This page blank in the original.
An Agricultural Program for Montana

Issued by

THE MONTANA STATE COLLEGE
EXTENSION SERVICE
Bozeman

Presenting information gathered by and recommendations of leading farmers, business men, stockmen and orchardists of Montana, in district conferences held in the spring of 1927.

Edited by John Dexter
Part I---Introduction

By

J. C. Taylor, Director
Montana Extension Service

Out of more than a half century of experience in the production of livestock and crops, and from the research and investigation by the Montana Experiment Station and other agencies, has come a vast amount of information of value in planning the future course of agricultural development in this state. To determine how best to present this information and to make it available to the people of the state so that programs of agricultural development might be formed, a meeting of leading farmers, stockmen and representatives of business and industry of the state was called at Bozeman, January 5, 1927. At this meeting it was decided to divide the state into six districts, to appoint representative men and women in each district to serve on commodity committees and to hold agricultural economic conferences in each of these districts, where committees might make their reports and adopt agricultural programs.

Accordingly, district committees were appointed and agricultural economic conferences were held in each of the six state districts. At these conferences the committees reported the results of their experiences and investigations and presented recommendations to serve as a guide for future development. Previous to these conferences the Montana Extension Service published a bulletin, "Basic Facts About Montana's Agriculture," which presented the fundamental statistics and facts about production in the state.

The findings and recommendations of the committees at these agricultural economic conferences are printed in this bulletin—Part II representing the general conclusions which apply to the entire state, and Part III, those which apply particularly to the district concerned.

Approximately 1,200 men and women, actively interested in the agricultural development of the state, took part in the district conferences. The reports in this bulletin are the results of the efforts of these forward-looking citizens.

It must be recognized that a program for the state, or even for a district, must be quite general because of the varied conditions in such large areas. General programs of this kind are needed, however, to provide the necessary background for the subsequent detailed programs for counties, communities and individual farms.

Farming under irrigation involves many specific problems which apply particularly to each area or project. Therefore, irrigation is treated very generally herein, and much of the discussion of this bulletin deals with non-irrigated land. Special agricultural economic conferences for irrigated land have been held for southeastern Montana, the Flathead Irrigation Project, the Lower Yellowstone Project, the Milk River Valley and the Sun River-Valier-Bynum district.
The Need for an Agricultural Program

(By M. L. Wilson, Agricultural Economist, Montana Experiment Station.)

Montana has definite and specific advantages in certain lines and types of agricultural production in comparison with other agricultural districts. Likewise the state has certain disadvantages in the production of some other crops in competition with more favored sections. Farm prosperity in Montana can and will be increased through individual farm adjustments which make for orderly production, make the maximum use of state and local advantages, and which are in line with the trends in production, future agricultural demands and economic conditions. It becomes increasingly more important for farmers to study how to produce efficiently, where to produce, how much, and how the different lines of production can be fitted into the farm business so as to give the most efficient and profitable use of land, labor and capital.

No state has made greater progress since the beginning of the agricultural depression than has Montana. Future progress can be stimulated and greatly facilitated if farmers will base their production programs upon the results of careful studies of the above mentioned factors.

No subject is more discussed today than the farm situation. There is prevalent among the farmers of the nation the opinion that the prices of farm commodities, together with their debt paying and purchasing power, are at present not in line with the prices of other commodities. This price disparity generally is directly attributed to the agricultural surplus, although there likely are many other causal factors. It is apparent that there is a very definite relation between supply, demand and price. For years past agriculture has been expanding. The war was a great stimulus and modern farm machinery has played its part. At any rate, farmers quite generally feel (and this impression is shared by others as well) that the returns for their labor, management, land and operating capital for the past few years have not been sufficient to allow them to pay debts, acquire farm ownership, or to maintain a standard of living comparable with those in other pursuits requiring equal ability and capital investments.

Four lines of thought are clearly apparent in the many suggested solutions to the farm problem. Three of these are largely outside the realm of the individual farmer; one lies wholly within his reach and action. They may be briefly summarized:

1. National legislation which seeks to influence, through governmental action, the production of the agricultural surplus so that the portion which is sold and consumed on the domestic market will maintain a closer parity with other commodities and wages.

2. Cooperative marketing which aims to give farmers greater bargaining power and more control over the sale of their products. All agree
EVOlUTION OF LAND UTILIZATION IN MONTANA

NATIONAL AND PRIVATE FORESTS, PUBLIC, STATE, RAILROAD AND OTHER LAND—UNIMPROVED FARM LAND—IRRIGATED LAND

1925

45% 22% 11%

IMPROVED FARM LAND

1920

63% 25% 10%

ALL LAND IN FARMs

ALL LAND IN STATE = 53,523,840 ACRES = 100%

1910

85% 11% 2%

1900

87% 11% 1%

FIGURE 1
that this is desirable where definite results are to be secured. It is an accepted principle, however, that "orderly production precedes orderly marketing."

3. Increased farm efficiency through the use of greater farm power units, larger farms, etc. This is a complicated problem. It must be realized that not all types of farming are adapted to such a program and also that if the only net result of such action is a continually expanding production without corresponding increases in demand for commodities so produced, lower prices must result.

4. Adjustments in production, in the business organization of individual farms and in the general practices of definite communities. It is largely this point of view that is presented in these economic programs. This does not mean necessarily that the others do not have merit or that farmers are not to benefit by collective action, or to make gains by other means in the pursuit of higher standards of living. Nevertheless, it appears that the farm family will continue to be the unit upon which American farming is based. Each farmer or farm family will continue to seek the greatest returns from his labor, his management and operating and land capital.

It is probable that future efforts of farmers will be along all of the above lines of thought and each has possibilities for direct benefit. Agricultural programs such as those being undertaken at these Montana conferences are developed by successful farmers and by scientific and research agencies. They present the best judgment of the community. When such programs are developed in each community, and when each community can be better informed as to its advantages, its competitors, and its place in the whole scheme of agricultural production, then all farmers will be able to make sounder judgments as to what and how much to produce, and how the farm as a whole may best serve the needs of society and still be a successful business unit returning an income which will enable the farm family to get its share of the good things of life.

Part II---The State
Program for Agricultural Development

THE UTILIZATION OF MONTANA LANDS

Within the wide borders of Montana are many kinds of lands upon which have been developed a number of types of agriculture. Rapid changes have occurred in the use of these lands, especially during the past 20 years. In the Sixties a few farms had been brought under the plow in order to supply the mining camps with food. The next two decades saw the rise and fall of the cattle grazing industry on the free range in Montana. Irrigation ranching continued to develop along the river valleys in the Nineties. The great dry land settlement movement began
about 1906, increasing rapidly and continuing into the World War years, when high prices pushed settlement out onto much land where otherwise it would not have gone. Then came falling prices, deflation, and a period of readjustment which has continued to the present time.

As conditions have changed, farmers and ranchmen have endeavored to change their farming systems to get the greatest possible profit from their land. In Montana, as elsewhere, the use to which land is put depends largely upon the profit that can be made.

The following paragraphs show how land is used in Montana as these many and changing conditions are met:

1. As returns from either crops or livestock rise or fall, farmers change their systems accordingly. Crop acreages and numbers of livestock vary according to the opportunity for profit.

2. The demand for land and the interest of the public in land is dependent on the profitable use of that land.

3. The price at which land will sell is also dependent on the profitability of its production.

4. Montana, selling much of its production on a national or world market, cannot escape the influence of outside conditions and prices, as they affect the profitable use of lands within the state.

It is now apparent that over the country as a whole agricultural production was tremendously overexpanded during the World War. The reaction has been reflected in low purchasing power of agricultural products, absence of demand for land, falling land values, crop land going out of crop use, and increased tenancy.

That Montana agriculture cannot be separated from national agriculture is shown by the fact that these national post-war changes have in many cases affected the utilization of much land in this state.

In the United States some 19 million acres of crop land went out of use between 1920 and 1925, according to the federal census. This was a natural recession from the high pressure production of war years when the profitability of crops had caused much pasture grass land to be plowed up. The average acre value of farm real estate in the United States declined from $69 in 1920 to $54 in 1925. The percentage of tenancy remained about the same over the country as a whole but the Mountain States showed an increase of 6.8 per cent.

In Montana, land in farms decreased approximately two million acres between 1920 and 1924, and the number of farms, according to the census, decreased from 57,677 to 46,904. There has been a marked increase in size of farms in the state. Farm real estate values in the state declined from an average of $19 per acre in 1920 to $11 per acre in 1925. The percentage of farms in Montana operated by tenants increased from 11.3 in 1920 to 21.9 in 1925.
Because of the above drastic and rapid changes Montana's agriculture is in a comparatively favorable position. The changes made represent, not so much a retrogression as they do tremendous progress in making adjustments to a changing situation. Even though the number of farms has decreased and the rural population remained nearly stationary during the past six years, the production of crops and livestock has increased steadily.

Montana's agriculture will continue to change and, by a study of experience and of factors causing changes, those engaged in agriculture in Montana hope to be able to make the necessary adjustments to keep their lands in the most profitable use.

In considering the present situation of Montana lands and in developing a program for the future, the farm management and land utilization committees of the various state districts have considered the lands of the state as roughly falling into four general classes: 1—Non-irrigated wheat lands; 2—Farming-grazing lands; 3—Grazing lands; 4—Irrigated lands. This grouping is very general and many gradations are to be found in each group.

Men vary, not only in their abilities but also in what they like to do, yet it is the object of every Montana farmer and rancher to get the largest possible net return for his own labor and managerial ability. In doing this he tries to get such a unit of land, such equipment, and such a combination of enterprises as will give him the largest return for the time he spends on his farm or ranch.

Although there have been failures on every kind of land, still there are many men who have adapted their systems of farming to their climatic, soil and economic conditions in a successful way. The experience of these successful operators is considered most valuable in determining the most successful methods of utilizing Montana lands.

Dry Land Wheat Lands

On fairly level dry lands where large acreages of tillable land are available, wheat or combination wheat and livestock farming systems have been developed.

On these farms, cost of wheat production is being lowered by driving more horses per team, by using the medium sized tractor, by low cost summer fallow and by use of the combine harvester. Some Montana farmers by these methods produce wheat with two and a half to three hours of man labor per acre while the average for the spring wheat region is probably about seven.

With this increased power efficiency wheat farmers can obtain a greater return for their labor and managerial ability. The tendency has been toward more bushels per man by operating a larger unit of land than would have been practical with the old methods. Wheat farms now tend toward a section or more in size.
MONTANA CROP ACREAGE DISTRIBUTION
51R Average
1920-1924

FEED CROPS

44%
2,938,500 ACRES

CASH CROPS

56%
3,779,200 ACRES

WHEAT 53%

FIGURE 2
Purchase of land to increase the size of the operating unit is considered more desirable than leasing. Some crop payment plan is preferred. A system of summer fallow farming is desirable to distribute labor as well as to add security. Where practical a system of farming in which one-third of the wheat acreage is in summer fallow, one-third in wheat on summer fallow and one-third in wheat on clean summer fallow stubble gives a good labor distribution. The growing of winter wheat where possible on part of the wheat acreage also aids in labor distribution.

