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Basic Facts About

MONTANA'S AGRICULTURE



By the
Montana
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Service

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Basic Facts About Montana's Agriculture

Presented by

The Montana State College
Extension Service

Montana Extension Service in Agriculture and Home Economics;
J. C. Taylor, Director.

Montana State College and the United States Department
of Agriculture, Cooperating; Acts of Congress
May 8 and June 30, 1914

Foreword

"The Montana farmer is interested in making reasonable plans for future crop and live stock production and he seeks the best available information on this subject.

"In the present state of disturbed world financial conditions any prediction about future prices or crop conditions would seem entirely hopeless because just now the world's purchasing ability is badly disarranged. The problem is difficult, also, because in this day of wide transportation facilities the farmer is compelled to meet competition from all parts of the world and his selling market is often a world market.

"Yet, because our only basis for future plans lies in the experiences of the present and past, it is entirely proper that the Montana State College Extension Service should at this time present to our agricultural population all of the information that may be gathered for their use. This material is presented in the hope that it will aid in the formulation of an agricultural program for Montana, a program that is at this time being discussed by leaders of all sections of our state for the upbuilding of agriculture in all parts of the state."—Alfred Atkinson, president, Montana State College.

"Montana is an empire within itself, presenting a wide range of agricultural production possibilities. Many of the products of our farms and ranches must travel long distances by rail to find a market and they enter into competition with products from more favorably located areas. Farmers and business men are continually faced with the problem of choosing the most profitable lines of production in order to overcome this market handicap.

"This bulletin is intended to present the available facts bearing on the production of various agricultural commodities in Montana, with a view that they will provide information to assist farmers in organizing and directing their farm business along more profitable lines.

"It is hoped that this bulletin will be of value to all of those interested in the development of our Montana agriculture."—J. C. Taylor, director, Montana State College Extension Service.

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Introduction

Montana's agriculture has undergone great changes, during the past fifteen years, in the volume of annual production and in the proportions between the different agricultural commodities produced each year. It is doubtful if any state in the Union has shown as rapid changes or as great a development in the same period of time. The fact that population and agricultural production in Montana have not slackened by the agricultural depression following the war, would seem to indicate that Montana's agriculture is still in its infancy and that it has decided economic advantages in comparison with the oldest settled regions where land values are higher and production practices are more fixed. If this be true, this upward trend of development in Montana will not slacken until a balance has been reached between Montana and other competing regions producing the same commodities. There are ample grounds for the assumption that our agricultural development will continue.

For this reason we have thought it desirable that Montana citizens should be given a comprehensive idea of the economic situation of agriculture in our state so that they may proceed with the development of our agricultural resources under a knowledge of both past and present conditions. This bulletin, indeed, may become a text book of facts about Montana agriculture for many people and, as its charts and descriptions are put in use by these Montana people, it will have justified its publication.

In looking backward it is clearly apparent that many serious mistakes have been made, especially in policies relating to the utilization of Montana's new lands. Many of these mistakes were unavoidable and were but a part of the price that any newly settled region must pay in connection with its pioneering stage of development. Many mistakes, however, could have been avoided if there had been some means of gathering all available facts for the use of the new settler.

There is a widespread feeling at present in Montana that this is the time for an evaluation of the experiences of the past and a bringing together of all available and pertinent

facts, that they may be used as a basis for the development of some definite policies with reference to our future agriculture. In short there is a demand for an "agricultural program" for Montana, the program to be based on a study of the trend of development in the past and a study of the probable future needs of the consuming population. Montana is a surplus producing state and those who are interested in her development desire to see other state industries flourish that they may furnish the widest possible home market for farm products. However, Montana always will be a heavy exporter of agricultural commodities and so, in assembling basic facts for use in building an agricultural program, it is necessary to bring together all available data which will throw light on our advantages and disadvantages in the production of our principal commodities in comparison with other competing areas. This data should not only assist agriculture in Montana but also the national movement toward orderly agricultural production. President Coolidge has well said that "orderly marketing is impossible unless preceded by orderly production."

Material brought together in this publication is primarily for use in the development of community, county and state agricultural programs. The object is to picture Montana's agriculture, to show some of the national economic forces controlling it, its historical trends and its present situation. The bulletin is not complete in its conclusions and so specific recommendations are not made.

In planning this bulletin the graphic method of presentation was adopted and the material arranged as follows: First, the physical basis of agriculture in Montana, with general altitudes, temperatures, precipitation, length of growing season, native vegetation and utilization of lands from the standpoint of soil and climate; second, the evolution of Montana agriculture is traced from the beginning; third, the recent situation of agriculture is shown by the present day distribution of enterprises; fourth, each of the agricultural commodities of importance is considered individually.

GENERAL TOPOGRAPHY OF MONTANA

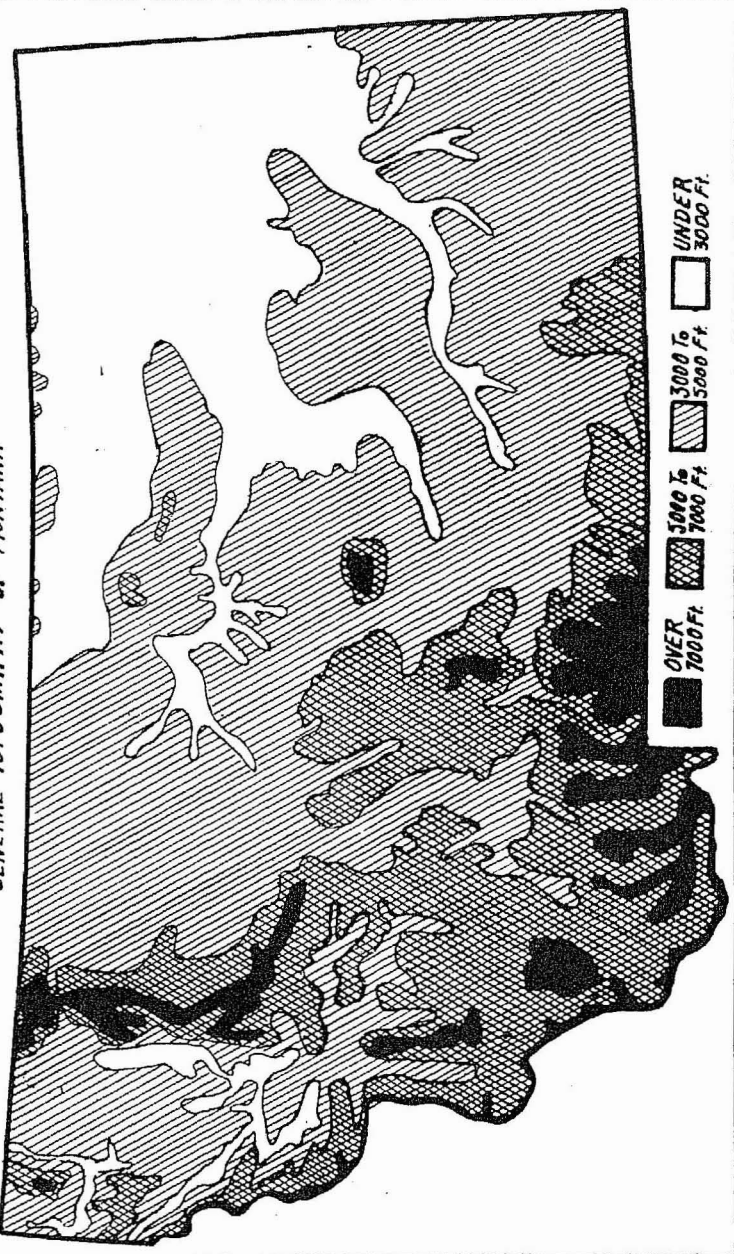


FIGURE 1—General elevation of Montana.

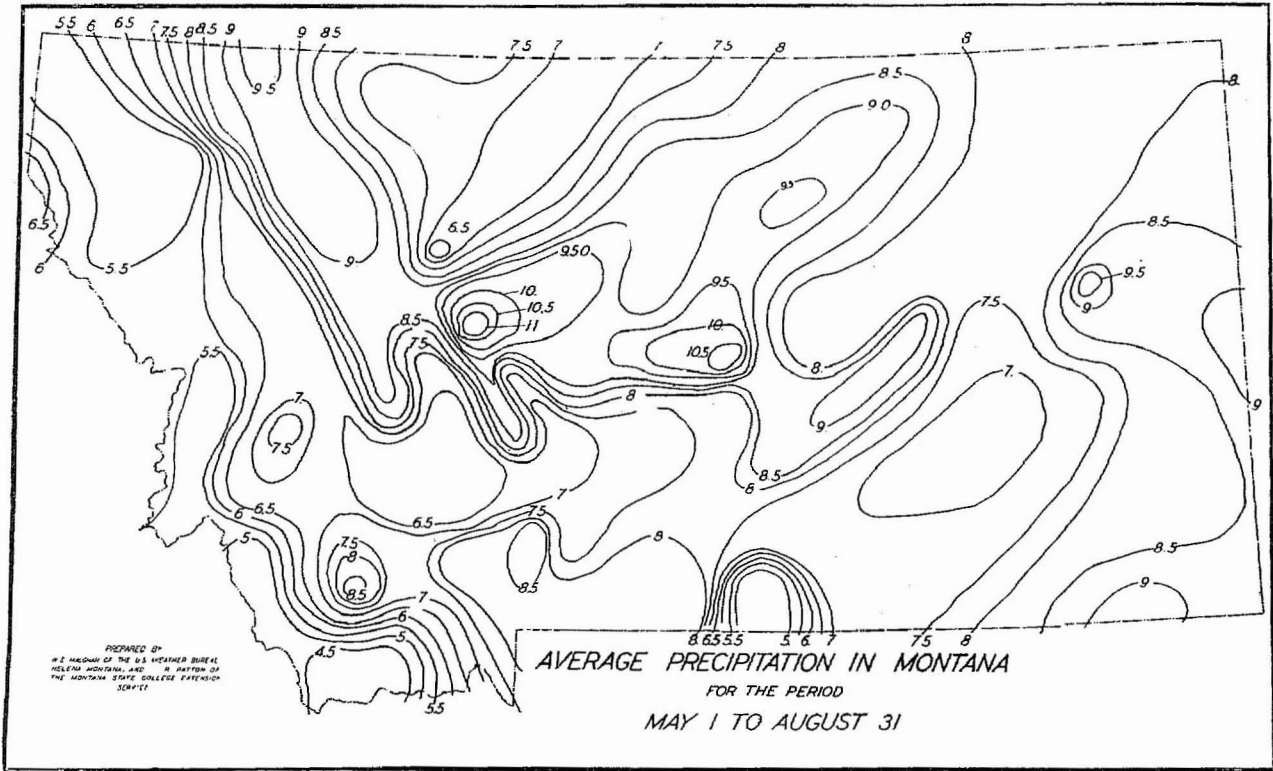


FIGURE 2—The figures on the lines represent total inches of rainfall received, within the area enclosed, from the first day of May to the last day of August, inclusive.

SECTION I

Physiographic Factors Which Affect Montana's Agriculture

Montana is situated in the Northern Great Plains and in the Rocky Mountain region of the United States. About one-third of the state lies within the mountain region.

Figure 1—This drawing at the first of the bulletin shows that elevations vary widely in Montana. The principal agricultural regions, however, are below 5,000 feet. There is a definite relationship between rainfall, length of growing season and altitude.

Figure 2—Precipitation is the principal limiting factor in the production of cereal, forage and range grasses. The rainfall varies widely between areas and between years. In general, the rainfall varies less from year to year in the mountain section than it does in the Great Plains section. Much of the Great Plains rainfall during the growing season is of the thunder storm type and often there are great variations of rainfall within the same county in a particular year. Figure 2 is a generalized map showing the distribution of rainfall during the growing season. The chart is based upon records of United States Weather Bureau cooperative precipitation stations which have been keeping records for ten years or more. However, there are in Montana a number of large areas without precipitation records of sufficient years to give an accurate normal, and therefore in these areas the generalized rainfall lines may be somewhat misplaced. It should be noted that the dry areas lie to the southeast of the higher elevations and divides and that the rainfall, to a degree, follows altitude. The map is general in nature and does not assume to picture accurately the variations within localities.

Figure 3—This chart shows our wide ranges of temperature. It will be noted that the low altitudes experience hot summers favorable to corn, sugar beets, alfalfa and other crops requiring a long growing season, and that the higher altitudes, on the other hand, are characterized by cooler summers more favorable to pastures, peas and cereals.

Figure 4—This map shows the frost free records for the various localities of the state.

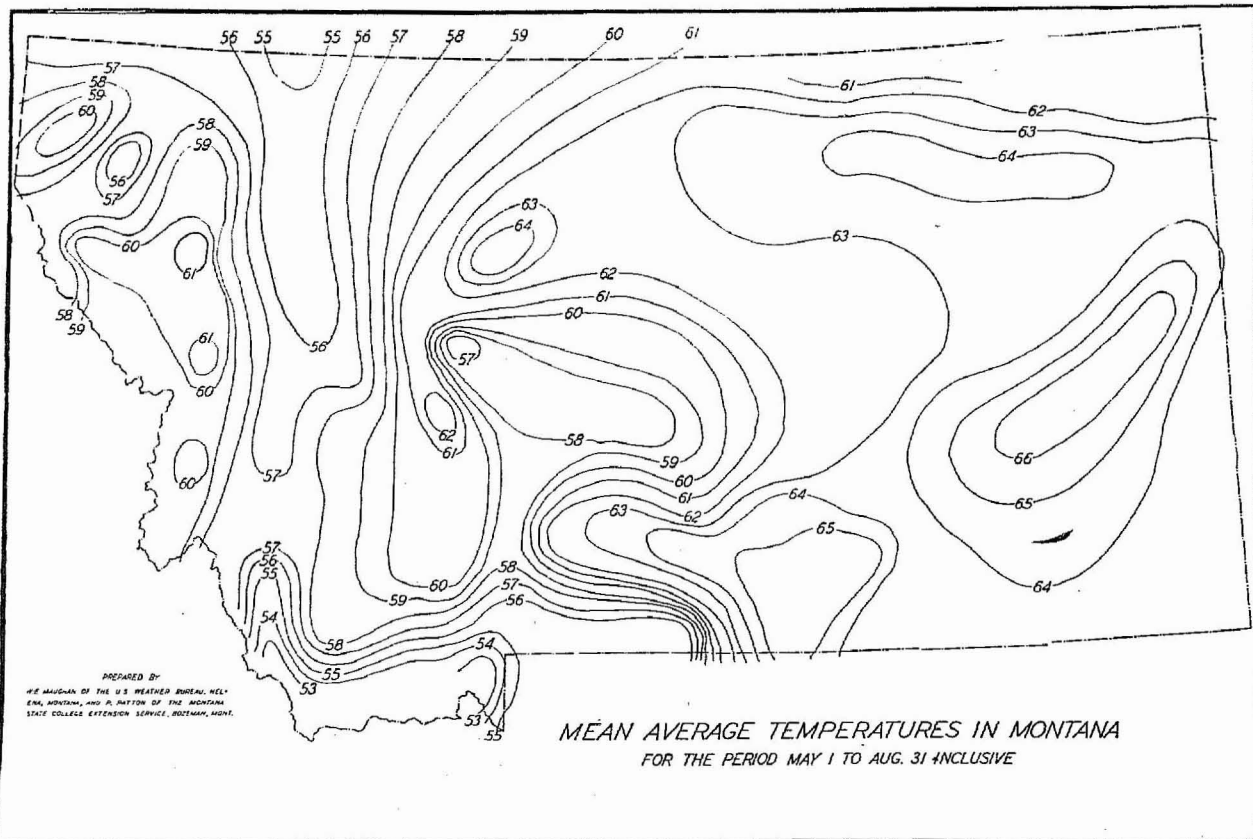


FIGURE 2—The figures on the lines represent the degrees of the average temperature of the area enclosed by the lines, for the crop season of May 1 to August 31.

Figure 5—This map shows in a general way the land utilization of Montana in relation to soil, rainfall and other climatic and natural factors. The map has been prepared by bringing together material from many sources. The principal sources have been the reports of the state soil survey made by the Montana Experiment Station over certain areas, the reports of the U. S. Geographical Survey Land Classification, reports of the Forest Service and other state and private agencies. The irrigated areas are confined to old geological stream depressions, valley lands and lake basins near the mountains, and valleys along the principal creeks and streams. Within all of these divisions may be found lands of all types and classes but in amounts too small to be shown on the map. It should be noted that the area shown as "farming-grazing" predominates in the Great Plains section. This includes both untillable land and tillable land which is subject to failure in unfavorable years. However, the better tillable lands within this area will produce, under good tillage methods, grain, forage and corn to be economically used with grazing land.

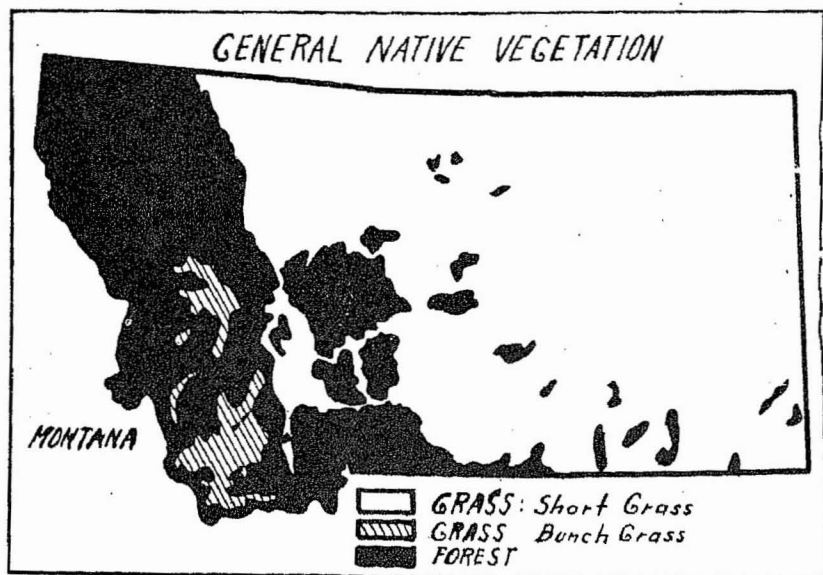


FIGURE 6

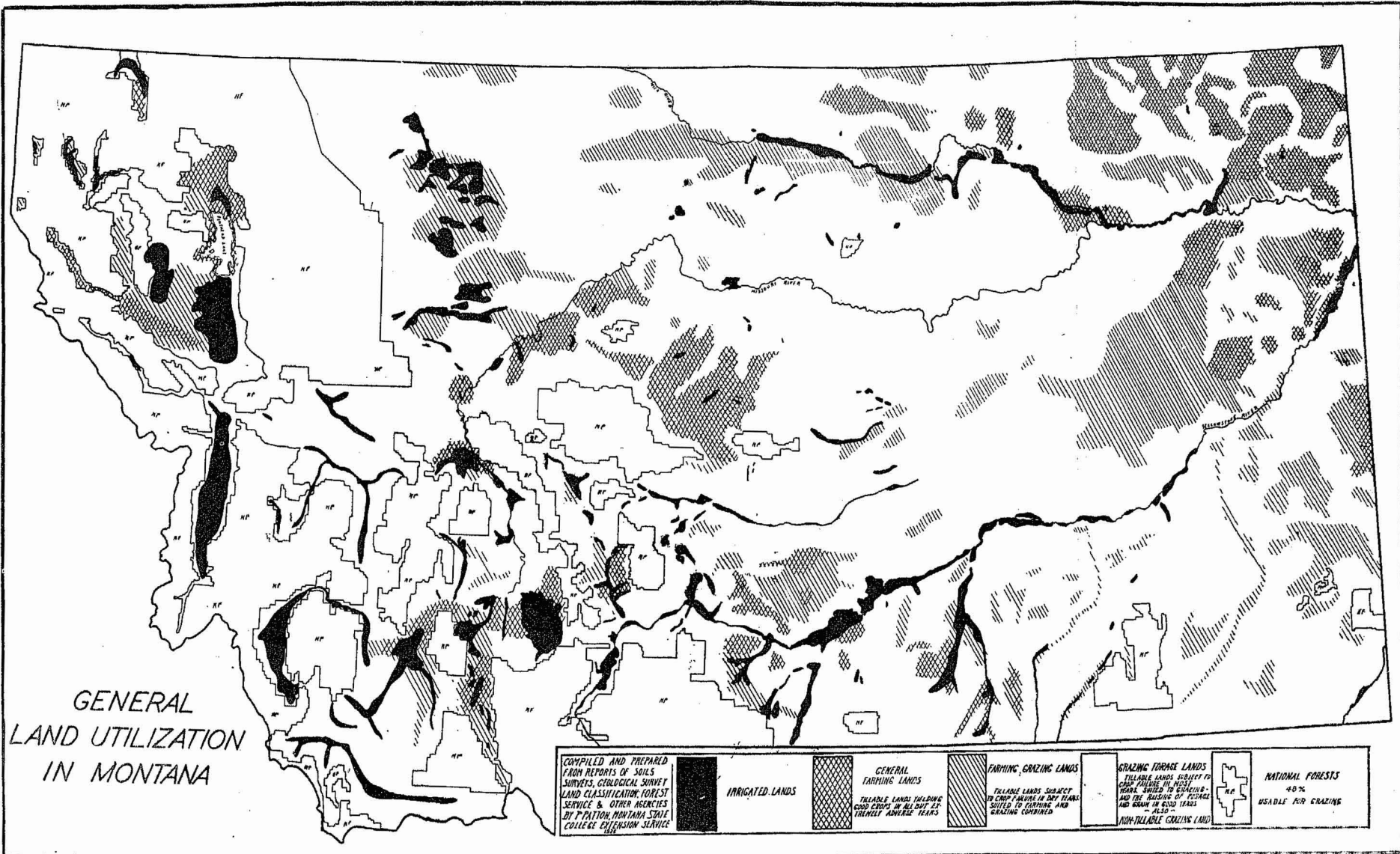


FIGURE 5

EVOLUTION OF LAND UTILIZATION IN MONTANA

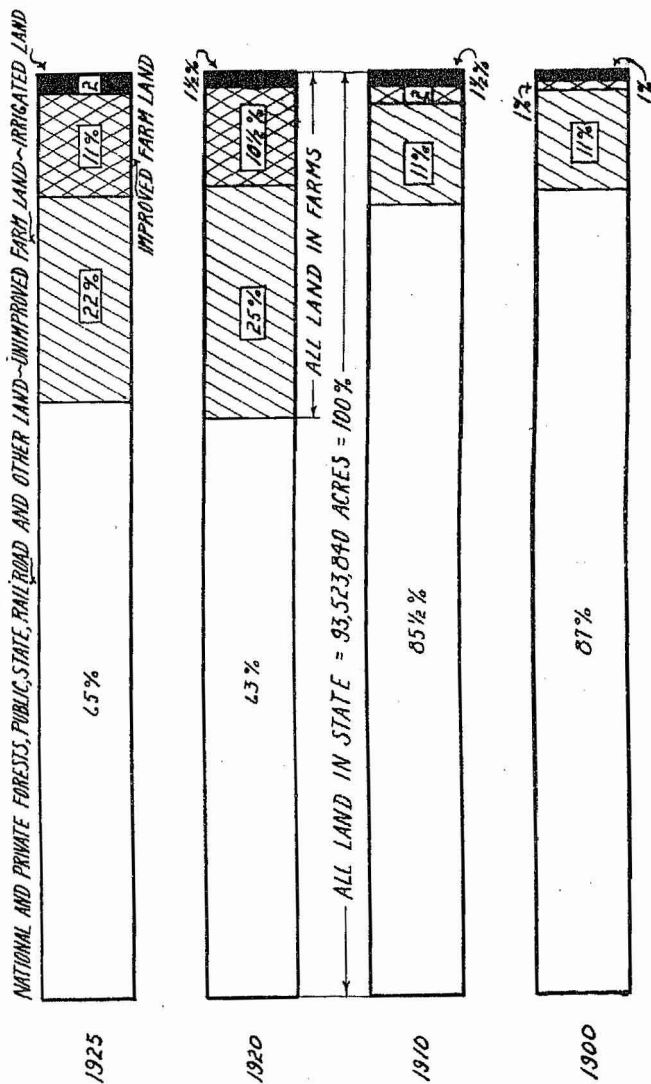


FIGURE 7

Figure 6—A map showing native vegetation in Montana. In the short grass areas are found blue gama grass, western wheat grass and needle grass; the bunch grass area includes wheat grass, sod grass and bunch grass; the forest areas are characterized by lodge pole pine, spruce, fir and western white pine.

