined profiles. They are generally immature, non-glaciated, and relatively unleached soils. 2/ The surface of this Great Plains region, where uneroded, is level or gently sloping. But a great part of the land has been eroded sufficiently to produce an undulating or rolling topography and some areas have been eroded to the extent of "bad land" topography. Broad flat streams, with their source in the Rocky Mountains follow a generally easterly course across these plains. The main stream of this area is the Missouri. It is fed by smaller sluggish, and sometimes

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1/ Wilson, M. L., Wilcox, R. H., Klemmedson, O. S., and Parr, V. V., "A Study of Ranch Organization and Methods of Range Cattle Production in the Northern Great Plains Region." U.S. Dept. of Agriculture in cooperation with the Agr. Exp. Stations of Montana, North Dakota, South Dakota, and Wyoming. Technical Bulletin 45, March, 1928, pp. 3, 4, and 5.

2/ Lapman, Macy H., "Soils of the Great Plains Region," U.S. Dept. of Agriculture, Bureau of Soils, Bulletin 96, 1913, pp. 381-464.

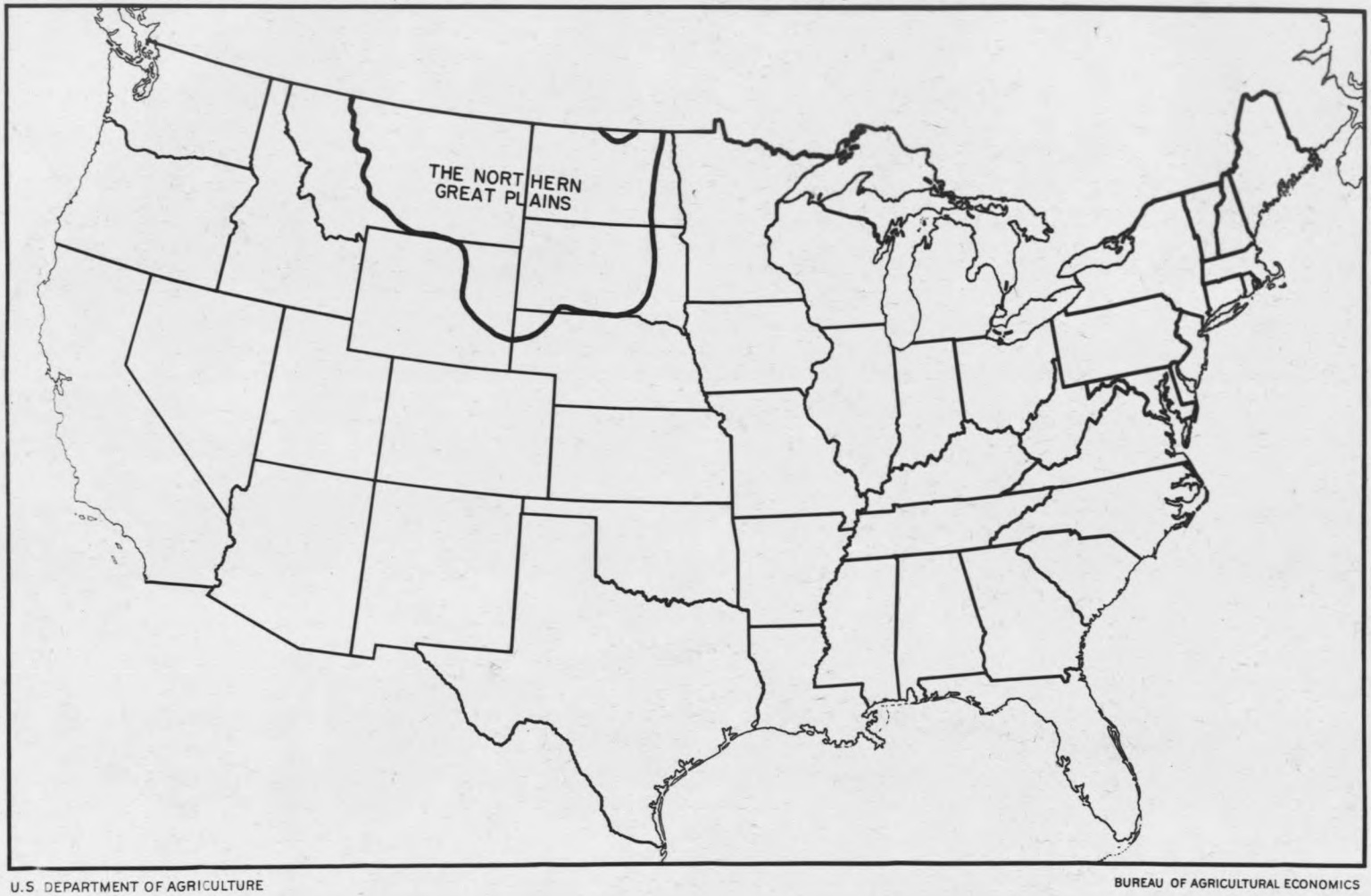

Figure 1. Map of the United States showing the approximate size and location of the northern Great Plains as considered in this study.

intermittent tributaries.

The climate of the Great Plains is characteristically semi-arid. Temperatures fluctuate widely, precipitation is highly unpredictable, and high wind velocity in summer or winter is not uncommon. 3/ Rainfall is apt to be the most variable and inconsistent climatic factor of this region and these unpredictable variations sometimes appear as the cause of most of the problems of the Great Plains dry land agriculture. Consequently, these variations in precipitation, extremes in summer temperature, and high winds in conjunction with a low soil water reserve make this area one of high risk for present day dry farming practices. These practices have encouraged sheet erosion ahd have caused crop production to become a hazardous occupation. Wheat, the principal cultivated crop, has become subject to generally lowering yields from year to year. 4/ Other crops have experienced a similar trend. Conditions influenced by successive crop failures and low farm prices have changed until a large proportion of the population are receiving federal aid. "Almost a fourth of the population of Montana was on relief in February, 1935." 5/

Historically speaking, the white man's experience in this area is almost contemporary. Homesteaders followed the early pioneers and cattlemen. But

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3/ Report of the Great Plains Committee, "The Future of the Great Plains." United States Government Printing Office, Washington, D. C., December, 1936, pp. 27-32.

4/ Starch, E. A., "Readjusting Montana's Agriculture. VII. Montana's Dry-Land Agriculture." Montana Experiment Station Bulletin 318, April, 1936, pp. 3-12.

5/ Kraenzel, C. F., and McIntosh, Ruth B., "The Relief Problem in Montana," Montana Agricultural Experiment Station in cooperation with the Rural Research unit of F.E.R.A. and W.P.A., Washington, D. C. Montana Experiment Station Bulletin 343, June, 1937, p. 3.

permanent settlement as exemplified by these homesteaders is of recent occurrence (figure 2). Therefore, plans for the future must be based on a short and rapidly changing history.

Some problems have been faced before, but others are peculiar to this time and region. 6/ Some new conditions and problems are facing the people. It has become evident that serious maladjustments exist in the agricultural organization of this area. Capital, as evidenced by debt free, resident-owned land is deficient. 7/ The debt in comparison to value of property is high and the financial stability of the country is threatened. Economic and financial farm problems are aggravated by certain maladjustments in public institutions. Government organization is not most efficient for this area. 8/ School organization shows certain inefficiencies and wastes. 9/ These things help to increase the acuteness of farm problems.

The farm population has also been influenced by changes in price structure (figure 2). Montana farm prices and prices in the surrounding areas have been subject to fluctuations. 10/ The farmer's dollar or farm purchasing power has been subject to corresponding changes in value. Farmers have been confronted with a generally decreasing capacity to buy and purchasing power has

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6/ Renne, R. R., "Readjusting Montana's Agriculture. IV. Land Ownership and Tenure," Montana Experiment Station Bulletin 310, February, 1936.

7/ Renne, R. R., "Readjusting Montana's Agriculture. VIII. Tax Delinquency and Mortgage Foreclosures," Montana Experiment Station Bulletin 319, May, 1936, pp. 3-19.

8/ Renne, R. R., "Montana County Organization Services and Costs," Montana Experiment Station Bulletin 298, April, 1935, pp. 3-7.

9/ Renne, R. R., "Financing Montana Schools," Montana Experiment Station Bulletin 307, December, 1935, pp. 3-5.

10/ Slagsvold, P. L., "An Analysis of Montana Farm Prices," Montana Experiment Station Bulletin 345, August, 1937.

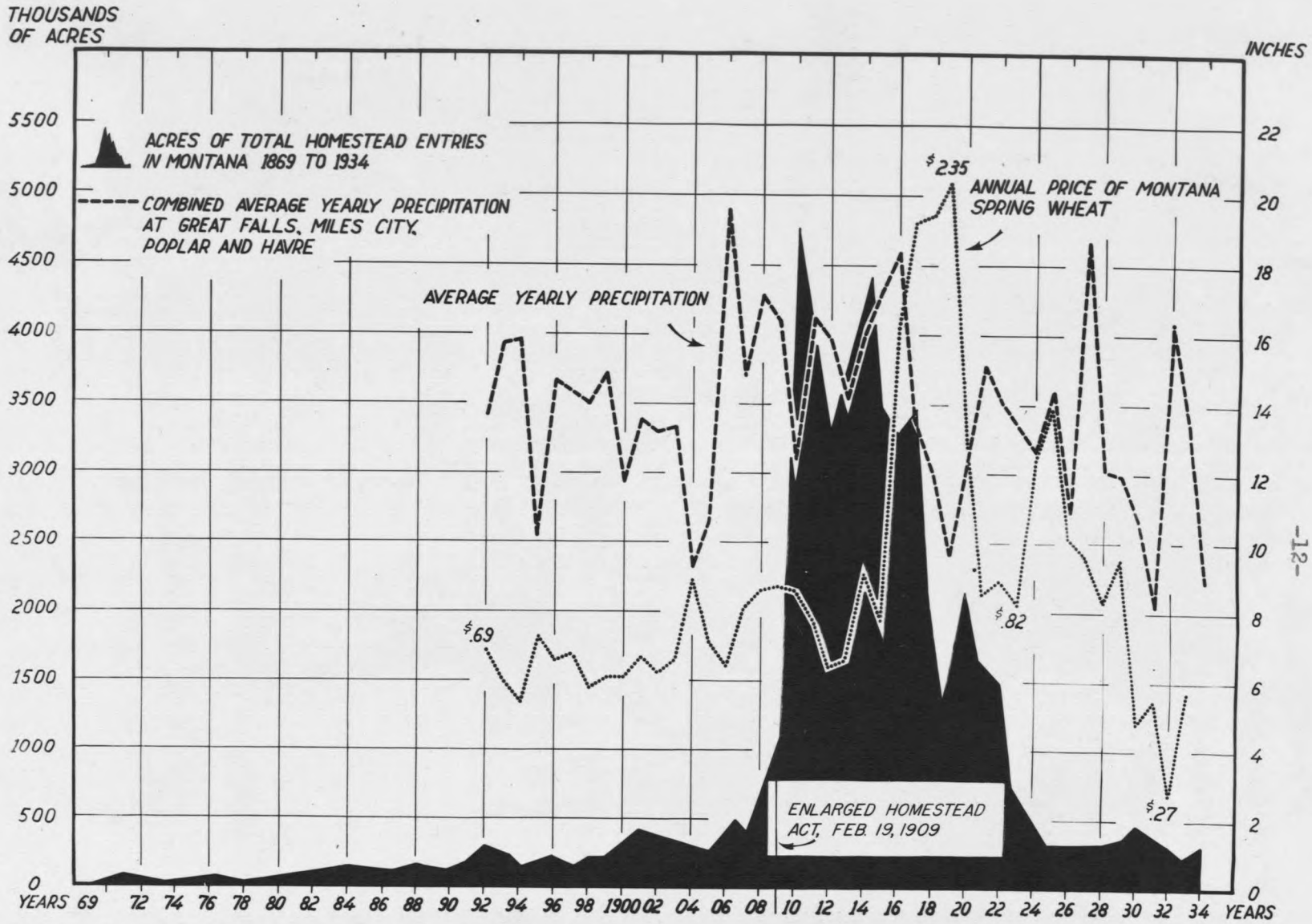

Figure 2. A comparison of Montana Homestead Entries, 1869 to 1934; average annual precipitation at four weather bureau stations in Montana, 1892 to 1934; and annual price of Montana spring wheat, 1892 to 1934. Compiled by the Dept. of Agr. Econ. Mont. State College in cooperation with the U. S. Bur. of Agr. Econ.

decreased with decreases in real income.

Thus, the climatic and physical characteristics of the country, the public institutions, the farm organizations, and price fluctuations have interlocked to cause an economic and social maladjustment between the land and the people. Evidence of this maladjustment is demonstrated through poverty and rural unrest and consequent shifts in population through migration.11/ Now the people of this area of the northern Great Plains are facing a task of readjustment to a more sound and self-supporting basis or the alternative of continued subsidation through governmental relief; or they must accept poverty and subsequent distress. It is self-evident and expedient that the first plan should be followed inasfar as possible and practical because over a long period of time the people of this area should not and perhaps cannot be continuously subsidized to the present extent. Poverty is also undesirable. Therefore, accurate knowledge of the situation should be obtained and plans for the future must be carefully laid to encourage sound readjustment.

Objects of the Study

All readjustment in agriculture involves, directly or indirectly, judgment and action by the individual farmer. Therefore, in considering the problems of this area of the Great Plains, we consider the individual producing unit and the individual consuming unit, the farm and the family. To reach most acute cases and the most serious parts of the problem it is necessary to

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11/ Renne, R. R., and Kraenzel, C. F., "Readjusting Montana's Agriculture. III. Population Resources and Prospects." Montana Experiment Station Bulletin 309, January, 1936, pp. 11-15.

study the poorest farms and families. This thesis deals directly with the problem of the unsuccessful dry farm in the northern Great Plains and is a study of the organization and practices of a sample group of farms in Montana.[12]

The purposes and objects of this study are (a) to discover, verify and analyze the characteristics common to and peculiar to the unsuccessful dry farms in the northern Great Plains, (b) to discover and develop possible corrections for these farms which will increase gross income with a corresponding increase in net income sufficient to support a reasonable standard of living,[13] and (c) to serve as a basis for further land use planning by demonstrating what characteristics are usually associated with failure on the individual dry land farm unit.

As is often true of other agricultural districts, it has become evident that there is a wide diversity in size, organization, productive ability and income of the farms in this area. Some are quite successful financially--an apparent strength to the society. Other farms are not only financial failures themselves, but they detract from the possible wealth of other farms. It is this latter group that are here termed "unsuccessful" and it is a sample of this group that this study embraces.

12/ This group of dry farms includes farms where either wheat or livestock may be the predominant enterprise. The operations are performed on non-irrigated land. Between 98 and 99 percent of the land in this area is not irrigated. See U.S. Dept. of Commerce, fifteenth Census of the U.S., Irrigation of Agricultural Lands, 1930.

13/ A reasonable standard of living is an abstract term because of wide variations between localities and families. Table I (appendix) shows the net income requirements that serve as a goal for readjustment in this study. See Jessie E. Richardson in "The Quality of Living in Montana Farm Homes," Montana Experiment Station Bulletin 260, April, 1932. No set or arbitrary goal of gross income is established in this study because it could only be a very rough approximation. An increase in gross income, however, should show a corresponding but varying increase in net income.

The Sample

The farms were selected from the Montana counties, Sheridan, Fallon, Golden Valley, Judith Basin, Pondera, and Chouteau (figure 3). These counties were selected as a representative sample because they present a good distribution of the conditions found in this dry farming area. Sheridan is typical of the large wheat raising region of northeastern Montana and western North Dakota. The other counties offered samples of most of the types of farming in the balance of the northern Great Plains dry farming area. Counties such as Garfield or Custer, where dry farming is not extensive, were not selected because the examination of conditions there would not be significant in this study.

The selection of unsuccessful farms required some criteria for measurement. The most desirable criterion would probably have been net income. Others might have been yields per acre, standard of living, self-sufficiency, or unsuccessfulness might have been determined by a personal canvass or survey. However, none of these criteria could be used because the data were either unavailable or it was not expedient.

Therefore, the selection of unsuccessful farms was limited by two arbitrary qualifications. The farms had to show less than $1000 average annual gross farm income. 14/ The group was further limited to include only those

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14/ These gross farm incomes were calculated from farm and ranch schedules collected by Montana State College Agricultural Experiment Station and the United States Bureau of Agricultural Economics. Income is calculated on average annual wheat production per farm for the period 1928-1935 inclusive at 80 cents per bushel, and on basis of $20 per productive animal unit which was on the farm in 1935. One productive animal unit is equal to one beef animal, or three hogs, or five sheep, or one-third dairy animal.

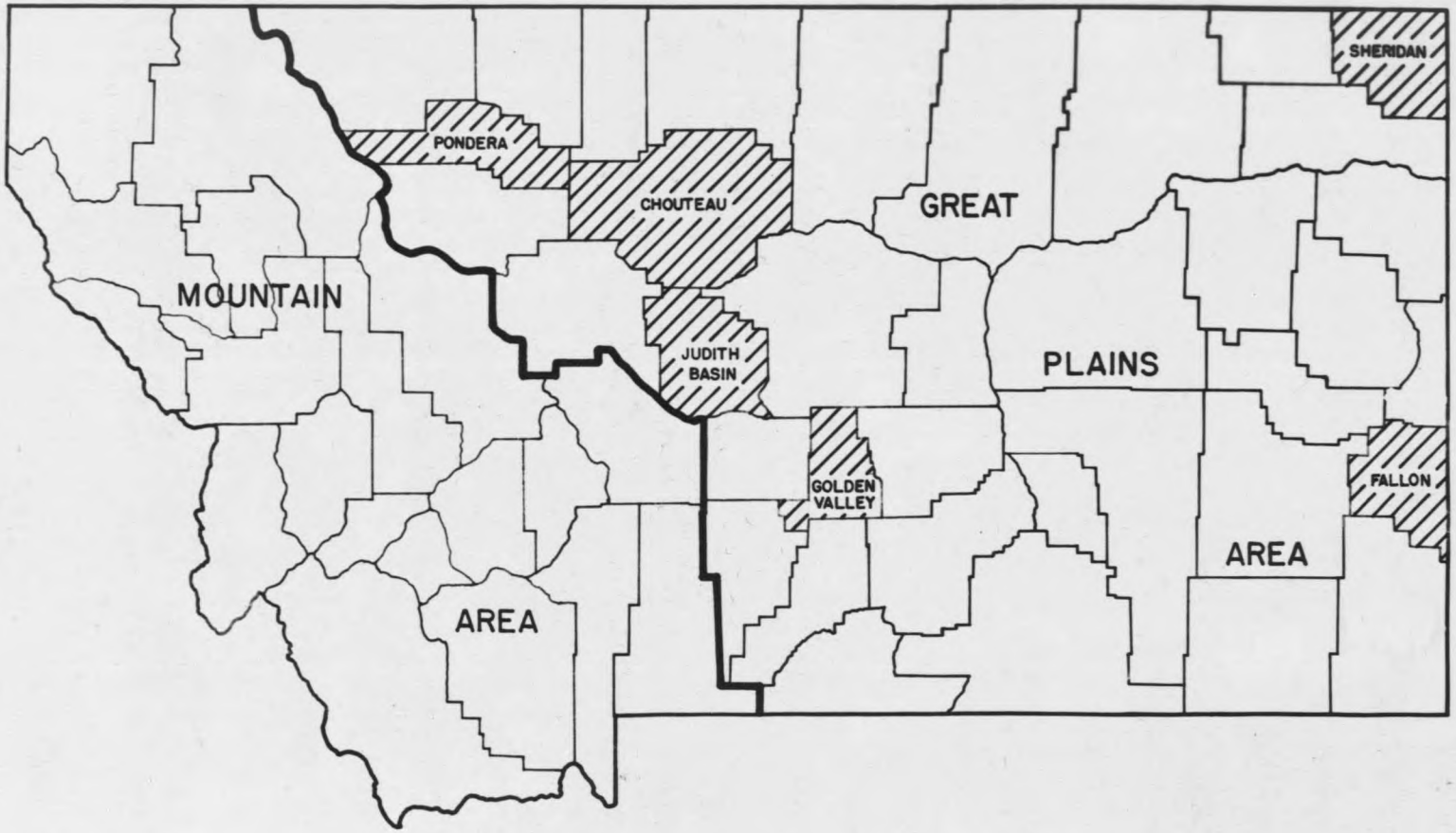


Figure 3. Map of Montana showing the location of the six counties in this study.

farms whose operators had applied for financial help to the Farm Security Administration. By these qualifications the sample was restricted to those people who had been mainly dependent upon their farm for income and to the respective farms that had been incapable of supplying an adequate income. In other words the sample was restricted to "bona fide" farmers, because others would not be eligible for this type of relief. This would eliminate storekeepers, blacksmiths, etc., who spent only part of their time or energy on the farm. The farmers who were in poor financial condition but who nevertheless grossed $1000 or over from farming would also be eliminated. Many farmers with more than $1000 gross income from farming could be termed unsuccessful by many criteria. But none of this group could be included because a definite "breaking point" had to be established in the limitation of the sample. As net income figures were not available, this gross income was the only money measurement that could be used. Therefore, this sample does not include all unsuccessful farmers in these counties, but it does include a representative group of failures. It is recognized that the importance of this sample selection can scarcely be overemphasized because the basis for a statistical analysis such as this is dependent upon the sample selected.