Costs of summer fallow are being lowered rapidly. A number of Montana farmers with improved methods have summer fallowed at a cost of less than one dollar per acre.

Alertness of farmers in shifting to lower cost of producing wheat is keeping in wheat production much Montana land which probably otherwise would be forced out by the competition of other wheat producing areas.

Straight wheat farming under low costs has been profitable but is a more or less temporary type of agriculture. Farmers are avoiding some of the risks of this kind of farming by providing a moisture reserve in the soil through proper tillage methods, as well as a cash reserve in the bank to tide them over years of low profits.

However, with a lower wheat price and increasing soil problems many farmers on such wheat lands have added livestock as a sideline. In such cases the number of livestock is dependent on the amount of feed produced. A year’s supply of feed in reserve is considered the necessary margin for safety.

The work of caring for the livestock and the growing of feed crops should be arranged to conflict the least with work of producing wheat, since these lands are peculiarly adapted to growing wheat under low cost methods and since wheat probably will continue to be the chief source of income. How much wheat acreage will shift to other uses will depend largely on the profitableness of wheat growing as compared to other possible uses of the land.

Farming Grazing Lands

In many sections of the state considerable rough grass land is mixed in with the wheat lands. In these sections, in order to utilize the grazing land, wheat-livestock combinations of farming have developed.

In these areas larger farms are desirable than in the tillable wheat land sections. The tendency is to have a section of mostly tillable land and a section or more of grazing land. Like the wheat farms these farms have been increasing in size.

Wheat is the important cash crop and low production costs are vital. Most of the low cost practices of the straight wheat lands apply. Although
the man on this type of farm probably cannot achieve the same low costs, yet this is balanced by advantages in labor distribution, by reduced risk and by certain advantages of management of a diversified system.

In obtaining grazing land to form an economic unit with their farm land the men in these areas have encountered essentially the same problems as have the men in the more purely grazing areas.

Grazing Lands

Grazing lands of the state vary greatly in kind and ownership. Those within the state or national forests are already under systematic control and management. In the foothill sections the good grazing lands are mostly controlled and the stockman is concerned with the kind and number of livestock to run, rather than with the control of land.

The difficult problem with grazing land exists in the purely grazing sections of the state where foreclosure and abandonment of homesteads have occurred. These units, mostly, are small acreages in the hands of scattered and absentee owners and mortgage holders and often are checkerboarded with state, railroad and public domain lands. In many cases taxes and paper values of these lands are out of line with their productive worth. As a result farmers and stockmen have difficulty in obtaining an economic unit of land for either permanent livestock range or farming.

As a further result grazing on these lands is uncontrolled and overdone and they are losing their ability to grow grass. Preliminary experimental evidence indicates that the present carrying capacity of much of this grazing land can be raised from 30 to 50 per cent by good range management over a period of years.

Further study of the utilization of these grazing lands is needed but it seems probable that larger grazing units combined with some farming land will make possible a more stable and profitable type of livestock farming than at present.

In these purely grazing areas where the grazing land dominates, carrying capacity measures the worth of the land. Crop land should be combined with grazing land to make an economic unit, the crop land to produce feed and necessary feed reserves to match the carrying capacity of the grazing land. Such units probably should be considerably larger than the units on either the wheat lands or farming-grazing lands.

Many absentee owners lack full information on the productive value of these lands. There is need for public and private agencies to give serious attention to some means of blocking out checkerboard lands into economic units. A progressive step in clearing up the situation can be made by counties taking tax titles to tax delinquent lands and reselling these to adjoining owners at a value consistent with their productive worth.
Since practically no good agricultural land is left in the public domain it would seem advisable to repeal the present 640-acre grazing homestead act and extend the isolated tract law whereby non-agricultural land in the public domain can be sold in amounts not to exceed six sections, giving preference to adjacent land owners.

Irrigated Lands

The problems of farming on irrigated lands in Montana are such that each section requires special study. Detailed studies have been made in a number of areas, including the Upper Yellowstone, the Gallatin and the Bitter Root regions, and the results are proving valuable in mapping out agricultural programs for irrigated areas. Plans for careful studies in several other sections are under way.

At present there is a large amount of irrigated land in the United States that is not being utilized. On some of the irrigation projects in the state 30 to 40 per cent of the farm land under the ditch is not being used. The tendency is thus not to add new projects and bring more land into cultivation, but to utilize idle land on existing projects.

Because of high overhead charges, water costs, taxes and interest on investment, farmers on irrigated lands must look to high yields and good combinations of enterprises for profit. There is definite need in some areas for more efficient use of irrigation water.

A combination of crops and livestock to level out the season’s work is desirable. Livestock or livestock feeding is desirable on irrigated farms to consume the feeds produced, to furnish manure for the soil, and to provide profitable employment during the winter. Cultivated cash crops add to the income, aid in control of weeds and call for a greater degree of intensity in farming than do hay and pasture combinations.

Irrigated farmers producing wheat must expect increasing competition from the dry land wheat lands where costs can be lowered more effectively. However, where wheat growing fits in with a desirable combination of enterprises and where high yields are assured, some wheat is profitable on most of the irrigated lands of the state.

High yielding alfalfa and tame pastures of high carrying capacity are more profitable on good land than are native hay and native pasture.

The unused irrigated lands of the state constitute a serious problem and work under way will give more information on possible uses of these lands.
Grains and Other Crops

The need for increased production of feed crops, improved tillage methods, increased pasture and the production of high quality products were among the outstanding recommendations at each of the Montana agricultural economic conferences. While the means of accomplishing these aims vary greatly within the state and even within the districts, the opinion was unanimous that those factors must be incorporated into the program if the state is to make the progress in crop production of which it is capable.

These recommendations very naturally fit in with the general agricultural conditions of the state and nation. There is increasing competition between individual farms and between producing sections. Montana has the disadvantage of being a long distance from markets. If cash grain is to be produced it must be raised at low cost and it must have the quality which will bring the highest prices. The lower the cost and the higher the quality, the more successful will Montana farmers be in meeting the competition of those more favorably located. Better tillage is a factor in the production of quality crops and helps lower costs by increasing yields.

In many parts of the state successful farming cannot be based on grain alone. Livestock is necessary to remove some of the risk and to bring the highest average returns. Here the factors of low cost and high quality also are important. Increased pasture and more feed grains are factors in reducing costs and improving quality of livestock and insure a more uniform and reliable earning capacity as well.

Growing Small Grain

While spring and fall wheats will continue to lead all other crops in total production and value, feed crops such as oats and barley are destined

| COMPARATIVE PROTEIN CONTENT OF HARD SPRING WHEAT | STATE AVERAGES |
| PERCENT | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| MONTANA | | | | | | | | | | | | | |
| NORTH DAKOTA | | | | | | | | | | | | | |
| MINNESOTA | | | | | | | | | | | | | |

BASED ON 3 YR. AVERAGE 1924-1925-1926

FIGURE 4
to play important parts in the crops program of the state. As better balanced systems of farming are adopted, the feed requirements of the average Montana farm will increase.

Tillage is the main factor within the control of the farmer in affecting crop production. The soil and climatic conditions peculiar to this state must be met by methods of tillage and types of tillage machinery which are adapted to and in harmony with those conditions. Through experiments, demonstrations and experience, Montana methods of tillage are gradually being evolved and adopted.

**SUMMER TILLAGE**—Summer tillage at present occupies the premier position in tillage practice. While this method has some objections, it is certain that until some modifications are found, every farmer raising grain with less than an average of sixteen inches of rainfall annually should fallow from one-third to one-half of his land every year. No one standard method will serve the variable conditions of the state, but the following broad plan has a rather wide and general application:

1. Top working before plowing. Of special advantage where plowing is delayed to any extent.
2. Early plowing to make soil receptive for heavy rains during expected rainy period. Plowing before June first is desirable.
3. Cultivation after plowing. Cultivation with adapted types of implements to create and maintain a cloddy mulch and to destroy weed growth. The duckfoot cultivator is the best all-round implement, but rod and blade weeder also have a place.

**SUMMER TILLAGE MODIFICATIONS**—To meet soil blowing and other problems, modifications of the standard practice are necessary and desirable. The plowless or duckfoot type of fallow is an example of these modifications and one which is rapidly being adopted with marked advantages in labor distribution, weed control, soil drifting control, labor costs and yields. Listed summer fallow also is receiving some attention.

**SUMMER TILLAGE SUBSTITUTES**—As the problems connected with the summer tillage system become acute and as livestock enters into the farm scheme, summer tillage substitutes will be employed. Corn offers the greatest promise in this direction. While summer tillage has an advantage from the standpoint of moisture conservation, of effectiveness of weed control, of efficiency of labor and of increased yields, yet the system of farming made possible by the introduction of corn will be of a more permanent character than will the summer tillage system.

In order that corn may assume a large place as a summer tillage substitute in the production of small grains, cheaper and more extensive labor saving methods must be employed. The growing of corn by the listed method is rapidly gaining in favor for this reason. The extent to which corn can be profitably employed will depend upon the adaptability of any particular section for the crop as well as upon facilities for profitable utilization.

**STUBBLING IN**—The planting of small grains on land previously cropped to small grains has been a much abused practice. It has been found
profitable only when it follows a crop that has been planted on summer fallow or on thoroughly tilled land.

Soil Blowing—Main reliance for relief from soil drifting must be placed on mechanical methods of control. The furrow drilling of winter wheat, listing of land for fallow or corn, the use of the duckfoot cultivator, blade weeders and rod weeders, plowless summer fallow, ridging of land in the fall, strip farming and various combinations of the above are indicated.

Crop Standardization—Farmers should use seed of varieties proven adapted to their conditions. The plan of seed certification used in this state makes possible the production of large quantities of home-grown seed for home consumption.
Spring Wheat

The main concern of the spring wheat farmer is to keep the acre cost of production below acre income. The means at hand are: 1. Efficient tillage methods; 2. Reduction of man labor cost by the use of tillage and harvesting machinery requiring less man labor per acre; 3. Adapted varieties; 4. Production of quality wheat high in protein, and assurance of premium paid on protein basis.

Hard red spring wheats are recommended except in certain mountain valleys where hard wheats turn starchy. White wheats are then substituted.

Losses from stinking smut are light but annual seed treatment is a sound investment. The dry copper carbonate treatment is recommended.

Protein content in wheat depends on seed, soil and season. Summer-tilled land, or land previously cropped to a legume like sweet clover or alfalfa, will produce wheat with higher protein content. Varieties should be grown which average high in protein producing ability. Wheat marketing on a protein basis is desirable, although the system has not been perfected to the point of complete satisfaction. Farmers should have their wheat tested before selling. Care must be exercised to secure a truly representative sample for testing.

Winter Wheat

Smut losses and winter injury have combined to somewhat reduce the interest in winter wheat production. The furrow drill has demonstrated its effectiveness in reducing losses from winter killing. The copper carbonate treatment is especially recommended for treating winter wheat for smut.

Winter wheat responds to good summer tillage. Outside of the winter wheat sections of the Chinook belt, winter killing is too severe for the production of winter wheat on summer tilled land. While the practice is generally condemned, “stubbling in” on wheat land previously summer tilled has proven profitable in some areas. The results have been variable and further local tests are needed. The improved standard varieties are recommended to take the place of Turkey Red.