SECTION II

Evolution of Montana's Agriculture

Montana is a comparatively new state and up to about 1908 its productive agricultural resources were given over primarily to range live stock. At about this time the rising prices for farm lands in the east, together with the broad European markets for surplus foodstuffs, brought about a condition of agricultural prosperity which caused a migration of homesteaders and land seekers to the virgin lands of Montana. This homesteading and dry land development began about 1906 and from that date marked increases are noted in our production of cereal and cultivated crops.

The agriculture of any region is more or less in a changing condition as individual farmers endeavor to adjust themselves to the available opportunities and to the market demands. Montana has by no means exhausted her opportunities and, while the next two decades probably will not show such spectacular changes as have taken place since 1900, the processes of adjustment and adaptation will continue with changes in proportion to the enterprises undertaken. It is assumed that Montana farmers yet have many changes to make in the development of an efficient farm organization plan which is adapted to the different types of land that are shown in the chart on land utilization. This being the case, the importance of a well defined agricultural program is clear to everyone.

Trend in Land Utilization

In studying Figure No. 7 it should be noted that the bars representing the different census years are comparable. During the period from 1900 to 1910 the unimproved land re-

EVOLUTION OF CROPS IN MONTANA ACREAGE

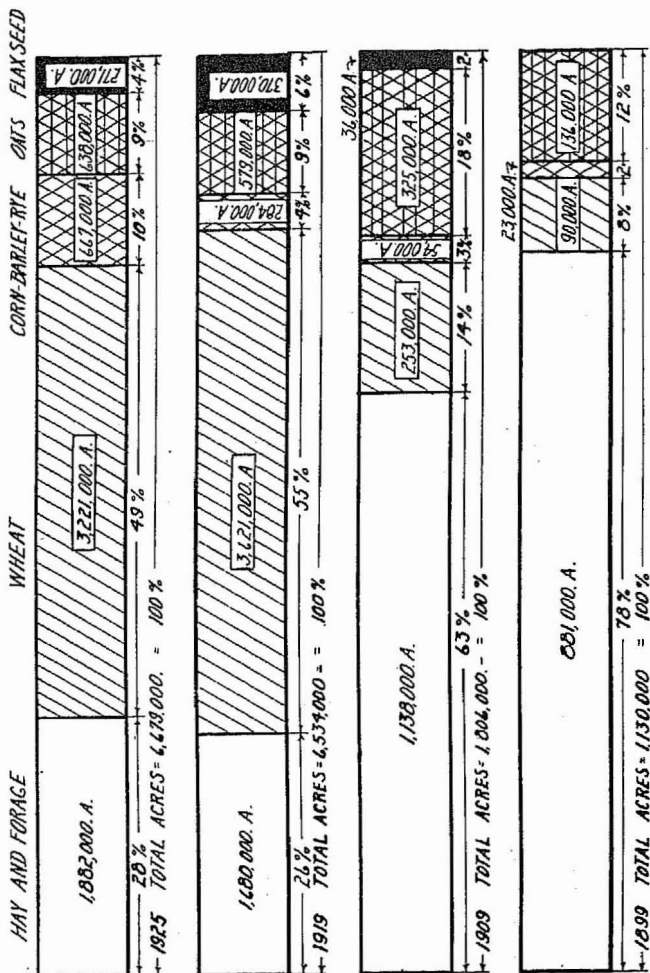


FIGURE 8

EVOLUTION OF LIVESTOCK IN MONTANA

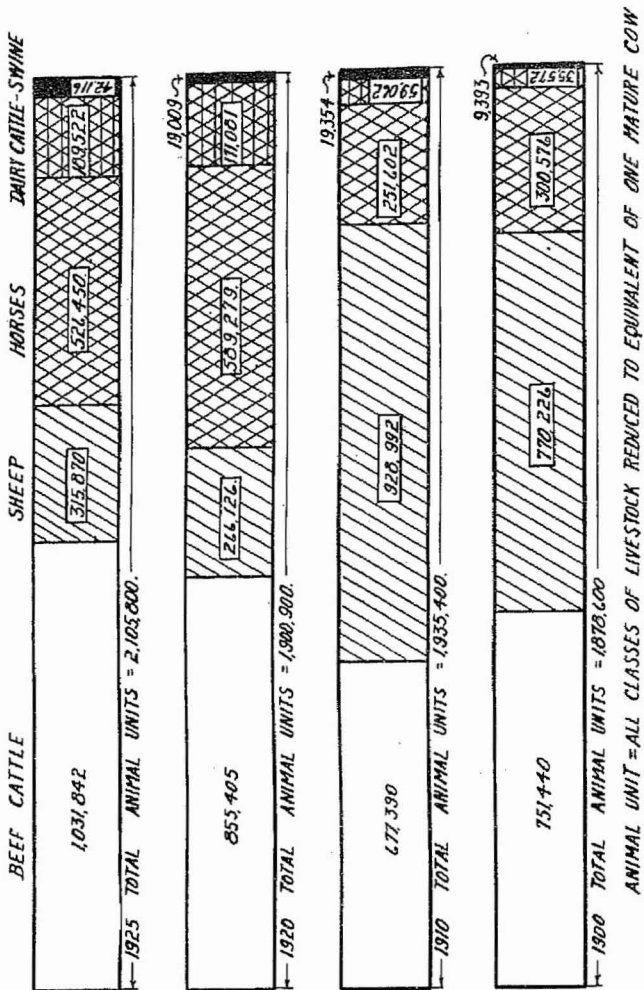


FIGURE 9

mained approximately stationary while the improved land (which includes lands in crops, fallow, tame hay and pasture) approximately doubled. The irrigated land increased about 50 per cent in this period. From 1910 to 1920, however, the improved land increased five times while the irrigated land area remained practically the same. Unimproved land (principally fenced native pasture) more than doubled and about 37 per cent of the state's area was inclosed within fences by 1920. The 1925 census showed that the unimproved area had shrunk by three per cent. This shrinkage took place in fenced native pastures and somewhat on abandoned homesteads. The improved land in farms, as well as irrigated land, increased about one-half per cent, however. During the period from 1919 to 1924 there was some shifting by farmers from the poorer homestead lands to the areas of more certain crop production.

Trend in Crop Acreage

Figure 8—Each bar in the graph represents a census year. Due to the tremendous increase in crop acreage (from 1,130,000 acres in 1900 to 6,797,000 in 1925) it has been impractical to make this drawing in such a way that the bars are comparable with each other. Each bar, therefore, represents a single census year and the reader should compare the "proportion" within the bar and, in comparing years, should use the figures given to represent the total crop acreages. A striking feature of the graph is the consistent increases in cultivated crops, which have taken place at the expense of hay and forage. In 1910 the business of dry farming with wheat as the cash crop was just getting under way and at that time oats was the principal crop on cultivated lands. It was raised primarily under irrigation for feed purposes. Shortly after 1910, however, wheat began to dominate the other crops and now is clearly in the lead.

Trend in Livestock

Figure 9—In order to make it possible to compare the different classes of livestock the census figures have been reduced to the "animal unit" basis. ("Animal unit" means an amount of livestock that will consume the same amount of feed as consumed by a mature cow.) It is understood, of course, that

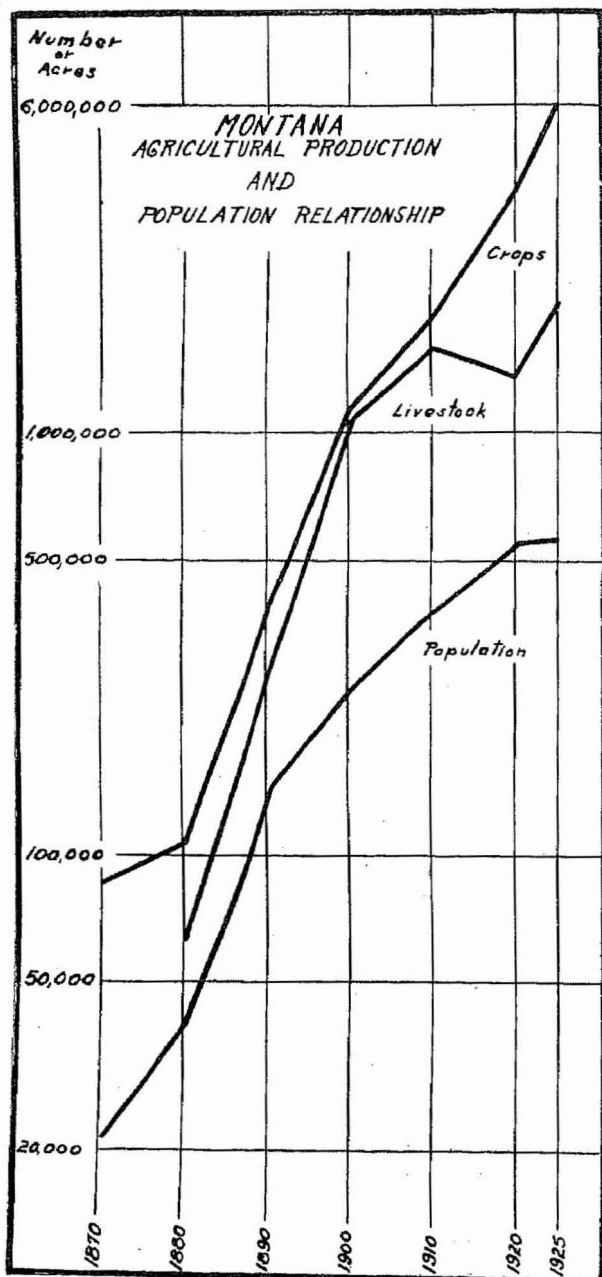


FIGURE 10

this is an approximation and that this graph is intended to present a general rather than a specific picture. The total number of animals within the state has remained approximately constant for the different census periods when all classes are reduced to this animal unit basis. The census of 1900 reported 1,800,000 animal units and the census of 1925 reported 2,100,000 animal units. The bars are, therefore, fairly comparable. Aside from the census year of 1910 there has been a slight increase in cattle for each period. Sheep reached their peak of production in 1910. It would appear that dry farming and homesteading were responsible for the marked decline in sheep from that time and that the new farm organizations included enough cattle to offset the depletion which unquestionably took place in the open range herds.

While sheep have increased somewhat in the census year of 1925, there were only about one-third as many reported in that year as in 1910. The increase in number of horses from 1910 to 1920 no doubt was caused by the increased use of horses as farm power with which to handle the greatly increased crop acreage that is shown on our chart of the evolution of Montana crops (see Fig. 8). At the present time, however, tractors and trucks are no doubt responsible for the decreasing trend in horses. Dairy cows and hogs show a small but constant increase in proportion to farm settlement.

Relation of Trends in Production to Population

Figure 10—This graph shows that mass production in agriculture has increased at a greater rate than has the state's population. A further analysis of the population graph will show that there has been an appreciable increase in population from 1920 to 1925. During the past ten years there has been a decided movement away from the farms on the part of inefficient farmers and speculative homesteaders, yet the land classified in the census shows our farm lands approximately the same. This means that agricultural production is being carried on by a smaller amount of man power, through efficiency in production, greater use of power and machine units in wheat production and the combination of smaller land units into larger and more economic dry farms. There has also been

a more intensive use of the better lands, where the returns for human labor are greater than on the poorer lands. It is probable that during this period there has also been more intensive use of irrigated lands through the increase of sugar beets, beans and other intensive irrigated crops.

MONTANA FARMS AND FARM PROPERTY: 1925, 1920, AND 1910

Item	1925	1920	1910
Number of farms, total.....	46,904	57,877	26,214
Operated by—			
Owners	36,281	50,271	23,365
Full owners	23,861	38,431	21,525
Part owners	12,420	11,840	1,840
Managers	367	899	505
Tenants	10,256	6,507	2,344
Cash tenants	2,137	1,757	790
Other tenants	8,119	4,750	1,554
Approximate land area of state.....acres	93,523,840	†93,523,840	93,568,640
Land in farms, total.....acres	32,735,723	35,070,656	13,545,603
In farms operated by—			
Owners	25,365,242	28,952,950	10,640,902
Full owners	10,165,432	16,422,825	*
Part owners	15,199,810	12,530,125	*
Managers	1,911,682	2,859,873	1,429,990
Tenants	5,458,799	3,257,833	1,474,711
Cash tenants	1,246,676	941,238	*
Other tenants	4,212,123	2,316,595	*
Value of all farm property.....dollars	574,897,007	985,961,308	347,828,770
Land and buildings.....dollars	455,394,887	776,767,529	251,625,930
Land, excluding buildings.....dollars	389,514,071	691,912,265	226,771,302
Buildings	65,830,816	84,855,264	24,854,628
Implements and machinery.....dollars	30,632,871	55,004,212	10,539,653
Livestock on farms.....dollars	88,869,249	154,189,567	85,663,137

†Decrease in land area of state due to reservoirs of new irrigation projects.

*Figures not available.

SECTION III MONTANA CROP ACREAGE DISTRIBUTION

5YR Average
1920-1924

Figure 11—This graph brings out the tremendous importance of wheat as the state's cash crop. About 52 per cent of all crop acreage is in wheat. Tame hay and alfalfa predominate among the feed crops.

Alfalfa comprises about 50 per cent of the tame hay acreage. Small grains cut green, clover, timothy and miscellaneous hays make up the remainder.

In studying this chart the readers will remember that Montana's agriculture is not static but progressing steadily upwards. Later compilations will show different proportions between commodities.

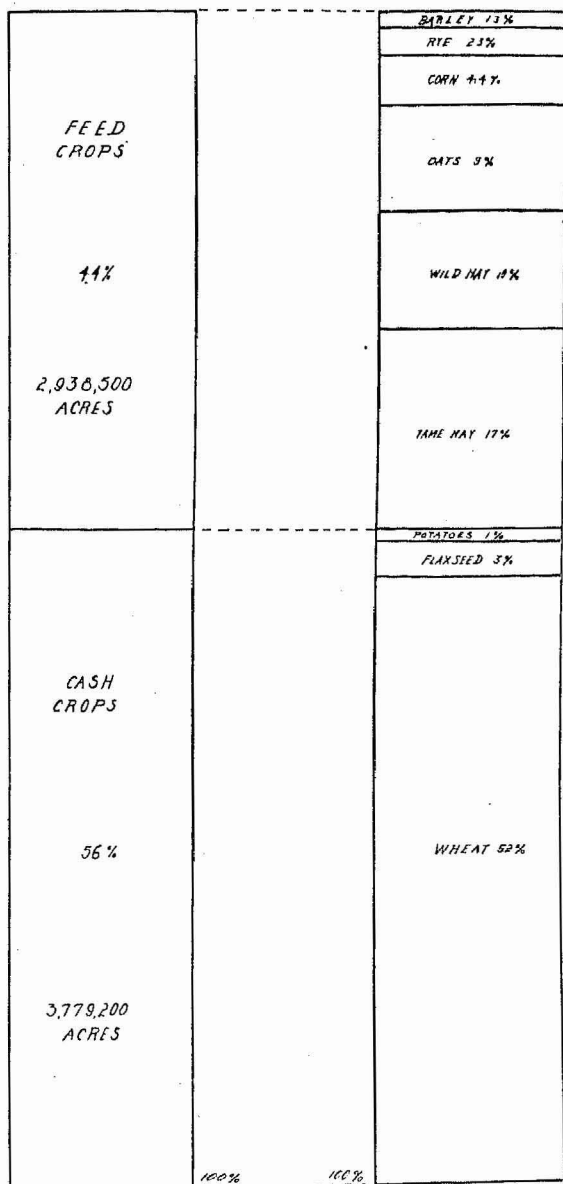
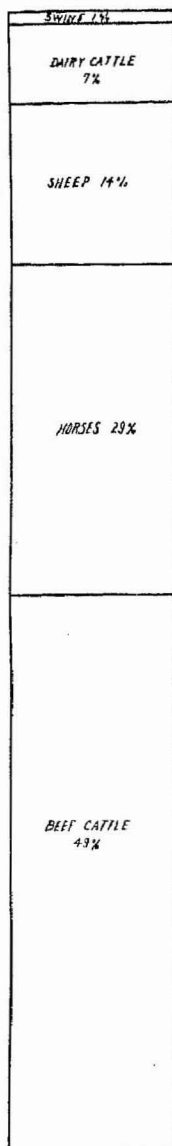


FIGURE 11

**MONTANA LIVESTOCK
DISTRIBUTION**
By ANIMAL UNITS
5YR Average
1920-1924



100%

Present Livestock Distribution

Figure 12—This graph summarizes the present proportion of the different classes of livestock on an animal unit basis. Beef cattle take first place and represent 49 per cent of the total animal units. Horses, sheep, dairy cattle and hogs follow in the order named.

Figure 13—This graph shows the proportion of agricultural income received from each of the various principal sources in Montana.

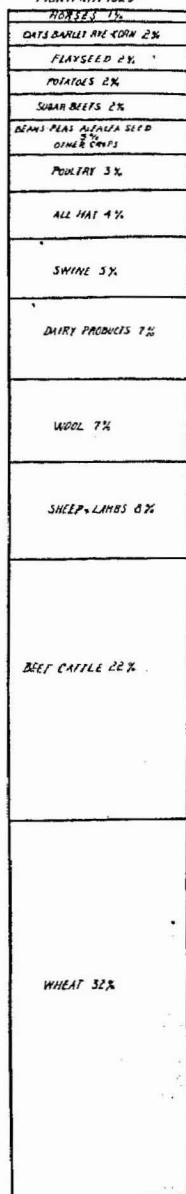
Individual Commodities

The following pages will discuss individual commodities in separate sections.

In the consideration of the individual agricultural commodities, and where the data were available, the following phases were developed: the long-time production trend in Montana, the present location of production areas in Montana, production changes, market to which the product is shipped, quality excellencies, tendencies in various competitive areas, consumptive demands, price relations and export situation.

FIGURE 12

**AGRICULTURAL INCOME
DISTRIBUTION**
MONTANA 1925



Total \$123,000,000-100%

FIGURE 13

SECTION IV

Wheat

Figure 14—This graph shows a large increase in wheat acreage between 1908 and 1920, due to the breaking and seeding of virgin lands. This movement reached its peak in 1919. According to figures from the Bureau of Agricultural Economics there has been some decline in the acreage from 1920 to 1924. In 1925, however, the trend of acreage started upward and continued through the year 1926.

The decline in acreage from 1920 to 1924 was due to the abandonment of farms in certain sections during the pressure that came after the war,—coupled with the effects of dry years. The acreage seeded since 1920 has been on a greatly increasing amount of summer fallow. This increase in summer fallow has meant that the crop has been planted on better prepared land and that it has returned higher yields in consequence.

Figure 15—This map shows, by use of "dots," the distribution of spring wheat by counties in Montana.

Figure 16—A "dot" map showing the distribution of winter wheat by counties in Montana.