Sources of the Data

Farm and ranch schedules available at the Montana Experiment Station offered the following data for each farm: Location of farm, acres, yields and income from wheat for the period 1928-1935 inclusive, numbers and kinds of livestock for 1935 (1935 is considered as a normal year in this respect), acreages of minor crops, fallow, total tilled acres, and total acres in the

farm for 1933-1935 inclusive.

The application blanks (R.R. 12) of the Farm Security Administration were available in the county offices and the following data were offered by them: Distance of farmstead from market; household statistics of race, nationality, numbers in household and age of each member of household, education of each member, health record and disabilities; years residence in the county; tenure of farm operation; outside occupations and previous experience of the operator; income from farming, private labor, work relief and direct relief for a 12-month period centered in 1936, and a statement of the farm facilities, together with a record of all indebtedness for 1936.

The tax assessment records were available in the county offices. The following data for 1936 were offered by them: Number of acres owned and the assessed value of the land; number, kind, and value of livestock; value of farming equipment and buildings. A record of assessed value of personal property was available for all operators.

The grade of land for each farm was determined by plotting the location of the farm upon the soil maps which were available at the Montana Experiment Station.

Qualifications of the Data

The farm and ranch schedulesat Montana State College Agricultural Experiment Station had been collected by members of the Agricultural Experiment Station and by members of the United States Bureau of Agricultural Economics at the College. The data covered at least 90 percent of all farms in the counties selected and were considered fairly accurate for the period

covered. These data did not necessarily correspond to present conditions on individual farms but they showed the conditions that existed over a period of time. It was felt that such errors as existed were more compensating than cumulative and although bias may have been present in some cases, it is probable that this bias was no stronger than is found in most collections of similar data.

The data offered by the Farm Security Administration on Form R.R. 12 were the most accurate and in most cases the only records obtainable for these confidential data. These records were gathered by the county committees and although they might lack standardization, they were checked by these committees through personal interviews and consultations with third parties.

The county assessment records offered the only available source for determining the quality of equipment, buildings, and livestock based on financial values. The implied qualities were subject to inaccuracies of assessed valuation. 15/ However, the assessed value of land is used in this study to determine assets only, and the grade of land, as shown on the soil maps, is used to determine the quality of the land.

Primary data are almost wholly lacking in this study because time and funds did not allow a field study and questionnaires were discarded because it was felt that accurate and uniform answers would not be obtained. Therefore, these secondary sources were used almost entirely and their limitations and qualifications evaluated. Although there may be a tendency to err, it is doubtful if the cumulative error is greater than is usually found in such studies.

15/ Renne, R. R., and Lord, H. H., "Assessment of Montana Farm Lands," Montana Experiment Station, Bulletin 348, October, 1937, pp. 12-41.

Method of Analysis

As the original data were surveyed, it became apparent that there were definite types of farms (Table I, Figs. 4, 5 and 6). For the purpose of this study they were divided into five types for most analyses. These types were based upon source of farm income as shown on the farm and ranch schedules. Farms with income from wheat alone were classed as wheat farms. Farms with over two-thirds of the income from wheat but with some livestock income were classed as wheat-livestock. Those with less than two-thirds from either wheat or livestock were combination farms. Those with income from both wheat and livestock but with over two-thirds of the income from livestock were called livestock-wheat. The straight livestock farms or those that raised no cash crop were put in the class called livestock farms. These gross farm incomes were calculated from the farm and ranch schedules. Income from wheat was calculated on an average price of 80 cents per bushel for the period 1928-1935 inclusive and average annual wheat production constituted the basis of calculation. Livestock income was determined by using an average of $20 gross income per productive animal unit on the farm in 1933. A productive animal unit, as commonly defined by the Agricultural Adjustment Administration, Agricultural Economists, Farm Security Administration, and others, is equal to one beef animal, or three hogs, or five sheep, and one dairy cow equals three productive animal units.

Counties form another division which has been considered significant and as there are only six counties in this study, these are kept separate in many cases. The differences between these groups were found to be significant.

Other divisions were used to a limited extent. Differences between

TABLE I. DISTRIBUTION OF ALL FARMS IN THE SIX COUNTIES, ALL FARMS BELOW $1000 GROSS INCOME FROM FARMING, AND UNSUCCESSFUL FARMS, BY TYPE AND COUNTY*

County and income group	Number of Farms by Type					
	All types	Wheat	Wheat-livestock	Combination	Livestock-wheat	Livestock
Six counties						
All farms**	4908	1180	1345	1083	327	973
Farms below $1000***	1495	571	165	231	57	471
Unsuccessful farms****	503	194	80	111	27	91
Sheridan						
All farms**	1402	375	347	410	100	170
Farms below $1000***	727	303	75	159	41	149
Unsuccessful farms****	295	112	36	89	22	36
Chouteau						
All farms**	1314	377	454	180	36	267
Farms below $1000***	300	122	48	16	5	109
Unsuccessful farms****	115	51	29	7	1	27
Fallon						
All farms**	527	50	55	147	93	182
Farms below $1000***	124	32	11	16	3	62
Unsuccessful farms****	36	11	6	7	-	12
Golden Valley						
All farms**	232	26	35	60	31	80
Farms below $1000***	100	21	14	21	7	37
Unsuccessful farms****	24	6	4	5	4	5
Judith Basin						
All farms**	728	177	220	138	13	180
Farms below $1000***	122	47	10	8	2	55
Unsuccessful farms****	18	9	1	1	-	7
Pondera						
All farms**	705	175	234	148	54	94
Farms below $1000***	122	46	7	8	2	59
Unsuccessful farms****	15	5	4	2	-	4

* Income is calculated on basis of ave. wheat production 1928-1935 incl. and on livestock as of 1933.

** All farms: All farms for which this information was available.

*** Refers to gross income from farming.

**** Unsuccessful farms are defined in text.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and the United States Bureau of Agricultural Economics.

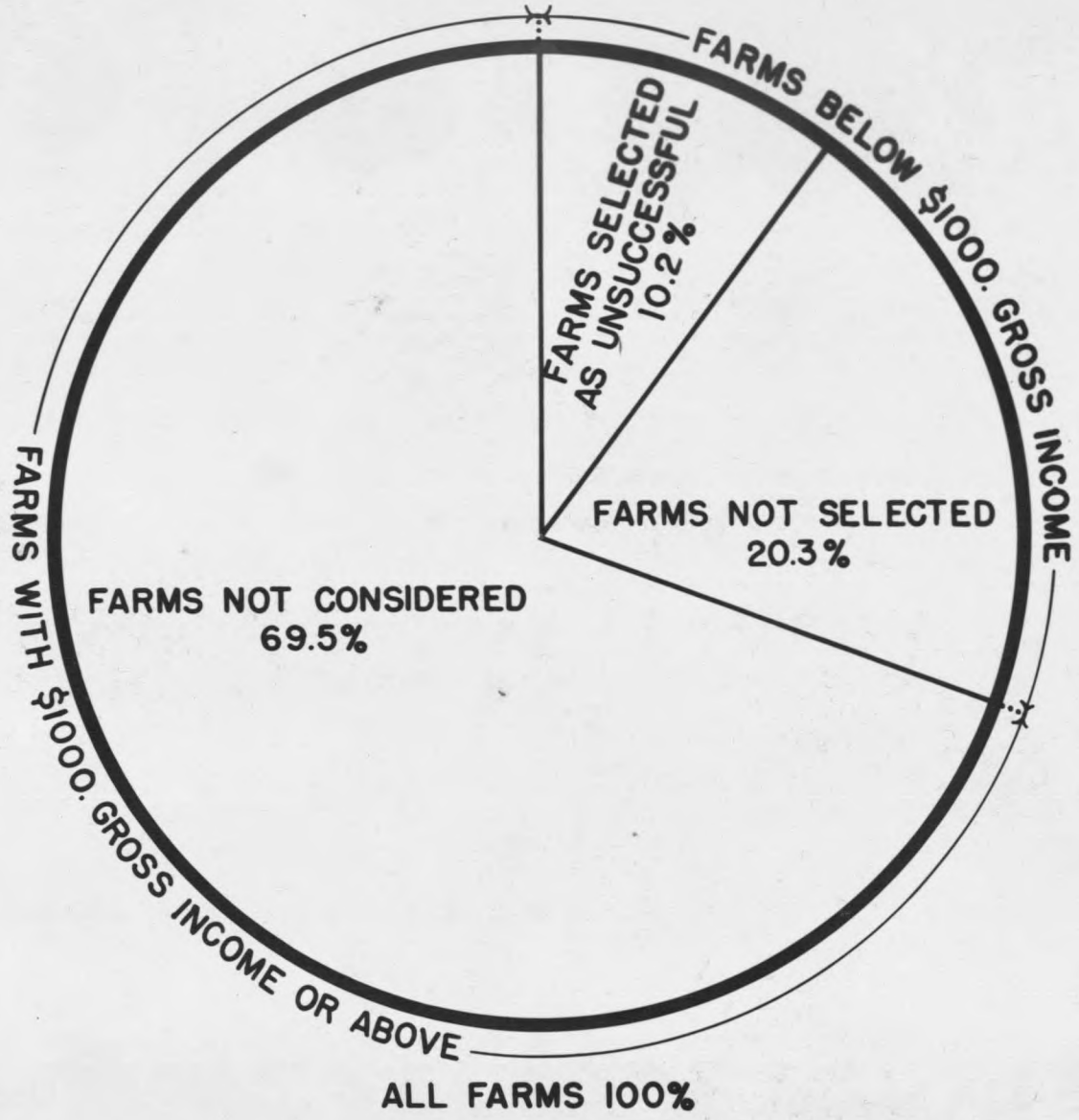


Figure 4. The number of unsuccessful farms and all other farms expressed as a percentage of all farms in the six counties studied. The number of all farms corresponds to the farms for which these data were available; this includes over 90 percent of the total farms.

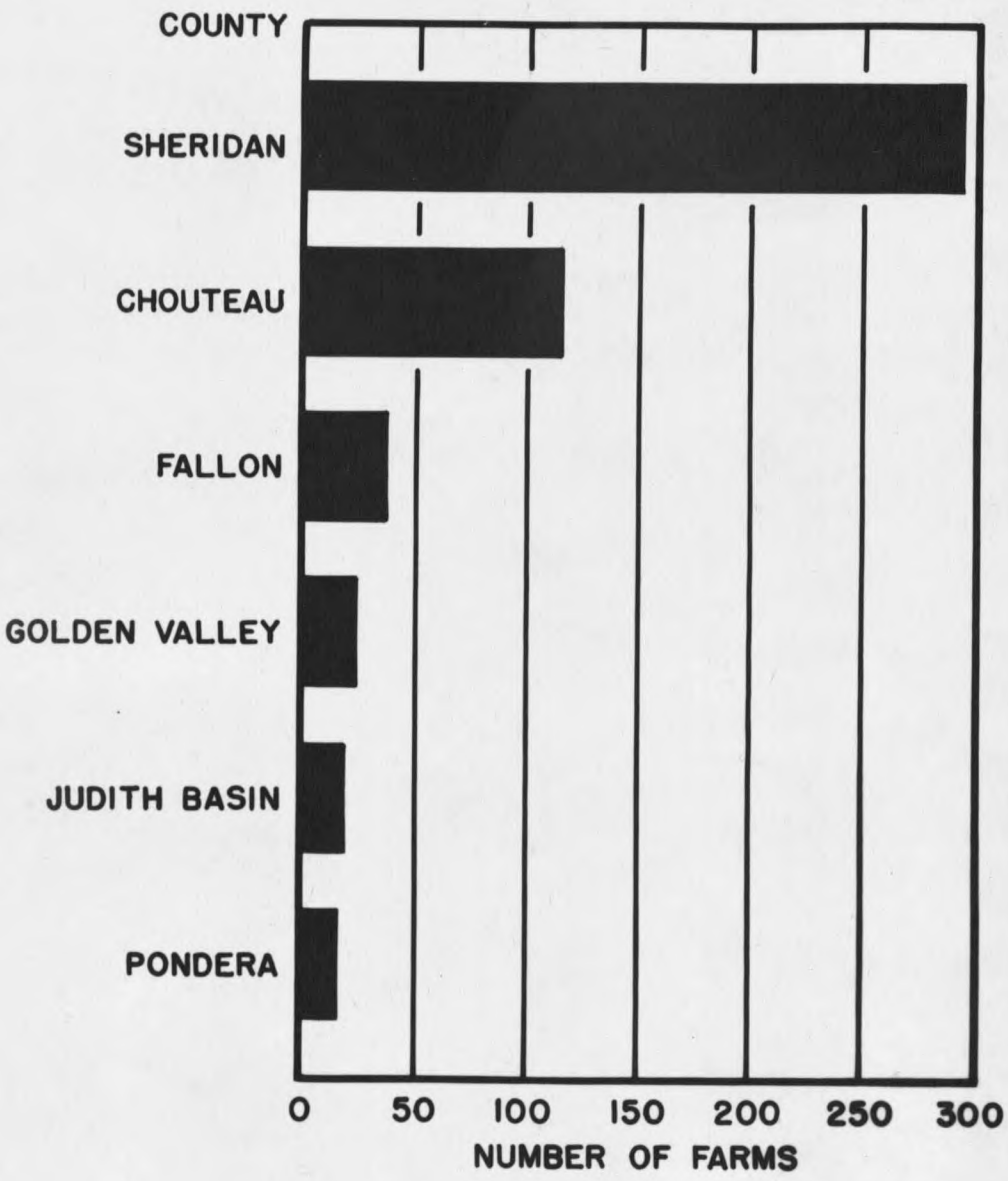


Figure 5. The number of unsuccessful farms which were selected from each of the six counties studied.

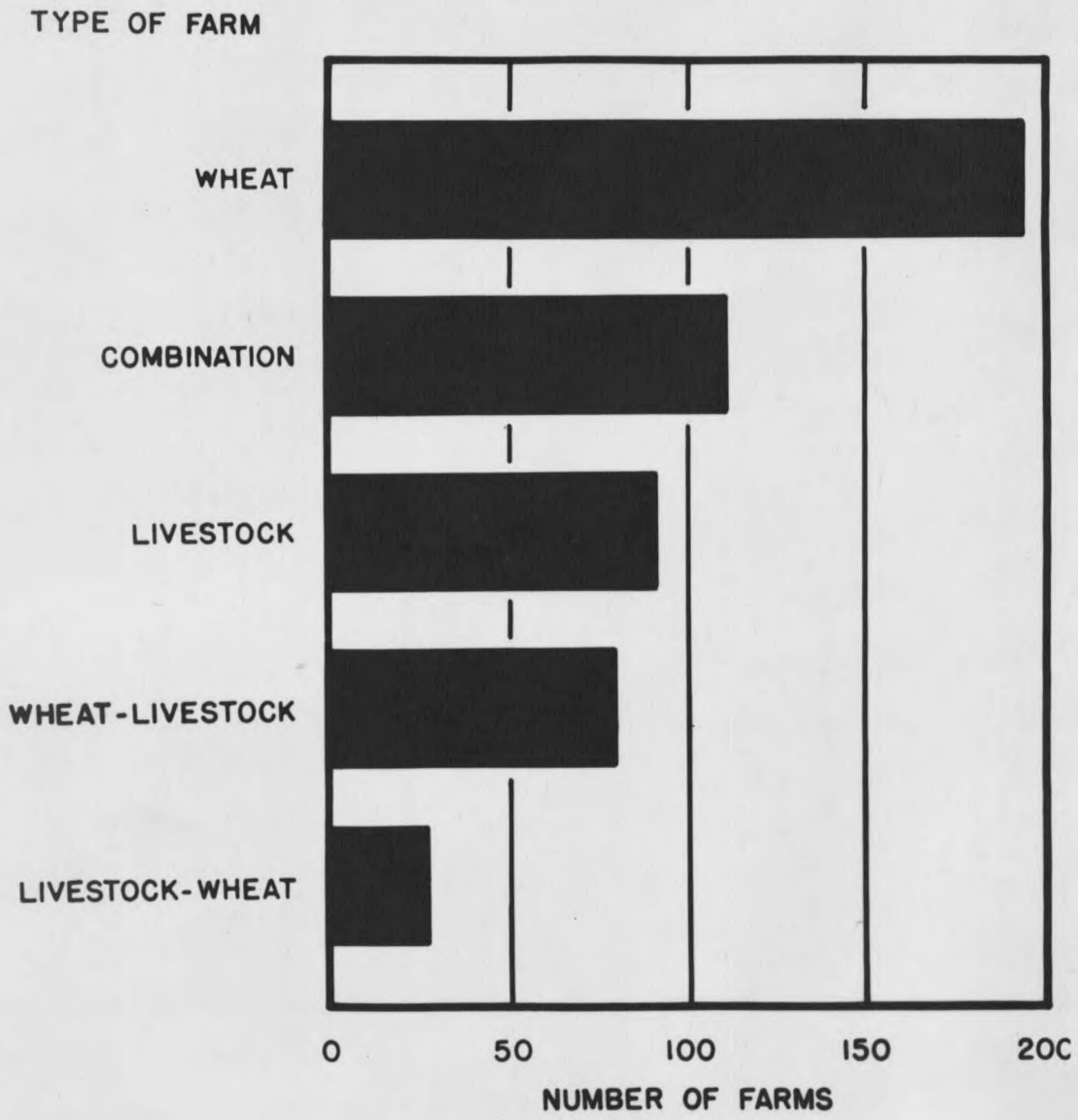


Figure 6. The number of unsuccessful farms which were found in each of the five types of farm classes.

tenant operators and owner or part-owner operators were found to be significant in only a few respects. The farms were divided as to income groups, size groups, and grade of land groups whenever these would show important variations. These groupings and others were used to emphasize certain points.

In the presentation which follows, arithmetic averages are used extensively. Modal classes are used as significant in some cases. Frequency distributions and diagrams are used to show the characteristics of these unsuccessful farms. These divisions, averages, and groupings are used throughout to facilitate comparisons and analogies. But it must be remembered that these groupings have certain limitations and the limitations of group averages must be fully considered.

The unsuccessful farm groups are compared to the averages of all farms. In this comparison, all farms are usually synonymous with all farms that the farm and ranch schedules cover. They do not necessarily equal the total farms in the county, but usually compose 90 percent or more of the total number of farms existent. All farms as hereafter used will equal all the farms for which the certain data were available.

In the following comparisons, analogies, and interpretations, an effort has been made to treat all data fairly and without undue bias. The interpretations offered are the result of an attempt to fairly and consistently analyze the characteristics of these poorer farms in the hope that their problems may come nearer to solution.