Small Grain Feed Crops

Oats are adapted to Montana conditions, but in many sections of the state barley will produce more pounds of actual feed per acre if due attention is given to seed bed, proper variety and fairly early seeding. Barley does especially well in the higher altitudes.

Emmer can be grown only in competition with oats and barley on the basis of adding variety to the ration. Its average yield is lower.

Winter rye has a place in areas where winter wheat is not a leading crop. Its volunteering tendencies are objectionable. Montana winter rye is a good hog feed, and can be produced at low cost.
Flax

Market conditions, prices and average yields favor an increase in flax production. A weed-free and firm seed bed is essential. It is important to avoid weed-infested flax seed.

For irrigated conditions, the flax and wheat mixture plan is promising and the results of the present extensive demonstration campaign should be observed.

Other Cash Crops

The production of Great Northern beans has proven profitable on irrigation projects in the lower altitudes. The dry land bean acreage is slowly increasing in the lower areas.

Sugar beets are spreading rapidly over the various irrigation projects of the state. They provide a cast crop of high acre income and supply the need for an intertilled crop in the rotation.

Canning and seed peas are localized in their acreage distribution.

Seed Production

Montana’s soil and climatic conditions are conducive to quality seed production. The main seed crop is alfalfa, which fits into the farm system in certain parts of the state as a side-line crop. Grimm and Cossack varieties should be placed on a state certified and sealed basis as soon as possible. Montana common should be verified as to Montana origin and sealed by the state. Standardization of product, more efficient and centralized contact with the seed trade and elimination of sweet clover and noxious weeds are the main problems requiring attention.

Red clover seed production on a commercial basis is probably adapted to local areas in the northwestern part of the state.

An opportunity exists for enlarging the present activities for the production and marketing of registered small grain seed in carload lots.
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>WILD HAY</th>
<th>ALFALFA</th>
<th>SMALL GRAIN</th>
<th>TIMOTHY</th>
<th>CLOVER</th>
<th>OTHER</th>
<th>FORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARTER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POWDER RIVER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUSTER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FALLON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WIBAUX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRAIRIE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAWSON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RICHLAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROOSEVELT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHERIDAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MC CONE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GARFIELD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALLEY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHILLIPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLAINE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERGUS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HILL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHOUTEAU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CASCADE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBERTY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOOLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PONDERA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLACIER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TETON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLATHEAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LINCOLN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SANDERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MINERAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MISSOULA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEWIS &amp; CLARK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POWELL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRANITE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAVALLI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEERLODE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SILVER BOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JEFFERSON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEAGHER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEAVERHEAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MADISON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BROADWATER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GALLATIN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWEETGRASS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WHEATLAND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STILLWATER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSSEL SHELL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YELLOWSTONE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROSEBUD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TREASURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIG HORN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CARBON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Corn

Corn varies in its adaptation, utilization and extent of acreage with such factors as average rainfall, length of growing season and available heat units. Local variety tests should be conducted and heeded. More attention should be given to the gathering and proper storage of home grown seed corn of adapted varieties. The improvement of varieties should be delegated to experiment stations and to a few certified growers cooperating with the Extension Service. The dependability and high yielding ability of the early flint crops, like Gehu and Dakota White Flint, should be capitalized through more extensive "hogg ing" and "stocking-off." Listing of corn means cheaper and more extensive methods of production which are essential if corn is to be grown as one of the major crops. The tendency to grow late washy corns for fodder or silage should be curbed. The best varieties to grow are those that mature early every year. Inexpensive silos filled with corn make valuable feed reserves. Adapted varieties and methods of utilization are essential for successful corn growing.

Forage Crops

Alfalfa is the leading forage crop under irrigation. Under non-irrigated conditions, where moisture conditions above the average are assured, this crop has little competition.
Sweet clover fits into the dry farm scheme. The limiting factors are difficulty in obtaining a stand and in handling the crop for quality hay. Sweet clover usually should be planted on summer tilled or corn land which provides the firm and moist seed bed required. It should be harvested just before blossoming. Sweet clover is the leading pasture crop, giving unusual carrying capacity.

Annual hay crops are important in a region where the feed supply is likely to be erratic and where emergency supplies must be produced on short notice. Oats out-yield other small grains, but barley and wheat rank high and usually are preferred from the feeding standpoint. Grain hays should be harvested in the dough stage. Millets can compete only on the basis of cash crops. Sudan grass requires warm weather and its use is limited to a few favored localities.

Under irrigation the pasture problem is solved by sweet clover and approved grass mixtures. Under dry farm conditions sweet clover and small grains are used successfully.

The Weed Problem

Montana, being a comparatively new state in its agricultural development, has had relatively little trouble with weeds. On some of the older irrigation projects a few weeds have become serious enough to make changes in farming systems advisable. Freedom from serious weed pests is a valuable agricultural asset to the state and every effort should be made to maintain this condition. In the limited areas where weeds appear to threaten, vigorous eradication campaigns should be carried on.

\[
\begin{array}{c|cccccccc}
\text{STATE} & 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\
\hline
\text{OREGON} & & & & & & & & & \\
\text{MONTANA} & & & & & & & & & \\
\text{TEXAS} & & & & & & & & & \\
\text{MICHIGAN} & & & & & & & & & \\
\text{OHIO} & & & & & & & & & \\
\text{MISSOURI} & & & & & & & & & \\
\end{array}
\]

\textbf{AVERAGE WEIGHT PER FLEECE FOR THE 5 YR. PERIOD 1921–1925}

\textbf{AVERAGE WEIGHT OF FLEECE IN POUNDS}

\textbf{FIGURE 10}
Livestock

The Montana livestock producer's chief economic concern is the complete and efficient utilization of grass. In 1925, of the more than 93,000,000 acres of land in the state, two per cent was classed as irrigated land, eleven per cent as improved farm land and 87 per cent as unimproved or non-farming land. Whatever agricultural income is obtained from this vast area, which constitutes approximately seven-eighths of the total, must come from livestock. No immediate expansion of the dry farm area is in sight. In fact, the present tendency of the dry farm area is toward contraction, as the result of unsuccessful attempts to farm unadapted lands. With a fairly fixed capacity for grazing, the question becomes that of the most economical method of converting the available grass into livestock products under the conditions of location, markets, climate, winter feeds, range feeds and water in the state.

There always will be shifts from one class of livestock to another, due to market conditions, inclination of operators, etc. Changes that have taken place in the ranges in the immediate past are shown in the following illustration:

From 1910 to 1922, inclusive, homestead filings were made on approximately 42 per cent of the entire area of the state. This necessarily brought about a decided change in livestock management. Much land was abandoned after it was broken up and after the stand of native grass was ruined. The need for grazing land brought about the purchase of much patented lands in amounts and at values that during the dull times following 1920 proved a burden to the purchaser. However, greater stability has been given to the livestock business through this ownership, although in general it has increased operating costs of the owners above the costs of those operating on leased land.

The lands filed on were naturally the choicest and much of the rougher land left in the public domain has been so reduced in grazing capacity as to be of little value. This is the result of over-grazing caused by a temporary demand for grass and a great increase in the number of worthless horses. The public domain remaining in outlying sections, and abandoned patented lands on which taxes have not been paid, should be brought under controlled grazing either through sale to stockmen at their actual value for grazing or through lease for a sufficient period to justify stocking on a permanent basis.

Ownership of grazing land is desirable but, at present land values and with present prices of livestock products, it is unprofitable to operate a range livestock enterprise entirely on owned land. However, the permanence and stability which come through ownership are values which must be considered. In 1926 the cost of running sheep on owned land was $1.00 per head, or about 16 per cent in excess of the cost of operation on leases. However, it has been found that the carrying capacity of ranges can be increased 38 per cent within a six-year period through proper control. Thus, ownership of grazing land at its grazing value is very often
Acreage taken up by homesteaders (1,000 of acres)

Numbers of sheep in thousands.

Numbers of beef cattle in thousands.

Estimated from number of filings by average acreage four preceding years.

Figure 11
desirable. A reclassification of the lands in many counties is essential to the success of the livestock business and would create a demand for ownership that would increase rather than decrease the tax income of those counties.

Figure 11 shows the acreage taken up in homesteads from 1907 to 1922 with the numbers of sheep and beef cattle in the state from 1909 to 1924. During the homestead period sheep production fell materially, for fences prove a serious handicap to successful sheep production. However, the number of beef cattle increased to exceed that of any time during free range days. Depressed beef prices for the past four years caused considerable liquidation of small holdings of cattle and the tendency has been to replace with sheep. Since 1922 large holdings of sheep have increased as well as have the farm flocks, due to the acquisition of abandoned lands that for a time were used for small grain production. In some cases range that is better adapted to beef production has been used for sheep, due to temporary price conditions. This situation will be corrected as returns from beef more closely approach those from sheep.

**Feed Supplies Adequate**

The range livestock industry is now adequately supplied with hay but any overstocking of ranges with the idea of using a larger amount of hay in winter time is economically impractical. On irrigated lands where livestock is the base of successful operation, greater acreages of irrigated pasture, sweet clover or mixed grasses are advisable. Experience has shown that one acre of irrigated pasture to two of alfalfa is a good ratio.

**Improved Quality**

Production costs demand a high return from every breeding female. The use of good purebred sires and the elimination of undesirable females are the logical means of accomplishing this end. In addition, a reserve supply of feed for use during dry seasons is especially desirable. Present market demand is practically limited to young stock, though the conditions on the individual ranch must determine the age of marketing.

**Cooperative Livestock Shipping**

Inasmuch as the size of the ranch unit has materially decreased and much of the livestock of the state is produced in small lots, cooperative livestock shipping associations are suggested as possible means of reducing marketing costs. There are a number of such organizations now in successful operation in the state. Competent management and a sufficient volume of business to justify this type of management are essential to the success of such cooperative ventures.

**Permanence and Stability**

A successful livestock enterprise must have permanency and stability. Sudden changes are to be avoided and, if they are made, should be based on a long time, careful view of the entire situation. To foster permanence and stability in Montana, it is necessary that a definite policy be reached.
regarding homestead laws. Those going into the livestock business must plan to go through unfavorable as well as favorable periods. To buy when prices are high and sell when prices are low is disastrous to the individual operator and a detriment to the industry.

**Finishing Stock**

Decreasing soil fertility and generally low returns are the result of selling feeds from the ranch. To correct this, surplus feeds should be used for the winter fattening of livestock for market. In general, experience has shown that where winter fattening has been attempted in the past, the feeding period has been too short to bring satisfactory returns.

**Hog Situation Favorable**

Montana has an economic advantage in hog production because of its accessibility to west coast markets and a consequent favorable freight rate. The Pacific Coast is deficient in its pork supply and with cheap forage and high yields of feed grains, producers here may compete with those in other sections. A reserve of feed is necessary for successful hog production and small scale operation usually is most desirable for the individual farmer or rancher.

**Dairying**

Nothing in the present situation in the state or nation would indicate an over-production of dairy products in the near future. All conferences recommended a more intensive development of dairying in favorable areas in Montana with chief attention devoted to the improvement of dairy cattle; to the wider use of sweet clover or Huntley mixture for pastures; and to the adoption of better practices on the dairy farms.