Figure 17—This chart shows the comparative yields of spring wheat in Montana, North and South Dakota and Minnesota. Note in this graph that Montana wheat yields have

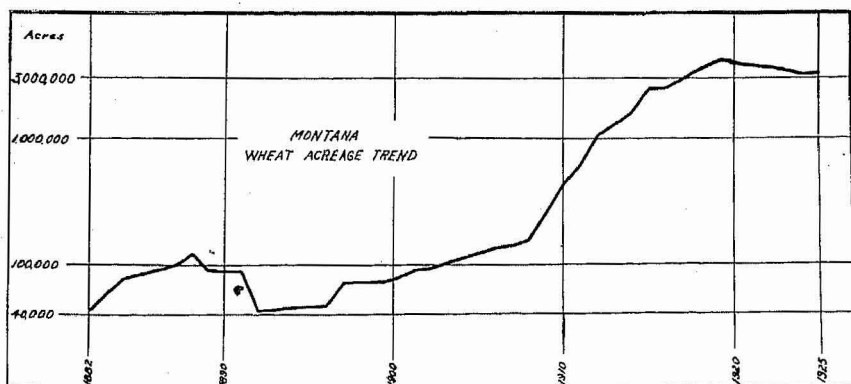


FIGURE 14

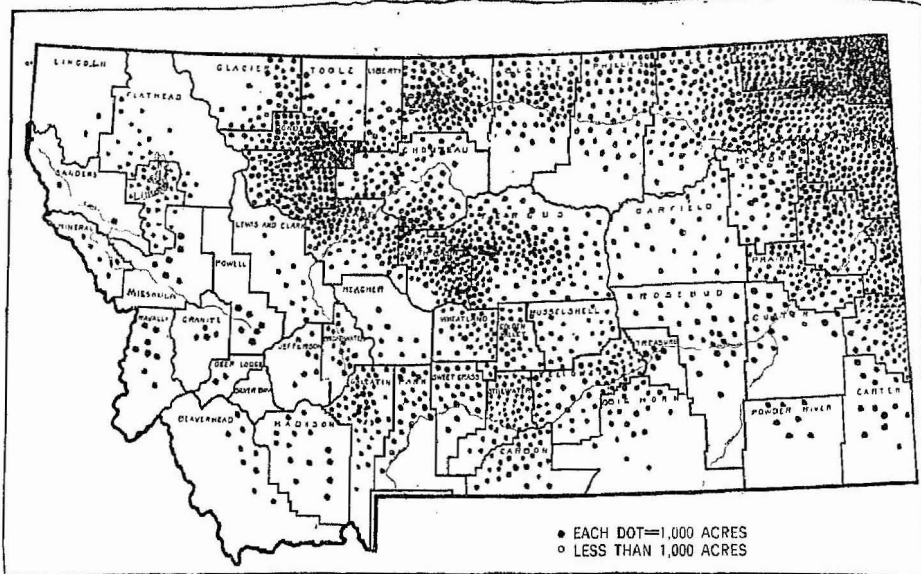


FIGURE 15

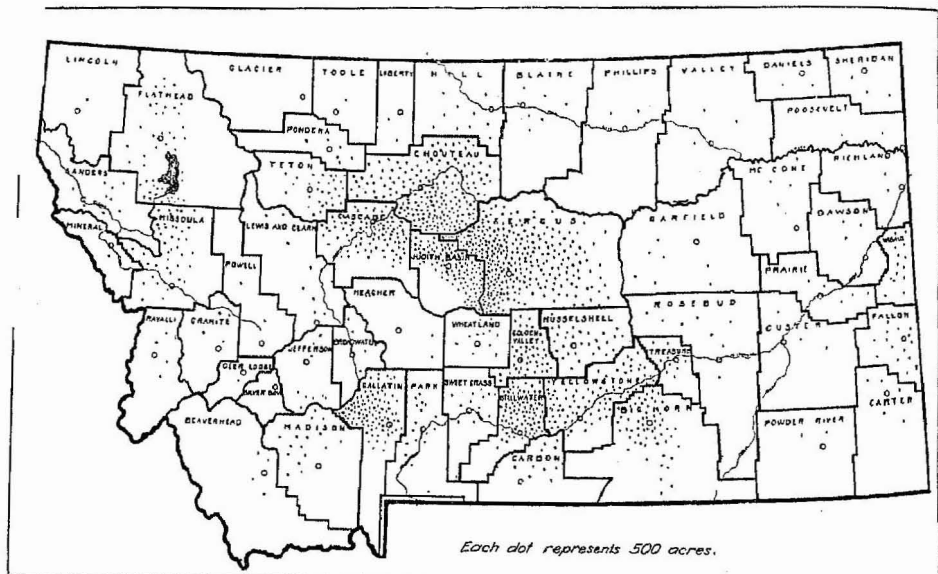


FIGURE 16

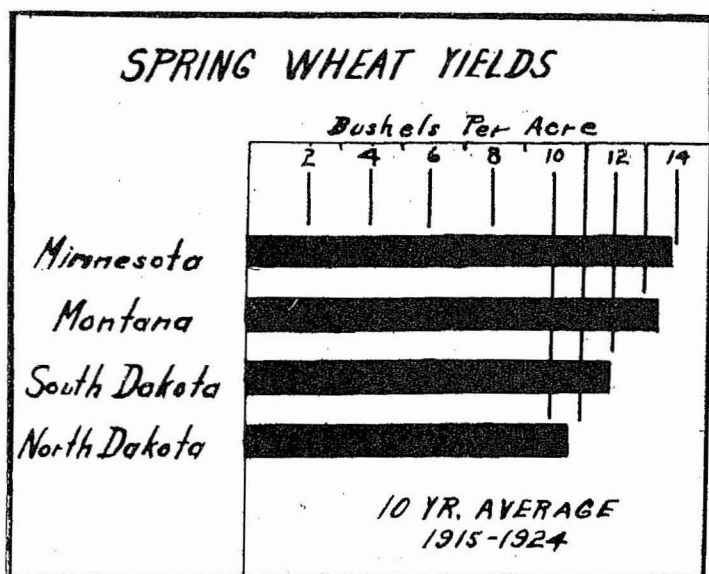


FIGURE 17

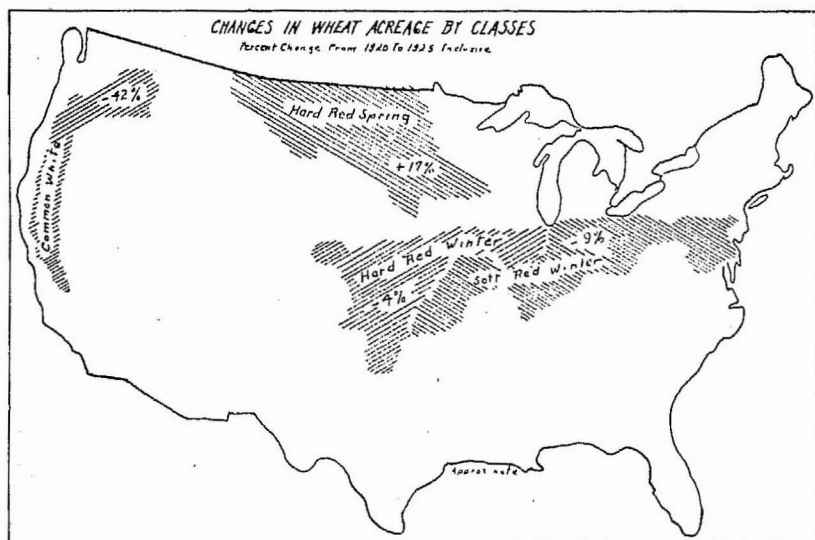


FIGURE 18

ranged consistently higher than those of North Dakota or South Dakota.

Changes in Wheat Acreage in the United States, by Classes

Figure 18—During the World War the wheat acreage in the United States was considerably expanded. Since the war the acreage has been tending downward in all except the spring wheat states. (On the chart increases are shown with the "plus" sign before the percentage change, while decreases are shown by the "minus" sign.) This does not mean necessarily that wheat land is being abandoned, but that farm operators in various sections of the country are changing their plan of farm organization and finding out that, under certain conditions, other crops may be substituted for wheat to the benefit of the whole farm income.

In planning for the future Montana farmers need to study the national and international wheat situation. Figure 18 is based on data supplied by the United States Department of Agriculture. It presents the situation in 1925 as compared with the situation shown in the 1920 census (just following the war), with the changes shown in percentage increases or decreases.

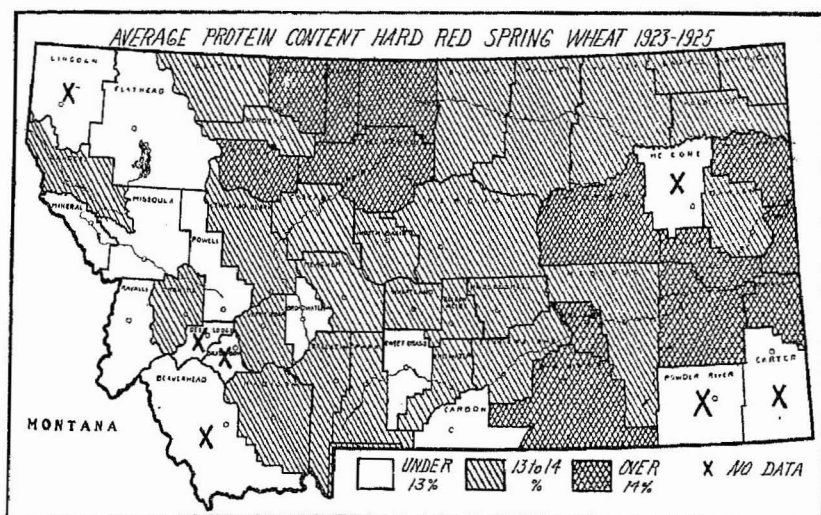


FIGURE 19

Montana Wheat Has High Quality

Figure 19—This map is drawn from data supplied by the Montana Grain Inspection Laboratory and is a composite for the years of 1923 to 1925, inclusive. Most of Montana's wheat has a very high protein content, the state average being well above 13 per cent. This high quality insures its sale at a premium over the ordinary grades of hard spring wheat.

Protein Content in the Northern Hard Spring Wheat States

Figure 20—This graph shows the variation in the protein content of wheat in the various hard spring wheat states.

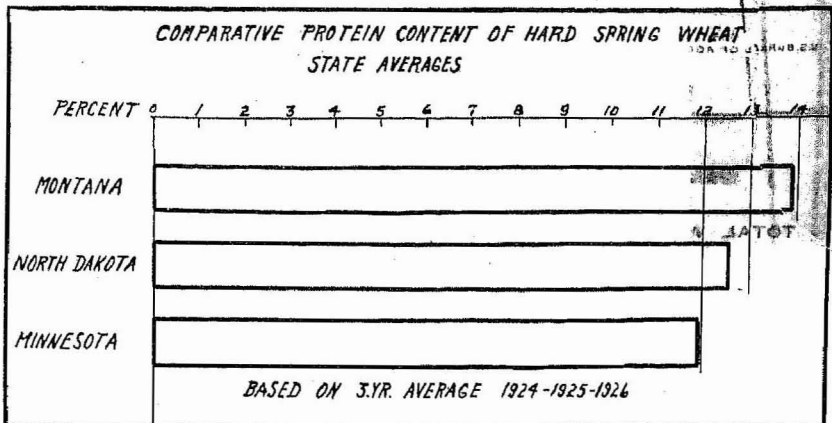


FIGURE 20

Dockage

Figure 21—Montana has decidedly less dockage in its wheat than have the other spring wheat states. This graph was based upon data supplied by the Bureau of Agricultural Economics for the year 1924, but supplementary data shows a serious increase in wild oats in the northeastern section of the state.

Percentage of Wheat Crop That Grades No. 1

Figure 22—This gives the comparison between three leading wheat states, showing the percentage of the crop that graded No. 1 for the different years. It will be noted that Montana has a higher percentage of No. 1 wheat than either North Dakota (the leading spring wheat producer) or Kansas (the premier winter wheat state).

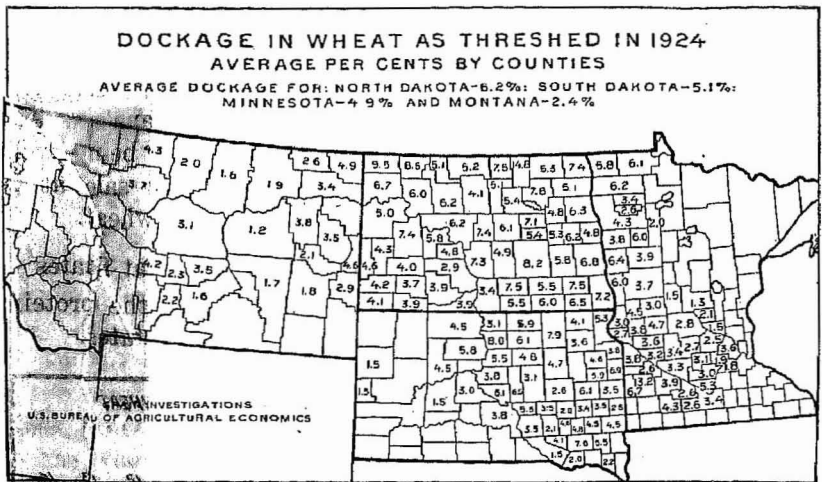


FIGURE 21

**TOTAL WHEAT CROPS OF MINNESOTA, NORTH DAKOTA, SOUTH
 DAKOTA AND MONTANA**

(As Estimated by the U. S. Agricultural Dept.)

Year	Minn. Acreage	No. Dak. Acreage	So. Dak. Acreage	Montana Acreage	Total Acreage
1925	2,200,000	9,605,000	2,747,000	3,221,000	17,773,000
1924	1,716,000	8,500,000	2,408,000	3,163,000	15,787,000
1923	1,730,000	9,650,000	2,770,000	2,650,000	16,800,000
1922	1,900,000	8,980,000	2,893,000	2,850,000	16,623,000
1921	2,371,000	9,500,000	2,845,000	2,715,000	17,431,000
1920	2,880,000	8,916,000	2,930,000	2,787,000	17,513,000
1919	3,793,000	9,098,000	3,896,000	3,621,000	20,408,000
1918	3,799,000	7,770,000	3,765,000	2,062,000	17,896,000
1917	3,310,000	7,000,000	3,716,000	1,727,000	15,753,000
1916	3,715,000	7,150,000	3,650,000	1,485,000	16,000,000
1915	4,310,000	8,350,000	3,725,000	1,275,000	17,660,000
1914	4,000,000	7,285,000	3,400,000	1,115,000	15,800,000
1913	4,150,000	7,510,000	3,675,000	820,000	16,155,000
1912	4,325,000	7,990,000	3,675,000	580,000	16,570,000
1911	4,350,000	9,150,000	3,700,000	380,000	17,580,000
1910	5,880,000	7,221,000	3,650,000	245,000	16,996,000

ESTIMATED WEIGHT PER MEASURED BUSHEL MONTANA GRAIN (Pounds)

	1919	1920	1921	1922	1923	1924	1925	Average
Winter Wheat	59.0	59.5	59.9	60.3	59.4	60.3	58.0	59.7
Spring Wheat	58.0	58.2	59.0	59.8	58.8	59.5	58.0	58.8

Wheat Surplus and Deficit Areas

Figure 23—Montana is far removed from the centers of wheat consumption and the centers where there are wheat deficits. This means that Montana must produce wheat of high quality to offset the additional freight haul to these areas.

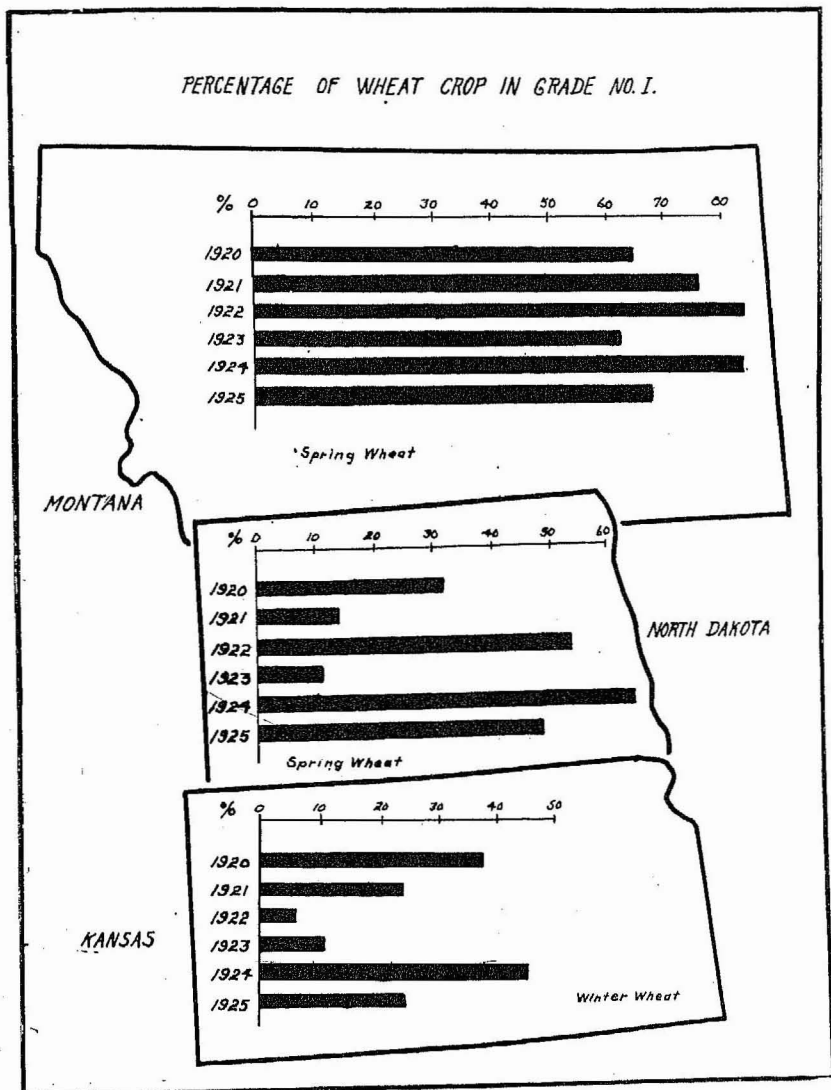


FIGURE 22

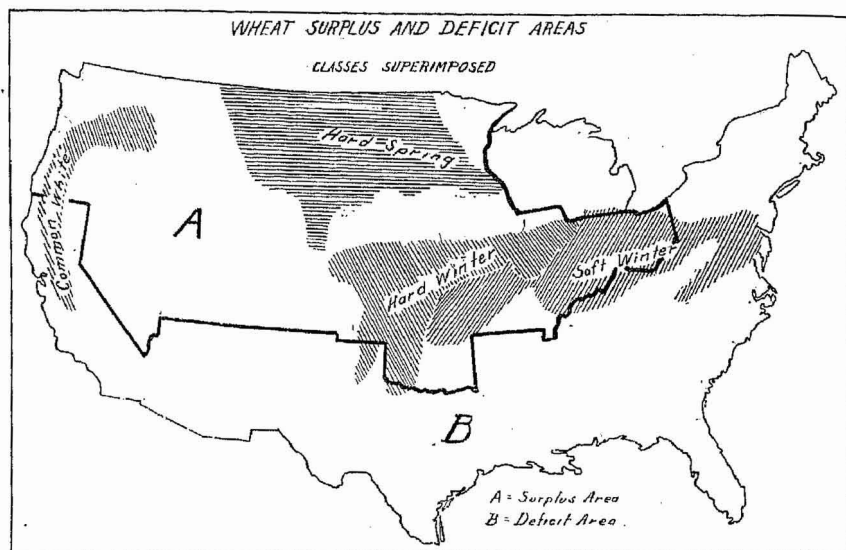


FIGURE 23

Distribution of Montana's Wheat Crop

Figure 24—This shows that the bulk of our wheat goes east. Only nine per cent of the crop is shipped to western markets.

Comparative Wheat Production Trend

Figure 25—The prairie provinces of western Canada are our principal competitors in the production of hard spring wheat. Canadian production has been increasing steadily while, by comparison, the United States production has been fluctuating within narrow limits.

DISPOSITION OF THE MONTANA WHEAT CROP

TOTAL MONTANA WHEAT CROP 50,211,000 BUSHELLS = 100% 2 YR AVERAGE 1923-1924

62%	18%	11%	9%
SHIPPED EAST	USED IN MONTANA FLOUR MILLS	USED FOR FEED SEED	SHIPPED WEST

FIGURE 24

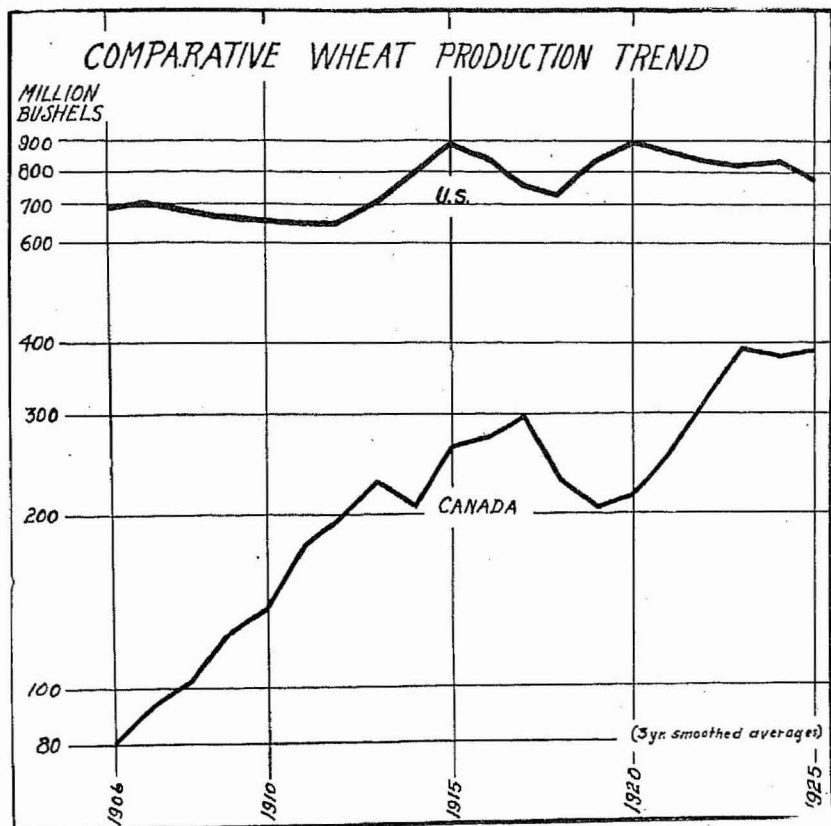


FIGURE 25

A report from the Canadian Government, Bureau of Statistics, shows that the total possible area of farm land in Canada amounts to 358 million acres. Of that acreage, now only 141 million are occupied.

The remaining 217 million acres are said to be suitable for agriculture and still awaiting the settlers. A large portion of this unoccupied agricultural land is said to be suitable for the economic raising of wheat.

The United States Tariff Commission found that Canadian wheat growers produced wheat from four to eight cents a bushel less than in this country, from 1921 to 1923, inclusive.

Wheat Exports

Figure 26—This graph is based on the five-years average. It should be noticed that Canadian exports have increased steadily but that the United States exports declined to 1910, then rose because of price stimulation and because of new virgin wheat lands being brought into use.

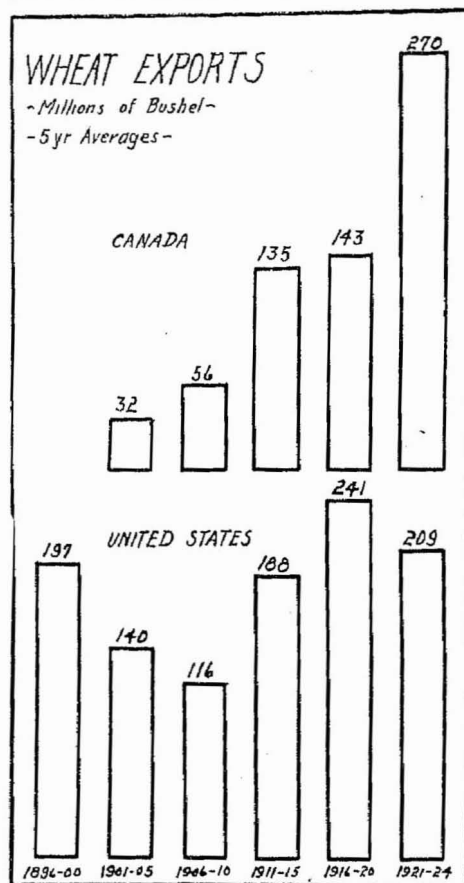


FIGURE 26

The same story of increasing exports, as shown in this figure for Canada, is found when the statistics of Argentina, Australia and British India are examined. These countries have shown a steady increase in wheat exports over the last decade and must be considered with Canada as competitors on the world market.

Oriental exports are becoming important. In 1924, 40 per cent of our total wheat exports went out through Pacific ports; 56 per cent of that went to Asia.

Wheat Purchasing Power

Figure 27—The "hill-and-valley" of wheat purchasing power. A dollar from wheat in 1890 bought \$1.20 worth of necessities, while it would buy less than 90 cents worth of necessities in 1925.