PART II. THE UNSUCCESSFUL FARM AS AN ENTERPRISE

Introduction

A farm is limited in production by its physical characteristics, by practices of the farm operator and by natural resources. The utilization of these resources is dependent upon man in his adjustment to natural conditions. Any evaluation of a farm and the reasons for its success or failure should include a measurement of the farm and a review of farm management practices. Therefore, we are interested in the size of farm, productive possibilities of the farm, and the way in which these characteristics are utilized.

Total Farm Acreages and Use of Land

There has been a growing feeling among agriculturalists in recent years that farm acreages should be rather large for successful dry land operations in the Great Plains. Therefore, it is not surprising to find that these unsuccessful farms are not large farms in any sense of the word. Over 70 per cent of these farms are less than 360 acres in size (figure 7). The average size of farm is 357 acres, but this average is weighted by a few farms that are over 500 or 600 acres in size and as the sample is characterized by a large group of quarter-section and half-section farms, these latter groups may be more typical than the arithmetic average.

In comparison to all farms, the unsuccessful units are rather small, being on the average only 68 percent or about two-thirds as large as the average of all farms (table II). This relationship is rather general for each county and it is evident that these poorer farms tend to be small farms as far as total acreage per farm is concerned.

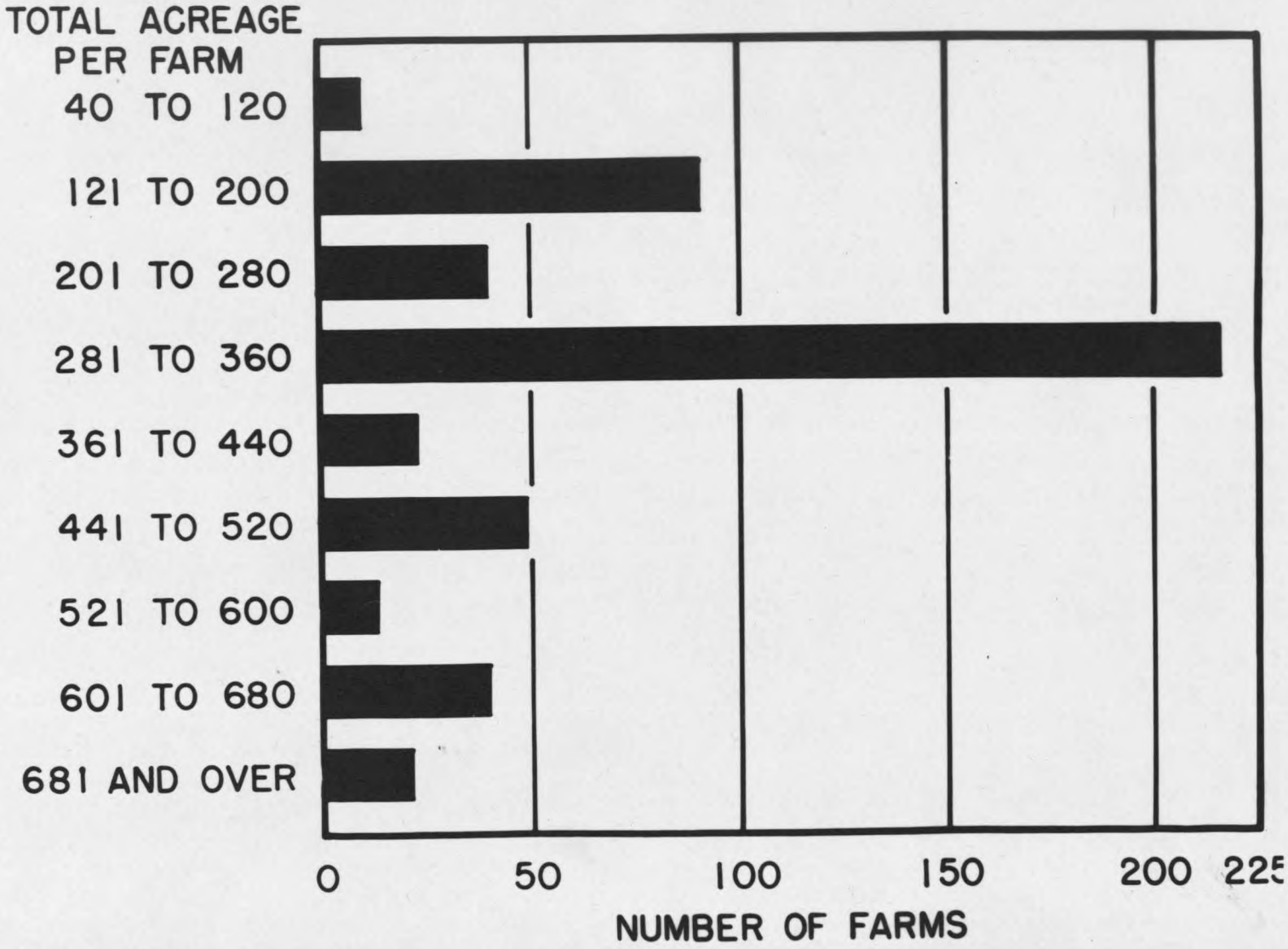


Figure 7. Distribution of the unsuccessful farms according to the number of farms in different sized groups, on basis of average total acreage per farm, 1933-1935 inclusive.

TABLE II. USE OF LAND ON ALL FARMS IN THE SIX COUNTIES AND ON THE UNSUCCESSFUL FARMS IN AVERAGE ACREAGE PER FARM, BY COUNTIES*

County and farm group	Average acreage per farm						
		Tilled land				Untilled land	
	Total	Wheat	Fallow	Feed Crops***	Minor cash crops****	Idle farm land	Pasture, waste, farmstead, road
Six counties							
All farms**	525	189	69	36	9	24	198
Unsuccessful farms	357	97	26	23	3	38	170
Sheridan							
All farms**	452	191	35	46	16	18	146
Unsuccessful farms	341	113	22	30	4	41	131
Choteau							
All farms**	618	208	118	19	3	25	245
Unsuccessful farms	414	86	48	8	-	32	240
Fallon							
All farms**	610	181	5	66	14	24	320
Unsuccessful farms	392	65	-	19	-	43	265
Golden Valley							
All farms**	549	155	30	40	1	83	240
Unsuccessful farms	408	82	9	25	-	45	247
Judith Basin							
All farms**	475	164	55	41	3	15	197
Unsuccessful farms	222	37	24	6	-	25	130
Pondera							
All farms**	441	151	113	40	2	7	128
Unsuccessful farms	228	57	32	15	1	11	112

* Based on average of wheat acreage 1928-1935 inclusive and other acreages 1933-1935 inclusive.

** All farms include all farms for which these comparable data were available.

*** Feed crops include oats, barley, corn, tame hay.

**** Minor cash crops include flax, rye, mustard, sugar beets.

Source: Table III, appendix.

As a group the unsuccessful farmers have less than half of their land under cultivation (table III, figure 8). About one-tenth of the land is idle crop land and the balance of the land or about 47 per cent is in pasture, roads, farmstead, or waste land.

Of the land that is tilled, nearly two-thirds is in wheat, one-sixth is fallow, less than one-seventh is in feed crops and about two per cent in minor cash crops. Thus, on the average about five-sixths of the total tilled acreage is in crop, leaving one-sixth fallow.

One-fifth of the untilled land is classed as idle farm land now in pasture. The other four-fifths of the untilled land are in pasture, roads, farmstead, and waste, but the largest amount is classed as pasture land.

The percentage of land tilled and general use of the land varies widely with the different types of farms (table IV, figure 9, table V). On the straight wheat farms, 35 percent of the land is in wheat, 9.9 percent is fallow, 6 percent is in feed and minor cash crops, and over half the land is tilled. On the combination farms, less land is in wheat and more land is used for the production of feed crops but usually about half of the total farm acreage is tilled. The livestock farms raise very little crop and nearly all their land is in pasture, roads, farmstead, or waste land. These differences in the use of land between different types of farms are very significant.

These land use characteristics become more significant when comparison is made with all farms. In each county, the percentage of land tilled is lower on the unsuccessful farms than all farms of the same types. But the percentage of idle farm land, pasture, roads, farmstead and waste is higher on the unsuccessful farms than on all farms. These unsuccessful farms are not tilling

TABLE III. USE OF LAND ON ALL FARMS IN THE SIX COUNTIES AND ON THE UNSUCCESSFUL FARMS IN PERCENTAGE OF TOTAL AVERAGE ACREAGE PER FARM, BY COUNTIES*

County and farm group	Farm acreages in per cent of total						
		Tilled land				Untilled land	
	Total	Wheat	Fallow	Feed Crops***	Minor cash crops****	Idle farm land	Pasture, waste, farmstead, road
Six counties							
All farms**	100	36.0	13.1	6.9	1.7	4.6	37.7
Unsuccessful farms	100	27.2	7.3	6.4	.8	10.7	47.6
Sheridan							
All farms**	100	42.3	7.7	10.2	3.5	4.0	32.3
Unsuccessful farms	100	33.1	6.5	8.8	1.2	12.0	38.4
Chouteau							
All farms**	100	33.7	19.1	3.1	.4	4.0	39.7
Unsuccessful farms	100	20.8	11.6	1.9	-	7.7	58.0
Fallon							
All farms**	100	29.7	.8	10.8	2.3	3.9	52.5
Unsuccessful farms	100	16.6	-	4.8	-	11.0	67.6
Golden Valley							
All farms**	100	28.2	5.5	7.3	.2	15.1	43.7
Unsuccessful farms	100	20.1	2.2	6.1	-	11.0	60.6
Judith Basin							
All farms**	100	34.5	11.6	8.6	.6	3.2	41.5
Unsuccessful farms	100	16.7	10.8	2.7	-	11.3	58.5
Pondera							
All farms**	100	34.2	25.6	9.1	.5	1.6	29.0
Unsuccessful farms	100	25.0	14.1	6.6	.4	4.8	49.1

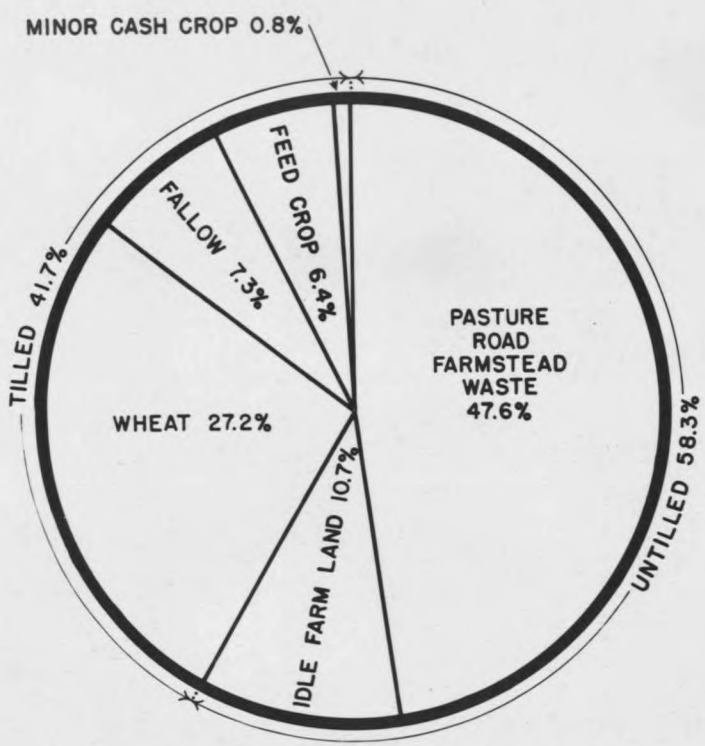
* Based on average wheat acreage 1928-1935 incl. and other acreages 1933-1935 incl.

** All farms include all farms for which these comparable data were available.

*** Feed crops include oats, barley, corn, tame hay.

**** Minor cash crops include flax, rye, mustard, sugar beets.

Source: Table II



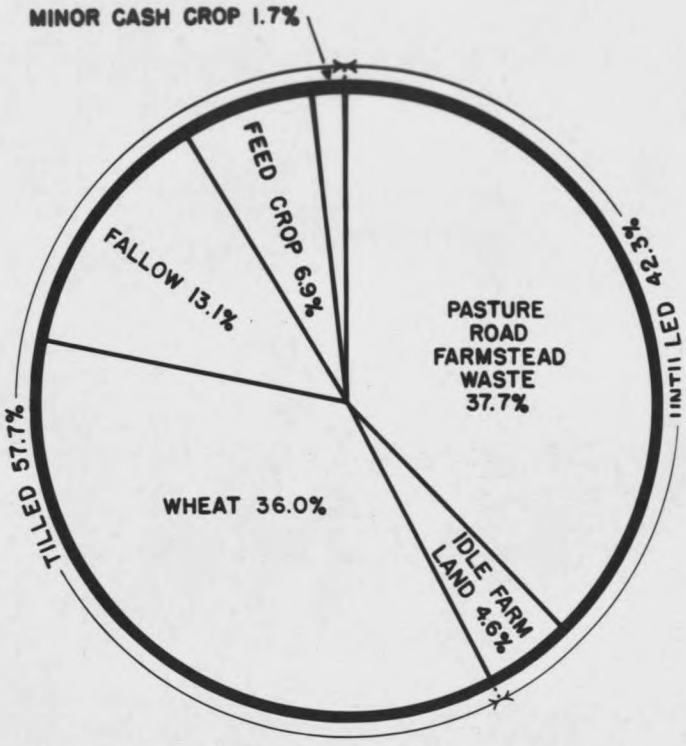


Figure 8. The proportionate number of acres devoted to each type of land use on the unsuccessful farms and all farms, expressed as a percentage of average total acreage per farm. Wheat acreages are based on average of 1928-1935 inclusive and other acreages are based on 1933-1935 inclusive.

TABLE IV. DISTRIBUTION OF UNSUCCESSFUL FARMS ACCORDING TO NUMBER OF ACRES OPERATED AND TILLED BY TYPE OF FARM*

Acres tilled and acres operated	Numbers of Farms by Type					
	All types	Wheat	Wheat-livestock	Combination	Livestock-Wheat	Livestock
Total	503	194	80	111	27	91
Acres operated						
80-239	107	51	5	21	8	22
240-399	249	89	35	71	13	41
400-559	73	26	27	9	2	9
560 & above	74	28	13	10	4	19
Acres tilled 0-79	129	16	4	10	8	91
Acres operated						
80-239	42	12	2	3	3	22
240-399	56	4	1	6	4	41
400-559	10	-	1	-	-	9
560 & above	21	-	-	1	1	19
A. tilled 80-159	156	85	13	45	13	-
Acres operated						
80-239	63	39	1	18	5	-
240-399	71	32	9	24	6	-
400-559	11	8	2	-	1	-
560 & above	11	6	1	3	1	-
A. tilled 160-239	127	51	38	33	5	-
Acres operated						
80-239	2	-	2	-	-	-
240-399	87	37	18	29	3	-
400-559	26	9	14	3	-	-
560 & above	12	5	4	1	2	-
A. tilled 240-319	66	30	15	20	1	-
Acres operated						
80-239	-	-	-	-	-	-
240-399	35	16	7	12	-	-
400-559	17	5	5	6	1	-
560 & above	14	9	3	2	-	-
A. tilled 320-above	25	12	10	3	-	-
Acres operated						
80-239	-	-	-	-	-	-
240-399	-	-	-	-	-	-
400-559	9	4	5	-	-	-
560 & above	16	8	5	3	-	-

* Based on average wheat acreage 1928-1935 incl. and on other acreages 1933-1935 incl.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

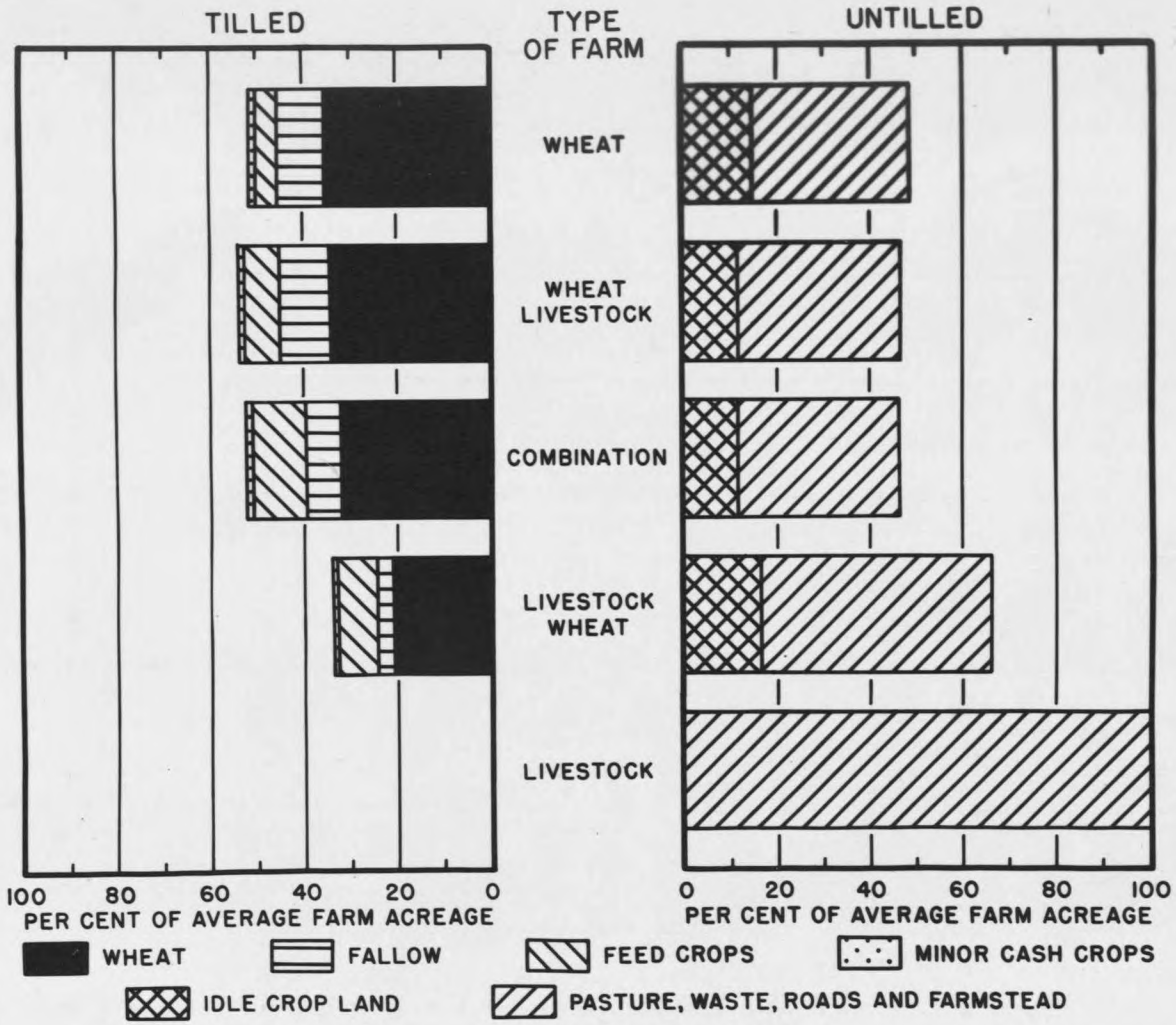


Figure 9. The proportionate number of acres devoted to each type of land use on the unsuccessful farms according to type of farm, expressed as a percentage of average total acreage per farm. Wheat acreages are based on 1928-1935 inclusive and other acreages are based on 1933-1935 inclusive.

TABLE V. TOTAL ACREAGE OF ALL THE UNSUCCESSFUL FARMS ACCORDING TO TYPE OF FARM AND USE OF LAND*

Type of farm	Use of Land in Acres						
	Total	Tilled land				Untilled land	
		Wheat	Fallow	Feed Crops**	Minor cash crops***	Idle farm land	Pasture, waste farmstead, road
All types	179,688	48,926	13,133	11,482	1,358	18,899	85,890
Wheat	67,278	23,818	6,668	3,620	526	9,743	22,903
Wheat-livestock	32,484	11,111	3,450	2,581	296	3,600	11,446
Combination	36,981	11,881	2,685	4,400	454	3,966	13,595
Livestock-wheat	10,114	2,116	330	881	82	1,590	5,115
Livestock	32,831	-	-	-	-	-	32,831

* Based on average wheat acreage 1928-1935 incl. and other acreages 1933-1935 incl.