**Production and Consumption Increasing**

The production of dairy products in the United States as a whole has followed very closely the consumptive demand. There has been a material increase in the amount of milk produced per thousand persons, but increase has been taken care of by a very marked increase in the consumption of milk. In 1917 the average consumption of milk per capita was 42.4 gallons. It is now over 54 gallons. There has also been an increase in the consumption of ice cream, cheese, condensed milk and butter.

Prior to the World War imports exceeded exports. During the war considerable quantities of dairy products were exported in excess of imports. Since the war we have again imported more dairy products than have been exported, but the difference is very slight.

With the present increase in population of about a million and a half annually, it will require nearly 375,000 additional cows each year to take care of the increasing demand for dairy products.

Great progress has been made in the dairy industry of Montana in late years. This was due largely to the rapid influx of settlers from 1908
to 1916, and to a gradual change from grain farming and livestock production to a more diversified type of agriculture. In 1921 Montana produced 7,464,670 pounds of creamery butter and in 1926 this had increased to over 16,000,000 pounds. Likewise there has been a marked increase in the number of cows kept for milk. In 1910 there were 80,000, and in 1926 there were 228,000.

Natural conditions over a large part of the state are very favorable to the economical production of dairy products, especially in the irrigated districts. Montana has between two and three million acres of land under irrigation and has a possibility of irrigating more than 5,000,000 acres, an area about one-half the size of Denmark. On these lands an abundance of suitable dairy feeds, such as alfalfa hay, corn, barley and oats, are produced. Good, well established irrigated pastures will feed from one and one-half to two and one-half cows per acre. On the non-irrigated farms, sweet clover, corn, cereal hay and the small grain crops are grown for feed.
The rapid increase in population on the Pacific Coast in late years has created an excellent market for surplus butter. In 1925 San Francisco and Los Angeles imported over 23,000,000 pounds of butter from outside of California. A large percentage of this butter comes from Montana.

Eliminate the Scrub Bull and Test the Cows

Since increased production is obtained largely through the use of better sires and since there is a large number of inferior bulls in the state, the use of pure bred registered sires of known high producing ancestry offers one of the best means for dairy improvement.

As a means of developing profitable herds, cow testing associations, or cow testing clubs should be encouraged. Where such organizations are not possible farmers should keep individual records of cows so that unprofitable ones may be weeded out. To increase the production of butterfat per cow, a larger percentage of cows should be bred to freshen in the fall and winter months, if satisfactory feed and shelter can be provided.

The common practice of letting the dry cow “rough it” around the straw pile is not conducive to the economical production of milk. The cow should be given a six-to ten-weeks dry period and during this period she should be fitted for the following lactating period. If a satisfactory condition cannot be obtained on roughage alone, a few pounds of grain should be fed daily.

The practice of feeding producing cows only enough grain to maintain them in good, thrifty condition, is entirely satisfactory. Since sweet clover and alfalfa constitute the principal dairy feeds, it is profitable to use special efforts in putting up a quality hay. It should be cut early and put up soon after cutting to prevent the loss of leaves.

In order to develop the most profitable cows, heifers of the smaller breeds should be bred so that they will not drop their first calves before they are twenty-four months of age, and those of the large breeds not much before thirty months.

Disease Control Is Important

The extension of the area testing of cattle as a means of eradicating bovine tuberculosis is recommended. To prevent the further spread of contagious abortion, farmers who buy cows from outside herds should make sure that the animals are free from the disease. Farmers should give full cooperation to county agents and veterinarians in controlling this and other contagious diseases.

Sterilized bone meal, instead of high-priced commercial mineral mixture, should be used in cases where there is a mineral deficiency in the feed. Potassium iodide should also be fed to the pregnant cow where there is trouble from goiter in new born calves.

The standard makes of milking machines are practical on farms where twelve or more cows are milked, but prospective users should investigate carefully the various types of machines before buying.
The common practice of changing from one breed to another, resulting in many off-colored and inferior animals throughout the state, is condemned. By the continuous use of good bulls of one breed a higher class of cattle can be developed and a better price obtained for surplus animals. Successful practices in raising dairy calves will bring higher producing cows. Calves should be fed whole milk for two or more weeks, at the rate of one pint of milk to every nine pounds of live weight, before changing to skim milk. Skim milk should be fed to calves until they are at least six months old. Home grown grains should be used as far as possible instead of high-priced commercial preparations. Green, leafy hay of the finest quality and good pasture are essential for economical growth, but calves should not be pastured before they are three months old.

Horticulture

Soil, climatic conditions, and altitude vary so greatly in Montana that it is impractical to consider commercial production of certain fruits and vegetables on a state-wide basis. This applies particularly to the production of such fruits as apples, cherries, strawberries and raspberries. However, some sections of the state are especially adapted to the production of high quality fruit. The Montana McIntosh apple has been topping the national markets over all varieties, including the McIntosh from other districts. Also, the Montana grown pie cherry has been selling at a premium on the eastern markets. Everbearing strawberries and everbearing raspberries ripen after shipments from other important producing sections have passed their peak.

Apples, plums, cherries, strawberries, raspberries, currants and gooseberries can be produced to meet home requirements in nearly all parts of the state if care is exercised in the selection of hardy varieties and protection is provided by shelterbelts where natural protection does not exist. Very few farms, outside of the commercial districts, produce sufficient fruit for home use.

Vegetables

Vegetables of good quality can be produced almost everywhere in the state, yet there are many farms that are not producing sufficient quantities for home use. Some farmers are producing a surplus and selling on local markets. These surplus crops usually are not well graded and command much lower prices than they would if standard grades were offered for sale. Butte, the largest consuming center in the state, imports from other states more vegetables than are supplied by Montana farms. This indicates that there is an opportunity for expansion in truck gardening in favorable sections. Practically all vegetables do well in the state and every farm or ranch should have its garden. Some vegetables offer good possibilities from the commercial standpoint. In this list are: head lettuce, cauliflower, cabbage, celery, and onions. These crops may be grown for shipment in favorable irrigated areas.
Cantaloupes offer possibilities for commercial growing in certain sections. Burrell’s Gem, Emerald Gem, Greely Wonder and Rocky Ford have been produced satisfactorily in the cantaloupe sections.

Many other vegetable crops can be produced in limited amounts for local markets. Only those canning crops should be grown which have a specialized demand and then only under contract with existing canneries.

**Potatoes an Important Crop**

The potato crop is beginning to assume an important role in Montana’s agriculture, both from a table stock and seed standpoint. Properly graded Netted Gem, the principal commercial variety, has been bringing a premium over other white varieties on the leading markets. A large number of producers sell an ungraded product, a practice that is proving unsatisfactory, and this is one reason why Butte dealers are securing the greater part of their potatoes from Idaho.

Soil and climatic conditions are such that insects and diseases are less troublesome than in many other potato districts. As a result Montana growers can produce high quality seed potatoes by careful cultural practices.

**Commercial Potatoes—Profit** in potatoes in a district as far from the main market as Montana, is dependent upon a low unit cost of production, high quality and standardized pack. Only U. S. No. 1 stock should be shipped. Culis should never be used for seed. Only standard varieties should be grown. New, clean bags should be used for marketing. Certified seed is best and cheapest even though the initial cost may be a little higher. A good storage cellar is essential on farms where potatoes are produced on a commercial scale.

Commercial potato production has a distinct place in the agricultural program of Montana if “plunging” is eliminated and if the grower continues with a certain acreage year after year.

**Certified Seed Potatoes**—Varieties recommended for certification are: Netted Gem, Bliss Triumph and Irish Cobbler. The Netted Gem market is in the northwest, while the other two varieties are sold in the south. No other varieties should be grown for seed. Potatoes must be marketed in new, clean bags. Individuals are advised to start with certified seed of a high producing strain.

A rapid increase in certified seed production is to be avoided. Any increase may be accompanied by an expansion in the seed market. New growers must bear in mind that market connections are necessary before it is advisable to go very far in certified seed potato production. With the competition of other districts closer to the markets, Montana growers can be successful only by producing seed of superior quality.

**Shelterbelts**

Observations show that only a small percentage of the farms in Montana have shelterbelts. Demonstration plantings in many parts of the state prove beyond question that shelterbelts can be grown successfully.
when given a reasonable amount of care. It is found that such plantings improve living conditions, afford protection to the home and livestock, add to the loan and sale value of the farms, improve conditions for gardens and make the production of certain fruits possible.

Tree Fruits, Etc.

**Apples**—The following varieties give consistent yields, are hardy and are seldom affected by low temperatures and alternate freezing and thawing: Wealthy, Duchess, Yellow Transparent, Whitney crab and Hyslop crab. These varieties are grown quite generally in the irrigated sections and are also being successfully grown in the better dry land areas when given protection. They are recommended for planting for home use. Efforts to develop commercial orchards are not recommended, except possibly for local demand, outside of the Bitter Root and Flathead districts and Carbon County. The McIntosh is the variety recommended for commercial planting in the Bitter Root and Flathead districts.

**Plums**—Plums are not recommended for commercial planting other than to meet local demand. Such varieties as the Hanska, Sapa, Opata, DeSota, Wolf and Wyant have proved satisfactory.

**Cherries**—The Compass, Zumbra, and sand cherry are recommended for planting on dry land farms and also in those irrigated sections not adapted to the raising of the sour pie cherry. The sour cherry is recommended only in the Bitter Root and Flathead districts and in Carbon County.

**Strawberries**—The strawberry may be grown commercially in some districts of the state, while in others production should be limited to home use and possibly to supply local demands. The varieties recommended are: Progressive (everbearing) and Senator Dunlap (standard berry). There is some room for increase in areas where commercial production is possible. Small acreages are most successful.

**Other Berries**—In most parts of the state the red raspberry can be grown in the home garden, provided hardy varieties are selected. The following varieties are recommended: Latham, Sunbeam, Ohta, Herbert, and St. Regis (everbearing). In favored localities they may be produced for local markets. Production should be held to small acreages in the commercial sections. Shelterbelts are desirable for the production of raspberries under dry land conditions.

Currants and gooseberries have no place as a commercial crop, except for supplying local markets. Grapes can be produced only in the more favored sections and there production should be limited to home use and possibly to supply local demand. The Beta is the only variety generally recommended. The Snelter is recommended for trial and Campbell's Early may be planted in the more favored sections.
From 1880 to 1920 poultry and human population have maintained a steady increase in the United States. Census figures show a population of 50,000,000 people in 1880 and approximately 100,000,000 in 1920. At the same time all poultry increased from 130,000,000 to more than 370,000,000. From 1880 to 1900 the increase in poultry was considerably greater than the increase in population, but since then the gains in both have continued on a fairly even basis. In Montana, increase in poultry has been much more rapid than for the nation as a whole, the number of poultry in the state being approximately 58,000 in 1880 and more than 2,000,000 in 1920. Estimates in 1924 showed approximately 2,500,000 domestic fowl in the state.

The increase in poultry in the nation has been due entirely to the increase in chickens, since the number of turkeys has dropped from 6,594,695 in 1900 to 3,627,028 in 1920. On the other hand, in Montana there has been an abrupt rise in turkey population, increasing from 16,475 in 1900 to 29,482 in 1920 and estimates place the number at approximately 100,000 for 1925.