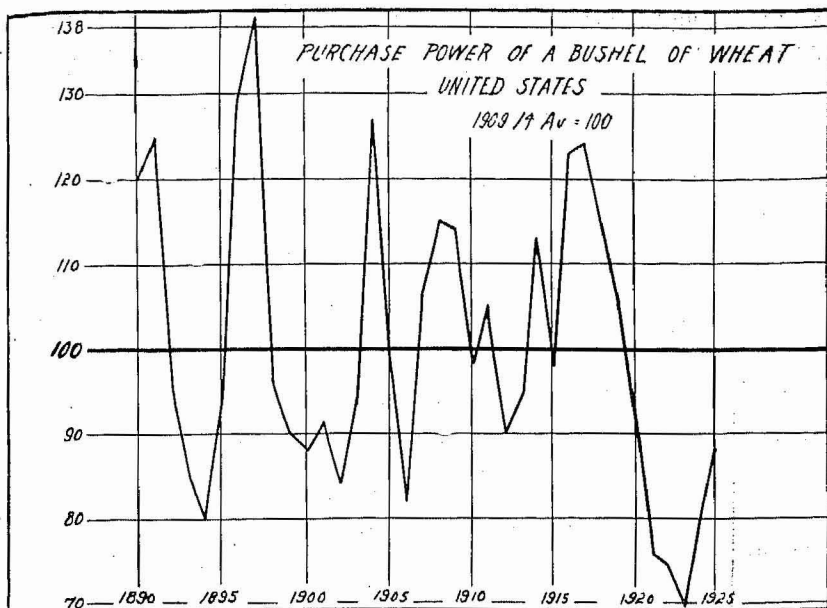


FIGURE 27

SECTION V

Hay and Forage

It has been pointed out in another section that 44 per cent of Montana's crop acreage is devoted to feed crops. Because of Montana's location in a northern latitude, winter feeding of livestock assumes unusual importance. This is indicated by the fact that only six per cent of the agricultural income was from hay and feed grain sales. The bulk of the hay is mar-

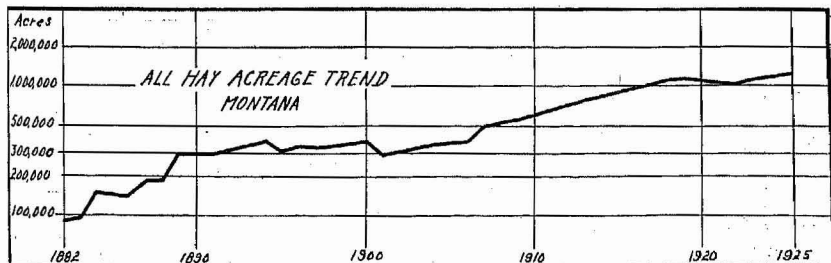


FIGURE 28

keted through livestock. While wheat essentially is a dry land crop, a large part of the tame hay is grown upon irrigated lands. This section will outline, by means of graphs and charts, the hay and forage situation in Montana.

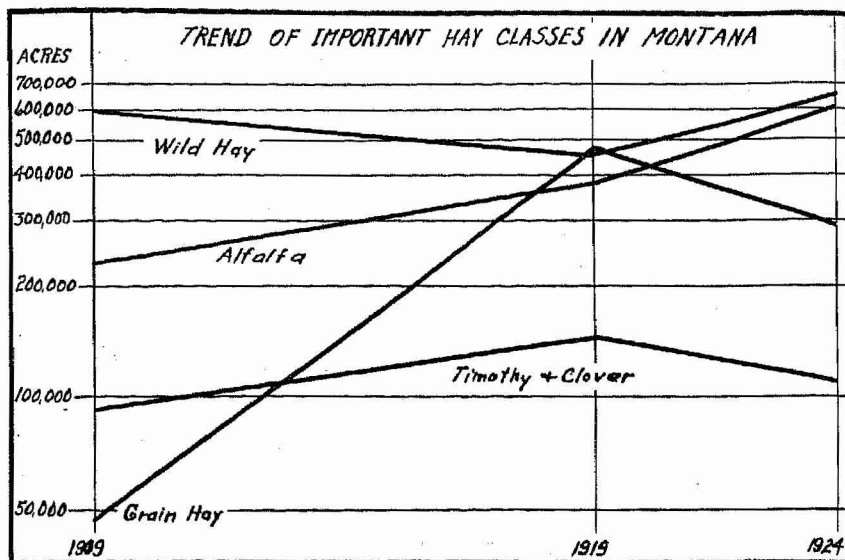


FIGURE 29

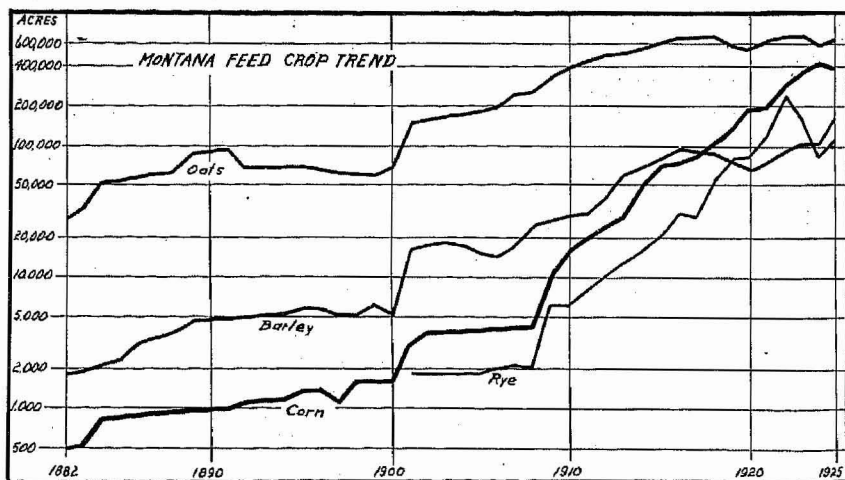


FIGURE 30

PERCENTAGE DISTRIBUTION OF
PRINCIPAL HAY AND FORAGE CROPS
IN MONTANA

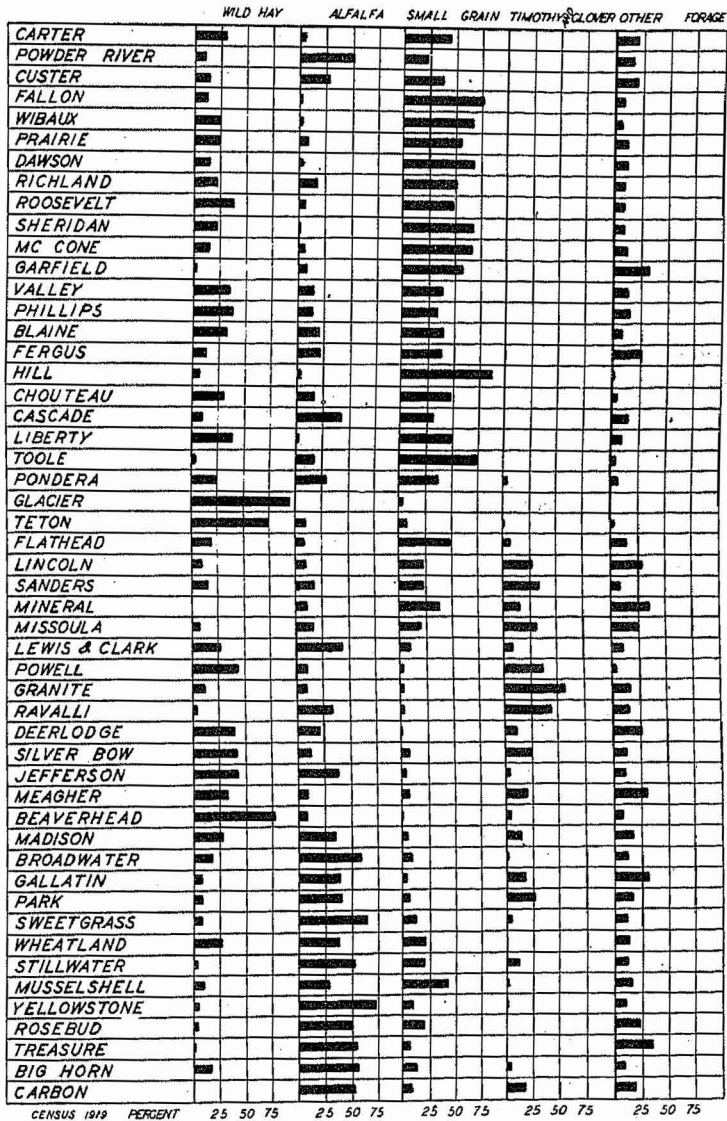


FIGURE 31

All Hay Acreage Trend

Figure 28—Hay production has almost paralleled the livestock trend. Hay production more than doubled between 1905 and 1920. (See "Beef Cattle Trend," page 44.)

Classes of Hay

Figure 29—Alfalfa hay has been tending steadily upwards, paralleling the development of irrigated lands and livestock ranges. The grain hays are produced principally on the dry farms in the Plains sections of the state.

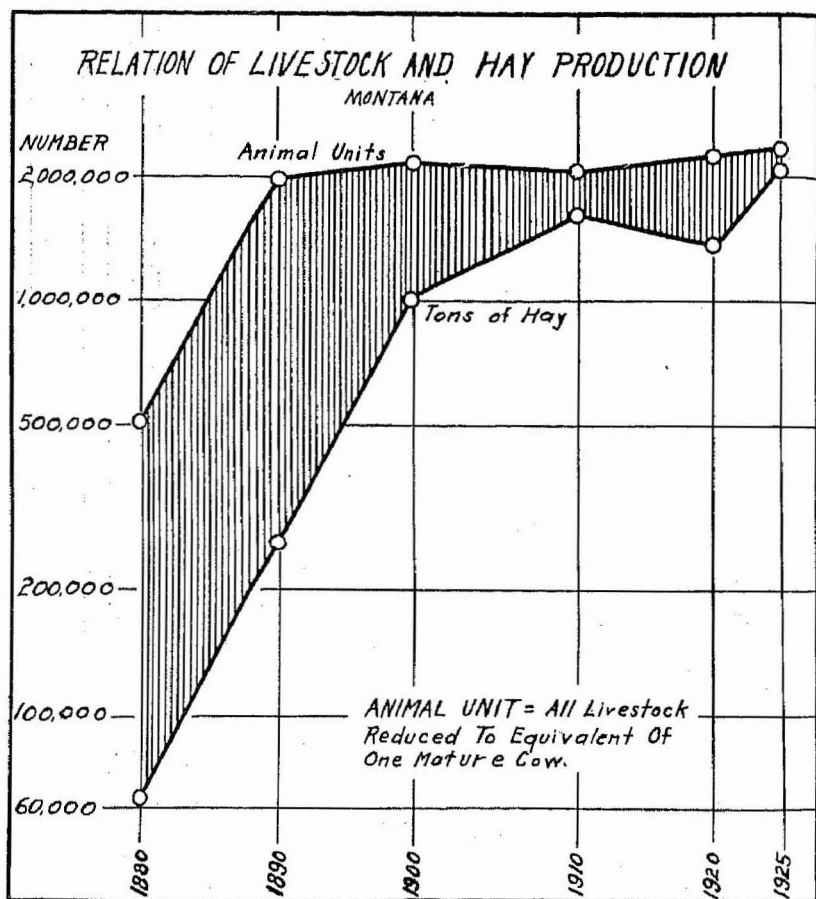


FIGURE 32

Montana's Feed Crop Trend

Figure 30—Oats has been the leading feed crop. However, production of oats seems to be slackening, probably because of a decline in the use of horses for farm power and trucking. There have been phenomenal rises in corn and barley since 1908 and these two crops still are tending upwards.

Forage Crops by Counties.

Figure 31—This graph is based on the reports of the 1919 census and shows the proportion of the principal and forage crops grown in each county. It will be noted that the eastern Great Plains dry farming regions are characterized by considerable amounts of grain hay. Alfalfa predominated in the Southern Montana region and in the Yellowstone valley. On the other hand, wild hay is to be found in the counties of higher altitudes; timothy and clover in the northwest section of the state.

Relation of Livestock to Hay Production

Figure 32—This graph shows that there has been a steady increase in the amount of hay produced in relation to livestock. In 1880 there was but about .12 of a ton produced per animal

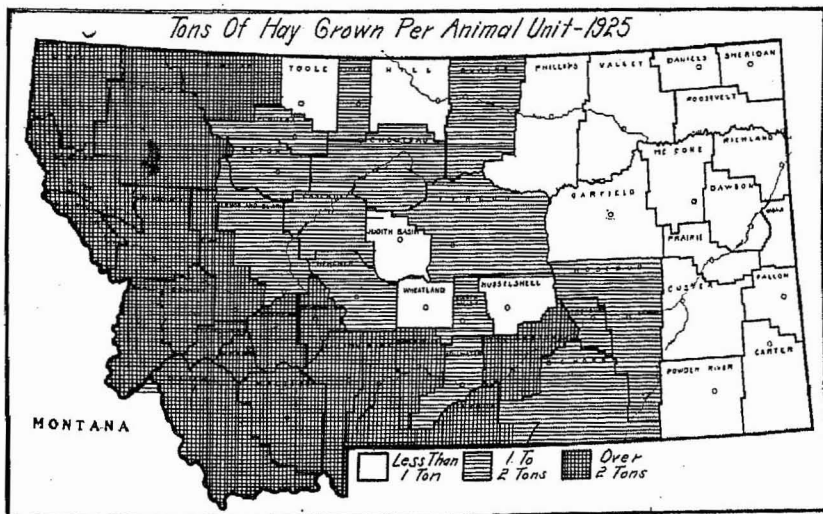


FIGURE 33

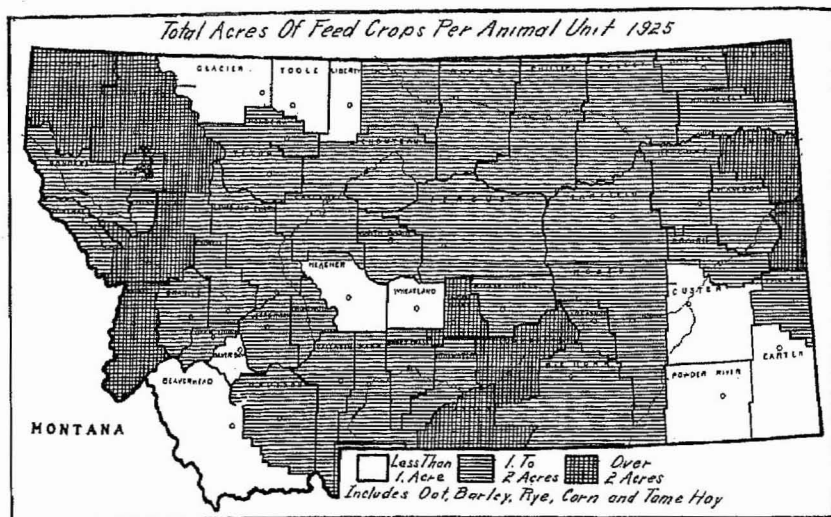


FIGURE 34

unit, where in 1925 practically one ton was produced for each animal unit within the state.

Figures 33, 34, 35 and 36 are self-explanatory.

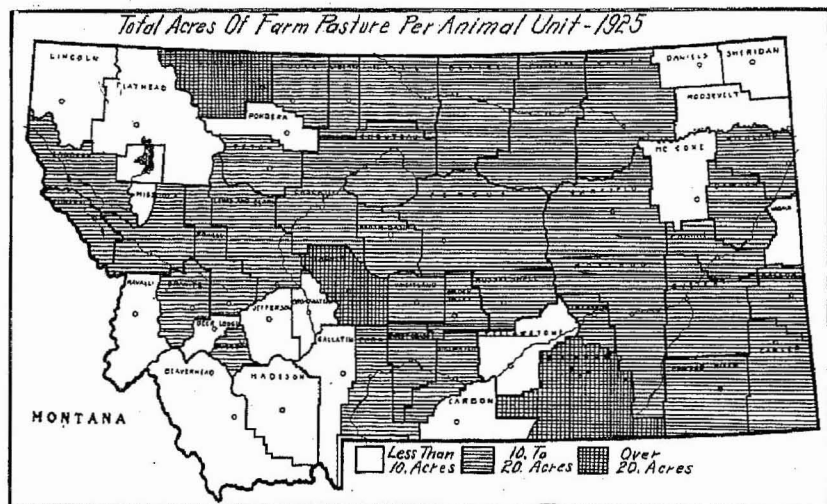


FIGURE 35

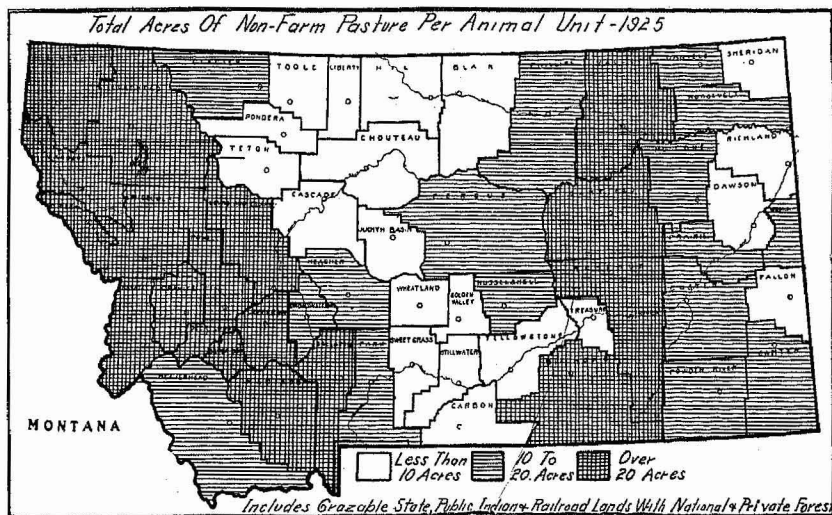


FIGURE 36

Acreage of Principal Feed Crops in Montana

1910-1925

Year	Tame Hay	Oats	Barley	Rye	Corn
1910	615,000*	390,000	30,000	6,000	16,000
1911	675,000*	425,000	31,000	8,000	20,000
1912	715,000*	476,000	39,000	10,000	24,000
1913	780,000*	500,000	60,000	13,000*	28,000
1914	830,000*	530,000	70,000	16,000*	50,000
1915	900,000*	600,000	80,000	21,000*	70,000
1916	980,000*	660,000	95,000	30,000*	74,000
1917	1,050,000*	680,000	90,000	29,000*	81,000
1918	1,120,000*	680,000	37,000	54,000*	100,000
1919	1,158,000	579,000	75,000	76,000	133,000
1920	1,105,000	533,000	64,000	80,000	184,000
1921	1,045,000	618,000	75,000	116,000	190,000
1922	1,045,000	660,000	92,000	240,000	228,000
1923	1,150,000	673,000	105,000	156,000	365,000
1924	1,323,000	670,000	104,000	80,000	420,000
1925	1,322,000	638,000	156,000	112,000	400,000

*Tentative revisions.

Total Pasture, or Grazable Area

Figure 37—Various estimates place the total grazable area of the state as between fifty million and sixty million acres. The chart given here is based on an estimate of about 51,000,000 acres. Grazing lands represent one of the state's principal agricultural assets. The problem of our grazing lands has not received thought and attention in proportion to its importance.

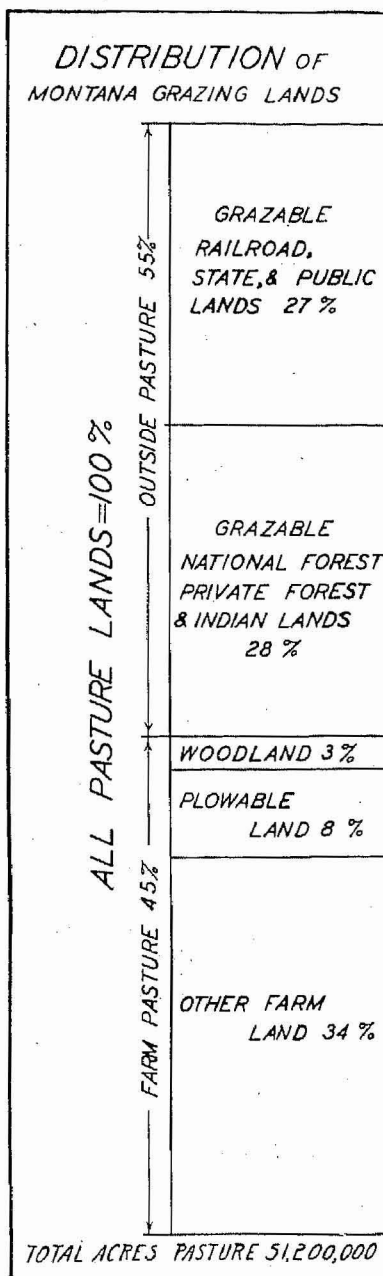
Total Farm Pasture Land in Montana

	1920 Census	Acres
Pasture land total.....	22,325,923	
Plowable pasture	5,684,482	
Woodland pasture	1,228,903	
Other pasture	15,412,538	

	1925 Census	Acres
Pasture land total.....	22,714,811	
Plowable pasture	4,124,050	
Woodland pasture	1,311,615	
Other pasture	17,279,146	

Of the total acreage of grazing lands outside of farms, that within the national forests is used to better advantage. Of the total national forest area in Montana 48 per cent is usable for grazing. This forest area in Montana ranges in usable land for grazing, from 90 per cent in the southern section to 10 or 20 per cent in the northwestern forests.

In 1925 the grazing on these areas included 155,950 cattle and 564,558 sheep. Twenty-five per cent of the grazing fee income goes to the county in which the forest is located.



MONTANA FEEDS

5-year average 1920-1924

Total production of harvested forage, amount eaten, and number of animal units that each kind of feed will support for one year.

Feed	Total yield, tons	Amount eaten, tons	Annual ration, tons	No. of A. U. each item will support 1 year
GRAINS:				
Corn	117,800	100,198	2.65	37,811
Oats	323,064	258,451	2.85	90,685
Wheat	1,473,354	73,667	2.75	22,788
Barley	51,734	49,147	2.65	18,546
Rye	48,143	5,787	2.65	2,184
HAYS AND FODDERS:				
Timothy	122,600	122,600	8.	15,325
Timothy and Clover	260,000	260,000	6.5	40,000
Alfalfa	1,083,000	1,083,000	5.	216,600
Clover	88,000	88,000	5.	17,760
Other Tame	158,800	158,800	8.	19,850
Wild Hay	584,000	584,000	8.	73,000
Small Grain	312,600	312,600	7.	44,657
*Corn Forage	502,000	502,000	7.	77,714
*Silage	56,000	56,000	16.	3,500
STRAW:				
Oat, Wheat, Barley, Rye....	4,397,200	263,832	16.	17,590
MISCELLANEOUS:				
Beet Pulp	90,000	90,000	20.	4,500
Beet Tops	110,000	110,000	20.	5,500
Potatoes	132,006	132,006	20.	660
Flour By-Products	51,920	51,920	2.75	19,000
Total supported by harvest feeds.....				727,670
Total supported by pasture				1,259,842
Total animal units				1,987,512
Total supported by harvested feeds				727,670
Total pasture could support (Est.)				2,000,000
Total A. U. could be supported				2,727,670

*2 yr. 23-24 average.