** Feed crops include oats, barley, corn, tame hay.

*** Minor cash crops include flax, rye, mustard.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

as high a percentage of their land as other farmers are. Perhaps the land utilization that these unsuccessful farmers practice is more desirable from the group standpoint, but it is apparent that they are thereby further restricted in production. It might be more desirable for the country at large, but for the individual farmer it means further limitation.

Quality and Grade of Land

Quality of land is extremely important to farm organization and land utilization. It has been said, "Poor land makes poor people, poor people make poor land." But just what stage this cycle is in is not definitely established. Probably the first part of the statement has worked at greater rapidity than the last part but it is almost self-evident that the cycle is valid. There are two great interlocking and naturally established factors in farm production, land and weather. Weather is generally similar in different parts of a given locality, but land is seldom homogeneous for a large area. There are different types and qualities of land and these differences may often mark the difference between farm success or failure. Therefore, the grade or quality of land is very important.

Montana farm lands have been classified into various grades based upon a soil reconnaissance. 16/ These grades are as follows: Farm land: First grade, land yielding 22 or more bushels of wheat per acre on summer fallow; second grade, 16 to 21 bushels; third grade, 12 to 15 bushels; and fourth grade 8 to 11 bushels. Grazing land: First grade, 18 acres or less

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16/ This classification has been developed by the Department of Agronomy and the Department of Agricultural Economics, Montana State College, on the basis of a soil reconnaissance survey conducted by L. F. Gieseker, Associate Agronomist, Montana State College, Bozeman, Montana.

per 1000-pound steer for a 10-month grazing period; second grade, 19 to 27 acres; third grade, 28 to 37 acres; fourth grade, 38 to 54 acres; and fifth grade, 55 acres or more.

Upon analysis of the grades of land on which these farms were located, it was found that the unsuccessful farms tend to be located on the medium to poorer grades of land (figure 10). There is a conspicuous lack of first-grade farm land and first-grade grazing land but there is also a lack of third and fourth-grade grazing land and miscellaneous land such as mountains and stream beds. A large number of the unsuccessful farms are located on second-grade farm land and on second-grade grazing land but this is due to the fact that the majority of these farms are in Sheridan County where a great percentage of the land has been classed in these two grades. It is now recognized that this land in Sheridan County is not worthy of grades as high as these to such a large extent. Therefore the unsuccessful farms are not on such good land as this classification indicates.

These unsuccessful farms are not found upon the first-grade lands because such land usually returns a higher net profit per acre, and therefore the farmers on these lands tend to be more successful, thus eliminating themselves from the group in this study. The unsuccessful farms are not located on the poorest grades of land because very few farms of any kind are located on these grades and this land is merely utilized as supplementary grazing areas.

It can be concluded that these unsuccessful farms are generally not situated on either the best or the poorest land. In comparison to other farms, they are generally on lower grades of land, but they are not on land

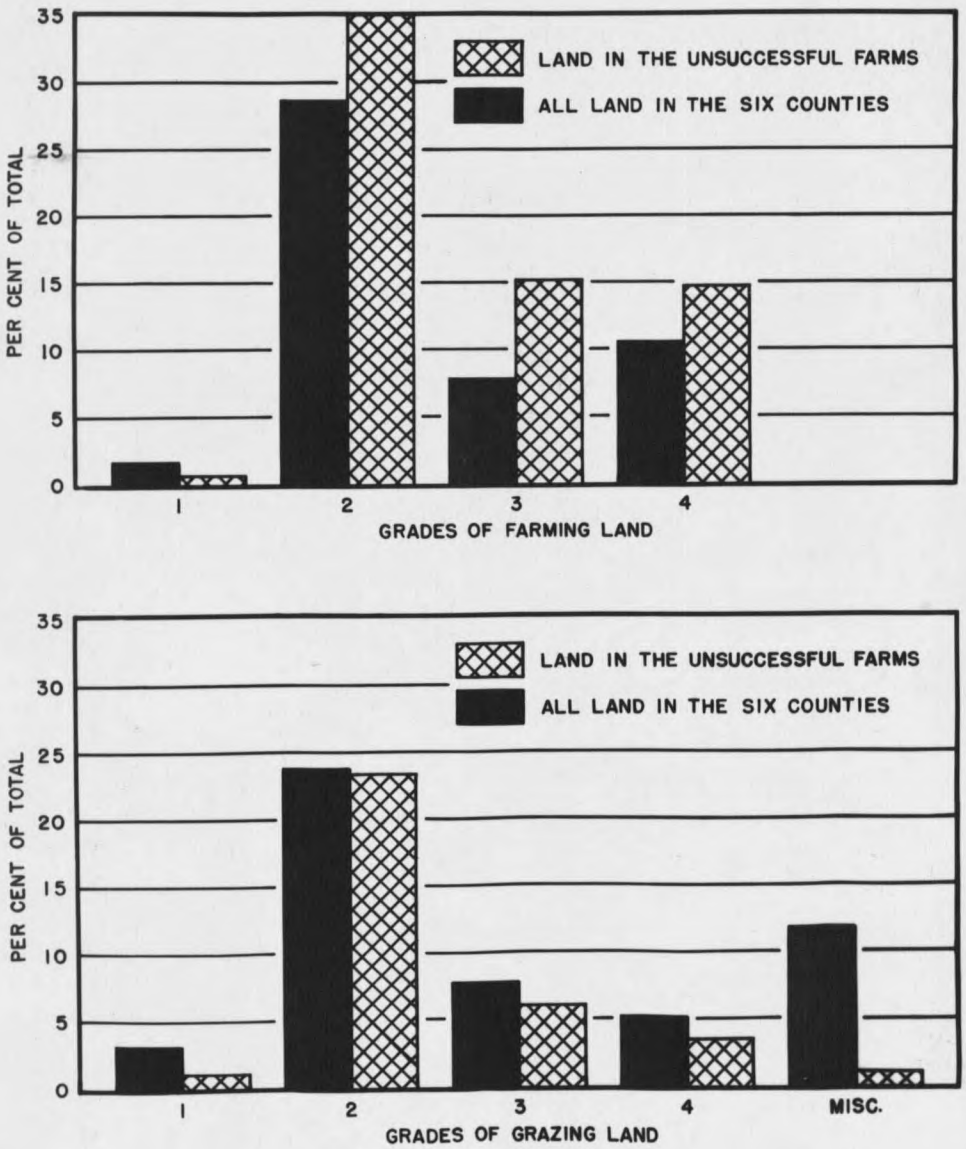

Figure 10. A comparison of the total number of acres of each grade of land in the unsuccessful farms and in the six counties, expressed as a percentage of the total land. Land in each of the six counties is weighted by the relative number of unsuccessful farms per county.

that is below the average of all grades in the country. They tend to be located on land classified as second, third, or fourth grade farming. They have been crowded away from the best but have not been pushed out to the poorest grades.

Grade or quality of land has probably been a very important factor in causing these farms to fail. Low quality of land plus a type of farm organization unsuited to this quality, plus a period of low and varying rainfall have constituted an almost unbeatable combination. One of these factors alone probably would not guarantee failure, but in conjunction they are very limiting. The quality of land has been a factor in causing these farms to fail, but it has not been entirely responsible. These grades of land may be submarginal, but it is probable that they have not been utilized to greatest efficiency and yields are not as high as the grades of land imply.

Crop Production

Crop production is directly related to the quality of land, the size of farm and use of the land. Crops grown on these unsuccessful farms are wheat; feed crops such as oats, barley, corn and tame hay; and minor cash crops such as flax, rye, and mustard. But wheat is by far the most important of these crops and occupies about four-fifths of the land devoted to crops. The rest of the crop land is most largely devoted to the production of oats and barley. Corn, tame hay, flax, rye, and mustard are grown on a much smaller scale and on very few of these farms.

Crop rotation cannot be very extensively practiced on these farms. As nearly four-fifths of the tilled land is in wheat, this grain cannot be consistently

rotated with other crops. Thus on the average it can be implied that crop rotation on these farms is not the rule because wheat grown so extensively indicates almost a one-crop system of agriculture. Furthermore, crops are not consistently rotated with summer fallow because only one-sixth of the tilled land is in fallow. Therefore, crop land can be summer-fallowed only every six years on the average. Tillage may be improved by this kind of cultivation on some farms to good extent but this must be compensated by reciprocating deficiencies of fallow on other farms. The conclusion can be drawn that crop production is usually not aided by crop rotation or by tillage practices that include summer-fallowing.

As wheat is by far the most important crop on these farms, wheat production is worthy of special consideration. This crop has provided about 63 percent of the total gross income from farming and the acreage devoted to production and the consequent yields are significant in the farm analysis. Wheat yields on the unsuccessful farms vary from less than one bushel per seeded acre to about 13 bushels per seeded acre (figure 11). The modal class of farms produces between four and five bushels, but the average yield of 4.94 bushels per seeded acre is above the mid-point of this class because it is weighted by a few farms with comparatively high yields (figure 12). In every county studied, the yields on the unsuccessful farms were lower than the average yields on all farms by similar bases of comparison. The average wheat yield on all farms in these counties was 9.52 bushels per seeded acre or nearly twice as high a yield as on the unsuccessful farms. The significance of these yields can be appreciated to a greater degree when average production per farm is analyzed. These unsuccessful farms produced on the average 474 bushels per

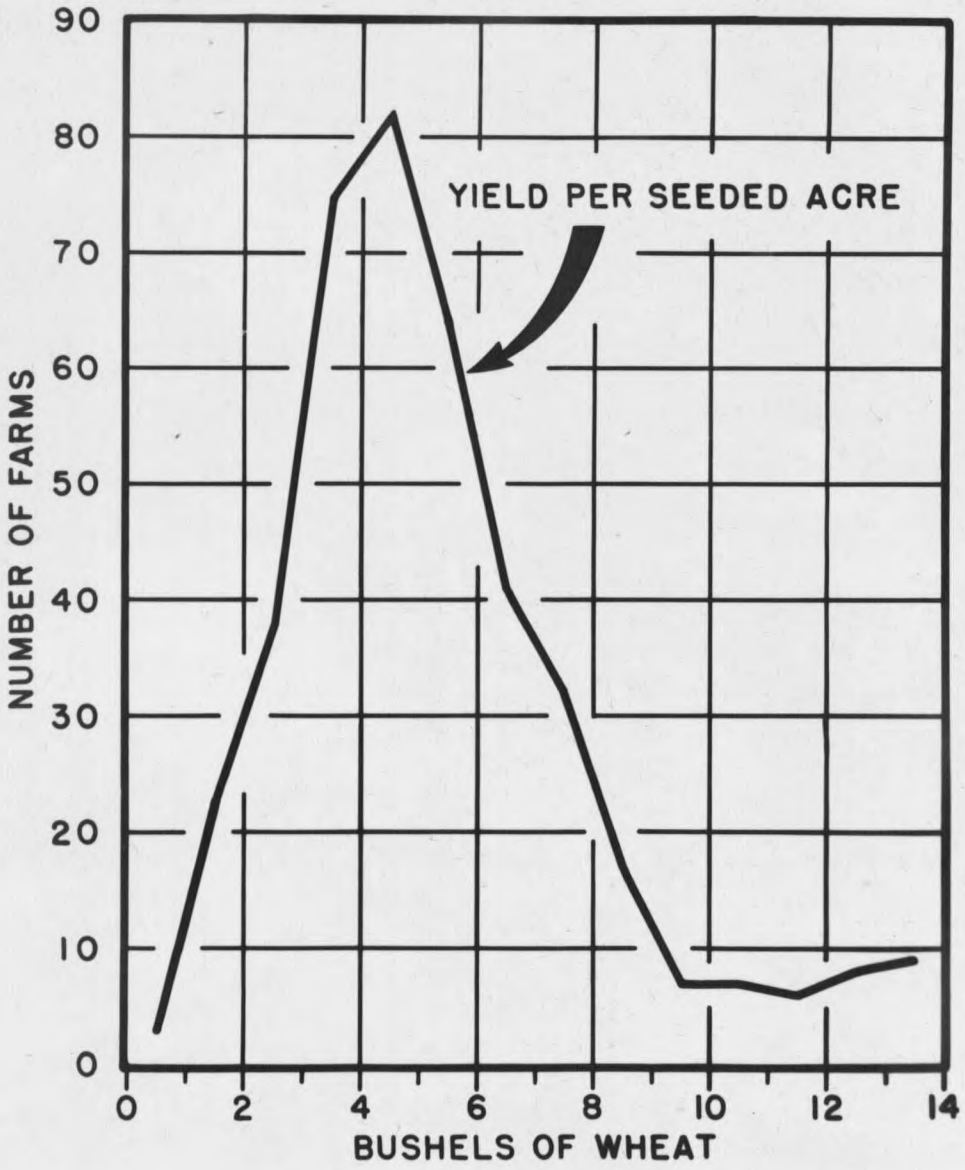

Figure 11. Distribution of the unsuccessful farms showing the average bushels of wheat produced per seeded acre, 1928-1935 inclusive.

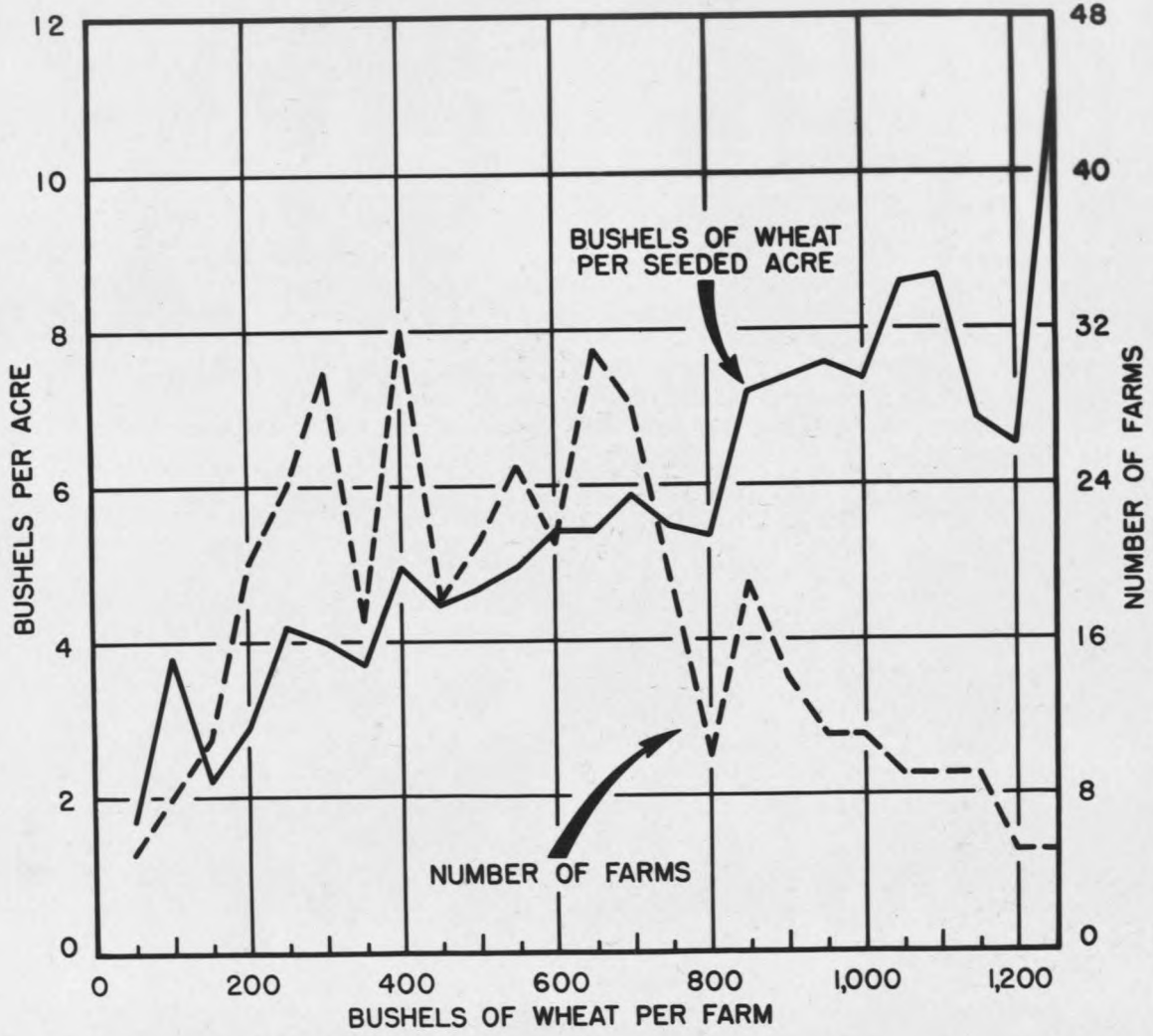

Figure 12. Distribution of the unsuccessful farms showing the relationship of farm sized classes to the number of farms in the class and to bushels of wheat produced per seeded acre. The farm sized classes are defined in terms of average wheat produced per farm, 1928-1935 inclusive.

farm whereas the average production of all farms in these counties was 1792 bushels per farm. In other words the unsuccessful farms have received about one-fourth as much money from wheat as the average of all farms. Low yields and small acreages have combined on these poorer farms to limit the income from wheat.

Livestock Production

Livestock production is the other main source of gross farm income on these farms and about 37 percent of this income has been derived from livestock. But livestock as measured in productive animal units vary widely with the type of farm (table VI). As would be expected, numbers of livestock are lowest on the wheat farms and highest on the farms specializing in livestock. On a basis of all farms in the sample, there is an average of 11.1 animal units per farm, but on the basis of farms with productive livestock, this is approximately 16 productive animal units per farm. The distribution varies as to type of farm from zero with the straight wheat farms to 25.3 on the straight livestock farms.

Upon comparison with all farms in these counties, the figures of these unsuccessful farms make a very poor showing (table VII). The unsuccessful farms are lower in all types of livestock, being most deficient in sheep, but the numbers of hogs and dairy cattle are very low also. These relationships are quite general in each of the counties studied and the comparisons show the unsuccessful farms to be lower in each kind of livestock, with some kinds lacking entirely.

Beef cattle are raised on over half of these farms. Sheep are raised on only 15 farms, hogs on 58, and dairy cattle on 99 of the farms (table VIII).

TABLE VI. DISTRIBUTION OF UNSUCCESSFUL FARMS BY NUMBER OF PRODUCTIVE ANIMAL UNITS PER FARM, BY TYPE OF FARM, 1933

Number of productive animal units per farm	Number of Farms by Type					
	All types	Wheat	Wheat-livestock	Combination	Livestock-wheat	Livestock
Total	503	194	80	111	27	91
None	194	194	-	-	-	-
1-4	28	-	26	2	-	-
5-9	35	-	24	7	1	3
10-14	77	-	29	28	2	18
15-19	61	-	1	38	2	20
20-24	32	-	-	22	2	8
25-29	25	-	-	14	4	7
30-34	21	-	-	-	11	10
35-39	16	-	-	-	5	11
40-44	5	-	-	-	-	5
45-49	9	-	-	-	-	9

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

TABLE VII. NUMBERS AND KINDS OF LIVESTOCK AND PRODUCTIVE ANIMAL UNITS PER FARM ON ALL FARMS IN THE SIX COUNTIES AND ON THE UNSUCCESSFUL FARMS, BY TYPE OF FARM, 1933

Type and kind of farm	Productive animal units per farm	Kind of livestock in numbers per farm				
		Sheep	Beef	Dairy	Horses	Hogs
All types*						
All farms**	50.3	60.0	31.7	1.9	6.3	2.7
Unsuccessful farms	11.1	.8	8.4	.8	3.9	.7
Wheat						
All farms**	13.9	3.1	9.5	1.0	3.4	2.4
Unsuccessful farms	3.0	.1	1.8	.1	1.6	2.6
Combination						
All farms**	58.7	35.9	39.6	3.5	8.2	4.2
Unsuccessful farms	17.8	.6	12.4	1.7	5.4	.5
Livestock						
All farms**	113.2	190.5	67.3	2.4	9.9	1.9
Unsuccessful farms	25.7	4.4	19.9	1.6	7.9	.3

* These three types of farms are divided on basis of gross income. Wheat farms have over two-thirds of the gross income from wheat, combination farms have not more than two-thirds of the income from either wheat or livestock, and the livestock farms are those with over two-thirds of the income coming from livestock.