Egg production is becoming a specialized industry in the United States with certain well adapted sections producing enormous quantities of eggs. Improved shipping facilities have greatly aided this development. It appears that an ever increasing percentage of the eggs needed to meet the national demand will come from the parts of the country where climatic and other conditions are most favorable.

**Egg Production Possibilities in Montana**

With the exception of certain areas where specialized egg production is possible, such as the western district, the Huntley Project and certain smaller irrigated sections, the problems of poultry production in the state are fairly uniform in all districts. In every district the average size of farm flocks is increasing. Where formerly 25 to 50 birds were raised, the average now is close to 100. However, improvement in production and marketing practices have not kept pace with the increase in number of birds. In each district there are few poultry houses of desired type, few farms are using improved feeding methods, eggs are sold irregularly and often too infrequently to insure a desirable marketable product, and usually they are not graded. The practice of trading eggs for merchandise is still common. Approximately 70 per cent of the eggs are produced between March and August and carloads of low quality eggs are exported annually during this period. As a result farmers receive little revenue from their flocks, particularly those that are more remote from trading centers.

However, in practically every part of the state there are those who find table egg production profitable. The successful producers invariably use approved methods of feeding, housing and management, and grade
eggs before marketing, thus assuring a fairly constant year-round supply and top prices. With such practices they are able to compete with the cooperative egg marketing associations on the Pacific coast which annually ship many carloads of eggs to the leading markets of the state.

**Capon's Favored**

Heavy hens shipped to western markets usually have returned a profit. There has been little development in the production of broilers in the state because the bulk of cockerels are not ready for early markets and because there is a general tendency to hold surplus male birds beyond the broiler stage. Prices for such birds usually are low. The production of capons is on the increase. In districts where capons are raised to eight pounds and over, properly graded and packed, and shipped with the after-Christmas shipments of turkeys, growers report satisfactory returns. At present there is little profit in the production of capons for local markets or where these birds are raised with the general flock.

Turkey production in the state is upward. There are 16 successful turkey marketing organizations in the state and no failures have been reported. Montana turkeys bring good prices and often command a premium for the high quality resulting from favorable climate and the superior feeds used in the state. In practically every district of the state coyotes trouble turkey producers.

**Recommendations**

Following are general recommendations which apply to the entire state:

It is not advisable to expand commercial egg production except where cooperative shipping pools are possible or where individual producers are situated and equipped to produce eggs at all seasons and thus develop special markets.

For the general farm, 100 dual purpose birds of one breed provide a flock of desirable size. Poultry houses should meet standard requirements of lighting, ventilation and floor space; flocks should be fed properly; and frequent and vigorous culling should be practiced if flocks are to be profitable. Capons offer possibilities where they can be raised separately from the general flock.

Ordinarily, day-old chicks should be used to replenish the farm flock. These day-old chicks should be obtained from accredited Montana hatcheries as soon as a satisfactory accrediting plan has been put into practice in the state. Where producers raise their own breeding stock, flocks used for breeding purposes should be tested and accredited.

Increased turkey production is to be encouraged, particularly in those districts where marketing pools are established. A flock of one tom and 12 hens is a desirable unit for the average farm. Larger flocks are possible where range conditions permit and where the owner will make the necessary provisions for herding the flock. The bronze turkey should be the standard breed for the state. Savings may be made in the purchase of boxes, head wraps and parchment paper if pools will cooperate in ordering these supplies. As soon as pools are able to meet grade requirements they should apply for permission to use the state brand on all boxes of No. 1 birds. Where coyotes are a menace the cooperation of the United States Biological Survey should be secured in the employment of a hunter for their extermination.
Part III---A Program of Agricultural Development for the Non-irrigated Lands of Southeastern Montana

The agricultural economic conference for the non-irrigated areas of southeastern Montana was held at Miles City, February 16-17, 1927. Representative farmers, stockmen and business men from all of the important farming and livestock sections of the southeastern district were present. The district includes the counties of Carter, Powder River, Fallon, Custer, Rosebud, Treasure, Big Horn, Yellowstone, Prairie, Golden Valley, Musselshell, Dawson, Wibaux, southern Garfield and McCone and eastern Carbon and Stillwater.

C. C. Conser of Plevna was general chairman of the conference and the following were the regularly appointed chairman of the conference committees: Grain and forage, H. F. Purdum, Union; livestock, Nick Monte, Miles City; dairv, H. B. French, Ismay; poultry, John Dayhoff, Rock Springs; horticulture, J. M. Baker, Ismay; land utilization, W. A. Brubaker, Terry. In cases where the appointed chairman was unable to be present, the name of the acting chairman is given with the committee reports which follow.

DISTRICT RECOMMENDATIONS OF LAND UTILIZATION COMMITTEE

W. A. Brubaker, Terry, Chairman

The following findings and recommendations for the dry land areas of southeastern Montana were adopted by the conference:

1. By far the greater part of the dry land area of southeastern Montana is adapted particularly to grazing and even in most farming districts a farming-grazing type of farming is best suited.
2. The most pressing grazing land problem in the district is to make these lands available to stockmen in sufficient sized units and at a cost which will permit profitable production and the restoration of grazing capacity.
3. At present, grazing lands are cut up into small tracts and scattered ownership makes the uniting of such tracts into economical grazing units impossible. In many instances valuations are too high for grazing purposes.
4. The capacity of grazing land can be restored through a system of control which is possible only under direct ownership or long term leasing. Through such controlled grazing the carrying capacity of the district can be greatly increased.
5. As a means of solving the grazing problems the following possibilities were offered: That tax-delinquent lands be made available
to stockmen at prices commensurate with their grazing value; that non-resident owners be advised of the grazing value of their lands and that these together with other grazing lands be listed; that the present 640-acre homestead law be repealed and that the isolated tract law be extended to make possible the sale of these lands in units of not more than six sections.

6. On the farming lands of the district wheat is the most important cash crop but should be combined with livestock. The district is well adapted to corn production and this should constitute the major feed crop. Conditions are favorable for low cost production of both wheat and corn.

7. On farms where considerable grazing land is available cattle and sheep offer the best possibilities to reduce the risk of straight wheat production. In the more favorable farming areas a more intensified farming system including cows and hogs is desirable.

8. The district is adapted to the production of alfalfa seed, an enterprise which fits in well with livestock farming, but no great increase in acreage is desirable under present market conditions.

DISTRICT RECOMMENDATIONS OF GRAIN AND FORAGE COMMITTEE

J. K. Tatley, Ollie, Acting Chairman

The following findings and recommendations for the dry land areas of southeastern Montana were approved by the committee:

1. Soil moisture is a limiting factor in southeastern Montana making a combination of crop and livestock production the safest and most desirable type of farming for the district as a whole.

2. Corn must be regarded as a fundamental and one of the most profitable crops in the district. Corn is most successful when planted for stocking-off or used for fodder or silage. There is little place for corn growing according to Corn Belt methods. Listing offers possibilities for handling large acreages of corn at low cost. Early corn planting is recommended since late frosts in the spring are less dangerous than early frosts in the fall.

3. Wheat is the chief cash crop but in the main it should be planted on land previously planted to corn or other intertilled crop or on summer fallow. On farms where wheat production is limited there may be enough corn land for the wheat crop.

4. Summer fallow operations should start early in the season and the plowless, or duckfoot method deserves careful trial. The disk and spike-tooth harrow have no place in summer fallow operations. Duckfoot, blade or rod weeders should be used, depending on soil conditions.
5. Supreme spring wheat has given good results in trials and deserves careful consideration. Marquis is the leading spring wheat variety grown in the district at present. A high protein wheat is produced in the district and a thorough study of the marketing of high protein wheat is recommended.

6. The planting of wheat on stubble is too common in the district and the practice should be avoided.

7. Conditions for winter wheat in the district vary from good to poor. The furrow drill method of planting should have a thorough testing. Karmont is recommended as the best variety.

8. While alfalfa seed of excellent quality can be grown in the district, market conditions do not favor much expansion at this time. Alfalfa seed production should be considered as a sideline to other farm enterprises. The safest practice is to let the first crop go to seed. A portion of the acreage may be delayed to divide the risk.

9. Barley is the leading small grain feed crop. Horn is the variety recommended for feed, while Faust's Beardless Blue Hulless is most promising when barley is used for a hay or pasture crop.

10. Victory and Markton are the best oat varieties for the district.

11. The Dakota and Rosen varieties of winter rye are recommended for severe and milder areas, respectively.

12. Sweet clover is the leading hay crop where alfalfa is not dependable. A greater use may be made of oats, barley and rye for hay purposes. The value of grain hays is underestimated.

13. The Reserve variety of flax is recommended, but the district is not particularly favorable to flax production.

14. The Great Northern field bean has a place in parts of the district as a cash crop. However, present markets do not favor much expansion in bean production.

DISTRICT RECOMMENDATIONS OF LIVESTOCK COMMITTEE

Nick Monte, Miles City, Chairman

The changes in livestock population in southeastern Montana in recent years are shown in the following table. The figures are taken from assessors' reports.

<table>
<thead>
<tr>
<th>County</th>
<th>All Cattle 1923</th>
<th>Sheep 1923</th>
<th>Swine 1923</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1926</td>
<td>1926</td>
<td>1923</td>
</tr>
<tr>
<td>Carter</td>
<td>26313</td>
<td>27428</td>
<td>75704</td>
</tr>
<tr>
<td>Fallon</td>
<td>13751</td>
<td>10566</td>
<td>8679</td>
</tr>
<tr>
<td>Garfield</td>
<td>22455</td>
<td>27627</td>
<td>52850</td>
</tr>
<tr>
<td>McCone</td>
<td>18048</td>
<td>17275</td>
<td>27734</td>
</tr>
<tr>
<td>Powder River</td>
<td>44809</td>
<td>35975</td>
<td>20762</td>
</tr>
<tr>
<td>Prairie</td>
<td>13404</td>
<td>16637</td>
<td>10127</td>
</tr>
<tr>
<td>Rosebud</td>
<td>22381</td>
<td>22939</td>
<td>57461</td>
</tr>
<tr>
<td>Treasure</td>
<td>7866</td>
<td>8335</td>
<td>7437</td>
</tr>
<tr>
<td>District total</td>
<td>169577</td>
<td>162272</td>
<td>325764</td>
</tr>
<tr>
<td>State total</td>
<td>11118247</td>
<td>1055790</td>
<td>1788950</td>
</tr>
<tr>
<td>U. S. total (thousands)</td>
<td>66156</td>
<td>59148</td>
<td>37223</td>
</tr>
</tbody>
</table>
Trends in numbers for this district follow quite closely the trends for the entire state and nation. The size of individual units is at present comparatively small, but in spite of excessive marketings the past two years due to weather conditions, beef cattle foundation breeding stock is quite intact. Feeder livestock from this section is in demand by corn belt feeders and preferred over that from other sections of the west.

Competition for grass and excessive numbers of horses have caused a great deterioration in the amount and quality of grazing on the ranges. Limited grazing lands necessitate more winter feeding and the marketing of cattle at younger ages. Present prices of cattle make it unprofitable to operate exclusively on owned land at present values and taxation.