The conclusion to be drawn from the above table is that Montana's grazing and pasture lands could support a maximum of 2,727,670 animal units, or about 800,000 more than now sup-

ported. This estimate is based upon the maximum carrying capacity that could be obtained through efficient range management, together with an abundance of winter feed. Does the livestock and market situation warrant such expansion? The answer must be found from the experience of the livestock men of the state.

Distribution of Corn in Montana, by Counties

Figure 38—The corn increase in Montana has come about through its use as a substitute for summer fallow and because it furnishes diversification for the dry farms.

Increase in Corn in the Northwest

Figure 39—This map shows by dots the decreases in corn acreage from 1919 to 1924, while the next map shows the increases in corn acreage.

Figure 40—Dots showing where corn increased from 1919 to 1924.

(The map below was loaned by courtesy of the Montana State Department of Agriculture, at Helena.)

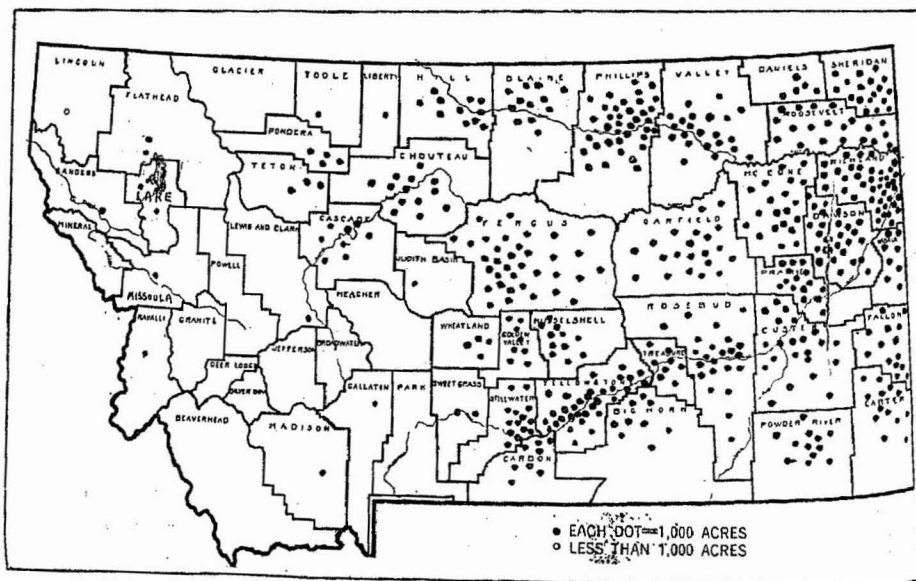


FIGURE 38

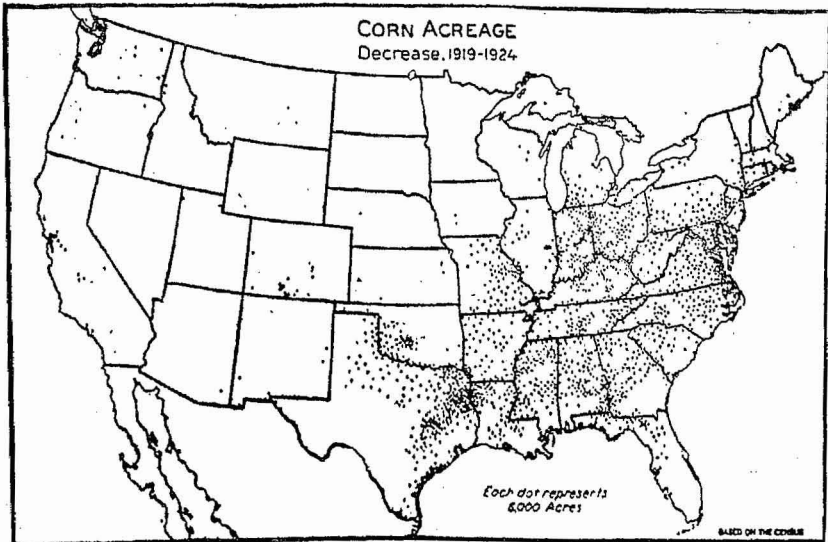


FIGURE 39

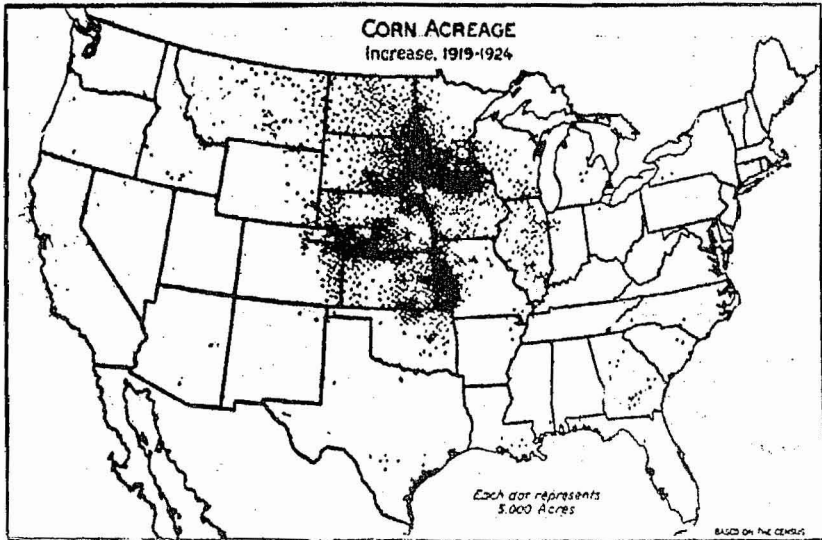


FIGURE 40

Ages of Beef Cattle

Figure 42—This chart shows the proportion of old steers (two years and over) to each 100 head of young steers. It will be noted that certain counties of the state are holding their steers to an older age than in other counties. (To understand the chart, note that in Gallatin county there are 94 "old" steers to every 100 young steers, while in Big Horn county there are 253 old steers for each 100 young steers.)

Figure 43—There has been a marked tendency to increase the number of cows at the expense of the number of steers. (In 1900 there were 100 steers for each 100 beef cows in the state, while in 1925 there were but 35 steers to each 100 cows.)

Cattle Shipments

Figure 44—Yearly variations are caused by changes in prices, range and feed conditions. (Based on figures from the Montana Livestock Commission.)

Markets for Montana Cattle in 1925

Figure 45—Most of the Montana cattle were shipped to South St. Paul or to Chicago. It may be noted that western shipments are becoming of importance.

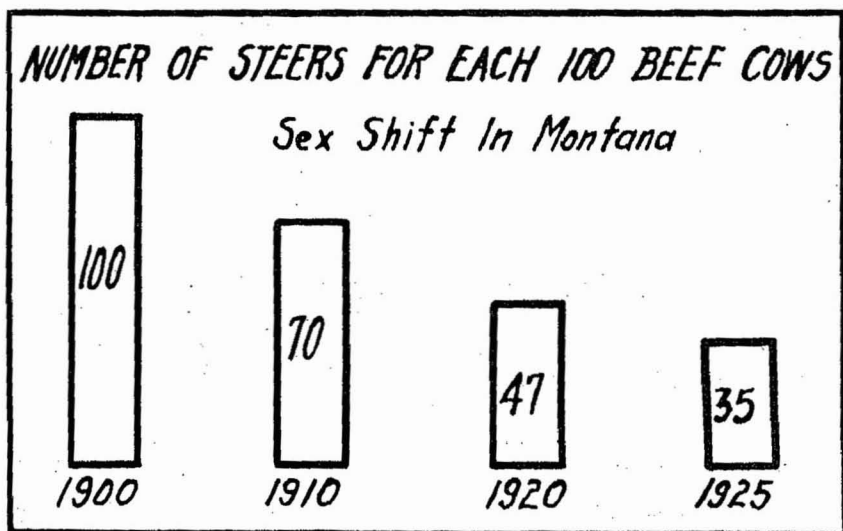


FIGURE 43

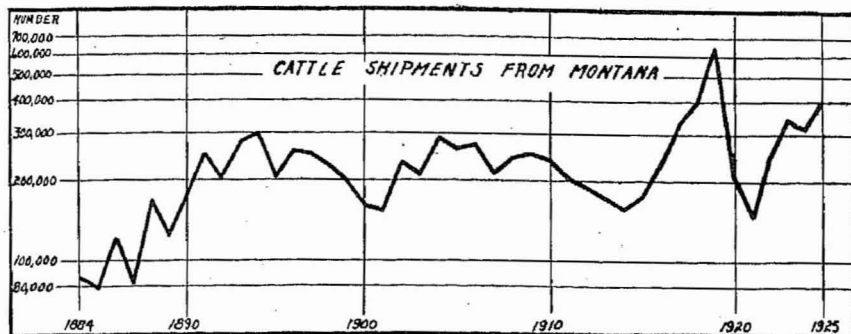


FIGURE 44

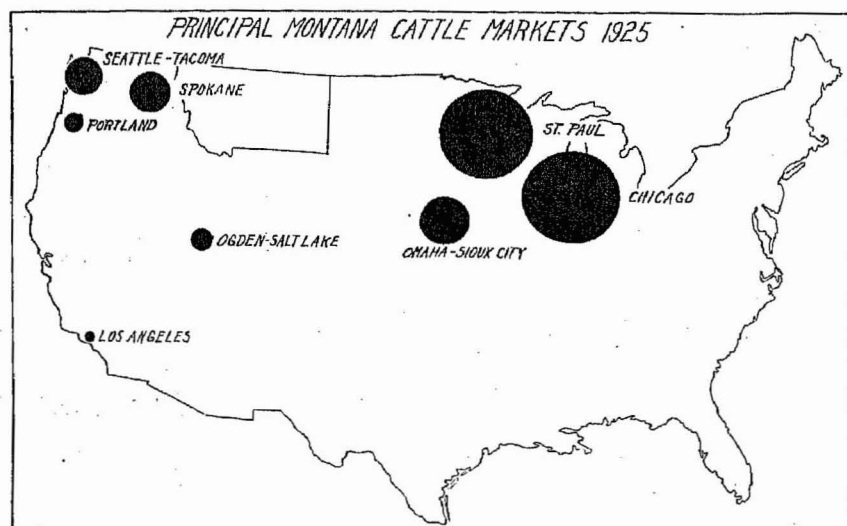


FIGURE 45

Consumption of Dressed Meats

Figure 46—There is a reasonably high per capita consumption of beef at the present time. The graph shows, however, that consumers interchange pork and beef frequently.

Annual Exports

Figure 47—Since the World War there has been but little export of beef. The tariff is effective on beef at the present time.

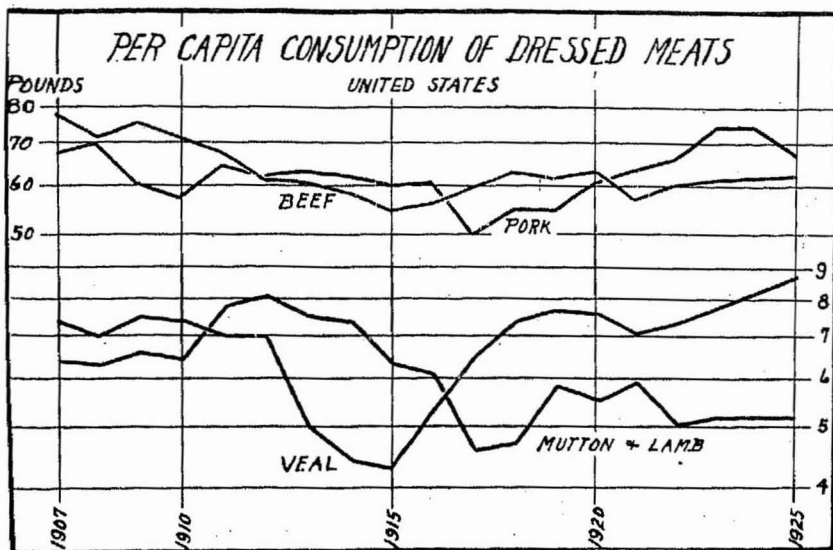


FIGURE 46

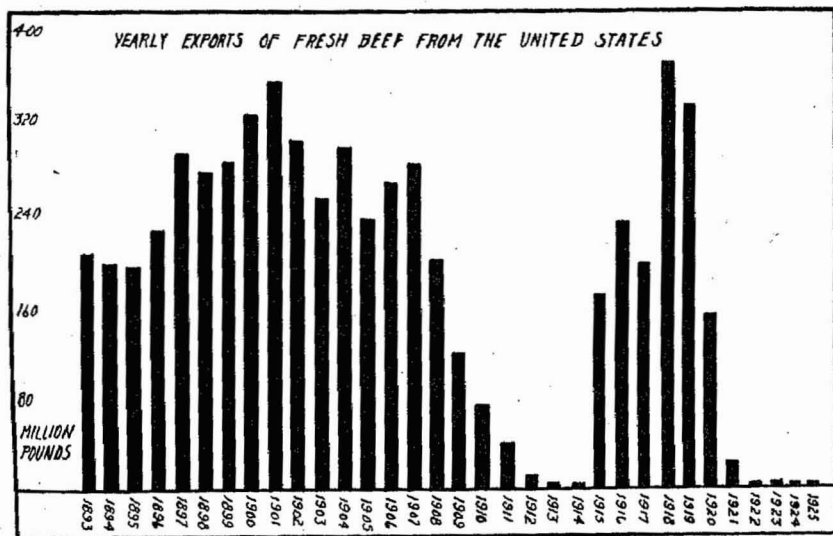


FIGURE 47

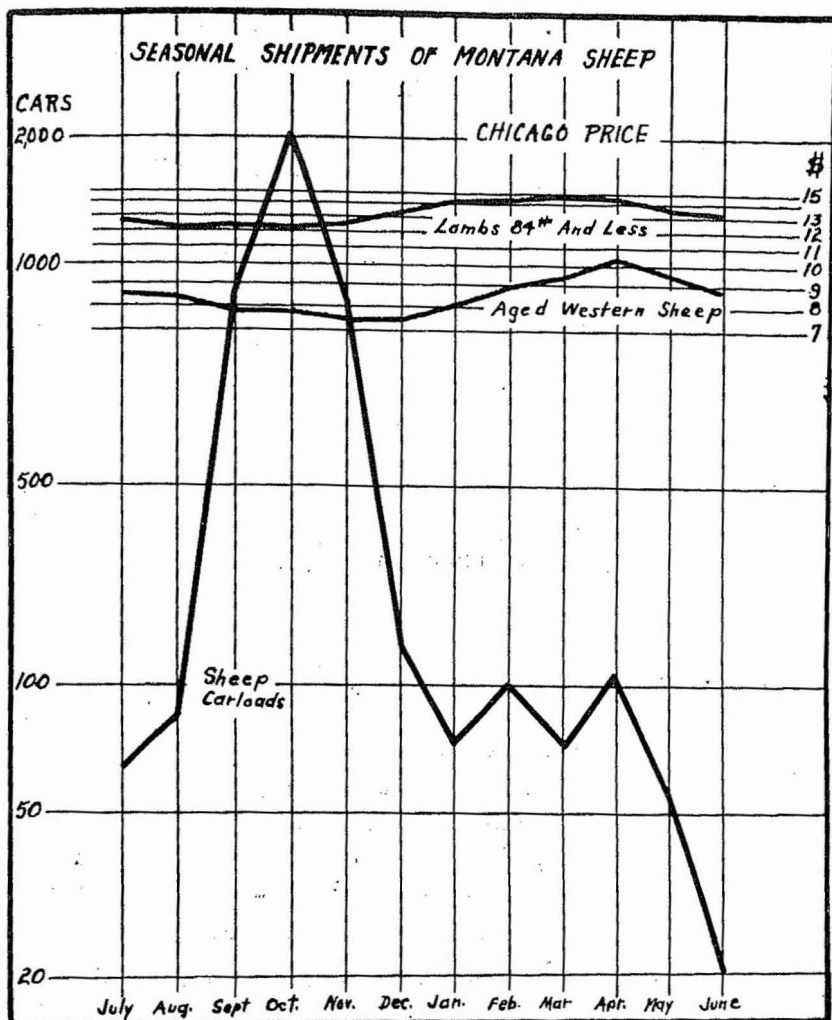


FIGURE 50

Seasonal Movements and Chicago Prices

Figure 50—This graph is an average for the years 1923-24.

Figure 51—Showing that Montana's sheep still go to Chicago and South St. Paul more than to any other markets.

A table in the appendix of this bulletin shows the numbers of sheep in Montana for the past two census periods.

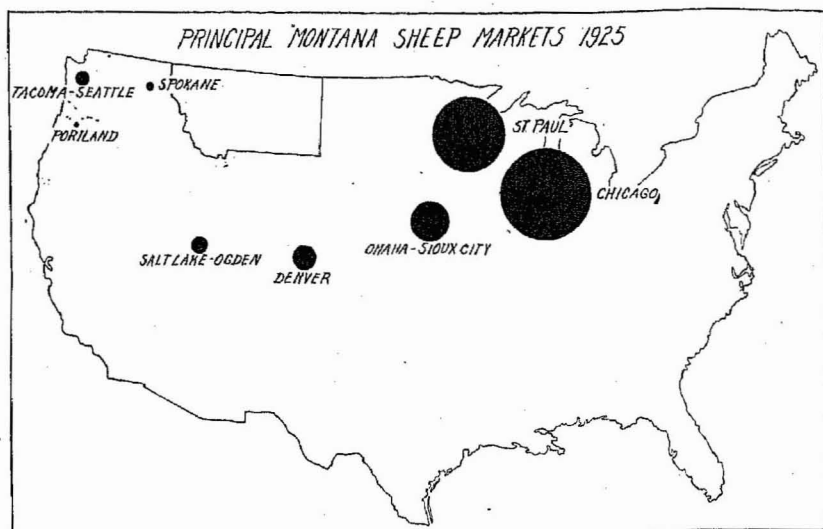


FIGURE 51

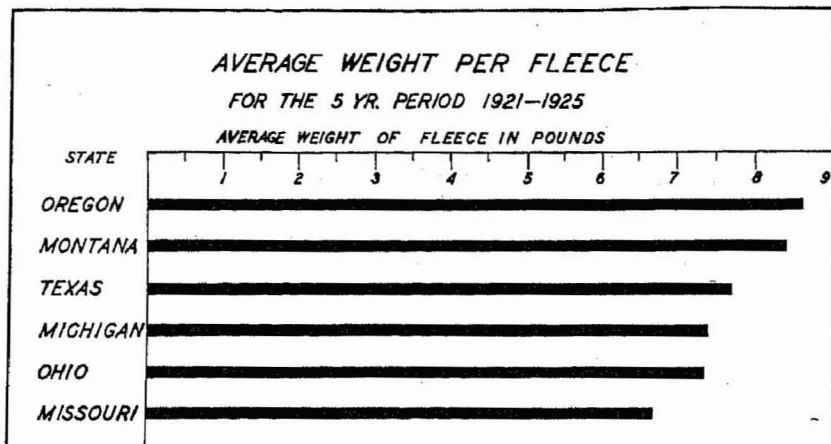


FIGURE 52

Fleece Weights

Figure 52—Montana ranks second to Oregon in the average weight of fleece per animal.

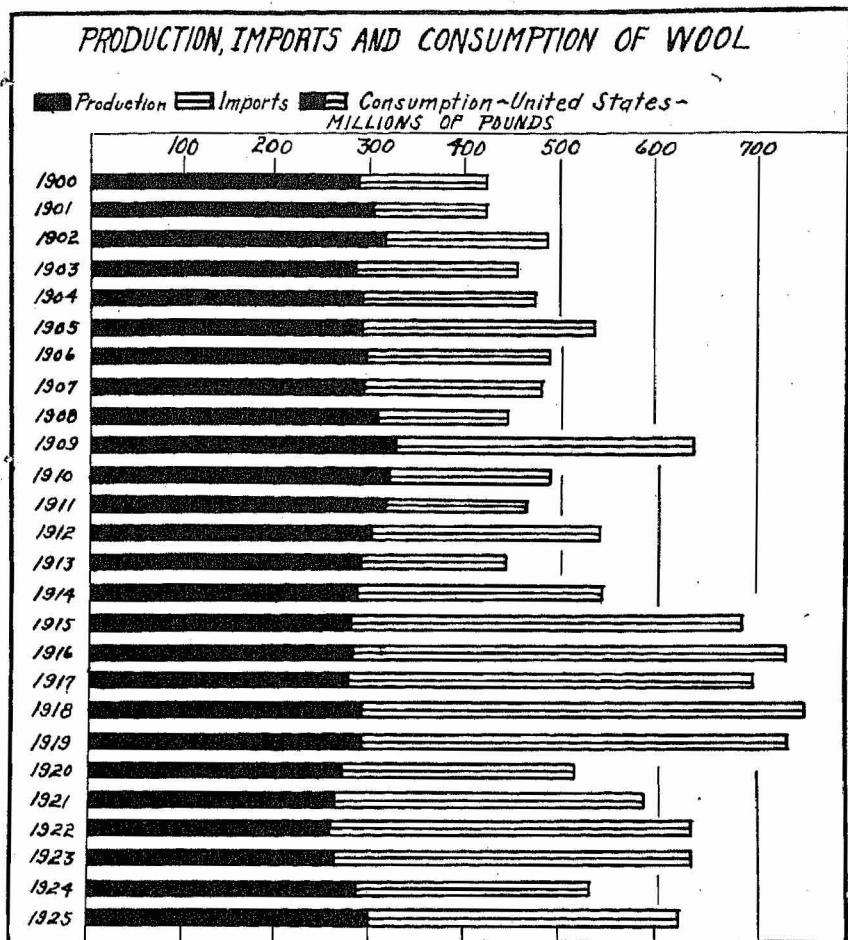


FIGURE 53

Production and Consumption of Wool

Figure 53—While our consumption of wool varies much more than does production each year, we are still decidedly on an import basis in the United States.

Trend in World Production

Figure 54—It will be noted that all of the important sheep producing countries increased their flocks during the past three years.

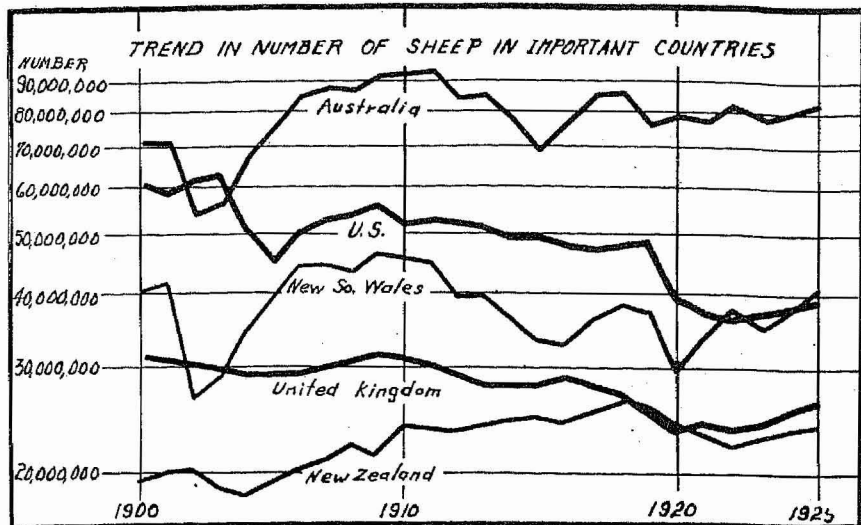


FIGURE 54

SECTION VIII

Montana's dairy industry is centered principally on the irrigated lands and in the mountain valleys. The development of diversified farming on the dry lands has caused a decided increase in the number of cows milked. Many dry land farmers are milking enough cows to provide income for the family living.