** All farms include all farms for which these data were available.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

TABLE VIII. DISTRIBUTION OF THE UNSUCCESSFUL FARMS ACCORDING TO THE COMBINATIONS OF LIVESTOCK ON THESE FARMS, 1933

Combinations	Number of Farms								
	With or without hogs			With hogs			Without hogs		
	Total	with dairy cattle	without dairy cattle	Total	with dairy	without dairy	Total	with dairy	without dairy
With or without sheep									
Total	503	99	404	58	19	39	445	80	365
With beef cattle	208	9	199	8	4	4	200	5	195
Without beef cattle	295	90	205	50	15	35	245	75	170
With sheep									
Total	15	7	8	1	-	1	14	7	7
With beef cattle	1	-	1	-	-	-	1	-	1
Without beef cattle	14	7	7	1	-	1	13	7	6
Without sheep									
Total	488	92	396	57	19	38	431	73	358
With beef cattle	207	9	198	8	4	4	199	5	194
Without beef cattle	281	83	198	49	15	34	232	68	164

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

Beef cattle are the most important livestock on these farms when measured in productive animal units (figure 13). Three-fourths of the productive animal units are furnished by beef cattle. Beef are raised on more farms and in more consistent quantities than any other livestock. These distributions of livestock are to be expected. Beef are often run in small herds and a large number of herds could be expected on these small farms. 17/ The low proportion of sheep can be expected, because sheep are generally run in large flocks in this country and would not be found on these smaller farms. Low numbers of hogs and dairy cattle are also very characteristic of the unsuccessful farms and this condition is not surprising.

Perhaps one of the most serious of these livestock deficiencies is the lack of dairy cattle. Over four-fifths of the farms are without dairy products which could have been raised on their farms because they are without milch cows. This will either force the buying of dairy products or the family will have to do without them and either alternative is probably very unsatisfactory. There is an average of four cows per farm on these 99 farms and many of these farms should be well supplied with milk and its derivatives. However, the distribution is skewed so that there are more farms below this average than above it. The deficiencies in hogs and sheep do not necessarily have such a detrimental effect upon the quality of family living as these deficiencies in dairy cows. But this low amount of hogs and sheep also limits farm income from livestock.

Poultry constitutes a very minor source of revenue on these farms.

17/ Saunderson, M. H., "Readjusting Montana's Agriculture. V. Economic Changes in Montana's Range Livestock Production," Montana Experiment Station, Bulletin 311, February, 1936, p. 18.

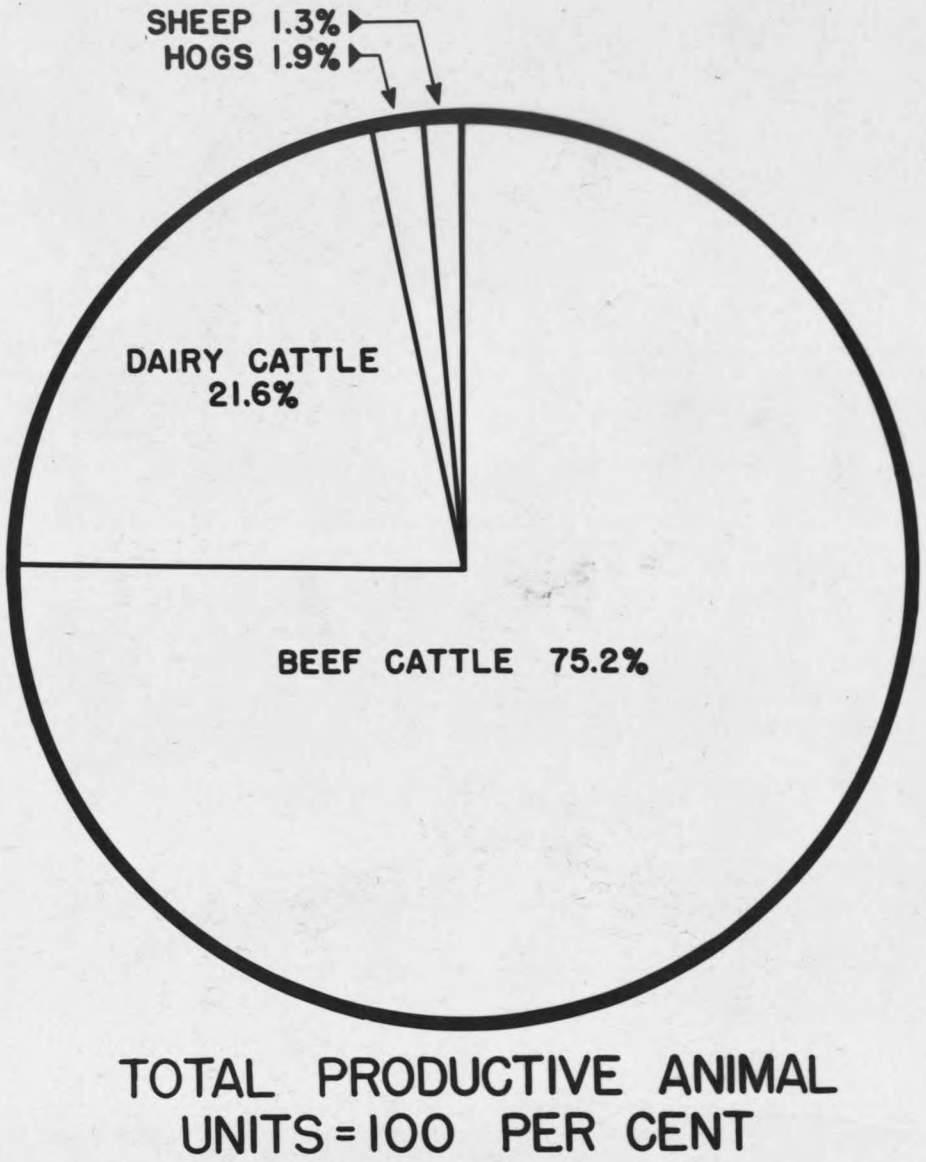

Figure 13. Average kinds and numbers of livestock per unsuccessful farm expressed as a percentage of the average total productive animal units per farm, 1933.

Chickens are by far the most important. Nearly three-fourths of these farms can be supplied to some extent with eggs and some fowl for meat but the flocks are rather small in most cases. The modal class is about 25 chickens per flock. Turkeys are raised on 15 percent of these farms, but generally in very small flocks. The main value of poultry will be as a source of family living and not for farm revenue. 18/

The unsuccessful farms have almost as many horses per acre as the average of all farms. Yet, there are many of these unsuccessful farms with very few horses and almost half of these farms have none at all. (table IX). Furthermore, 176 of the 194 straight wheat farmers have no horses. Distributed by type of farm, it is readily apparent and natural that the farmers raising other types of livestock also kept more horses. Many of these farmers are without horses to do their farm work.

Farm Power and Equipment

The lack of horses may raise a serious problem for these small farms. Some of the farmers may be able to do most of their work with horses. Others would have to use tractors, trade work or rent horses. The last two alternatives are very unreliable and often unsatisfactory because work cannot be done on time. But the use of tractors on these farms is often undesirable because most of the farms are too small to utilize a tractor efficiently. 19/ Thus, the efficiency of farm operations may be lowered and operating costs

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18/ This information was obtained from the Farm Security Administration (R.R. 12).

19/ Starch, E. A., "Farm Organization as Affected by Mechanization," Montana Experiment Station, Bulletin 278, May, 1933, p. 25.

TABLE IX. DISTRIBUTION OF THE UNSUCCESSFUL FARMS ACCORDING TO NUMBER OF HORSES PER FARM, BY TYPE OF FARM, 1933

Number of Horses per farm	Number of farms by type					
	All types	Wheat	Wheat-livestock	Combination	Livestock-wheat	Livestock
Total	503	194	80	111	27	91
None	228	176	20	21	4	7
1-2	15	3	4	2	1	5
3-4	70	3	20	25	7	15
5-6	59	7	14	23	5	10
7-8	69	4	14	25	3	23
9-10	22	-	6	5	4	7
11-12	14	1	-	3	3	7
13-16	13	-	2	4	-	7
17 and over	13	-	-	3	-	10

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics

increased by the power that is used on these farms.

It is costly to maintain a good line of machinery for these farms but a poor outfit of low quality means that farm practices will suffer. The average value of farm machinery owned by the operators of these farms was $310.48. This figure is an average of 425 farmers registered by the county assessment as owning machinery. It does not represent the value of all the machinery on the farm because other machinery is probably owned by the landlord, but the personal experience of the author and miscellaneous reading has encouraged the conclusion that most non-resident owners seldom invest in farm machinery for the use of the operator. Although there are many types of tenure, it is the general procedure for the tenant to own most of the farming equipment and although this figure cannot be accepted on its face value, it does strongly indicate that there is a poor line of equipment on these farms.

This efficiency of farm machinery and equipment must be considered when enumerating the reasons for success or failure. The machinery company slogan, "Good equipment makes a good farm better," also implies that poor equipment makes a farmer poorer. Consequently, these farmers are very apt to be limited by their farm equipment and also by its adaptation to the farm. A poor line of machinery, plus a size of farm which is contributory to the inefficient operation of this machinery, makes a serious handicap for successful farm operation and successful farming.

The Farmstead

Farm buildings are a factor which may influence success or failure. Buildings, if inadequate, may lower the productiveness of the farm. Especially

they lower the productivity of livestock by causing discomfort and disease. But worse than this they lower the families' morale, encourage ill health and make it harder to perform the farm operations when such conditions are to be contended.

The conditions of the farm buildings were evaluated by the farm operator in his statement to the Farm Security Administration on the Form R.R. 12. It was indicated that the usual condition is not very satisfactory. Only 110 of the 441 farmers reported their buildings as adequate. Sixty said they were good, but the rest of the 441 felt that they were only fair to poor.

The assessment records offered a measure of the value of buildings. Only 185 of the 503 farmers owned their own buildings and the average value of this group was $565. This tends to prove the operator's statement and it indicates that these farms are characterized by rather poor and inadequate buildings.

These people are probably ill-housed and suffering from the detrimental effects of poor farm buildings. Consequently, living standards are lowered. Farm income may be lowered and the net result depressing to both the home and the farm.

Farm Water Supply

The water supply of the farm is very important. An adequate supply of good water is a requisite for good living. Livestock production, to be successful, demands an adequate and reliable supply of water. But the high rainfall variations to which this area is subject and the low ground water reserve make this situation of water supply very uncertain and often

precarious to both man and beast. Water varies greatly between regions and even between farms within a small area. It also varies from time to time on the same farm. At certain periods of the seasons, water conditions are much more acute than at others and the degree and amount that water supply varies is indicated by the variations in precipitation (figure 2). A period of drouth may cause a shortage of water in a normally adequate supply and this shortage becomes worse as the drouth continues.

One hundred and thirty-four of the 503 farmers recorded their source of water on the Farm Security Administration Forms R. R. 12. Forty-eight indicated that their supply came from one well. Sixteen depended upon springs alone and 16 depended upon reservoirs alone. Only 27 relied on more than one source for their stock water and only 25 listed their stock water supply as adequate. In other words, only two-fifths or 52 out of 134, have a reasonably adequate and dependable supply of stock water.

It may be concluded, that even if stock water supply cannot be measured in absolute valuations, it is often a limiting factor on these farms. This helps to explain the absence of livestock on many of these farms. Thus the water supply has had a great influence on farm management practices and farm organization.

Miscellaneous Factors

There are many other factors contributing to farm success or failure. Distance from market, farm labor conditions, marketing practices, and farm records may be important in many cases.

Distance from market influences farm practice to varying extents. A

great distance from market may handicap a farmer in buying supplies and marketing produce. This may mean a difference in operating costs and marketing costs. According to the Farm Security Administration records on Form R. R. 12, these farms vary widely in distance from market. The distribution ranges from those right beside villages to those over 30 miles distant but over 76 percent of these farms are less than 12 miles from a country market and 41 percent are less than six miles from a town or village. Evidently distance from country market is not a major factor causing failure.

Nearly all the labor on these farms is supplied by the family itself. Only five households contained regular members not included in the farm family. Some very few laborers might be hired for short periods but few were regularly hired. These farms are nearly all family farms with little outside help employed.

No direct information could be obtained on marketing practices. As these farmers raise their produce in small quantities, it is almost certain that they sell nearly all their grain to local elevators and sell livestock to local buyers or ship cooperatively with other farmers.

No direct information was available on farm records. But farmers are notoriously poor bookkeepers and it is almost certain that these farmers are no exception. It is very probable that these farmers kept very little formal record of their business. However, considering the small size of these farms, it is doubtful if this neglect would be a significant factor causing failure.

Conclusion

From this survey of the farm land, crop production, livestock, farm equipment, buildings and water supply, it becomes evident that the production

possibilities of these farms are very low. Considering these farms as a unit, they are too low in producing power to consistently produce an income sufficient to support a reasonable standard of living. Total farm acreage is low, quality of land is low, numbers of livestock are low. The result is a farm that has produced about one-fourth as much as the average of all farms in the same areas. If the size of farm remains the same, if condition of equipment and buildings does not change, if water supply remains at the same status, it is evident that any operator is severely handicapped. Therefore, the reason for unsuccessfulness must be due in great degree to the farm itself and to its physical limitations. But reasons for success or failure also include the way in which physical values are utilized. These operators, through their farm practices, apparently have not efficiently utilized these values and farm production is probably much lower than actual possibilities would allow. Therefore, failure is due to both physical resources and farm management practices and each complements the other in the interests of low production.

PART III. SOCIOLOGICAL CHARACTERISTICS OF THE UNSUCCESSFUL FARM POPULATION

Introduction

The sociological characteristics and population pattern of these unsuccessful farms are important. These are important from three standpoints: (1) the way these families affect the farm, (2) the way the farm affects the population on the farm, and (3) the effect of such farms and farm people upon the community through their social and economic relationships.

Phenomena of Age

The population distribution according to age groups is not "normal" on these unsuccessful farms. 20/ (Figure 14). It is distorted to a great extent. There is an excessive percentage of the older aged groups around fifty years of age with a consequent deficiency in the middle aged groups. There is a low birth rate and also a rapid decrease in numbers at twenty years of age. There are more males than females, especially in the fifty year class. Although this population grouping is not normal it does not differ greatly from the average of the people in these six counties (figure 14). There is some discrepancy in that there are more middle aged people, 35 to 45 years, in the average groups than on the unsuccessful farms. This would indicate that the unsuccessful operators tend to be either older or younger than the average.

The abnormalities in these two pyramids may be explained as follows: The homesteaders and settlers during the pre-war and war periods were probably, in the great majority, people about twenty years old or older who

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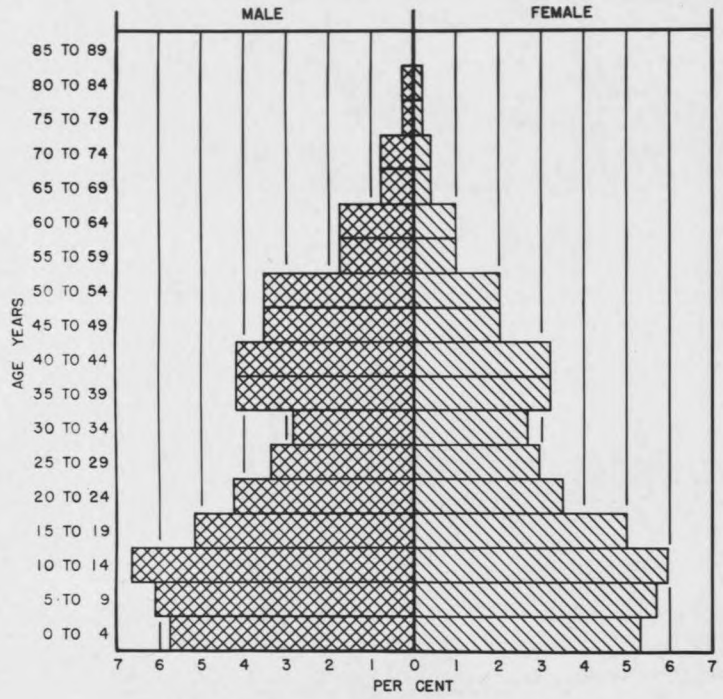
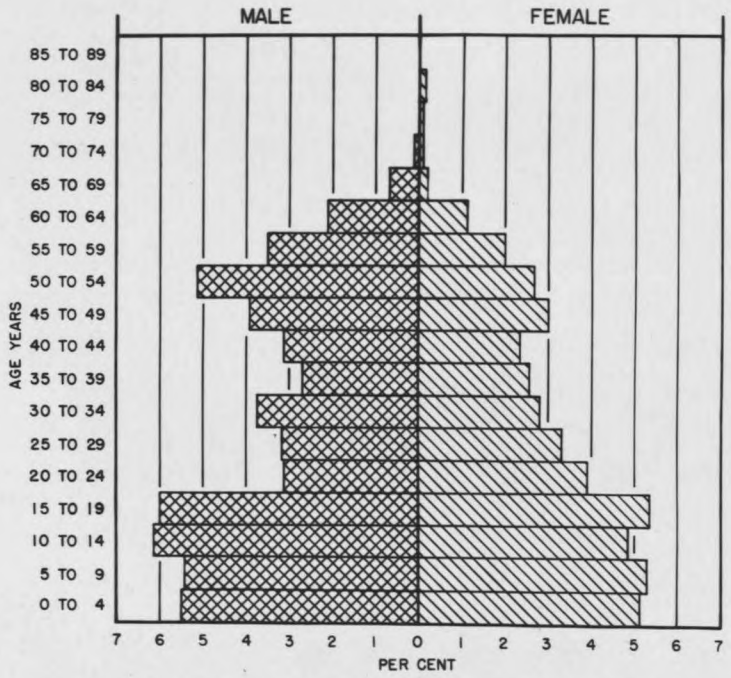
20/ A "normal" population distribution forms almost a perfect pyramid. The base is widest and the slope to the peak is regular.



The Rural Farm Population



The Unsuccessful Farm Population

Figure 14. Comparative age and sex distributions of the population of the unsuccessful farms, 1936, and the rural farm population of the six counties, 1930. The population of the six counties is weighted to correspond to the relative number of unsuccessful farms per county. Sources: Mont. Cen. 1930, pop. bul., table XIV, pp. 24-26, and Farm Sec. Adm. records(R.R.12).

would now be nearing these ages of 45 and 50 years and their children would be about twenty years old or less. Those settlers who did not marry are now bachelors about the age of fifty years. This largely explains the large grouping of men in this upper aged group. Few settlers have come to this area since 1920. 21/ This is especially true of the rural areas. This fact helps to explain the deficiency in the middle aged groups.

Another factor which helps to explain the deficiency in the unsuccessful operators of this age grouping is that they would be self-eliminating from this group. The operators in this group should be in their most prosperous period of life and consequently not found in this sample. Also the middle aged groups, if unsuccessful, would probably move to better farms or positions.

The abnormalities in both pyramids below the age of twenty years indicate a low and decreasing birth rate. This may be correlated with and explained by the corresponding deficiencies in the groups in the middle age or child bearing age groups.