The following recommendations were approved by the conference:

1. That the unoccupied grazing lands on which the forage is constantly deteriorating should be brought under control at its actual grazing value. This will result in a greatly increased carrying capacity where sufficient grazing units may be secured for economical fencing.

2. That where land is available grazing associations be formed for cooperative grazing and control of range.

3. That the business of selling feeder livestock direct from producer to the feed lot should be increased. Improved quality and uniformity, sufficient numbers and fair dealing are essential.

4. That a reserve supply of feeds is essential for stability and success.

5. That some action be taken to rid the ranges of worthless horses.

---

**DISTRICT RECOMMENDATIONS OF DAIRY COMMITTEE**

H. B. French, Ismay, Chairman

The following findings and recommendations for southeastern Montana were approved by the conference:

1. That milk production from beef cows during part of the year be regarded largely as supplementary to beef production and not as dairying in the sense of this report.

2. That dairying is not advisable where native grass is the only pasture.

3. That sweet clover is the most practical pasture.

4. That alfalfa or sweet clover hay be produced wherever possible.

5. That pit and trench silos be considered as means for creating feed reserves and supplementing the hay crop.

6. That a carry-over of hay and silage be planned.

7. That market facilities are adequate and conditions will justify additional creameries in the district. Consideration should be
given to the organization of cream pools when volume at any point justifies. Some means should be developed to prevent the wide variations in cream prices throughout the district.

8. That any increases or replacements should be brought about by the use of pure bred sires with known production back of them and by the importation of calves. Dairymen should grow into the business, rather than go into it, keeping their feed program well in advance of dairy production.

9. That since costs of labor and overhead decrease with the increase in number of cows in the herd, a farmer who makes dairying a regular part of his farm business should milk at least 10 cows. This also will mean better quality of cream.

10. That the creameries of the state adopt a high standard of grading. At present the variation in quality of Number 1 cream is too great.

DISTRICT RECOMMENDATIONS OF POULTRY COMMITTEE

A. S. Caudel, Miles City, Acting Chairman

The following findings and recommendations for southeastern Montana were approved by the conference:

1. That the several commercial hatcheries in this district become accredited as soon as possible to make a supply of dependable chicks available to poultry growers of the district.

2. That egg production on a commercial scale is not advisable. However, there are a few commercial egg farms in the district for supplying local markets, and since these farms provide consumers with a properly graded, high quality product, they are to be encouraged.

3. That turkey production may be expanded. Local marketing facilities are adequate to handle the present supply and there is no immediate need for the establishment of a cooperative marketing pool.

DISTRICT RECOMMENDATIONS OF HORTICULTURAL COMMITTEE

Karl Pinnow, Baker, Acting Chairman

The following findings and recommendations for the dry land areas of southeastern Montana were approved by the conference:

1. Not enough potatoes are produced to meet local needs and commercial production should be increased at least to this extent. The use of better seed stock, improved cultural methods and more careful selection of soils will increase the quality and per acre yield of potatoes in the district. It is not advisable to produce potatoes on farms more than 15 miles from a railroad shipping point.
2. Certified seed potato production of the Bliss Triumph variety has a place in the district, but the output should be limited to market demands. No rapid expansion is advisable.

3. There should be a shelterbelt on every farm. Demonstrations prove that trees can be grown successfully on all good dry land farms in the district and that past failures have been due to carelessness and neglect.

4. Shelterbelts not only add beauty and value to farms but also provide more favorable conditions for the growing of small fruits and vegetables for home use. Every farm of the better class should have sufficient plantings of vegetables, raspberries, strawberries and such hardy tree fruits as native plums, sand cherry hybrids, Hanson hybrid plums, crab apples and hardy apples to meet the needs of the farm family.

Following is a list of those who attended the conference and helped draw up the reports:

Arthur C. Abbott .................Powdervllle J. W. Gavin .................Kimsey
Harry Allen .....................Volberg V. C. Goddard .................Glendive
E. A. Arnold .....................Miles City E. W. Hall .................Miles City
W. B. Bailey .....................Miles City Kelly Hardware .................Miles City
A. L. Baker .....................Miles City W. S. Heasley .................Terry
Wm. Bard .........................Miles City J. O. Hembre .................Baker
J. J. Bartley .....................Miles City Emil Henning .................Stacey
F. T. Bennett, Jr ..................Garland John Herzog .................Miles City
Charles Bircher .................Miles City Christ Hjorth .................Fallon
Frank Bircher .....................Miles City J. K. Hills .................Baker
Jacob Bircher .....................Miles City V. S. Hins .................Plevna
Louis Bircher .....................Miles City H. B. Hoffman .................Miles City
Percy J. Bird ....................Coalwood W. E. Holt .................Miles City
Mrs. W. H. Blum .................Miles City G. C. Houser .................Broadus
Wm. Blum .........................Miles City H. H. Hunter .................Miles City
John Borer .........................Forsyth E. W. Lansing .................Billings
M. Bresnahan ......................Terry F. J. Jelinek .................Miles City
H. H. Bright ......................Miles City Henry Johnson .................Powdervllle
W. A. Brubaker .................Terry Standish Johnson .................Stacey
Ed Campbell ......................Mizpah A. J. Jurica .................Powdervllle
A. S. Caudel .....................Miles City Joe Keenan .................Miles City
C. A. Chapin ......................Hathaway J. C. Kincaid .................Forsyth
C. C. Conser ......................Plevna Earl B. Krantz .................Miles City
F. C. Cook .........................Miles City H. F. Lee .................Miles City
Mrs. H. A. Corbin .................Miles City Fred LeVeque .................Miles City
H. A. Corbin ......................Miles City G. E. Lewis .................Terry
A. E. Cornell ......................Billings P. M. Lewis .................Miles City
M. C. Cowles .....................Miles City Ed. Light .................Miles City
J. L. Craig .........................Miles City Wm. O. Loughlin .................Baker
Wm. Dominy .........................Miles City Peter Martenson .................Miles City
Sid Farrell .........................Miles City R. D. Mercer .................Forsyth
Russell Ferguson ..................Miles City G. M. Miles .................Miles City
J. G. Findlater .....................Miles City N. W. Monte .................Miles City
Wm. J. Flachsenhar .................Terry W. G. Moscrip .................Willard
H. B. French .....................Ismay John Ogren .................Mizpah
Part III---A Program of Agricultural Development for Southwestern Montana

The agricultural economic conference for southwestern Montana was held at Bozeman, February 23-24, 1927. Representative farmers, stockmen and business men from all of the important farming and livestock sections of the southwestern district were present. The counties included in the district are Meagher, Broadwater, Jefferson, Silver Bow, Beaverhead, Madison, Gallatin, Park, Sweetgrass, eastern Carbon and Stillwater and southern Lewis and Clark.

N. L. Towne of Bozeman was general chairman of the conference and the following were the regularly appointed chairmen of the various conference committees: Grain and forage, J. C. Jackson, Harrison; livestock, Lester Thompson, Bozeman; dairying, A. E. Cramer, Helena; potatoes and canning crops, T. H. Herrin, Helena; beekeeping, Chris Buitenhoff, Manhattan; poultry, J. R. Scott, Helena; land utilization, H. S. Buell, Bozeman. In cases where the appointed chairman was unable to be present the name of the acting chairman is given with the committee reports which follow.

DISTRICT RECOMMENDATIONS OF LAND UTILIZATION COMMITTEE

C. E. Peterson, Three Forks, Acting Chairman

The following findings and recommendations for southwestern Montana were approved by the conference:

1. That while the average size of farm unit has increased in recent years there appears no justification for any great expansion in total crop acreage in this district.
2. That there is a surplus of feed crops produced in the district which with available range and pasture for summer grazing make an increase in livestock desirable.

3. Irrigated farms offer the best possibilities for increasing livestock because of the favorable conditions for increasing tame pasture acreage and feed crops.

4. If wheat prices go below one dollar per bushel it will become necessary for farmers in many parts of the district to devote at least a part of their wheat acreage to other crops. Some possible alternatives are barley, hogs and pasture; barley, milk cows and hogs; sheep and pasture.

5. Increased attention to the production of feed and livestock will provide a better balanced and more reliable farm organization.

6. There is need for further study on the economical use of water in many of the irrigated sections of the district. At present it is apparent that there is considerable waste of water resulting in unnecessarily high costs of production and the flooding of land in lower parts of irrigation projects.

7. Since some of the oldest irrigated land in the state is found in this district and since the weed problem has become serious in some sections the introduction of tilled crops or changes in farming systems to solve the weed problem are highly desirable.

8. Since practically all of the grazing land in the district is privately owned or within the boundaries of state and national reserves, the grazing problem primarily is one of management of range. A system of long-time leasing is considered advisable so that livestock owners may work out proper systems of range management.

9. Conditions under which wheat is produced on the dry land areas of the district vary greatly. However, there is a universal demand for lowering cost of production. In some sections this may be accomplished by increasing the size of the farm unit and introducing more economical methods adapted to such units.

10. On dry land farms changes in systems of farming appear to be necessary to prevent soil deterioration. Further studies with this end in view are suggested.

DISTRICT RECOMMENDATIONS OF GRAIN AND FORAGE COMMITTEE

J. C. Jackson, Harrison, Chairman

The following findings and recommendations for southwestern Montana were approved by the conference:

1. The farm lands of the district are confined largely to intermountain valleys and benchlands with a variety of altitude, soil and rainfall conditions. In general the crop seasons are short, and
heat units are limited. Such crops as barley and peas do well in many places but the number of intertilled crops is limited. As a result a more extensive system of farming is necessary on irrigated lands in southwestern Montana than in other irrigated districts of the state.

2. Both winter and spring wheat are grown and are the major cash crops. There should be a more general practice of treating winter wheat with copper carbonate to prevent smut losses and the furrow drill should receive thorough trials on the dry land winter wheat farms.

3. The recommended wheat varieties are: Winter wheat, Montana 36 and Newturd; spring wheat, Supreme and Marquis. In the soft wheat areas, Dicklow and Federation are recommended.

4. Alfalfa is the most important crop of the district as it is the foundation of the crop and livestock farming system made necessary by conditions in the district. To make this crop most valuable for soil building purposes and to fit in with the most profitable rotations it should be turned under at the end of four to seven years. There is a tendency to leave fields stand too long.

5. Sweet clover deserves more attention as a pasture crop for non-irrigated land.

6. In the past five years the acreage of barley has increased approximately 300 per cent and there is room for still further increase as it is the most important feed crop. Trebi is recommended for irrigated land and Horn and Hannchen for non-irrigated land. Faust's beardless blue hulless may be used for hay and pasture purposes.

7. Oats have a place in the cropping system as feed for horses. Victory and Markton varieties are recommended.

8. Every crop rotation should include a legume and an intertilled crop where possible. Since intertilled crops are limited it is necessary to substitute summer fallow in many cases. A more liberal use of manure could be used to advantage on many farms.

9. Summer tillage is of the highest importance on dry land farms of the district.

10. The weed problem has become serious in certain irrigated sections of the district and require individual and community action looking toward their eradication. Immediate attention to local infestations at the very beginning is recommended as a good investment.