Figure 55—Dairy cows have increased in proportion to the farm settlement.

The Dairy Industry in Montana

Figure 56—This map shows 74 creameries, nine cheese factories and approximately 228,000 milk cows in Montana.

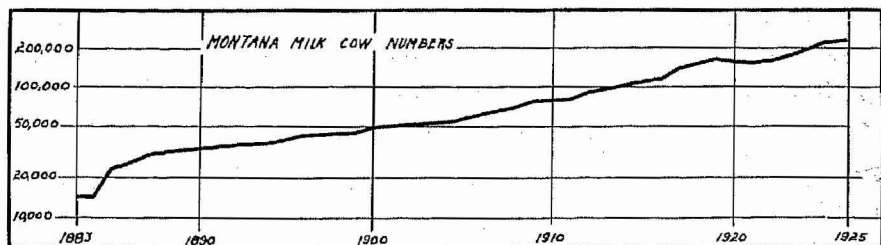


FIGURE 55

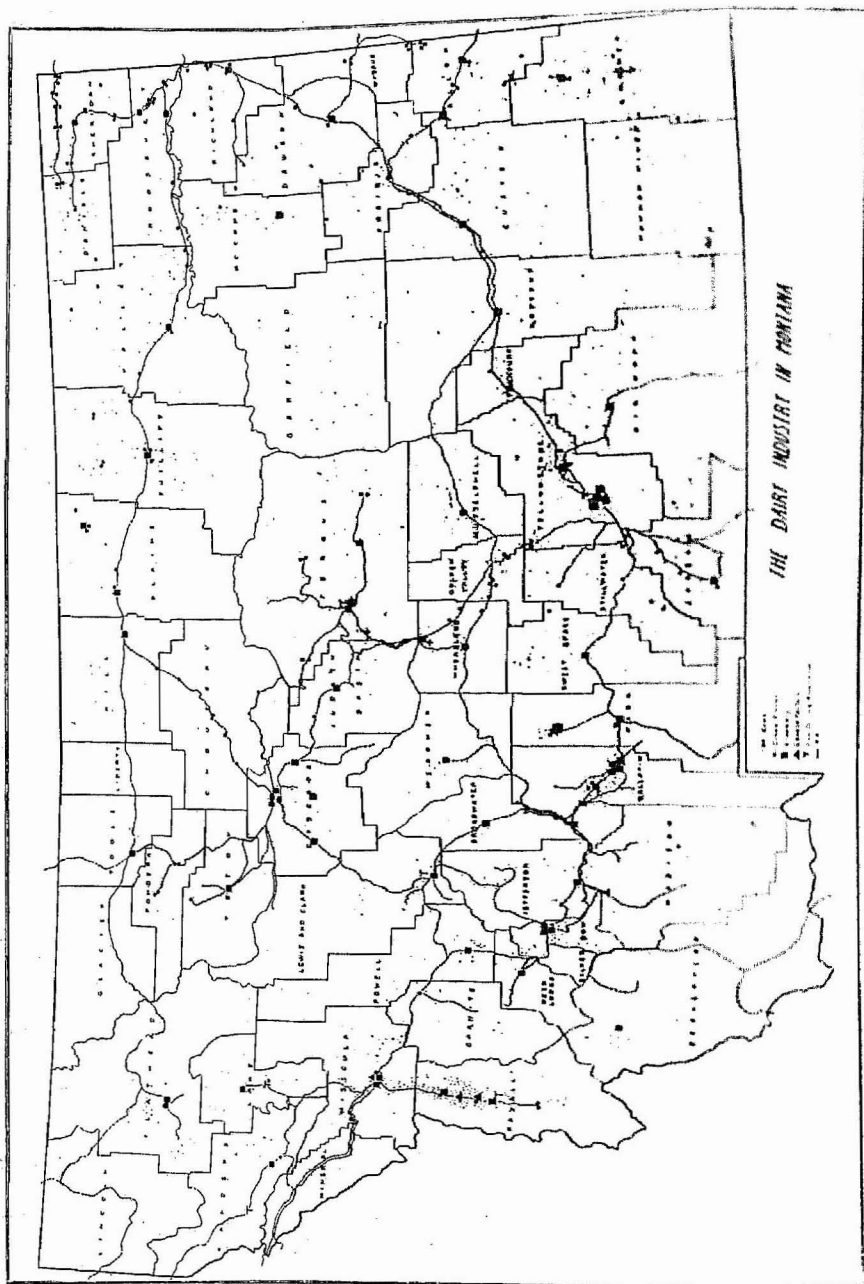


FIGURE 56

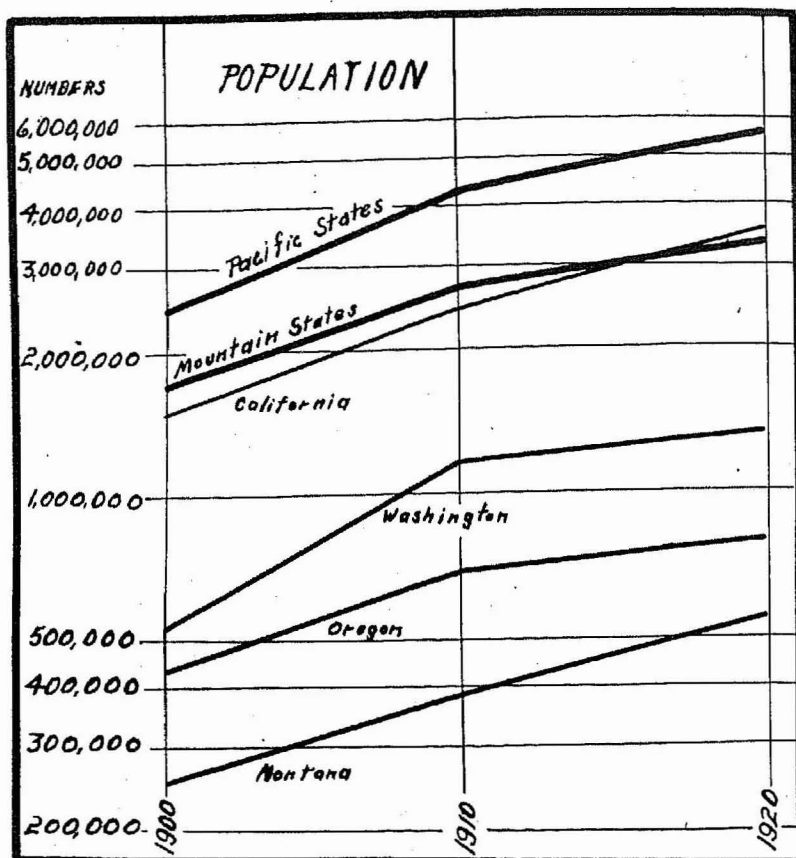


FIGURE 57

Trend of Population

Figure 57—It is assumed that the present rate of increase of population will continue in most of the western states. This being the case, it would be necessary for the dairy industry to expand in order to supply the needs of the increasing population.

The upward trend of population in Montana, while not as rapid as in some other western states has, on the whole, been much more steady over a period of 20 years, as shown by chart.

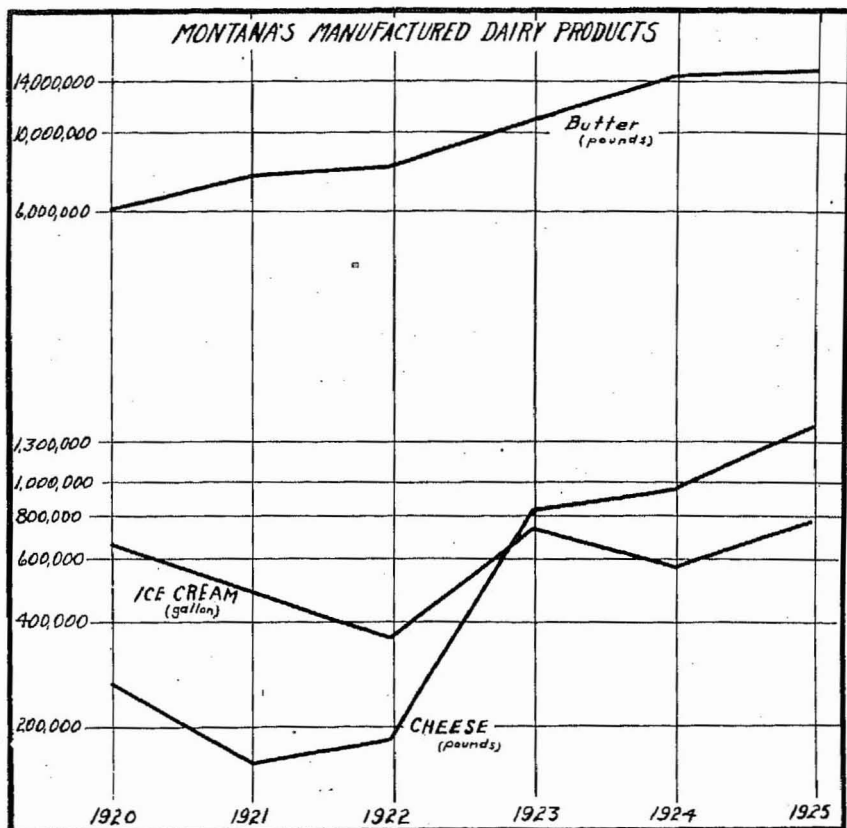


FIGURE 58

Trend of Manufactured Dairy Products

Figure 58—The production of butter more than doubled within five years, while from 1922 to 1925 cheese production increased six times in Montana.

Montana's Butter Markets

Figure 59—The two larger California cities take a major portion of Montana's butter shipments.

Market Prices

Figure 60—This graph shows that at certain periods of the year the price relations between San Francisco and Chicago undergo a change.

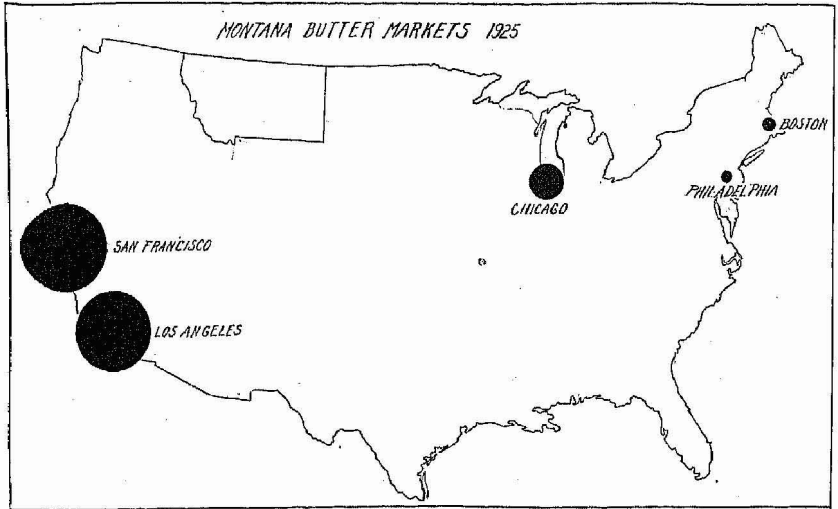


FIGURE 59

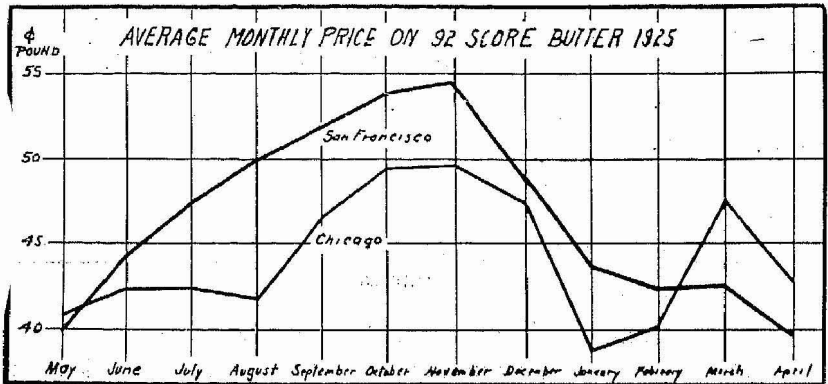


FIGURE 60

SECTION IX

Swine Section

Figure 61—Showing the trend of swine production in Montana.

Increase in swine production in Montana is increasing with the acreage of alfalfa and corn.

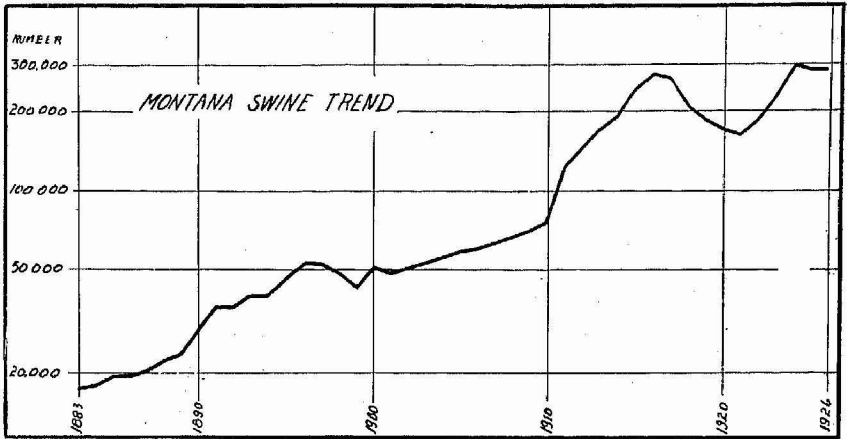


FIGURE 61

Regional Trend in Western States

Figure 62—It should be noted that the mountain states have increased their production (in fact, have doubled it) within the last five years. However, both the north and south Pacific states have undergone a decided decrease in production during the same period.

As swine production proportionately falls off in coast states, Montana will have an increasingly better market. Growing population in the northwest is making a market for Montana swine. (Note Figure 64.)

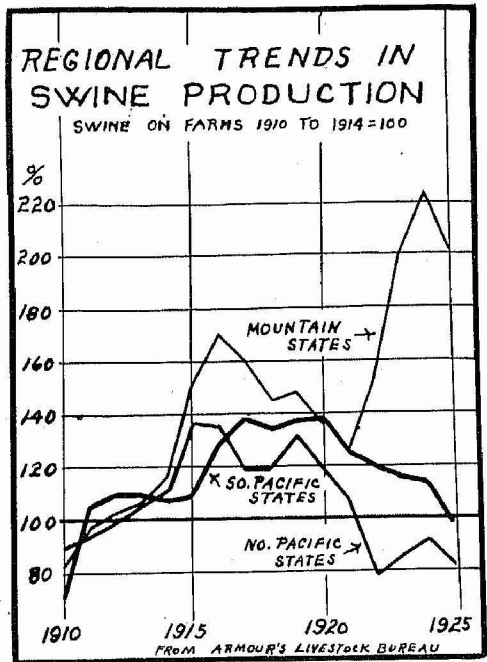


FIGURE 62

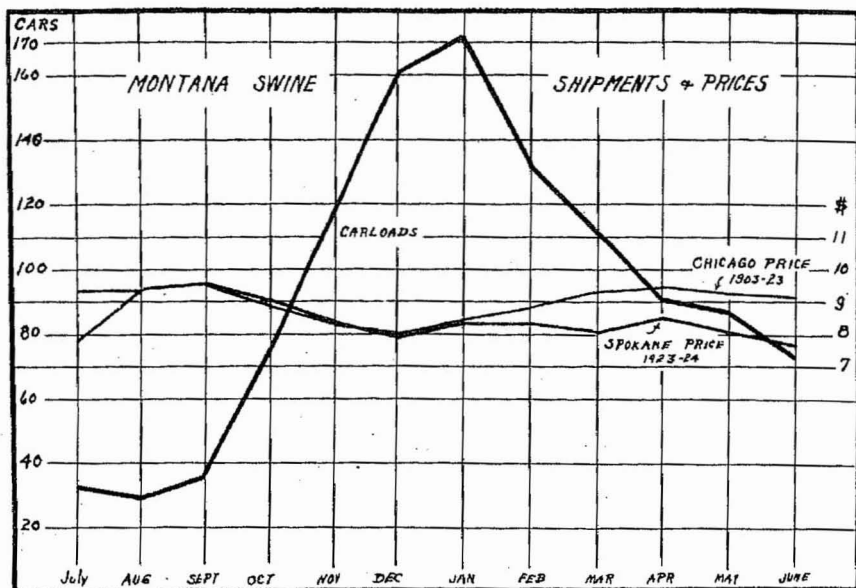


FIGURE 63

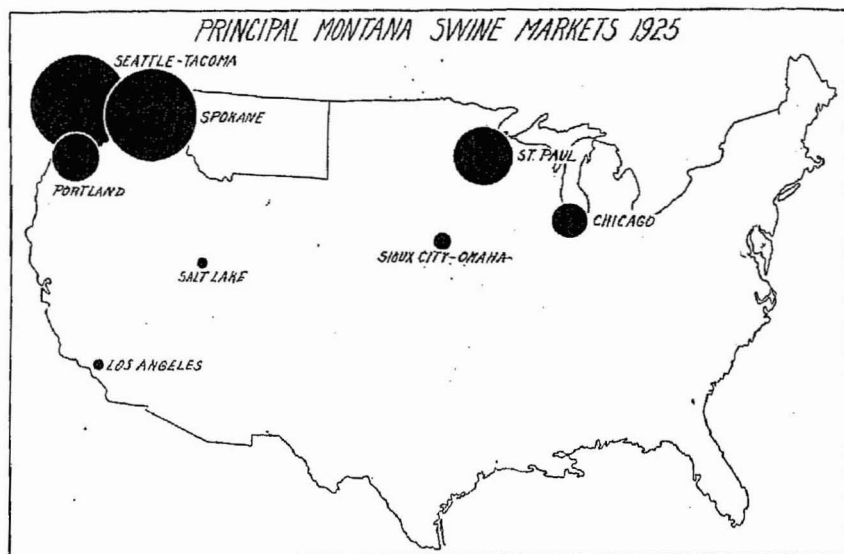


FIGURE 64

Montana Swine Shipments

Figure 63—Showing a two-years average, together with Chicago and Spokane prices.

Montana Swine Markets

Figure 64—This graph is made up from stockyards reports, and shows a large share of Montana's hogs moving to the west coast.

Varying Market Demands

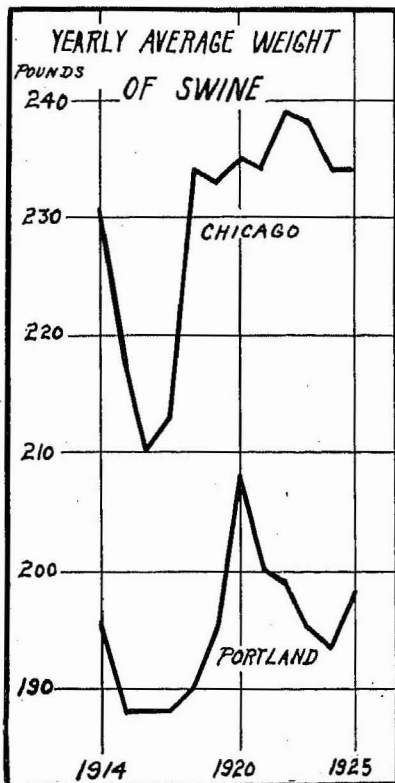


FIGURE 65

Figure 65—Chicago takes heavy hogs while Portland and western markets take light hogs.

The Armour Livestock Bureau indicates that the principal factors leading to heavy weight hogs on the eastern markets are: first, lower overhead cost in size of breeding herd, farrowing and feeding equipment; second, there is a "fashion" for big-type hogs; third, the demand of the lard makers has caused large hogs to command a premium.

Factors favoring light weight hogs are indicated as: giving cuts more suited to the family trade; more rapid turnover of invested capital; lower cost of gains in terms of feed consumed because these costs increase as the pig gets older.

SECTION X

Poultry

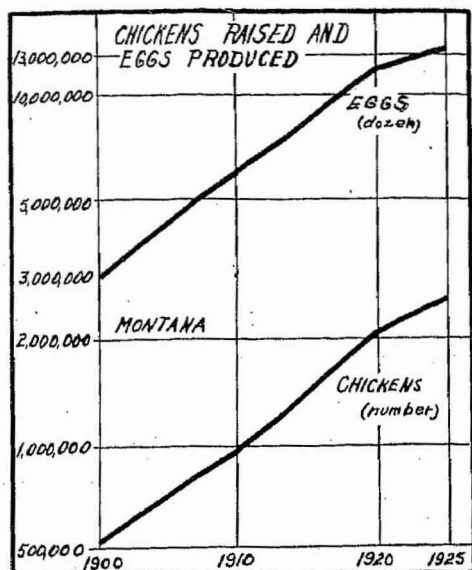


FIGURE 66

Figure 66 — Showing the trend of poultry production in Montana.

The map below (Figure 67) shows the general spread of poultry production throughout the entire state. There are many specialized chicken ranches in the state, yet the bulk of Montana's poultry are raised on the diversified farms.