The sharp break in male population at twenty years of age may indicate that there is little extra help needed on these farms and that the operator usually handles the farm alone. It may also indicate dissatisfaction among these young men with farming conditions and it may mean that there is a rather extensive migration from these farms. However, this decrease at 20 years of age is also correlated with a decrease in numbers of parents at a corresponding age. Fewer children were born over twenty years ago in this country.

21/ Renne, R. R. and Kraenzel, C. F., "Readjusting Montana's Agriculture. III. Population Resources and Prospects." Montana Experiment Station, Bulletin 309, January, 1936.

The age distribution of the farm operators show that the modal class is 50 to 54 years, the average is 46.6 years and the operators' wives average 39.6 years. There is no great growth in numbers between the ages of 30 and 50 years. This stationary condition might be due to all the factors previously stated. But it does show that young farmers or those below 45 years are not the characteristically unsuccessful farmers. Farm owners are often found to parallel this distribution because they are climbing the "agricultural ladders" from laborer to renter to owner. However, these operators have made no great accumulation of wealth and this age distribution cannot be explained via the agricultural ladder. On the other hand these age distributions and age groupings may indicate some correlations that parallel low income. The unsuccessful farmers are generally well past middle age (45 years) in the majority of cases. Lack of youth may be considered as a factor helping to cause unsuccessfulness on these farms because these farmers do almost all their own farm work and although a man may improve with age as a manager he may be a less efficient worker due to lowered vitality.

Type and Size of Household

These people form different types of households. The married people with children compose 64 percent of the total number of households. One hundred forty-six of the households are bachelor or husband and wife alone and 35 are of various other groupings. 22/

Size of household is an important factor. It was found that the

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22/ These "other groupings" include such households as mother and children alone, or brother and sister, or two brothers, etc.

average size of household was 3.75 persons and ranged from one to 11 persons per household. This distribution is important because it shows the number of people that are trying to live on this limited income and it implies a certain standard of living for the entire group.

The number of children per family is important. It was found that the parents with children at home averaged 2.8 children per family, but this became 1.9 children as an average for the entire group of farmers. This does not include all the children of these people, but it includes all the children at home or attending school near home. This figure and distribution tends to indicate that these unsuccessful farmers are not reproducing at a rate that would keep their numbers equal to present figures. In other words, this group is slowly dying out due in part to a low birth rate but also due to the movement of young people away from these farms.

Health

Although health is hard to measure in absolute valuations, it is apparent that the people on these farms are not in the best physical condition (table X). This statement is especially true of the operator or head of the household because approximately one-fifth, 102, of them are suffering from some ailment. The other people, wives and children, appear to be in better health by comparison. This would tend to imply that some of the ailments such as rheumatism, rupture, and heart trouble have been caused by exertion. But many of the ailments, such as stomach trouble and eye trouble, can be traced to a poor diet or else to lack of doctor's care. It is probable that many of these ailments are encouraged by low standard of living and continue to exist because they lack the funds necessary to obtain a doctor's assistance.

TABLE X. DISTRIBUTION OF THE UNSUCCESSFUL FARM POPULATION BY CONDITION OF HEALTH, 1936*

Health	Numbers of people		
	All people	Operators	Other than operator
Total people	1883	503	1380
Sound or in good health	1693	411	1282
Miscellaneous ailments	87	26	61
Rheumatism	20	13	7
Heart trouble	18	7	11
Appendage infirmities	16	11	5
Eye or ear trouble	14	9	5
Rupture or hernia	12	10	2
Spine or back trouble	11	10	1
Stomach weakness	8	5	3
Tooth trouble	4	1	3

* Only the most obvious or apparent ailments are included in this tabulation.

Source: Farm Security Administration records (R. R. 12)

Consequently, many people are suffering from things that are curable, but have not been cured because of lack of money.

These people on the unsuccessful farms may be in poorer or better health than other groups that are in better financial condition, but it is very probable that the people on these farms have had their vitality decreased and there probably is a close correlation between low vitality and low income. Either may be responsible for the other and it is difficult to distinguish which is cause and which is effect. Low income on these farms is probably a contributory cause to lowered vitality or to poor health among these people and vice versa. The raising of income and health improvement would probably go hand in hand. This condition of health then becomes a factor of farm management for it affects the income and producing power of the farm. It is a sociological factor because it affects the happiness of the family and its relation with the rest of society.

Education

Another measure of the social relationships of these people is the years' schooling completed. The average years' schooling of the operator were 7.4 years and of his wife 7.9 years. The boys had completed 3.4 years of school on the average and the girls 3.9 years. The corresponding age of the boys was 11.1 years and the girls 10.9 years. As six years is the regular age for starting school, the corresponding grades completed should be 5.1 and 4.9. This indicates that the girls average about one year behind the school schedule while the boys average about 1.7 behind the schedule.23/

23/ These data were taken from the Farm Security Administration records (R.R. 12).

Data to measure the quality of school work were not available and only this measurement of quantity is presented.

These data may form the basis for some significant conclusions. The operator and his wife are usually quite sufficiently schooled. The lag in schooling of the children can easily be explained as due to lack of opportunity and economic handicaps. The whole group of data implies that these people have not been severely handicapped by lack of schooling. Therefore, there is probably little correlation between lack of schooling and unsuccessfulness and lack of schooling is probably a minor factor causing low income. This also implies that there are few bad social effects to these people from the standpoint of education.

Experience of Operator

The experience of the farm operator is often a pertinent factor in the reasons for his success or failure as a farmer. But if farm experience is a prerequisite for success, it is evident from this study that it does not guarantee success. Only 182 of the operators reported this fact but they were unanimous in stating that farming was their chief type of experience. 24/ Most of them had lived on a dry land farm in the Great Plains and 30 percent reported that they had lived on a farm all their lives. It is evident that lack of farm experience was not a major factor in causing these men to fail.

Mobility

Most of these families, 65 percent, have lived in one county from 20 to 30 years. 25/ This corresponds to the heavy homestead entries between the

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24/ These data were taken from the Farm Sec. Adm. records (R.R.12).
25/ Ibid.

years of 1908 and 1918. This close correlation implies that these farmers were mostly homesteaders. The modal class is probably constituted of people that came here between the ages of 20 to 30 years and homesteaded between the years 1908 and 1918. However, this correlation cannot be definitely established because the record of homestead entries is not available for the individual operator but the implication is very strong.

Nationality

Nationality is important because it is sometimes considered that some nationalities are more successful as farmers than others. Some may tend to be failures while others are more self-sustaining. There appears to be a wide variation in the relative percentages of the nationalities that are unsuccessful out of the total nationality group (table XI). For instance, the French and Yugoslavians appear to have three or four times as many unsuccessful as their proportionate constituent part of the population. On the other hand, the unsuccessful Russians, Finns, English, Austrians, and Norwegians do not constitute their normal part of the population. Although the Norwegians, Danes, Germans, and Swedes compose about 70 percent of the unsuccessful farm population they also compose about the same proportion of the total population. It is concluded that some nationalities may tend to be more unsuccessful than others and failures to be self-sustaining may be slightly more common to one group of nationalities than to another.

Conclusion

From this analysis of the sociological characteristics and population pattern of these unsuccessful farms, it is evident that certain phenomena

TABLE XI. DISTRIBUTION OF THE UNSUCCESSFUL FARM POPULATION 1936, AND OF THE RURAL FARM POPULATION IN THE SIX COUNTIES 1930*, BY NATIONALITIES

Nationality	Unsuccessful farm population by per cent of total (351 families)	Average rural farm population by per cent of total
Norwegian	26.5	31.9
Danish	20.8	19.6
German	15.7	13.7
Swede	9.1	9.2
Irish	7.1	4.0
Scotch	2.9	2.6
French	2.3	.7
Yugoslavian	2.3	.6
English	2.0	2.9
Polish	1.1	.8
Austrian	1.1	1.3
Russian	1.1	4.7
Finn	.9	1.5
All others	7.1	6.3

* This "rural farm population" is weighted by the number of unsuccessful farms in each county divided by the total number of farms in the county, based on equal ratios of nationalities per county. Thus, the number of unsuccessful farms in Sheridan County were approximately 20 percent of the total number of farms; Pondera farms were approximately 1.5 percent of the total farms. Therefore, the population of Sheridan was multiplied by 20 percent and Pondera by 1.5 percent.

Sources: Farm Security Administration records (R.R. 12) and Fifteenth Census of the United States 1930, Population Bulletin, second series, Montana, table 19, pp. 30, 31.

are very typical. Some of these factors such as old age, bachelorhood and low vitality are contributory to low income while such conditions as poor health and general distress are also the result of a low standard or level of living. The operator and his family influence farm production and the result of this production influences their lives. Thus there is a strong relationship existing between the status of the farm and the condition of the family and effects of this correlation are felt in the community and elsewhere through the social and economic ties of these people.

PART IV. FINANCIAL ANALYSIS OF THE UNSUCCESSFUL FARMERS

Introduction

Successful farming in the northern Great Plains is often dependent upon the financial status of the farm. A good money reserve is generally a requisite for stability over a period of time and the success or failure of the farm may be determined by the funds available for operation. These funds appear to be necessary to carry the farm over a period of poor crops and low prices. Thus the income from farming and the success of the farmer is often dependent upon the capital available for operation. 26/ Although the man with money may spend it in hard times, it still appears to be true that, "unto him that hath shall be given and unto him that hath not, shall be taken away even that which he hath." If these farmers have failed, their failure may be due to limitation of operation caused by debt and low cash reserve. Therefore, the financial analysis of these farms is very important.

Gross Assets

Considering these operators as a group, two-thirds of their gross farm assets are in farm real estate (table XII), 55.6 percent of their assets are in land, 11.4 percent in buildings, 14.8 percent in livestock, 13.5 per cent in farming equipment and 4.7 percent in household furnishings. Thus even though these operators have little capital invested, most of this is in frozen form.

26/ Wilson, M. L., "Dry Farming in the North Central Montana Triangle." Montana Extension Service, bulletin 66, 1923.
Cochrane, W. W., "A Study of the Organization, Operation, and Practices on Successful Montana Farms." A thesis, M.S.C., June, 1938, (unpublished).

TABLE XII. AVERAGE GROSS FARM ASSETS PER OPERATOR OF THE UNSUCCESSFUL FARM OPERATORS, BY COUNTIES, 1936

Property owned by the operator of farm	Counties						
	All counties	Sheridan	Chouteau	Fallon	Golden Valley	Judith Basin	Pondera
Value of all property per farm	$1633.00	$1956.00	$1237.00	$794.00	$1416.00	$1286.00	$1088.00
All Land							
Av. acreage per farm	141	159	184	51	208	30	95
Av. value per acre	$6.44	$7.65	$4.93	$4.77	$4.06	$13.47	$2.41
Av. value per farm	$907.00	$1058.00	$907.00	$243.00	$845.00	$405.00	$229.00
Grazing Land:							
Av. acreage per farm	56	45	90	14	112	104	84
Av. value per acre	$3.04	$2.87	$3.52	$2.06	$2.39	$3.58	$2.27
Av. value per farm	$169.00	$128.00	$318.00	$28.00	$268.00	$32.00	$191.00
Dry Farm Land:							
Av. acreage per farm	95	94	94	37	96	24	11
Av. value per acre	$8.67	$9.89	$6.27	$5.77	$6.01	$15.34	$3.60
Av. value per farm	$738.00	$930.00	$589.00	$215.00	$577.00	$373.00	$38.00
Assets other than land							
Av. value per farm							
Buildings	$186.00	$260.00	$41.00	$78.00	$96.00	$325.00	$76.00
Livestock	$242.00	$268.00	$135.00	$274.00	$308.00	$301.00	$290.00
Farm equipment	$221.00	$299.00	$67.00	$157.00	$110.00	$140.00	$293.00
Household equipment	$77.00	$71.00	$87.00	$42.00	$57.00	$115.00	$200.00

Source: County Assessors' records.

The average gross assets of $1634 per farmer is low, but its actual value to the farm operator may be even lower. Assets per farmer vary widely, but there is a definite concentration of farmers with assets below $1200. Almost half of the farm operators have less than $800 in gross assets and the modal class appears to be just below this (table XIII). A few operators who own some land, which may or may not be valuable to them, pull the mean above the median and mode.

These operators have practically no cash on hand. Only 22 of the 503 farmers reported any cash on hand and this averaged $10 per family. Furthermore, only 17 of the 503 farm families had life insurance with cash value unborrowed. Twenty-one thousand nine hundred dollars was reported as the cash value of this insurance or $1288 per family on the basis of these 17 families. Spread over the entire sample this is $43 per family. Cash is almost negligible on these farms. 27/

Total Liabilities

The unsuccessful farmers are heavily in debt. The average debt per operator is close to $1600 (table XIV). These liabilities vary much as the gross assets, there being some correlation between assets and liabilities. The latter range from close to zero to well above $5000. The majority of operators owe less than $1200. As in the case of assets, the mean is above both the median and mode (table XV).

Over half of the total debt is owed to the government and about three-fourths of the debt is in the form of mortgages. The rest, $357 per operator,

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27/ This information was obtained from the records (R. R. 12) of the Farm Security Administration.

TABLE XIII. DISTRIBUTION OF THE UNSUCCESSFUL FARM OPERATORS BY GROSS ASSETS PER OPERATOR, 1936

Gross assets per operator	Number of operators
$0-399	105
400-799	132
800-1199	58
1200-1599	32
1600-1999	21
2000-2399	19
2400-2799	18
2800-3199	21
3200-3599	15
3600-3999	15
4000-4399	23
4400-4799	7
4800-5199	8
5200-5599	8
5600-5999	6
6000-6399	8
6400-6799	2
6800-7199	2
7200-7599	2
7600 & above	1

Source: County Assessors' records.

TABLE XIV. AVERAGE LIABILITIES PER OPERATOR OF THE UNSUCCESSFUL FARM OPERATORS, BY COUNTIES, 1936

Gross liabilities owed by operator of farm in averages per farm	County						
	All counties	Sheridan	Chouteau	Fallon	Golden Valley	Judith Basin	Pondera
All liabilities	$1599	$2019	$1092	$867	$962	$625	$1211
Gov't mortgages--total	$867	$1233	$273	$364	$605	$127	$719
Gov't mortgages--delin.	282	408	66	15	162	75	542
Non-gov't mort.--total	375	377	517	244	71	181	282
Non-gov't mort.--delin.	183	185	280	22	21	14	262
Unsecured debt: Total	357	409	302	259	287	317	210
Taxes	162	239	51	31	80	80	54
Rent	11	12	4	4	20	35	1
Farm supply	62	53	89	71	57	88	40
Medical bills	44	32	74	54	11	69	34
Notes	78	73	84	99	117	45	81

Source: Farm Security Administration records (R. R. 12)

TABLE XV. DISTRIBUTION OF THE UNSUCCESSFUL FARM OPERATORS BY TOTAL LIABILITIES PER OPERATOR, 1936

Total liabilities per operator	Number of operators
$0-399	104
400-799	109
800-1199	50
1200-1599	46
1600-1999	44
2000-2399	26
2400-2799	23
2800-3199	20
3200-3599	24
3600-3999	15
4000-4399	8
4400-4799	11
4800-5199	4
5200-5599	4
5600-5999	2
6000-6399	2
6400-6799	4
6800-7199	2
7200-7599	3
7600 & above	2

Source: Farm Security Administration records (R.R. 12)

is in the form of small unsecured debts. The average unpaid grocery or farm supply bill is $62 per family and the average medical bill, $44 per family.

Considering these unsecured little debts as past due, over one-half of the total farm debt is past due. Mortgages held by the government and by the private agencies show a high degree of delinquency. One-third of the government mortgages and one-half of the private agencies' mortgages are listed as delinquent. It is also possible that actual delinquency is higher than this record shows.

Ratios of Assets to Liabilities and the Significance

The ratio of assets to liabilities on the entire farm sample is almost one to one and in the aggregate it is evident that debts very closely balance assets (table XVI). The importance of this financial condition to farm income is very evident. These debts have a cumulative effect. The interest installments, if paid, constitute a continuous financial drain. Assuming an average five percent interest rate on an average debt of $1600 per operator, the payment would be $80 per year just to remain even. While this in itself is a small sum, it becomes more important when compared to the total annual gross income from farming because it constitutes 13 percent of the total gross income from farming for payment of interest alone and if the interest is not paid, it further strains the credit facilities of the creditors and increases liabilities in relation to assets on the farm.

There are many other important ratios in the financial analysis. Perhaps a very important item is current liabilities which are equal to all debts

TABLE XVI. AVERAGE RATIOS OF ASSETS TO LIABILITIES OF THE UNSUCCESSFUL FARM OPERATORS, BY COUNTIES, 1936

Ratios of assets to liabilities	County						
	Six counties	Sheridan	Chouteau	Fallon	Golden Valley	Judith Basin	Pondera
Gross assets to total liabilities	1.02	.97	1.13	.91	1.47	2.06	.90
Gross assets to secured liabilities	1.26	1.21	1.59	1.31	2.09	4.18	1.09
Liquid assets to current liabilities	.66	.64	.42	1.60	1.01	1.37	.77
Current liabilities to total liabilities	.51	.50	.63	.34	.49	.65	.84
Liquid assets to total assets	.33	.33	.23	.60	.34	.43	.72

Explanation: Gross assets equal all assets of the farm operators.
Liquid assets equal assets in livestock, farm equipment, and household equipment.
Total liabilities equal mortgages plus unsecured debts.
Secured liabilities equal total mortgages.
Current liabilities equal unsecured debts plus delinquent mortgages.

Source: Tables XII and XIV.

due or delinquent. The relationship of liquid assets or assets easily converted in cash to other assets and liabilities is significant. These ratios are all presented in table XVI.

The ratio of assets to liabilities per individual operator is very important. As a group the operators have almost equal assets and liabilities, but there is a wide variation between individual farmers (table XVII). If the figures used to compose this table XVII are close to accurate, it is evident that some farmers are in fair financial condition, while others are hopelessly in debt. Seventy-seven operators have an asset to liability ratio of 1:1 and 233 farm operators owe more than they own, while 195 have more assets than liabilities. This shows that problems on different farms will vary widely but that the financial problems on most of the farms are acute.

It is probable that a large amount of debt has already been defaulted and cancelled. The debt shown is but part of the actual debt incurred by these farmers and the wide variation between farms may be due to different conceptions by these farmers of what debts they still owe. Nevertheless there is much debt still "on the record" and it constitutes a source of irritation to these farmers.

The financial problem is one of the most vicious problems confronting these people. Debts constitute a drain on the farmer and also limit efforts of expansion. The debt affects standard of living because it is probable that these people are often unable to buy the food they require. The people are probably unable to pay for the medical attention they require. The many small unsecured debts are hard on the business morale of the community. They restrict not only the farm family, but also others outside the family. They are limiting to the operator, to the family and to the community and strain the source of

TABLE XVII. DISTRIBUTION OF THE UNSUCCESSFUL FARM OPERATORS BY RATIOS OF GROSS ASSETS TO TOTAL LIABILITIES PER INDIVIDUAL OPERATOR, 1936

Ratio	Number of operators
Assets : Liabilities	
1 : 65	-
1 : 33	4
1 : 17	14
1 : 9	16
1 : 5	34
1 : 3	45
1 : 2	60
1 : 1.5	60
1 : 1	77
1.5 : 1	48
2 : 1	47
3 : 1	39
5 : 1	28
9 : 1	15
17 : 1	7
33 : 1	6
65 : 1	3

Sources: Farm Security Administration records (R.R. 12) and County Assessors' records.

credit for these farms.

Source of All Income

Total family income on these farms is derived from many sources. These sources may be roughly grouped under two headings, governmental and private. A record of total family income for a 12-month period which centered around 1936 showed that these people were receiving almost three-fourths of their money from governmental agencies (figure 15). Of the average income of $569 per family for a 12-month period centered in 1936, $417 or 73.3 percent was advanced in the form of relief, A.A.A. and soil conservation payments, and government loans. On the other hand only $152 or 26.7 percent of the average family income was provided byprivate initiative. Furthermore, only $108 or 19 percent of the average family income was provided by the farm. Although there are several sources of family income, the national government is by far the greatest and probably the most reliable source.