11. An increase in irrigated pastures is recommended. The Huntley pasture mixture and its variations should be given a more thorough trial in the district.
DISTRICT RECOMMENDATIONS OF LIVESTOCK COMMITTEE

Lester Thompson, Chairman

The changes in livestock population in southwestern Montana in recent years are shown in the above table. The figures are taken from assessors’ reports.

<table>
<thead>
<tr>
<th>County</th>
<th>All Cattle 1923</th>
<th>All Cattle 1926</th>
<th>Sheep 1923</th>
<th>Sheep 1926</th>
<th>Swine 1923</th>
<th>Swine 1926</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaverhead</td>
<td>81413</td>
<td>67630</td>
<td>156346</td>
<td>158173</td>
<td>1046</td>
<td>899</td>
</tr>
<tr>
<td>Broadwater</td>
<td>14676</td>
<td>12087</td>
<td>25250</td>
<td>23181</td>
<td>1126</td>
<td>566</td>
</tr>
<tr>
<td>Gallatin</td>
<td>21394</td>
<td>20214</td>
<td>16048</td>
<td>26347</td>
<td>2809</td>
<td>3720</td>
</tr>
<tr>
<td>Jefferson</td>
<td>14448</td>
<td>10845</td>
<td>1953</td>
<td>9545</td>
<td>1000</td>
<td>890</td>
</tr>
<tr>
<td>Lewis and Clark</td>
<td>28676</td>
<td>23511</td>
<td>64162</td>
<td>84216</td>
<td>1083</td>
<td>653</td>
</tr>
<tr>
<td>Madison</td>
<td>36608</td>
<td>29120</td>
<td>115457</td>
<td>113194</td>
<td>2592</td>
<td>1178</td>
</tr>
<tr>
<td>Meagher</td>
<td>22551</td>
<td>19404</td>
<td>128889</td>
<td>94631</td>
<td>641</td>
<td>379</td>
</tr>
<tr>
<td>Park</td>
<td>26614</td>
<td>18364</td>
<td>45736</td>
<td>65350</td>
<td>2337</td>
<td>1531</td>
</tr>
<tr>
<td>Sweet Grass</td>
<td>23531</td>
<td>22249</td>
<td>78566</td>
<td>84461</td>
<td>1751</td>
<td>845</td>
</tr>
<tr>
<td>District total</td>
<td>26991</td>
<td>223427</td>
<td>632496</td>
<td>671128</td>
<td>14355</td>
<td>10261</td>
</tr>
<tr>
<td>State total</td>
<td>1118247</td>
<td>1055790</td>
<td>1798950</td>
<td>2206257</td>
<td>73670</td>
<td>60262</td>
</tr>
<tr>
<td>U. S. total (thousands)</td>
<td>66156</td>
<td>59148</td>
<td>37223</td>
<td>39864</td>
<td>61189</td>
<td>52025</td>
</tr>
</tbody>
</table>

The following recommendations were approved by the conference.

1. That abrupt increases or decreases in livestock production based on temporary market conditions be avoided.
2. That the hay produced be fed on farms, and where surplus exists, it should be used for winter feeding rather than shipped to market.
3. That beef cattle be handled under owned or leased range and production be confined to high quality livestock. The livestock marketed should meet the demand for early maturity, uniform breeding and low set type.
4. That any movement toward improving the carrying capacity of ranges is favorably regarded. The organization of outlying units of available grazing land to bring about proper range control is favored.
5. That the ability of the operator and the condition of the individual ranch must determine the choice of stock, but available feed supplies offer room for slight expansion in sheep and beef cattle. A favorable west coast market combined with cheap forage and good fattening grains also offer room for expansion in pork production.
6. That the present size of livestock units makes cooperative shipping advisable where sufficient volume can be obtained.
7. That cattlemen should encourage the development of the business of shipping direct to corn belt feeders. High quality, sufficient numbers, and fair dealing are essential to the success of this business.
8. That on suitable dry land, sweet clover for pasture offers good possibilities.
The following findings and recommendations for southwestern Montana were approved by the conference:

1. That a rigid cream grading law is desirable so that dairymen may benefit by the higher prices received by creameries for high quality butter.

2. That our local creameries be patronized, provided a satisfactory price and adequate service are obtained.

3. That cream routes should be established wherever feasible as a means of lowering marketing costs, speeding up deliveries and improving quality of cream.

4. That Montana people be urged to use more Montana dairy products.

5. That farmers who make dairying a regular part of their farm business should milk at least ten cows as a means of holding down labor costs and overhead expenses.

6. That silos in this district are practical only on the highly specialized dairy farms where a high tonnage of suitable silage crops is grown.

7. That the general practice of shipping in dairy cows for the further development of the dairy industry is inadvisable. Dairymen should raise their own heifer calves from their best cows.

8. That the herd sire be kept separate from the herd and not permitted to run at large. The "safety bull pen" is recommended as the most practical means of keeping the herd sire.

9. That in view of past experience, sweet clover can be highly recommended as a dry land pasture crop. To lengthen the pasture season rye should be planted for use in early spring and late fall. Sweet clover also can be used to good advantage as a pasture crop on heavy, wet alkali lands. Yellow blossom sweet clover has proved superior to the white blossom variety for pasture purposes. It is profitable to use sufficient acreage of high-priced, tillable ground as permanent pasture for dairy purposes wherever good, suitable pasture on non-tillable land cannot be obtained near the farmstead.

10. That the practice of expending large sums for modern dairy barns, except in large, specialized, permanent dairies, is to be condemned. A large, well constructed, but inexpensive shed should be built near the milking stable where the cows may be kept away from the cold winds and inclement weather of winter. Provision also should be made for an adequate, easily accessible water supply.
The following findings and recommendations for southwestern Montana were approved by the conference:

1. That commercial egg production offers possibilities since the large consuming centers of Butte and Helena are accessible to the producers of this district.
2. That where such commercial egg production is engaged in, flocks should be of sufficient size to warrant at least two shipments a week the year around.
3. That while the general state recommendations favoring dual-purpose birds apply to this district, the availability of good egg markets provides a place for White Leghorns or other strictly egg breeds on the general farm.
4. That a system of state accrediting for chick hatcheries is highly desirable and that arrangements now being made for establishing such accrediting system be pushed to completion as rapidly as possible. This matter is considered particularly important because this district contains the largest commercial hatcheries in the state.

The following findings and recommendations for southwestern Montana were adopted by the conference:

1. In the Gallatin and Madison Valleys, the main areas with which this report deals, there are approximately 4,000 colonies of bees, averaging 60 pounds per stand.
2. Due to overcrowding and disease the average production per stand is on the decrease. There is about 25 per cent disease and sources of honey are limited. The dandelion is the principal early season honey plant. Alfalfa is of limited value because practically all of it is cut for hay.
3. Sweet clover is the most important honey plant but there is less than 1,000 acres available, making from five to six stands to each acre. To correct overcrowding there should be no increase in the number of stands. Effort should be directed toward increasing the production per colony.
4. A minimum of 60 pounds of honey should be left for each colony for winter feed. The average in the district at present is approximately 25 pounds.
5. Due to disease losses the cost of production averages approximately $14 per stand, including operator's wages.
6. Beekeepers should produce their own queens from their high producing colonies. At present there is a very low percentage of good queens used.

7. State laws dealing with inspections and disease control should be more strictly enforced.

8. A national advertising campaign supported by all beekeepers and a concerted effort by such agencies as the Extension Service and state bee inspectors to direct attention to the food value of honey are urged.

DISTRICT RECOMMENDATIONS OF HORTICULTURAL COMMITTEE

T. H. Herrin, Helena, Chairman

The following findings and recommendations for southwestern Montana were approved by the conference:

1. Potatoes, both seed and table stock, have an important place in the agriculture of the district. However, growers are advised to avoid speculation. A fairly constant acreage each year is desirable.

2. The Netted Gem is the only recommended commercial variety and seed production should be limited to Bliss Triumph, Netted Gem and Irish Cobbler.

3. Canning crops are produced successfully in the district but these crops are limited to the demand of canneries and are grown under contract. Such crops are desirable from a farm management standpoint and add considerably to the total net income of the district.

4. Commercial vegetable production offers possibilities. Head lettuce, cauliflower, cabbage, celery and onions are suggested as possible commercial crops. The hazardous nature of specialized vegetable production makes a thorough knowledge of production and marketing necessary.

5. Tree fruits may be grown in most parts of the district for home use but offer no commercial possibilities.

6. Strawberries may be grown commercially to supply local markets. Under careful management 150 to 200 crates of strawberries per acre can be produced.

7. Raspberries can be grown successfully but are not recommended as a commercial crop. Currants and gooseberries should be grown for home use but have no commercial possibilities.

8. Approximately 90 per cent of the farms of the district grow no tree fruits and 75 per cent do not have farmstead plantings of trees of any kind. There is a need for such plantings on every farm.
Following is a list of those who attended the conference and helped draw up the reports:

Nic Aakjer ............... Bozeman
A. C. Akey ............... Bozeman
R. G. Baxter ............. Bozeman
R. E. Bodley ............. Bozeman
Mrs. Elmer Border ...... Bozeman
G. A. Briebach .......... Wilsall
R. E. Brown ............. Bozeman
C. H. Buitenholff ...... Manhattan
H. C. Burgess .......... Twin Bridges
J. R. Catton .......... Bozeman
Geo. Christie .......... East Helena
Mrs. J. P. Cloninger ... Gallatin Gateway
J. P. Cloninger ........ Gallatin Gateway
L. M. Corey .......... East Helena
Frank B. Cotner ....... Bozeman
Mrs. Cora Cram .......... Helena
L. G. Devore .......... Helena
A. S. Eton ........ Bozeman
J. P. Fabrick ........ Bozeman
A. J. Faust ........ Dillon
Geo. B. Franks ...... Jefferson Island
F. J. Froebbe .......... Helena
Mrs. V. P. Gattischi ... Bozeman
A. J. Graden .......... Clasoll
H. P. Griffin .......... Belgrade
A. O. Hansel .......... East Helena
Wilbur J. Harrer ...... Bozeman
Mrs. M. P. Harris ...... Bozeman
W. C. Hartman ......... Manhattan
Thos. H. Herrin ...... Helena
T. B. Holker .......... Manhattan
J. C. Jackson .......... Harrison
Henry Jacobson ........ Bozeman
W. F. Kienzle ........ Clasoll
Mrs. D. O. Luger ...... Helena
S. F. Lawrence ....... Manhattan
H. H. Lessley ........ Bozeman
J. F. Liddy ............... East Helena
Chas. Lindsay .......... Butte
Walter H. Little ...... Bozeman
W. L. Mecklenburg .... Bozeman
Chris Mickelson ...... Manhattan
J. E. Moore .......... Bozeman
Fred Nelson .......... Willow Creek
F. A. Norton .......... Bozeman
Lewis Penwell ....... Helena
C. H. Peterson ...... Three Forks
Frank O. Peterson ...... Helena
Homer Phillips ........ Helena
W. H. Purdy .......... Bozeman
E. J. Rassley ...... Bozeman
E. H. Roadarmel ..... Harrison
Frank Robertson ...... Wilsall
C. B. Robinson ...... Wilsall
R. J. Rodenberg ... Manhattan
R. E. Rundlett ...... Harrison
B. A. Scollard ...... Belgrade
J. R. Scott .......... Helena
Virgil V. Shindoll ... Townsend
Dwight A. Smith ...... Bozeman
H. E. Stevens ....... Bozeman
T. F. Stevenson ...... Bozeman
Geo. Stimson ....... Belgrade
W. L. Stockton ...... Clarkston
Parker Stone ' ......... Belgrade
F. C. Sumner ...... Clyde Park
Colt A. Suneson ..... Bozeman
Harry Te Selle ...... Manhattan
Lester H. Thompson ... Bozeman
Harold E. Tower ...... Bozeman
N. L. Towne .......... Bozeman
Conrad J. Vollmer ...... East Helena
W. E. Westlake ...... Manhattan

Part III---A Program of Agricultural Development for Central Montana

The agricultural economic conference for central Montana was held at Great Falls, February 28-March 1, 1927. Representative farmers, stockmen and business men from all of the important farming and livestock sections of the central district were present. The counties included in the district are Pondera, Teton, Cascade, Judith Basin, Fergus, Wheatland, northern Lewis and Clark and southern Chouteau.