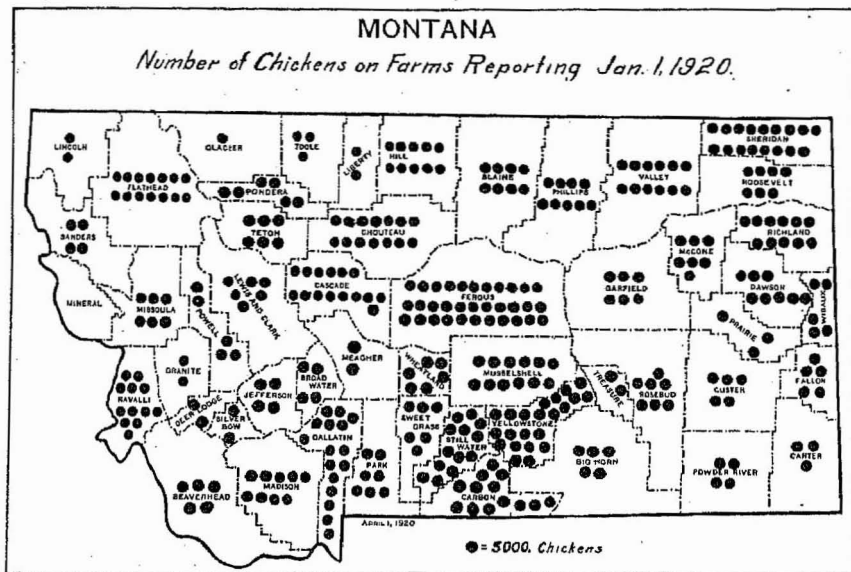


FIGURE 67

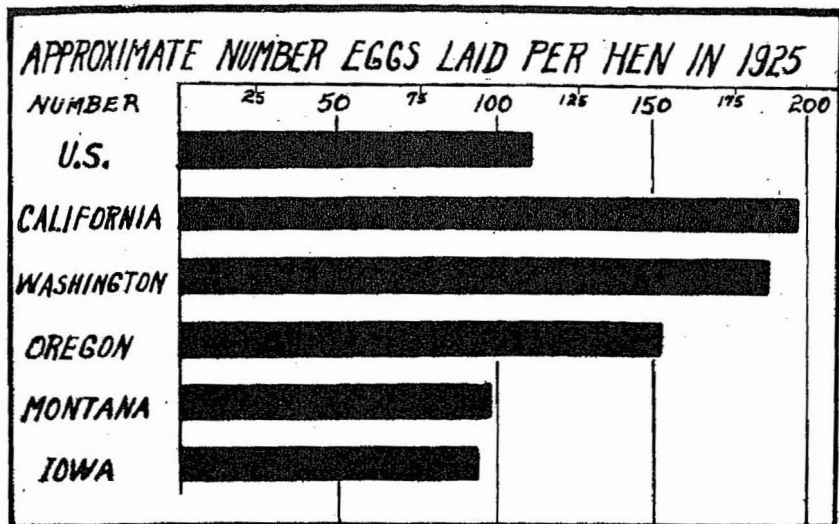


FIGURE 68

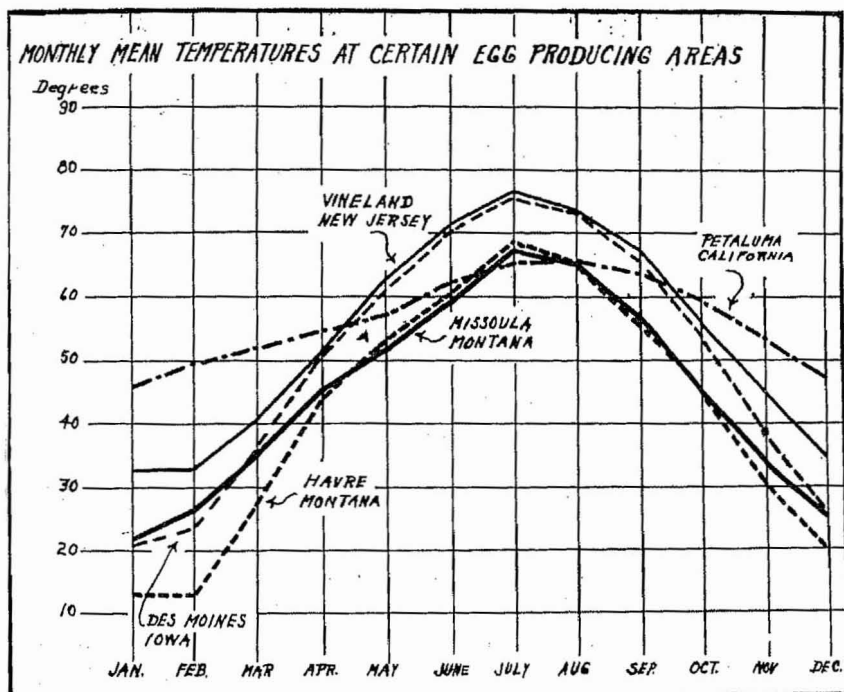


FIGURE 69

Figure 67—Showing the numbers of chickens on Montana farms by counties, as reported in 1920.

Figure 68—Montana is not getting high production per hen.

Figure 69—A chart which indicates that mean temperature has an effect on the egg laying ability of hens. Missoula ranks with Des Moines while Havre has higher temperatures in summer and colder in winter than does Missoula.

Figure 70—Showing that Chicago takes the largest share of Montana's dressed poultry shipments.

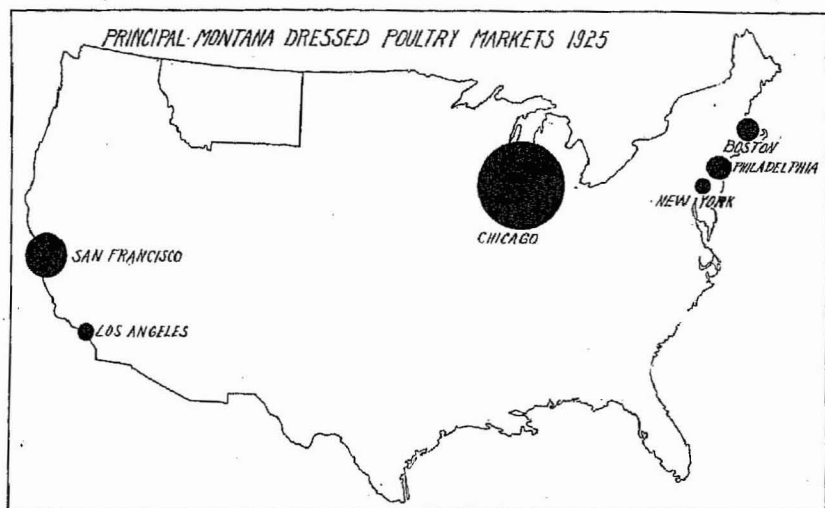


FIGURE 70

SECTION XI

Horses

Figure 71—Horses reached their peak in numbers in 1919 and have been declining since that time. During 1925 and 1926 large numbers of farm tractors have been sold in this state. Montana at the present time has a great surplus of serviceable horses, as well as a large number of practically worthless horses which are pests upon the open range.

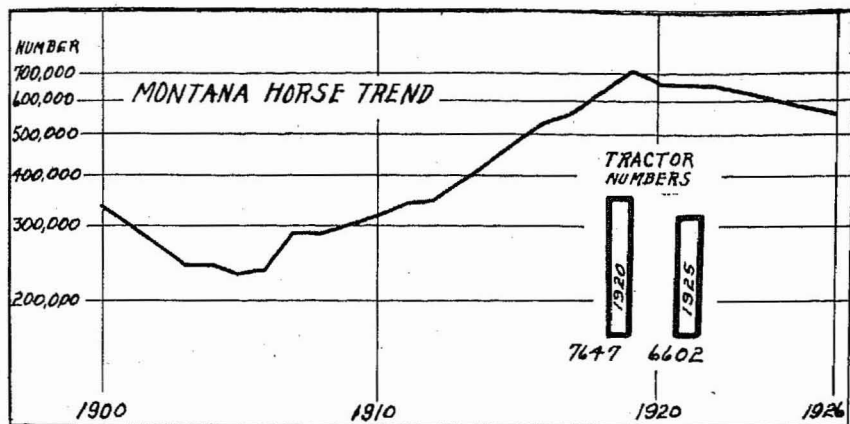


FIGURE 71

Cheap Horses are Available in Montana

Under present conditions there are plenty of cheap horses available in Montana. Horse feed can be raised without seriously interfering with the dry farm cropping system. Farm management studies have shown that men, by farming with large horse outfits, have done well in the dry land districts. Here is an illustration from the "Triangle" farm survey of 1922:

"On farm No. 235, Chouteau county, the average yield of wheat in 1922 was eight bushels per acre, yet this farmer made a labor income of \$2063. He had 500 acres of wheat, part winter and part spring wheat. He summer fallowed 200 acres. He did all of the work except heading and threshing by himself with his 14-horse team. His total current expenses for the year were \$1107, which included \$270 for harvesting and threshing labor and board. His total receipts were \$4180 and total expenses were \$1257, which included depreciation on his farm machinery. He had an investment of \$14,350 which, at six per cent, makes an interest charge of \$861. His taxes were \$200.00

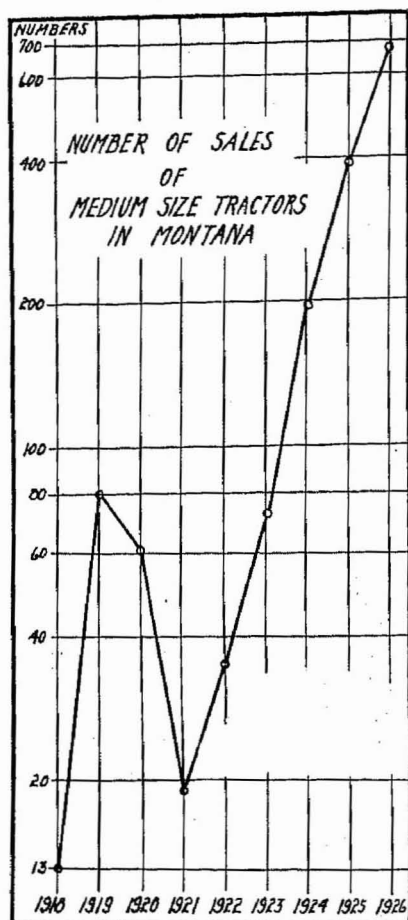


FIGURE 72

Figure 73 — Increasing sales of combine harvester-threshers.

If the chart line were extended on through 1926 it would show a continued heavy demand for harvester-threshers in this state.

Figure 72 — This chart gives an idea of the increasing sales of medium sized tractors in Montana, and of the effect that these sales have necessarily had upon the demand for horses.

While there seems to be a growing demand for the smaller tractors, the larger type tractors are in demand only on special areas and by trained tractor operators.

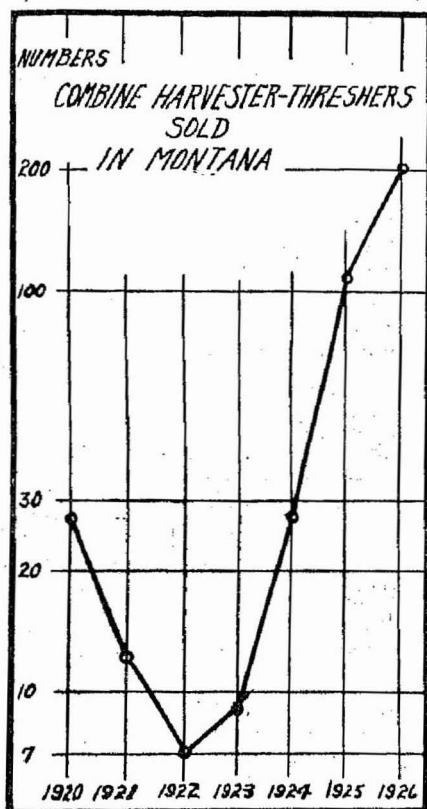


FIGURE 73

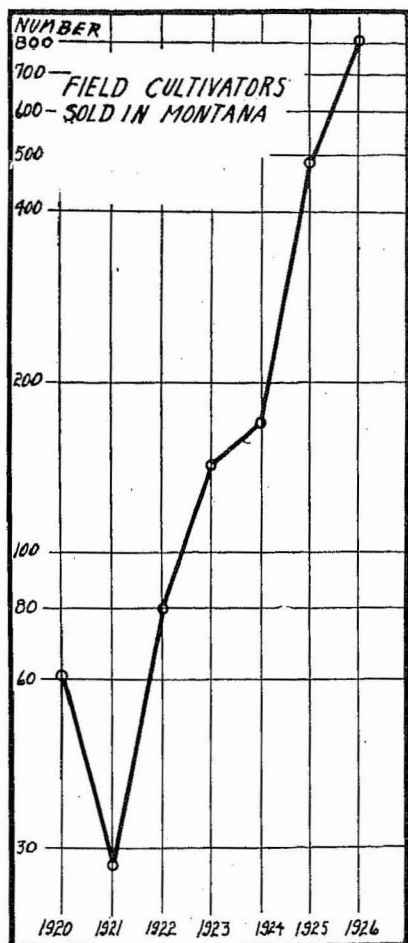


FIGURE 74

Figure 74—Field cultivators sold in Montana.

This figure is based on data from a survey that fairly well represents approximately fifty per cent of the sales of cultivators in the state, both horse drawn and tractor drawn.

The graph and the two preceding ones on tractors and combines may be taken to represent the tremendous increase of modern farm machinery.

The large increase in use of modern farm machinery in Montana is in line with the general trend throughout the country. This is shown by the great increase of tractors on farms in the U. S. as shown by the census reports. In 1925 the tractors on farms in the U. S. numbered 506,745, which was an increase of 260,662, or 105.9 per cent, over the number reported in 1920.

In other words in the five year period the number of tractors in use on farms in the U. S. more than doubled.

As an explanation of why farm machinery sales have been increasing so in the last few years, the U. S. Department of Commerce points out that farmers are just recovering from the 1920 depression and beginning to realize the benefits from two years of generally favorable operations and have more confidence as to the future.

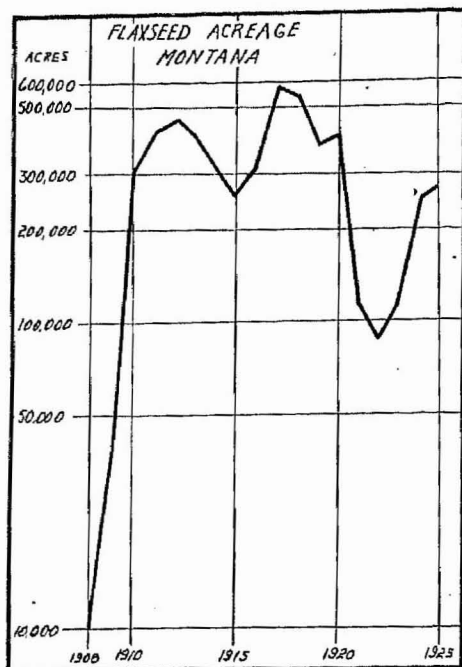


FIGURE 75

SECTION XII

Flax

Figure 75 — The flax production trend in Montana. The acreage has been more erratic than that of wheat, because of prices, tariffs and crop yields between different years.

Flax seed crushers state that Montana seed produces more oil per bushel than seed grown further east or south. Dockage on Montana flax is considerably lower than on seed from North and South Dakota and Minnesota.

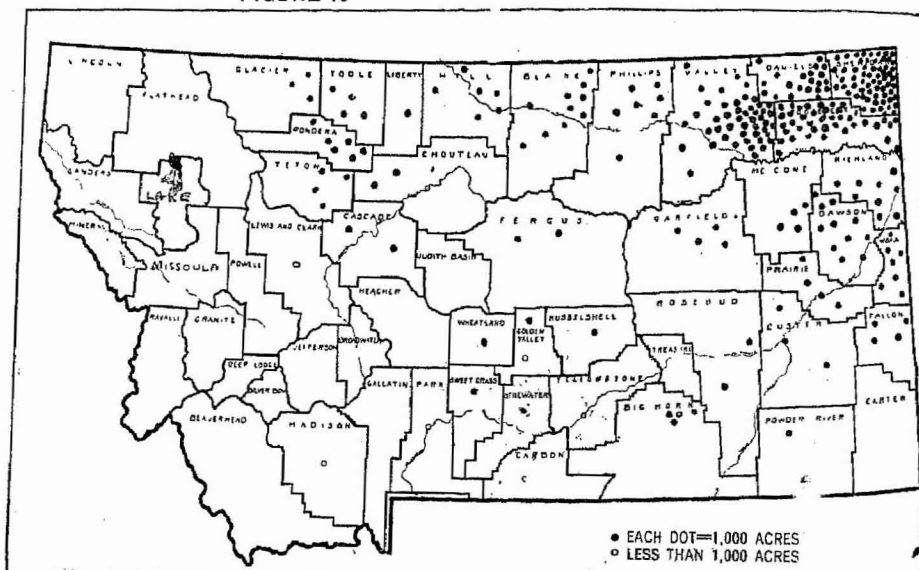


FIGURE 76

Figure 76—Showing the flax producing areas of Montana.

Figure 77—It should be noted that the principal flax producing section is northeastern Montana.

While Southeastern Montana has shown a decided percentage increase, this is due to the fact that the original acreage was not large. The United States imports considerable flax

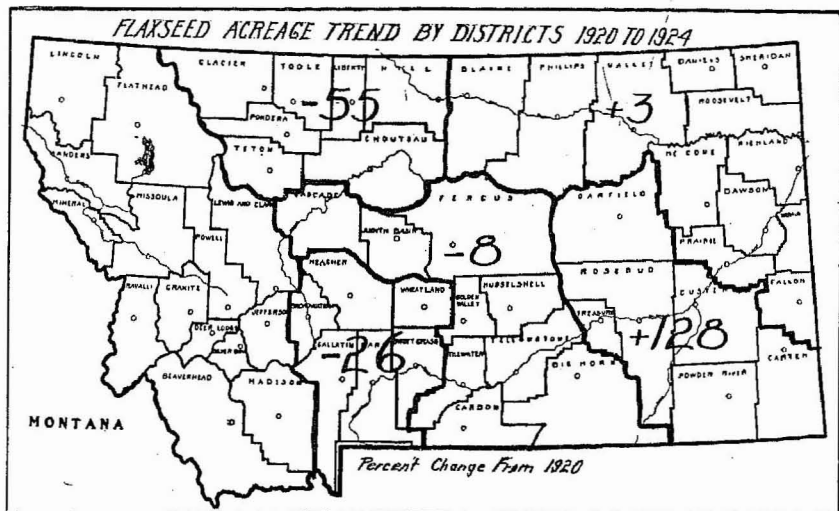


FIGURE 77

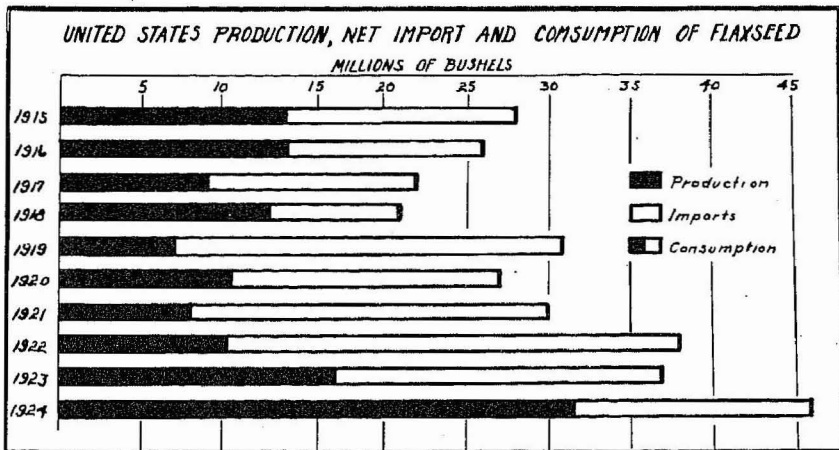


FIGURE 78

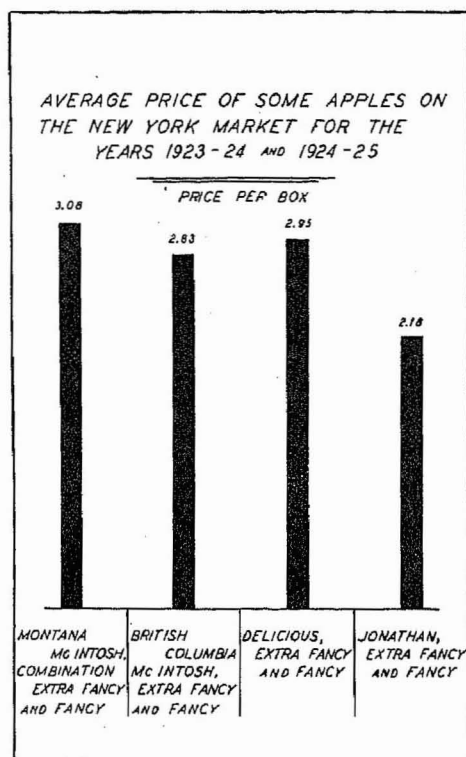


FIGURE 82

Figure 82 — Showing the premiums for Mc-Intosh apples from Montana.

About 70 per cent of Montana's apples are shipped to New York City where there is a distinct demand for the Montana McIntosh, because of its high quality.

Commercial small fruit production is confined chiefly to Ravalli, Lake, Flathead and Lincoln counties. Local canneries consume most of the production.

Sweet cherries from the Bitter Root district have been well received at New York.

Sugar Beets

The importance of sugar beets on irrigated lands cannot be emphasized too much in Montana. Many problems of irrigated farming can be solved where there is a satisfactory market for beets. Two new factories began operation in Montana during 1925.

Sugar Beet Acreage Trend

Figure 83—Most of the western states show a decline in acreage, due to the ravages of the sugar beet hopper and the attendant disease, curly leaf. Entomologists do not think it is likely that either the insect or the disease will be of serious consequence in Montana. It is possible that a number of factories may move from the infested sections to the disease-free sections in Montana.