Government help was extended most generously by work relief through the agency of W.P.A. The A.A.A. and soil conservation payments were only the general payments as were made to other farmers. The government loans were generally legal credit operations. But when the failures of repayment are considered and lacks of net assets and collateral are considered, they become little more than another form of subsidy. Therefore, they have been classed as money income. They may be paid back in the future, but for the present time they are counted with other income.

Two-thirds of the income through private initiative was furnished

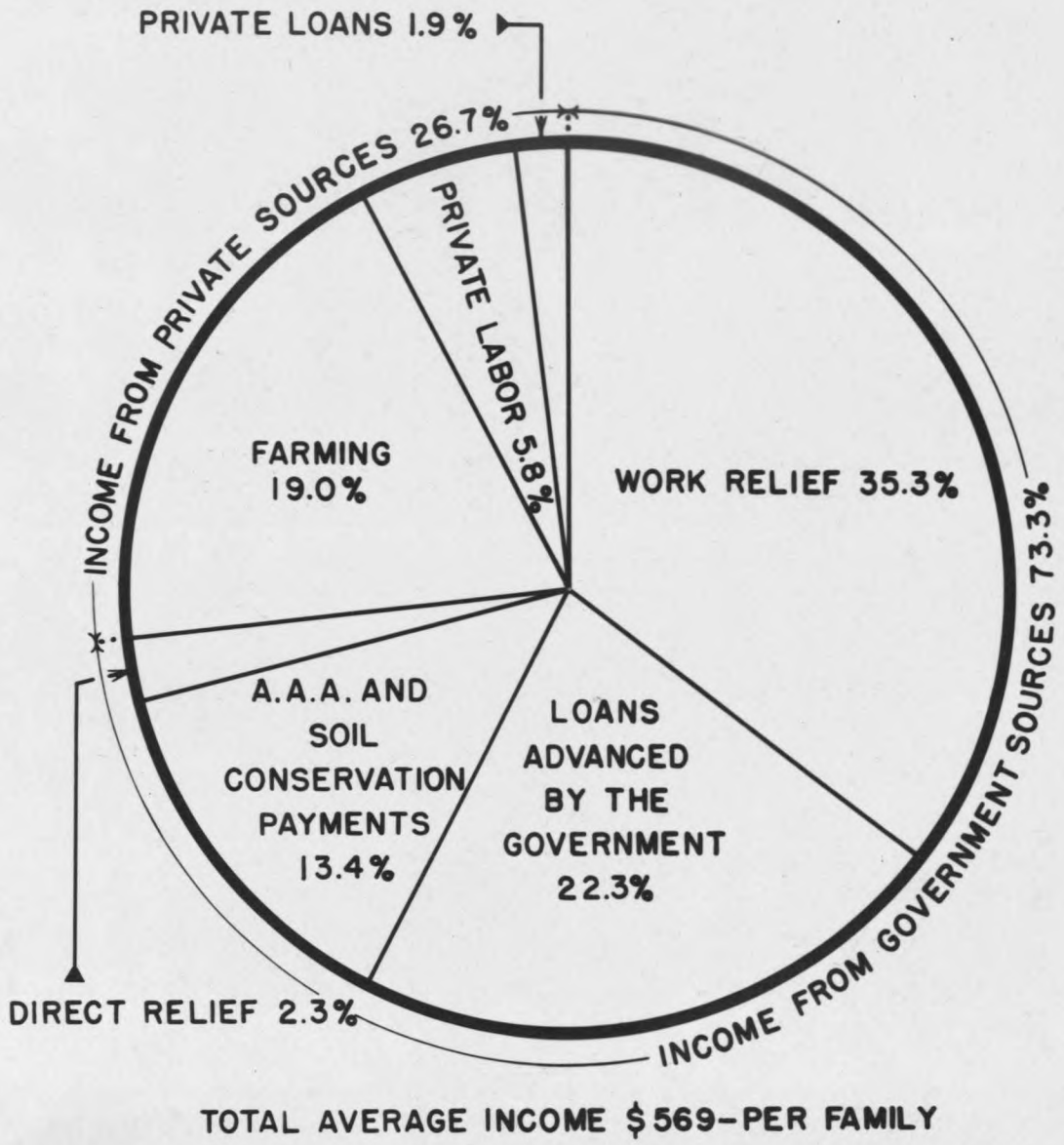

Figure 15. Average source and amount of income of the unsuccessful farm families expressed as a percentage the average total income per family, for a twelve-month period centered in 1936.

by the farm. Even here government seed loans may have been instrumental in making this income possible. The other one-third of this income was largely derived from labor which must have been furnished to great extent by other farmers. This item of private labor was the item that seemed to vary most from county to county. In other words, there probably is more labor available outside the farm in some areas than others. The farmers in Judith Basin averaged $151 from private labor; Pondera, $93; and the other four counties were all below $35 per farmer from this source. The availability of outside labor may be one reason why there were so few farmers found as unsuccessful in Pondera and Judith Basin counties. The balance of private income was furnished by private loans. This was the smallest of all sources of income and it would not be classed as income except that it was money advanced and method of repayment is largely not yet established. It is evident that these farmers received about one-quarter of their money through private initiative, but even this money was not received except through the cooperation to an extent of government, other farmers, and private lenders.

Conclusion

It is conclusive that these farmers own little property in the aggregate. As a group they have very few assets, but as individuals some are in fair condition while others are hopelessly in debt. Furthermore, a large proportion of their gross assets are frozen while half the liabilities are delinquent. This financial condition greatly magnifies the problems of these people and of their creditors.

The burden of support of these families does not fall on the farm

itself. Over three-fourths, 81 percent, of the support comes from sources outside the farm. The national government provides 90 percent of this outside income. In other words, society in the form of the federal government is practically keeping these families and making it possible for them to stay on these farms. Thus, a condition of unsuccessful socialism is perpetuated. These people are unable to support themselves in even the most humble state of life. The situation is critical for their future welfare and for the country which they inhabit.

PART V. READJUSTMENT OF THE UNSUCCESSFUL FARMS AND FARM PEOPLE

Introduction

In the light of the preceding analysis, it is evident that these unsuccessful farms and the farm people who occupy them are constituting and perpetuating a critical problem in this northern Great Plains area. Farms have not been organized and population has not been adjusted to natural conditions which are the result of highly variable rainfall, of extreme temperatures, of characteristic winds, soils, humidity, etc. In any area the most variable factor is often the most obvious and apparently the most limiting, and in this area the most variable and the greatest limiting factor is most apt to be rainfall. The variations in rainfall and the characteristic precipitation may sometimes be considered as the root of all difficulty. But important as water is to the Great Plains agriculture it is not the only factor to consider. It is merely one of and related to all the other natural factors over which man has had very little control. Adjustment of man to these natural conditions is the problem to be solved.

It is increasingly evident in this day and age that "man does not live unto himself alone." This problem of adjustment is acute to these people, but it is also a problem affecting the whole social organization. These farms are sore spots that a progressive society cannot ignore if it will continue to progress to the fullest extent. Therefore, it behooves these farmers and the rest of society to attempt the solution of this problem. The improvement of these farm conditions and the solution of this problem involves the changing of characteristics both common to and peculiar to these farms insofar as changes are possible and practical. It involves shifting of lands

from undesirable uses to more suitable ones. This would include changes in size, quality, or type of farm or elimination of the unit entirely. The basic maladjustments under which these people now labor should be corrected through such change which will provide a more adequate basis for the support of a good standard of living.

Changes in the Farm Units

The United States Census shows that the farms in these counties and in the State of Montana have usually increased in total acreage and crop acreage per farm since 1920 (table XVIII). These increases have also taken place in other states in the northern Great Plains area. In all five states in this area, the average of crop land per farm increased from 1925 to 1930, the increase being 34.7 percent in Montana, 32.1 percent in Wyoming, 9.7 per cent in North Dakota, 8.7 percent in South Dakota, and 5 percent in Nebraska.[28] It is apparent that average size of farm and tilled acreage per farm has increased since 1925. Since 1930 some decreases have occurred. Crop acreage has decreased, but total acreage per farm has remained almost constant. However, these decreases may have been due to unusual circumstances.[29] The trend since 1920 is definitely upward and it is probable that farms are growing larger with some consistency.

28/ Renne, R. R., "Significance of the Ownership Pattern to Land Use Planning." Journal of Farm Economics, Vol. XVII, No. 3, August, 1935, p. 431.

29/ These unusual circumstances are A.A.A. crop restrictions, increases in irrigation, and the shortage of precipitation before 1935. The figures between 1930 and 1935 are not exactly comparable because the 1935 enumeration is based on conditions as of January 1, 1935, and all other enumerations are based on conditions as of April 1.

TABLE XVIII. AVERAGE TOTAL ACREAGE AND AVERAGE CROP ACREAGE PER FARM OF ALL FARMS IN MONTANA AND OF ALL FARMS IN EACH OF THE SIX COUNTIES, 1920-1935.

County	Average total acreage per farm				Average crop acreage per farm			
	1920	1925	1930	1935	1920	1925	1930	1935
All Montana counties	608.1	697.9	940.3	939.6	-	180.7	240.0	209.6
Sheridan	480.0	492.1	599.6	567.2	237.1	256.4	345.8	321.9
Chouteau	586.4	712.3	1160.1	1235.0	233.0	249.6	395.3	380.4
Fallon	760.9	897.9	1140.6	1099.4	226.7	244.4	303.5	282.4
Golden Valley	-	636.9	1322.2	1623.2	-	202.6	271.7	188.0
Judith Basin	-	838.9	1021.5	1058.5	-	330.4	403.1	351.9
Pondera	594.3	581.4	749.1	717.8	251.1	361.7	335.7	307.9

Source: U. S. Census of Agriculture, Montana, 1935, adapted from "Farms and Farm Acreage by Size, etc."

In Montana, there has been a shift in the number of farms in different size groups. The number of farms between 50 and 500 acres in size has decreased while the farms below 50 acres and above 500 acres in size have increased in number (table XIX). The farms of 50 to 500 acres have decreased from 37,864 farms in 1920 to 23,443 in 1935, a decrease of 14,421 farms or 38.1 percent. On the other hand the farms below 50 acres and above 500 acres have increased from 19,813 farms in 1920 to 27,121 farms in 1935, an increase of 7,308 farms or 36.9 percent. The increase in the number of farms below 50 acres in size is probably due to increases in irrigation and to settlement in western Montana on an entirely different type of land. 30/ It is concluded that the small irrigated farms and the large dry land farms are replacing the smaller dry land units. The trend toward larger dry land farms is distinct.

It has been shown that the unsuccessful farms are below the average size of all other farms in total acres per farm and acres tilled. All data have tended to prove that the unsuccessful farms are below the desirable acreage. Therefore, in reorganization of these farms an increase in size is one of the first steps. Increases in the size of these farms should create larger gross incomes and corresponding increases in net income because farm efficiency is usually improved with such changes. 31/ It is

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30/ The number of irrigated farms in Montana increased from 10,807 in 1920 to 11,925 in 1930. The average size of irrigated farm is close to 160 acres. It is probable that a large number are below 50 acres in size. See "Irrigation of Agricultural Lands," Fifteenth Census of the United States, 1930, pp. 142-151. See also Monson, O. W.; McKee, Clyde; and Slagsvold, P. L.; "Irrigation Development in Montana," Mont. Exp. Sta. Bul. 353, Jan. 1938.

31/ Starch, E. A., "Farm Organization as Affected by Mechanization." Montana Experiment Station, Bulletin 278, May, 1933.

TABLE XIX. DISTRIBUTION OF MONTANA FARMS
BY SIZE GROUPS, 1910-1935

Size of farms	Numbers of farms					
	1920-35 average	1910	1920	1925	1930	1935
All sizes	50,660	26,214	57,677	46,904	47,495	50,564
Below 50 acres	3,099	1,711	2,209	2,393	3,087	4,708
50-174 acres	9,118	11,812	10,876	8,364	7,712	9,519
175-499 acres	18,399	8,339	26,988	18,756	13,928	13,924
Over 499 acres	20,044	4,352	17,604	17,391	22,768	22,413

Source: U. S. Census of Agriculture, Montana, 1935, "Farms and Farm Acreages by Size, etc." Table 3, p. 8.

desirable that size of farm be increased to raise net income and living standards (table XX).

There probably is no best size for the ideal dry land farm unit. The highest degree of efficiency differs with each situation. Therefore, the best size of farm unit cannot be definitely stated here because of differences in grades of land or producing power per acre and because of differences in types of farms and plane of living expected. However, economists and others seem to be in general agreement that dry land wheat farms in this area should be at least 700 or 800 acres in size for economical operation. 32/ This is the minimum requirement for the higher grades of land such as first or second grade farm land, and it is desirable to have acreages even larger than this for operation on the poorer grades of farm land. This size recommendation may vary with differences in individual situations and with type of farm, but it is also generally agreed that livestock farms should be at least as large if not larger. 33/ These data all tend to uphold the contention that the unsuccessful farms should either be increased in size or else eliminated.

With changes or increases in size of farm may come equally important changes in types of farms. The straight wheat and straight livestock farms predominate in the class below $1000 gross income (table XXI). But the straight wheat farms and straight livestock farms do not appear to be more unsuccessful than the diversified farms that are also in this income class.

32/ Starch, E. A., ibid.

33/ Renne, R. R., "Significance of the Ownership Pattern to Land Use Planning," Journal of Farm Economics, Vol. XVII, No. 3, August, 1935, p. 427.

TABLE XX. NET FARM INCOME, AS AFFECTED BY CHANGES IN GRADE OF LAND, PRICE OF WHEAT AND ACREAGE OF FARM

Net Returns Per Acre as Affected by the Use of Lower Grades of Land and by Increasing the Price for Wheat 800 acres (alternate crop and summer fallow)

Price of wheat	1st Grade (22 bu. per A.)	2nd Grade (18 bu. per A.)	3rd Grade (14 bu. per A.)	4th Grade (11 bu. per A.)
$0.50 bu.	$-.35	$-1.80	$-3.25	$-4.25
.65	2.79	.74	-1.31	-2.76
.75	4.88	2.43	- .02	-1.77
.85	6.97	4.12	1.27	- .78
.95	9.06	5.81	2.56	.21

Total Income for Family Expenses and Family Labor

$0.50 bu.	--	--	--	--
.65	$1116.00	$296.00	--	--
.75	1952.00	972.00	--	--
.85	2788.00	1648.00	$480.00	--
.95	3624.00	2324.00	1024.00	$84.00

Net Returns Per Acre as Affected by Increasing Acreages of Lower Grades and by Increasing the Price for Wheat

Price of wheat	800 A. 1st Grade	900A. 2nd Grade	1800 A. 3rd Grade	2400 A. 4th Grade
$0.50 bu.	$-.35	$-1.30	$-1.95	$-2.15
.67½	3.34	1.69	.34	- .38
.75	4.88	2.93	1.28	.33
.85	6.97	4.62	2.57	1.32
.95	9.06	6.31	3.86	2.31

Total Income for Family Expenses and Family Labor

$0.50 bu.	--	--	--	--
.67½	$1336.00	$760.50	$306.00	--
.75	1952.00	1318.00	1152.00	$396.00
.85	2788.00	2079.00	2313.00	1584.00
.95	3624.00	2840.00	3474.00	2772.00

Note: Cost per acre varies from $11.84 to $7.65
Gross income per acre varies from $20.90 to $5.50

Compiled by Department of Agricultural Economics, Montana Agricultural Experiment Station, the Resettlement Administration and W.P.A. cooperating.

TABLE XXI. ALL FARMS IN THE SIX COUNTIES, FARMS BELOW $1000 GROSS INCOME, AND UNSUCCESSFUL FARMS, IN PERCENTAGE RELATIONSHIPS TO EACH OTHER, BY TYPE OF FARM

Type of farm	Farms below $1000 gross income expressed as a percentage of all farms	Unsuccessful farms expressed as a percentage of all farms	Unsuccessful farms expressed as a percentage of farms below $1000 gross income
All types	30.5	10.2	33.6
Wheat	48.4	16.4	34.0
Wheat-livestock	12.3	5.9	48.5
Combination	21.3	10.2	48.0
Livestock-wheat	17.4	8.3	47.4
Livestock	48.4	9.4	19.3

Source: Table I.

It is concluded that the farms are not unsuccessful because they are undiversified but they are undiversified because they are small and the small farms are unsuccessful. Therefore, if farms are to include both livestock and wheat enterprises, they should be increased in size but until this is done probably no flat proposal for increased diversity can be supported.

Diversified farming is not the whole panacea or solution because in many cases the land is not suited to crop production. It has been recognized that fourth grade farm land is submarginal for grain production in almost any size of unit, that third grade farm land is often on the border line for profitable grain production and that most of the grazing land should not be used for farming. 34/ Therefore, many of these farms should not attempt the production of wheat on a commercial scale but this land should be used for grazing purposes and the growing of feed. Many farms should be changed from crop or combination farms to livestock farms but as previously stated these changes in type must be in conjunction with changes in size.

As generally true in any line of endeavor, changes in quality should be much the same as improvements in quality. It is desirable to improve the quality of many factors such as water supply, machinery, livestock, farmstead, and especially to raise the general level of farm practices in the interests of net income. Water improvement may come through new and better wells, new reservoirs, increased damming of small streams and conservation of runoff.

34/ Renne, R. R., "Significance of the Ownership Pattern to Land Use Planning," Journal of Farm Economics, Vol. XVII, No. 3, Aug. 1935, p. 427.

Machinery improvement may mean new machinery and mutual adaptation of the machine and farm unit to increase the efficiency in utilization of the machine. Livestock improvement should be achieved through better breeding stock and increased feed. The farmstead should be developed through better buildings. This whole group of changes should work for the increase of farm income and should also accompany changes in the size and type of organization.

It is probable that some farms should be eliminated entirely. In many areas the best land is already in farms and the expansion of some units may mean that others will have to give up their land. In other areas a large amount of the land is too poor to be profitably farmed. The farms there now should be abandoned and the land should be used for grazing and feed production. In some areas very few farms need to be abandoned while in other areas the adjustment has to be more drastic. The extent of this farm elimination will vary greatly between different areas but in general farm acreage increases and changes in types of farms involve the elimination of some of the units.

Population Changes

Expansion of some farms and the elimination of others involve and imply certain shifts in population. It is not possible to analyze all these shifts in detail here but certain broad generalizations may be advanced. If some farms are to be eliminated, and that seems advisable, population will be reduced by this adjustment. This reduction can be and has been compensated in part by increases in irrigation. 35/ But it appears that population in the

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35/ Monson, O. W., McKee, Clyde, and Slagsvold, P. L., "Irrigation Development in Montana." Mont. Exp. Sta. Bul. 353, Jan. 1938

northern Great Plains is to be subject to a decreasing total for the immediate future. Montana was the only State in the Union with a decrease in total population between 1920 and 1930 and the largest decrease came in the Great Plains area. 36/ Other states in this area witnessed a sharp decline in their population growth. 37/ This recent trend tends to indicate that readjustment has not only eliminated farms but has also reduced farm population in this region. Just how far this trend will go is conjectural because it will depend upon the condition of and readjustments made in agriculture. It is very probable that total number of people will decrease until the natural balance is attained between the people and the area that is required to support them according to their intended standard of living.

What the effect of this population movement will be on areas that must absorb these people is also conjectural. Some adjustment, some means of livelihood must be obtained wherever new settlement is made. As these people have very little money, their new living must be largely provided by employment. Consequently this is not only an area problem; it is a national problem for the effects of this situation in the Great Plains are to be felt wherever the people are to settle. It appears that with changes in agriculture, population changes are inevitable, but the thing to be accomplished is to make these changes as orderly, as sensibly and as rationally as possible. Thus will the interests of all people be most profitably served.

36/ Renne, R. R., and Kraenzel, C. F., "Readjusting Montana's Agriculture, III, Population Resources and Prospects," Mont. Exp. Station Bul. 309, Jan. 1936.