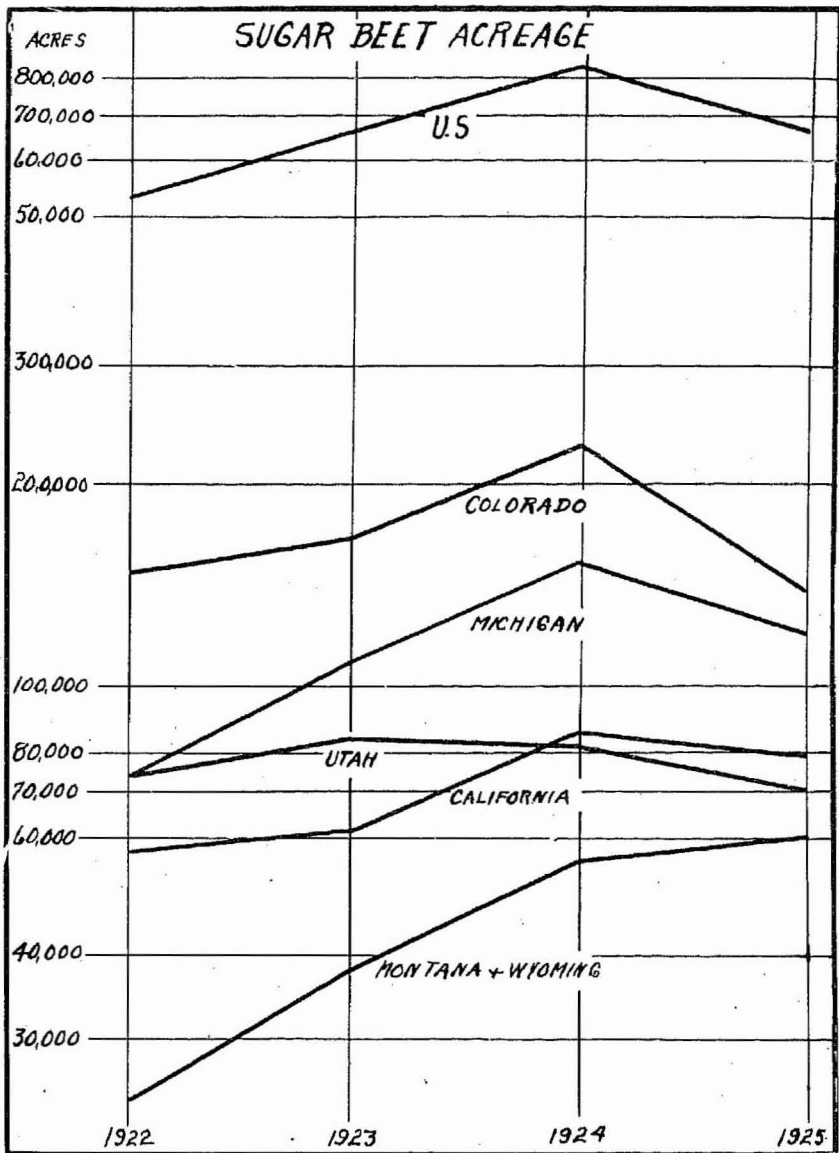


FIGURE 83

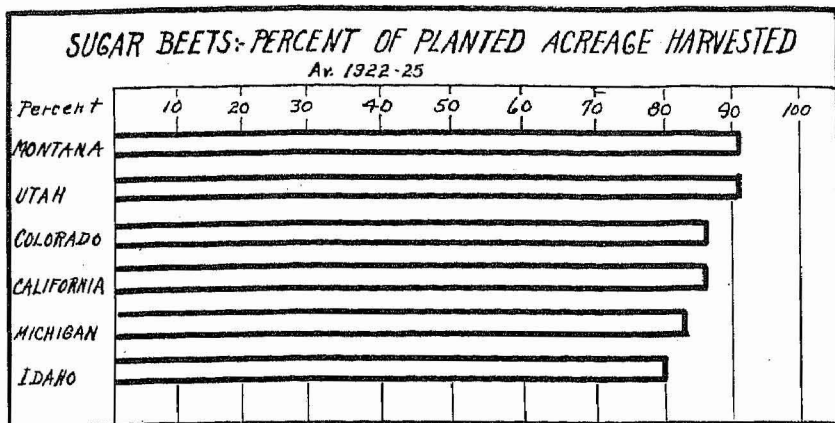


FIGURE 84

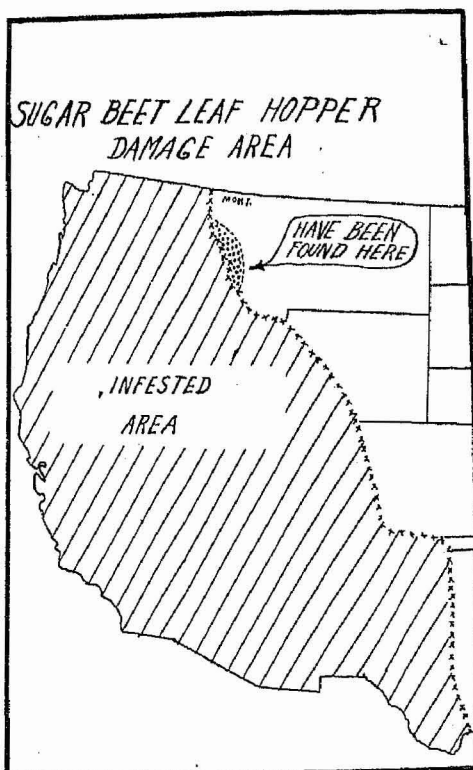


FIGURE 85

Montana High in Per Cent Harvested

Figure 84 — Montana and Utah tie in the percentage of sugar beet acreage harvested.

Figure 85 — Showing the area of the sugar beet leaf hopper.

Sugar beet curly-leaf disease is carried by the insect called Leaf Hopper. West of the continental divide conditions seem favorable to development of the disease. In western Montana the Leaf Hopper has been found. Entomologists do not believe the infection serious, however.

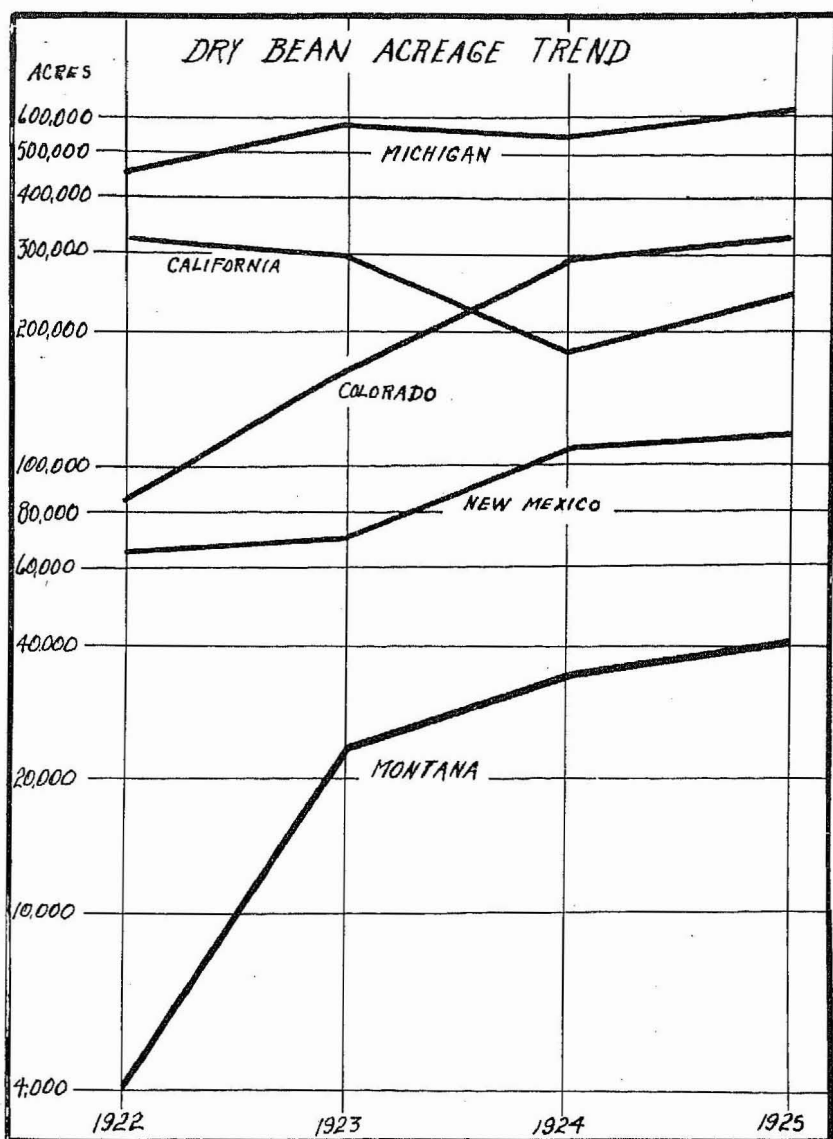


FIGURE 86

Dry Beans—Trend of Production

Figure 86—All producing areas seem to be increasing their production of edible dry beans.



FIGURE 87

Figure 87—Showing the principal bean producing sections. These are the regions which enter into competition with Montana's crops.

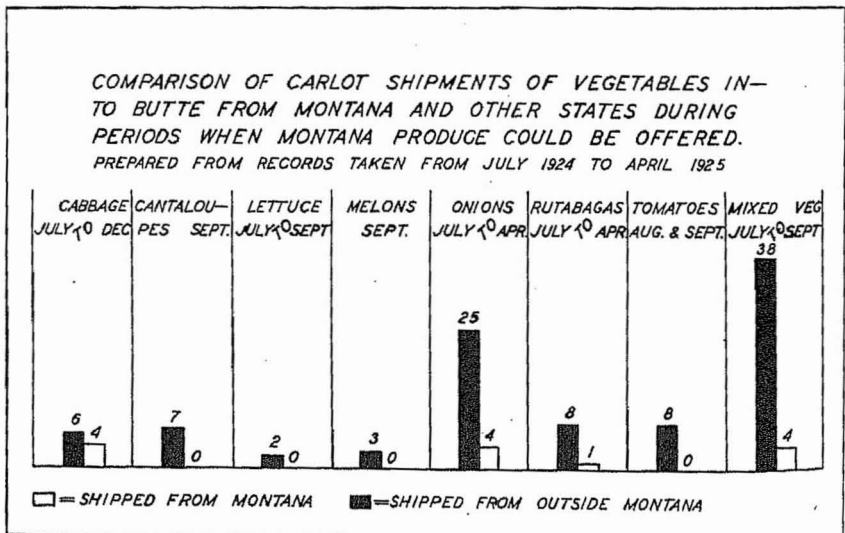


FIGURE 88

Vegetables

Figure 88—A chart showing the cars of Montana grown and imported vegetables that were shipped to the Butte market at a time when all Montana grown vegetables might have been used.

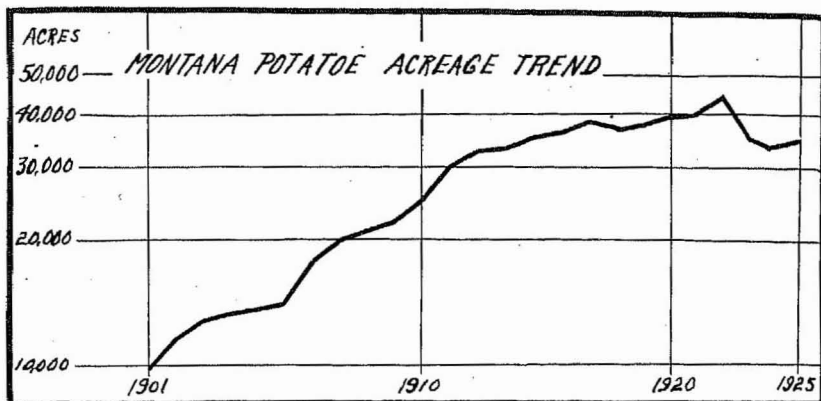


FIGURE 89

Potatoes

Figure 89—Showing the trend of potato acreage in Montana.

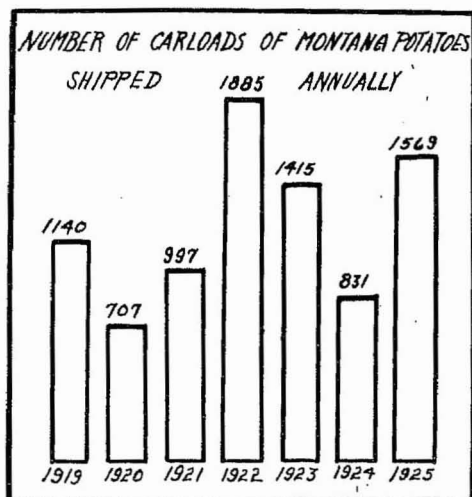


FIGURE 90

Figure 90—Shipments of Montana grown potatoes.

Montana's Netted Gem of high quality always command a premium on outside markets. Prices received are about the same as in Washington and Idaho, see Figure 91. Certified seed potatoes have a promising future in Montana.

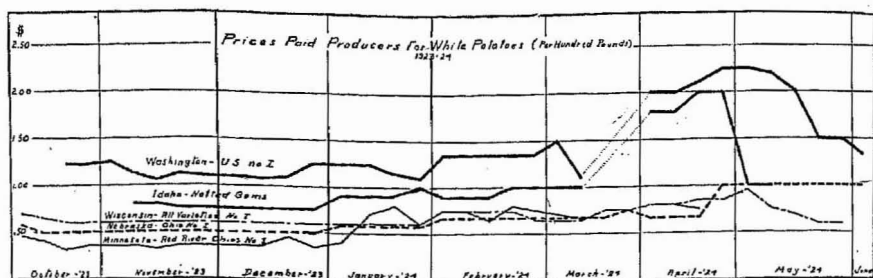


FIGURE 91

Figure 91—Potato prices shown for the different areas.

Alfalfa Seed

Figure 92—Registered Montana alfalfa fields in 1926. Each dot represents a field of Grimm or Cossack passed by the Montana Seedgrowers' Association.

Seed of the hardy varieties of alfalfa such as Grimm and Cossack is increasingly demanded in the north central and northeastern states where winter killing is an important factor and where seed cannot be produced efficiently or consistently. Pedigreed seed demands a premium of about 12c to 15c over common alfalfa seed.

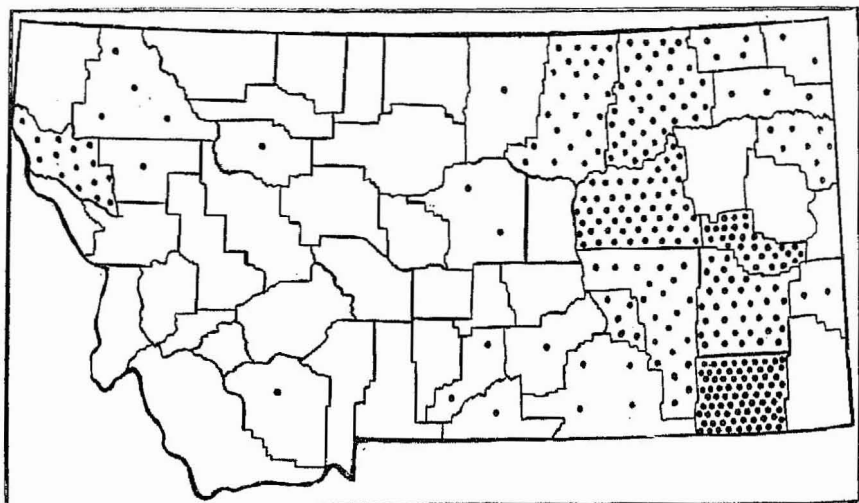


FIGURE 92

APPENDIX

In these following pages will be found some miscellaneous data referred to in the text of this bulletin, and which will help to a clearer understanding of Montana's agricultural situation. Most of this matter is in the form of tables and is as easily understood as are graphs.

NUMBER OF MONTANA SHEEP BY COUNTIES—Census 1920-1925

	1920	1925
Beaverhead	198,941	156,574
Big Horn	1,922	58,050
Blaine	109,222	115,974
Broadwater	31,900	23,007
Carbon	45,820	40,458
Carter	41,119	94,836
Cascade	87,197	99,766
Chouteau	48,450	39,735
Custer	28,607	33,135
Daniels		6,578
Dawson	11,125	12,676
Deer Lodge	1,441	18,902
Fallon	7,619	11,904
Fergus	112,196	69,507
Flathead	11,659	3,848
Gallatin	25,213	14,941
Garfield	79,813	65,727
Glacier	16,001	49,191
Golden Valley		11,875
Granite	24,649	12,424
Hill	16,671	18,130
Jefferson	5,999	5,843
Judith Basin		49,068
Lake		5,181
Lewis and Clark	72,874	87,593
Liberty	4,353	9,064
Lincoln	46	201
Madison	115,238	110,751
McCone	11,482	28,252
Meagher	125,849	89,937
Mineral	553	522
Missoula	10,724	1,716
Musselshell	22,780	10,850
Park	82,094	72,466
Phillips	94,824	69,457
Pondera	11,522	37,347
Powder River	13,812	24,023
Powell	96,179	84,457
Prairie	15,233	18,728
Ravalli	33,790	18,881
Richland	4,581	5,940
Roosevelt	2,016	1,488
Rosebud	92,937	72,443
Sanders	5,132	5,552
Sheridan	8,276	12,086
Silver Bow	6,132	4,732
Stillwater	29,136	35,058
Sweet Grass	58,596	93,424
Teton	27,439	37,290
Toole	30,657	34,988
Treasure	8,882	20,457
Valley	63,944	65,438
Wheatland	58,003	67,296
Wibaux	1,451	3,037
Yellowstone	63,720	46,225
Total	2,082,919	2,187,928

FREIGHT RATES ON WHEAT FOR LIKE DISTANCES FROM
POINTS IN MONTANA AND CANADA

Via Canadian National Railways			Via Great Northern Railway			
From Canadian points	To Port Arthur, Ontario		From Montana points	To Duluth, Minn.		Excess, United States over Canada, per bushel
	Dis- tance	Freight rate per bushel		Dis- tance	Freight rate per bushel	
	Miles	Cents		Miles	Cents	Cents
Saskatchewan						
Maryfield	649	10.8	Snowden	650	18.0	7.2
Buchanan	754	11.4	Frazer	750	20.4	9.0
Regina	794	12.0	Vandalia	797	21.6	9.6
Briercrest	854	12.0	Wagner	856	22.5	10.5
Dalmeny	936	15.0	Havre	933	23.7	8.7
Conquest	1,002	15.0	Teton	1,004	25.2	10.2
Alberta						
	To Vancouver		To Portland			
Calgary	996	21.0	Great Falls	896	32.0	12.0

MONTANA EXTENSION SERVICE

MARKET POINTS FOR MONTANA LIVESTOCK, 1924 AND 1925
Number of Head Marketed

	Cattle		Hogs		Sheep	
	1924	1925	1924	1925	1924	1925
Spokane	24,942	24,936	75,264	77,124	322	741
Seattle	11,828	14,839	43,250	69,598	697	465
Tacoma	9,045	8,166	17,710	11,388	9,000	5,355
Portland	7,655	7,461	6,425	19,942	1,497	225
Ogden	8,651	6,082	-----	-----	2,165	590
Salt Lake	8,774	4,111	816	1,156	10,316	7,183
Los Angeles	4,455	3,560	350	1,300	-----	-----
Denver	3,218	341	234	87	15,187	14,851
Western Total	78,568	69,496	144,049	180,545	39,184	29,410
Chicago	139,617	137,500	19,775	12,540	180,000	187,200
St. Paul	70,933	126,574	23,844	34,484	112,885	132,224
*Sioux City	-----	24,556	-----	2,601	-----	12,374
Omaha	11,234	10,825	2,133	1,351	15,046	21,421
Eastern Total	221,784	274,899	45,752	48,375	307,931	340,845
GRAND TOTAL	300,352	344,395	189,801	228,920	347,115	370,255

*Sioux City not included in either Eastern or Grand Total.

PROPORTION OF WHEAT CROP IN THE SIX GRADES
Montana-North Dakota-Kansas

Year	Grade (Spring Wheat)						Grade (Spring Wheat)						Grade (Winter Wheat)								
	State	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	State	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	State	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
1920.....	Montana	64.6	20.7	10.1	3.1	.9	.6	North Dakota	31.7	18.9	18.0	14.1	10.6	6.7	Kansas	38.4	36.2	16.7	5.9	2.3	.5
1921.....	Montana	74.7	18.2	5.6	1.4	.1	-----	North Dakota	14.0	22.2	29.7	20.5	10.0	3.6	Kansas	24.2	39.9	21.5	9.8	3.3	1.3
1922.....	Montana	84.0	12.1	3.1	.5	.3	-----	North Dakota	53.5	26.4	12.9	4.8	1.9	.5	Kansas	6.4	29.0	34.7	19.0	7.8	3.1
1923.....	Montana	63.2	20.6	12.1	3.8	.3	-----	North Dakota	10.5	18.9	29.4	22.7	12.1	6.4	Kansas	11.0	30.0	30.0	18.0	8.0	3.0
1924.....	Montana	84.0	10.0	5.0	1.0	-----	-----	North Dakota	65.0	19.0	10.0	4.0	1.0	1.0	Kansas	45.0	35.0	12.0	5.0	2.0	1.0
1925.....	Montana	68.0	19.0	9.0	2.0	1.0	-----	North Dakota	49.0	20.0	17.0	9.0	4.0	-----	Kansas	24.0	39.9	21.5	9.8	3.3	-----
Av., '20-'24	Montana	74.1	16.3	7.2	1.9	.4	.6	North Dakota	34.9	21.1	20.0	13.2	7.1	3.6	Kansas	25.0	34.1	22.9	11.5	4.7	1.8

MONTANA EXTENSION SERVICE

RECEIPTS OF BUTTER AT SAN FRANCISCO

State of Origin	1921	1922	1923	1924	1925
California	23,317,972	23,352,349	21,804,965	22,983,958	21,587,428
Washington	572,622	332,052	681,765	605,878	468,571
Oregon	646,953	584,819	1,177,447	947,670	1,195,144
Idaho	245,774	401,708	501,842	490,155	976,127
Montana	159,771	155,734	360,549	700,532	1,895,531
Colorado	27,306	119,850	30,000	20,921	544,548
11 Western States	25,420,941	25,478,621	25,028,835	26,190,042	27,017,257
Other States	309,308	437,639	481,775	220,578	1,734,856
Total.....	25,730,249	25,916,260	25,510,610	26,410,620	28,752,113

RECEIPTS OF CHEESE AT SAN FRANCISCO

State of Origin	1921	1922	1923	1924	1925
California	4,800,018	3,415,561	3,649,757	2,603,189	2,315,973
Washington	145,200	107,569	112,211	58,410	120,496
Oregon	2,244,753	2,447,133	2,557,112	2,710,065	3,029,468
Idaho	139,421	221,640	1,089,053	2,262,034	2,835,377
Montana	242	56,078	338,108	5,550	63,602
Colorado	175,428	321,847	221,734	255,793	322,629
11 Western States	7,530,638	6,599,784	7,966,354	7,977,110	8,860,148
Other States	2,101,233	2,577,708	3,735,075	3,505,229	2,995,233
Total.....	9,631,871	9,177,492	11,701,429	11,482,339	11,855,431

BY-PRODUCTS OF FLOUR PRODUCED IN MONTANA

Year	Bran middlings, etc., produced (tons)	A. U. Re- quirements (tons)	A. U. feeds will support one year
1920	29,700	2.75	10,800
1921	47,900	2.75	17,400
1922	43,700	2.75	15,900
1923	64,000	2.75	23,300
1924	74,300	2.75	27,000

FROST OR FREEZE DAMAGE TO APPLES IN MONTANA

(As Reported to B. A. E.)

Years	Loss expressed as per cent of normal crop
	Loss from "Frost"
1912	5.7
1913	3.1
1914	7.62
1915	4.29
1916	21.82
1917	5.22
1918	33.84
1919	21.67
	Loss from "Frost or Freeze"
1920	25.71
1921	14.17
1922	13.33
1923	9.61
1924	21.29
1925

Sources of Data

National

- 1—All divisions of the Bureau of Agricultural Economics furnished special tabulations upon request.
- 2—U. S. D. A. Crops and Markets weekly publication.
- 3—U. S. D. A. Crops and Markets supplement.
- 4—Foreign crops and markets.
- 5—U. S. D. A. year books, 1920-25.
- 6—Department of Commerce, year book, 1924.
- 7—Statistical bulletin Series of B. A. E.
- 8—Census reports, 1920 and 1925.
- 9—Monthly Agricultural Situation.
- 10—U. S. Weather Bureau.
- 11—U. S. Geological Survey.
- 12—U. S. Forest Service.

State

- 1—Montana Farm Review, Vols. 1, 2, 3 and 4.
- 2—State Board of Equalization reports.
- 3—State engineer's reports.
- 4—State Livestock Commission.
- 5—State Forester.
- 6—State Railroad Commission.
- 7—State Department of Agriculture.
- 8—County Agricultural extension agents.

Miscellaneous

- 1—Stock yard reports.
- 2—Drovers Journal Year Book, 1924 and 1925.
- 3—Oregon Agricultural College, Extension Service.
- 4—Montana railroads.

ACKNOWLEDGEMENT

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