37/ Fifteenth Census of the U. S., 1930

The Financial Dilemma

Nearly all these problems of readjustment revolve around financial situations. The administration of the above suggestions will require much shifting of capital and much recapitalization. Reorganization of farms through increases in size, changes in type, increases in numbers of livestock and improvements in quality of livestock, machinery, water supplies and farmsteads may require much new capital. Elimination of some farms means that these properties should be liquidated and the operator's debts should be paid. Thus readjustment revolves around the financial condition of these people.

The people on these farms are insolvent in the great majority of cases and unable to provide necessary money for farm reorganization. Furthermore, they are so far in debt that if they were to raise a good crop or experience a profitable period their creditors would probably demand the payment of debts, and a temporary profit could not be used to revitalize the farm. Therefore, these people unaided are nearly powerless as individuals to improve their farms even though the need of change or improvement is obvious.

The people who should leave these farms have some capital and some debts. But their capital is mostly in land and buildings which are nearly frozen assets under present conditions. Consequently, they are unable to a great degree to realize what they have invested and probably equally serious is the fact that they will thereby be unable to pay the money they owe. Therefore, if they leave, they must abandon both their capital and their creditors but must still leave the country almost penniless to become

dependent upon the society they meet.

Procedure of Readjustment

It is not the purpose or the scope of this study to investigate all the problems of this farm and population readjustment. However, a few broad general statements may be advanced because these recommendations of change raise many problems of policy, technique and administration. The mere recommendation of farm and population change does not accomplish the task but rather it suggests new complications.

Under some conditions, farm reorganization does not require outside interference and a policy of laissez faire on the part of outside agencies can be adopted to the mutual benefit of nearly all concerned. However, such a policy can scarcely be adopted here because of the financial condition of these people. Some farms might improve but others would be abandoned after further soil depletion and widespread human suffering. There is the possibility of a smaller but self-supporting population developing, but there is also the strong possibility of the development of new slum areas or the partial abandonment of the area. The government has made it possible for many of these people to remain here under an uneconomical organization, and the gap between the fit and less fit has been shortened. Therefore, the adoption of this policy of non-interference might be unfair because many innocent would suffer and unwise because the cycle would probably go to the extreme and do much more harm to the country.

The best solution to these problems appears to be conscious readjustment through planning and some overhead administration. This readjustment

involves the survey and analysis of conditions on a large scale and then it involves the planned solution of the problems. This policy is justified as the only alternative of laissez faire. It is justified because it may facilitate orderly and logical reorganization based upon the physical and economic characteristics of the country with a consideration of the natural abilities of the people. Thus can plans be laid to fit the land and the people.

New capital for some of these farms, and others in similar financial condition, is necessary to make possible the payment of debts and to make possible the shifting of capital in the interests of more appropriate farm organization. Perhaps such a program may never return the money the credit agency advances, but to a certain extent it is justified because the government is already spending large sums on these people without greatly improving the situation. If clients are carefully selected and individual situations carefully analyzed, some help to these farm families and some recapitalization of these farms with the object of farm improvement and population readjustment may not be throwing good money after bad. Rather it may be the advancement of money in the interests of future economics.

It appears that resident people and a cooperating organization can work together to plan the solution and to solve problems such as these. The National Government has already recognized these problems and conditions to a certain extent. The Bankhead Jones Farm Tenant Act of 1937 authorized and directed the Secretary of Agriculture to develop a program of land conservation and land utilization. The present land buying program under the Bureau of Agricultural Economics is aimed at the development of land use based upon

the physical and economic characteristics of the land and the well being of its people. Program planning, conscious readjustment, land buying and governmental programs of action are displacing and have displaced the possible alternative of laissez faire. The course of nature and the balance of nature which has been disrupted by man is now being influenced by the efforts of man in compensation. But there is much yet to be done in these northern Great Plains in the matter of agricultural readjustment.

Conclusion

(a) The unsuccessful farms are as a rule too small to provide a desirable standard of living for their operators. These farms must be made larger or else eliminated. Types of farming should be changed to suit the characteristics of soil and climate. Much land now devoted to wheat on these farms should be used for grazing or feed production, and this grazing should be done in larger sized units which would be capable of supporting a family. (b) Some people must be relocated and the population pattern must change to meet these changes in agriculture. (c) The financial condition of many of these farm families requires that they receive some help or impetus for this readjustment. (d) The readjustment of these farms and families may best be accomplished through the planning of resident people with the cooperation and help of a coordinating administration. It appears that the National Government is the most able administrator to help in these problems and the agencies of this government are now helping to solve the problems.

As there is great diversity in both operators and farms, the problem varies in each situation. But in the large, it seems that the future welfare of the people and of the land will best be served through an effort toward

farm reorganization aimed at the change of characteristics found to be common to and peculiar to these farms. It is apparent that the farm condition will not be satisfactory until basic maladjustments under which these people now labor are corrected.

There is much yet to be done, but the conformity of man to nature, the ultimate goal, may be reached through an honest recognition of problems followed by the honest, sincere and efficient efforts of man directed toward his reconciliation to natural conditions. Thus may natural resources be more efficiently conserved and utilized and man may live more honorably and more abundantly in this area of the northern Great Plains.

SUMMARY

From the results of this study it is evident that conditions on dry farms in the northern Great Plains are not satisfactory. Low and erratic rainfall and farm organizations unadapted to natural conditions have caused many people to fail. Many factors have combined to complement each other to cause farms and farmers to be unsuccessful. Different reasons may cause different men to fail, but in general many characteristics are common to and peculiar to the poorer farms and farmers in this area. It is possible to generalize from these characteristics and factors while keeping in mind the limitations of group averages in a study of such character as this.

The main factors helping to cause farm failure and some of the characteristics of unsuccessful farms are as follows:

1. These farms are low in total acreage per farm; 70 percent being below 360 acres in size.

2. The unsuccessful farms are located on the medium to poorer grades of land. They are seldom located on either the best or the poorest grades of land.

3. Unsuccessful farmers utilize a smaller proportion of their land area through cultivation than do all other farmers.

4. Summer fallow and crop rotations do not enter into the farming scheme to any very great extent.

5. Wheat is practically the only cash crop grown but wheat yields are low, usually less than five bushels per seeded acre. About one-fourth as much wheat is grown on these farms as on the average of all farms.

6. Livestock enterprises on the unsuccessful farms are small with an

average of 11.1 productive animal units per farm as against 50.3 productive animal units on the average of all farms in these counties.

7. Very little produce is raised on the farm for family consumption.

8. Unsuccessful farmers are handicapped by poor, inefficient power and machinery and consequent high operating costs.

9. The farm buildings are of low quality and often inadequate.

10. Water supply on the farmstead is generally unreliable and inadequate.

11. Sociological analysis shows that these people tend to be in older age groups, in rather poor health, with low birth rate, but with average schooling.

12. A large majority of these operators settled in these counties between 1908 and 1918 when the price of land was very high, when some other costs were also high, and optimism was near its peak; but most of these people were homesteaders.

13. Practically all of these operators have had the benefit of dry land farm experience.

14. The financial situation is not satisfactory. Cash reserves are low and payment of many debts is overdue. Gross assets and total liabilities average $1633 and $1599 respectively per farm operator but with a wide range in individual situations.

15. These people are far from self-supporting. In 1936, 75.5 percent of the total money income was advanced by the Federal Government.

These farms and families are acute cases of farm maladjustment.

Reorganization based on the physical and economic characteristics of the land is needed. Improvement should come through the elimination or change of the undesirable characteristics common to and peculiar to these farms insofar as change is practical and possible. Farms should be larger and in many cases the type of farming should be changed. With increased size of farms may come increased diversity of these farms. Improvement should be aimed at increasing the producing power of the farm unit and at the production of much of the food for family consumption.

Problems of reorganization involve the increase in size of some farm units and the elimination of other units. Reorganization also involves the readjustment of people to new farm organizations and in some cases to new places of residence. Thus there are both social and economic problems confronting these people and the implications of these problems may include many people outside these groups; the problem is not for these people alone. The improvement of this farm situation hinges, to a great degree, upon the possibilities of financial realignment. The people are in need of some help because in many cases it is impossible for them to make the improvements which are so necessary in correcting maladjustments now existing between the land and the people. It is conjectural as to what extent credit and outside help are needed. Some progress is now being made in this agricultural adjustment, but the necessity for further progress is paramount. Local education that will expose the various implications of these problems is needed. Greater cooperation between men is needed to make greater cooperation between man and nature more possible and probable.

APPENDIX

TABLE I. ESTIMATED VALUES FOR MONTANA FARM FAMILY LIVING

Levels	Minimum comfort	Minimum for Health & Effic.	Bare subsistence
Food	$700 (300 cash (400 farm	$520 (120 cash (400 farm	$360 (100 cash (260 farm
Clothing	225 cash	190 cash	(75 cash 150 (75 out-side help
Oper. Exp. (Fuel, Light, Water, Telephone)	150 (120 cash (30 farm	100 (70 cash (30 farm	100 (70 cash (30 farm
House Furn.	125 cash	50 cash	10 cash
Personal and Health	115 cash	75 cash	(15 cash 30 (15 out-side help
Advancement*	175 cash	100 cash	50 cash
Total cash (1)	1060	605	270
Total value (1)	1490	1035	650
Auto	60	25	
Life Insurance	80	80	80
Total cash (2)	1200	710	350
Total value (2)	1630	1140	750

* Savings, investments, insurance, auto, education, church, gifts, recreation, and entertainment.

Prepared by Dr. Richardson, Dr. Branegan, and Blanche Lee, Department of Home Economics, Montana State College, 1930.

TABLE II. DISTRIBUTION OF THE UNSUCCESSFUL FARMS ACCORDING TO INCOME CLASS, TYPE OF FARM AND COUNTY*

County and income class	Numbers of Farms by Type					
	All farms	Wheat	Wheat-livestock	Combination	Livestock-wheat	Livestock
All counties						
All incomes	503	194	80	111	27	91
$0-249	58	40	3	5	1	12
250-499	110	51	5	15	2	37
500-749	156	61	27	40	7	22
750-999	179	43	44	54	17	20
Sheridan						
All incomes	295	112	36	89	22	36
$0-249	42	29	3	2	1	7
250-499	64	32	1	14	1	16
500-749	88	29	13	35	5	6
750-999	101	22	19	38	15	7
Chouteau						
All incomes	115	51	29	7	1	27
$0-249	7	6	-	-	-	1
250-499	24	13	3	-	-	8
500-749	38	19	8	1	1	9
750-999	46	13	18	6	-	9
Fallon						
All incomes	36	11	6	7	-	12
$0-249	2	1	-	-	-	1
250-499	9	4	-	-	-	5
500-749	13	5	4	1	-	3
750-999	12	1	2	6	-	3
Golden Valley						
All incomes	24	6	4	5	4	5
$0-249	4	3	-	-	-	1
250-499	7	1	-	1	1	4
500-749	8	2	2	3	1	-
750-999	5	-	2	1	2	-
Judith Basin						
All incomes	18	9	1	1	-	7
$0-249	2	1	-	-	-	1
250-499	5	1	1	-	-	3
500-749	6	4	-	-	-	2
750-999	5	3	-	1	-	1
Pondera						
All incomes	15	5	4	2	-	4
$0-249	1	-	-	-	-	1
250-499	1	-	-	-	-	1
500-749	3	1	-	-	-	2
750-999	10	4	4	2	-	-

* Income based on average wheat production 1928-1935 incl. and livestock as of 1933.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

TABLE III. TOTAL ACREAGES OF ALL FARMS IN THE SIX COUNTIES AND OF ALL THE UNSUCCESSFUL FARMS, ACCORDING TO COUNTY AND USE OF LAND.*

County and farm group	Use of land in acres						
		Tilled land				Untilled land	
	Total	Wheat	Fallow	Feed Crops***	Minor cash crops****	Idle farm land	Pasture, waste farmstead, road
Six counties							
All farms**	2,229,430	804,464	293,097	154,757	36,161	100,078	840,873
Unsuccessful farms	179,688	48,926	13,153	11,482	1,358	18,899	85,890
Sheridan							
All farms**	745,294	315,663	55,367	75,729	27,098	30,074	241,363
Unsuccessful farms	100,707	33,236	6,451	8,975	1,286	12,028	38,751
Chouteau							
All farms**	909,599	305,854	175,251	27,382	3,893	36,695	360,524
Unsuccessful farms	47,657	9,895	5,571	853	52	3,648	27,638
Fallon							
All farms**	143,852	42,713	1,270	15,540	3,329	5,587	75,413
Unsuccessful farms	14,099	2,324	8	705	-	1,532	9,530
Golden Valley							
All farms**	135,026	38,256	7,314	9,890	234	20,356	58,976
Unsuccessful farms	9,798	1,958	227	610	-	1,077	5,926
Judith Basin							
All farms**	155,327	53,100	17,534	13,403	823	4,988	63,479
Unsuccessful farms	4,000	664	422	113	-	444	2,357
Pondera							
All farms**	142,332	48,878	36,361	12,813	784	2,378	41,118
Unsuccessful farms	3,427	849	474	226	20	170	1,688

* Based on average wheat acreage 1928-1935 incl. and other acreages 1933-1935 incl.
** All farms include all farms for which this information was available.
*** Feed crops include oats, barley, corn, tame hay.
**** Minor cash crops include flax, rye, mustard, sugar beets.
Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and U. S. Bureau of Agricultural Economics.

TABLE IV. ALL LAND AND LAND IN THE UNSUCCESSFUL FARMS SHOWING APPROXIMATE PERCENTAGES OF DIFFERENT GRADES OF FARM AND GRAZING LAND, BY COUNTIES

County and land group	Type and grade of land in per cent											
		Farm land					Grazing land					
	All Gr.	All Gr.	1	2	3	4	All Gr.	1	2	3	4	Mt.& S.B.**
Six counties												
All land*	100	48.5	1.6	28.6	7.8	10.5	51.5	3.2	23.7	7.7	5.1	11.8
Uns. farm land	100	65.4	.6	35.0	15.1	14.7	34.6	1.0	23.3	6.0	3.4	1.0
Sheridan												
All land	100	49.8	-	43.6	2.3	3.9	50.2	-	37.6	1.2	.9	10.5
Uns. farm land	100	63.1	-	53.9	4.1	5.1	36.9	-	34.9	.3	-	1.7
Chouteau												
All land	100	50.7	4.7	9.0	19.7	17.3	49.3	9.6	4.2	16.7	9.4	9.4
Uns. farm land	100	69.5	.8	8.7	31.3	28.7	30.5	1.8	10.4	10.4	7.9	-
Fallon												
All land	100	43.0	-	3.0	13.1	26.9	57.0	-	1.8	20.6	26.2	8.4
Uns. farm land	100	80.6	-	-	41.7	38.9	19.4	-	-	13.9	5.5	-
Golden Valley												
All land	100	35.8	-	-	1.9	33.9	64.2	-	9.3	28.9	10.1	15.9
Uns. farm land	100	37.2	-	-	12.4	24.8	62.8	-	-	41.1	21.7	-
Judith Basin												
All land	100	39.8	3.0	7.0	18.5	11.3	60.2	21.5	.9	2.1	2.1	33.6
Uns. farm land	100	66.6	-	11.1	38.9	16.6	33.4	5.6	11.1	11.1	5.6	-
Pondera												
All land	100	48.8	12.4	15.8	7.6	13.0	51.2	9.2	2.8	7.8	-	31.4
Uns. farm land	100	86.6	13.3	33.3	20.0	20.0	13.4	-	13.4	-	-	-

* Weighted to correspond to number of unsuccessful farms per county.
** Mt. and S.B. equals mountain and stream bottom land.

Sources: Maps of the Montana Soil Survey; and Agronomy Department, Montana Experiment Station, "Approximate Acreages of Different Grades of Farm and Grazing Land by Counties."

TABLE V. DISTRIBUTION OF THE UNSUCCESSFUL FARMS ACCORDING TO MAJOR GRADE OF LAND IN THE FARM BY TYPE OF FARM.

Type of farm	Numbers of farms by grade of land											
		Farm land					Grazing land					
	All grades	All grades	1	2	3	4	All grades	1	2	3	4	Misc.*
All types	503	329	3	176	76	74	174	5	117	30	17	5
Wheat	194	151	1	80	34	36	43	-	30	6	5	2
Wheat-livestock	80	50	-	22	15	13	30	-	19	7	4	-
Combination	111	63	1	46	10	6	48	-	35	8	3	2
Livestock-wheat	27	14	-	8	2	4	13	-	11	2	-	-
Livestock	91	51	1	20	15	15	40	5	22	7	5	1

*Misc. equals mountain and stream bottom land.
Source: Maps of the Montana Soil Survey.

TABLE VI. NUMBERS AND KINDS OF LIVESTOCK AND PRODUCTIVE ANIMAL UNITS PER FARM ON THE UNSUCCESSFUL FARMS AND ALL FARMS IN THE SIX COUNTIES, BY COUNTIES, 1933.

County and kind of farm	Productive animal units per farm	Kind of livestock in numbers per farm				
		Sheep	Beef cattle	Dairy cattle	Horses	Hogs
Six counties						
All farms*	50.3	60.0	31.7	1.9	6.3	2.7
Unsuccessful farms	11.1	.8	8.4	.8	3.9	.7
Sheridan						
All farms*	26.8	15.4	18.3	1.7	4.8	1.2
Unsuccessful farms	11.1	-	8.3	1.0	3.4	.3
Chouteau						
All farms*	53.4	52.8	39.3	.8	6.3	3.4
Unsuccessful farms	9.9	1.1	9.0	.2	4.3	.4
Fallon						
All farms*	59.5	45.6	36.5	4.0	9.5	5.6
Unsuccessful farms	14.6	1.6	8.6	1.7	5.4	1.0
Golden Valley						
All farms*	67.5	128.0	41.4	.1	9.4	.7
Unsuccessful farms	12.7	8.2	10.7	-	7.3	-
Judith Basin						
All farms*	65.4	80.8	43.1	2.0	6.0	1.5
Unsuccessful farms	10.2	11.2	4.4	1.2	4.1	-
Pondera						
All farms*	66.1	113.5	25.4	3.6	5.7	4.5
Unsuccessful farms	10.7	1.3	6.7	1.3	2.6	-

* All farms include all farms for which this information was available.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

TABLE VII. NUMBER OF THE UNSUCCESSFUL FARMS, ANNUAL TOTAL AND PER FARM GROSS INCOME FROM WHEAT AND LIVESTOCK, BY COUNTIES.*

County	No. of farms	Total wheat income	Total livestock income	Income per farm	
				Wheat	Livestock
Six counties	503	$191,496	$111,825	$381	$222
Sheridan	295	117,269	65,479	364	221
Chouteau	115	50,812	22,843	442	199
Fallon	36	12,053	10,499	335	292
Golden Valley	24	6,509	6,201	271	255
Judith Basin	18	6,720	3,687	373	204
Pondera	15	8,133	3,216	542	214

* Income based on average wheat production 1928-1935 incl. and on livestock as of 1933.

Source: Farm and ranch schedules collected by Montana State College Agricultural Experiment Station and United States Bureau of Agricultural Economics.

TABLE VIII. SOURCE AND AMOUNT OF ALL INCOME OF UNSUCCESSFUL FARM FAMILIES, BY AVERAGE INCOME PER FAMILY, FOR 12-MONTH PERIOD CENTERED IN 1936

County	Average income per family									
		Private income				Government income				
	Total	Total	Farm	Private labor	Private credit	Total	Work relief	Direct relief	AAA Soil Cons. Pymt.	Gov't credit
Six counties	$569	$152	$108	$33	$11	$417	$201	$13	$76	$127
Sheridan	570	114	83	25	6	456	239	15	94	109
Chouteau	560	191	136	35	20	369	145	13	76	137
Fallon	423	122	64	19	38	302	211	8	6	77
Golden Valley	602	191	157	24	10	411	177	5	15	214
Judith Basin	628	301	150	151	-	327	120	5	52	150
Pondera	855	434	341	93	-	421	23	-	29	369

Source: Farm Security Administration records (R.R. 12).

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