John A. Wilson of Stanford was general chairman of the conference and the following were the regularly appointed chairmen of the various conference committees: Grain and forage, Matt Reichmuth, Denton; live-
stock, Roy Clary, Great Falls; dairy, Walter Peck, Great Falls; poultry, Iren DeStaffeny, Conrad; horticulture, Aaron Hadwin, Fort Benton; land utilization, James Eckford, Choteau. In cases where appointed chairman was unable to be present the name of the acting chairman is given with the committee reports which follow.

DISTRICT RECOMMENDATIONS OF LAND UTILIZATION COMMITTEE

James Eckford, Choteau, Chairman

The following findings and recommendations for central Montana were approved by the conference:

1. In this district is found a wide variation of production enterprises ranging from straight wheat farms to specialized cattle and sheep ranches. Both of these extreme types are possible because of conditions which favor low cost production.

2. Straight wheat farming on units of a section or more has been satisfactory under the fairly favorable prices for wheat of the past few years but it is probable that with lower wheat prices the addition of feed crops and livestock production will make a more satisfactory farming system.

3. While livestock adds safety and stability to the farming enterprises, it is recognized that many parts of central Montana are particularly adapted to wheat production because of the possibility of growing both spring and winter wheat of high quality under conditions which permit large farm units and which favor the use of cost reducing machinery and methods.

4. Considerable land in the district is especially adapted to large scale general farming, particularly in those areas where the land is rolling or broken but which still offers farming possibilities. Units of at least two sections seem most desirable for this type of farm. Livestock and feed production is the primary essential of such enterprises with wheat as the important cash crop.

5. There is much grazing land in the area. Adjustments are necessary to restore grazing capacity through systems of ownership or long time leasing, and to make suitable sized units available to stockmen at prices in line with possible profits from livestock grazing enterprises.

6. Conditions in the district are favorable for successful production of high quality turkeys. Good marketing facilities have been developed, and turkey production fits in well on the general farms. With the development of improved marketing organizations there is a possibility for farm egg production to meet local market demands.
The following findings and recommendations for central Montana were approved by the conference:

1. Wheat probably will remain the major cash crop of the district and tillage is the major controllable factor in its production.

2. Summer tillage is almost indispensable in the successful production of wheat. Approximately one-third of the wheat acreage should be summer tilled each year. Summer tillage substitutes or modifications as discussed in the state program apply to this district.

3. Soil blowing is a problem in the district and its seriousness is increasing each year. The maintenance of a rough surface, duck-foot method of summer fallow, listed summer fallow and strip farming are among the suggested means of controlling soil blowing. No single method can be recommended as a sure means of control.

4. The introduction of unknown and untried seed based on unsupported claims is condemned and increased attention to the Montana crop standardization plan for the improvement of crop varieties is urged.

5. Grain varieties recommended: Spring wheat, Supreme; winter wheat, Karmont and Montana 36; oats, Markton for higher altitudes and Victory for lower altitudes and for irrigated land; barley, Horn for dry land and Trebi for irrigation; corn, local variety tests should be conducted to determine varieties best adapted.

6. Barley is the highest yielding small grain feed crop and a more favorable place should be given this crop in farm rotations.

7. Corn is the best producer of roughage and should be grown more extensively. More attention should be given to the production of small grain for hay.

8. Winter wheat should be seeded before September 1.

**DISTRICT RECOMMENDATIONS OF LIVESTOCK COMMITTEE**

Charles Dyar, Cascade, Acting Chairman

The changes in livestock population in central Montana in recent years are shown in the following table. The figures are taken from assessors' reports.
As permanence and stability are most needed in a livestock program, frequent changes and speculation are to be discouraged. Conditions should be viewed over a long period. The real problem that confronts the stockmen in this district is the loss of range with a corresponding decreased carrying capacity of the inferior range that is left. This calls for a new system of management.

The following recommendations were approved by the conference:

1. That to bring about an increased carrying capacity the remaining open land should be brought under controlled grazing.
2. That economic conditions absolutely demand quality and uniformity in the production of beef. Market demand and range shortage make the marketing of younger cattle advisable.
3. That concerted action be taken to rid the ranges of unclaimed horses.
4. That the selling of range livestock direct to feeders be encouraged.
5. That pork production be continued as a side line to the livestock business. A feed reserve is necessary for safe operation.
6. That small flocks of sheep be encouraged.
7. That beef cattle operations are unprofitable at present prices where all grazing land must be owned or leased at present rentals.

### DISTRICT RECOMMENDATIONS OF DAIRY COMMITTEE

L. A. Combellick, Moccasin, Acting Chairman

The following findings and recommendations for central Montana were approved by the conference:

1. That the highly specialized dairy farm use dairy bred cattle only, but for the non-irrigated farm where legume hay and good pastures are not produced, dual purpose cows are more suitable.
2. That the general practice of shipping in dairy cows for the further development of the dairy industry is undesirable. Dairymen should raise their own dairy calves.
3. That since the pure bred business is highly specialized, the establishment of a few good pure bred herds of the different dairy breeds in each section is desirable to furnish the needed breeding stock in the future.

4. That the practice of spending large sums of money for modern dairy barns be discouraged except in large specialized dairies. A large, well constructed, but inexpensive shed should be built adjacent to the milking stables, where the cows may be kept away from the cold winds and inclement weather of winter. Provision also should be made for an adequate water supply in the yard to which the cows may have free access.

5. That good alfalfa hay, barley, oats and mixed milk feeds, with root crops if possible, are the best dairy feeds for irrigated farms in the district. For dry land farms, alfalfa or sweet clover with early cut grain hays and root crops are favored wherever possible. Silos are practical only on the highly specialized dairy farms where a high tonnage of suitable silage crops is grown.

DISTRICT RECOMMENDATIONS OF POULTRY COMMITTEE

Iren DeStaffeny, Conrad, Chairman

The following findings and recommendations for central Montana were approved by the conference:

1. That all poultry growers tributary to Great Falls give their support to the cooperative egg marketing plan sponsored by the Cascade County Cooperative Egg and Poultry Association. It is proposed to supply local markets with high quality, graded eggs. Operation will start when the output of 15,000 hens has been assured.

2. Since six of the sixteen turkey marketing associations of the state are in the central district and since this is one of the most important turkey producing centers in the state, each association is urged to adjust its practices so that the state brand may be used.

DISTRICT RECOMMENDATIONS OF HORTICULTURAL COMMITTEE

Glenn Kitterman, Great Falls, Acting Chairman

The following findings and recommendations for central Montana were approved by the conference:

1. Favorable local markets which now rely largely upon imported fruits and vegetables offer possibilities for considerable increase in the production of such crops as strawberries, cabbage, celery, head lettuce, cauliflower and asparagus.

2. Commercial potato production may be expanded but better seed stock and improved cultural methods must be used. Even local
markets prefer imported potatoes because those produced locally are not of the kind and quality desired. The Netted Gem should be the standard commercial potato for the district. If desired, Bliss Triumph and Irish Cobbler may be grown for local consumption.

3. Certified seed production of the Bliss Triumph and Irish Cobbler varieties offer possibilities in many parts of the district but growers should master the details of the business before going into it on any large scale. Present markets will not stand any great increase in seed potato production.

4. Hardy fruits and small fruits can and should be grown for home use. Only strawberries offer commercial possibilities and their production should be limited to local market demands.

5. Shelterbelts and farmstead tree plantings are recommended for every farm.

Following is a list of those who attended the conference and helped draw up the reports:

C. E. Atwood  Valier  E. B. Duncan  Havre
J. N. Bailey  Coffee Creek  Charles Dyar  Cascade
Mrs. B. W. Bailor  Carter  George Ebner  Valier
B. W. Bailor  Carter  James Eckford  Choteau
Mrs. C. W. Baird  Lewistown  E. E. Edmonson  Great Falls
George Barlow  Cascade  N. W. Edwards  Choteau
W. J. Beecher  Great Falls  Hans B. Erickson  Conrad
B. T. Beelaert  Williams  J. H. Evers  Shonkin
G. A. Bell  Eden  Tom Eyre  Augusta
Ingolf Birkoland  Highwood  Mrs. Thos. L. Fagan  Carter
Walls Bisson  Great Falls  Blaine Ferguson  Conrad
A. Bond  Belt  Victor Fischer  Waltham
A. R. Broman  Great Falls  Roy L. Fish  Raynesford
A. J. Brumcouir  Great Falls  W. H. Fluhrt  Belt
Frank Burnett  Conrad  Course Forder  Waltham
R. E. Cameron  Great Falls  Albert Forest  Belv
C. H. Campbell  Great Falls  Mrs. C. M. Furst  Shonkin
P. M. Campbell  Hobson  O. M. Gaare  Fairfield
W. Y. Cannon  Chinook  Errol Galt  Geyser
L. Chatterton  Geyser  Henry Gels  Great Falls
W. H. Christensen  Great Falls  H. O. George  Portage
Bradford U. Clark  Fort Shaw  E. J. Gilmartin  Great Falls
R. E. Clarkson  Choteau  George Graham  Highwood
P. O. Clifford  Minneapolis, Minn.  C. W. Gray  Choteau
L. A. Combellick  Geyser  C. D. Greenfield  Helena
J. R. Cowan  Hobson  O. E. Hales  Conrad
W. L. Crotts  Coffee Creek  E. W. Hall  Miles City
Roy Cross  Denton  H. L. Harkeran  Valier
J. E. Crowley  Ulm  C. F. Harris  Great Falls
John H. Dahl  Great Falls  John Hinkel  Great Falls
W. E. Daily  Power  Doris L. Hitch  Hobson
Irene DeStaffeny  Conrad  Mrs. S. F. Hockersmith  Sun River
L. G. DeVore  Helena  S. F. Hockersmith  Sun River
J. O. Distad  Ledger  M. S. Hoffman  Fort Benton
<table>
<thead>
<tr>
<th>Name</th>
<th>Town</th>
</tr>
</thead>
<tbody>
<tr>
<td>George Holzer</td>
<td>Benchland</td>
</tr>
<tr>
<td>Jude Huber</td>
<td>Belt</td>
</tr>
<tr>
<td>J. L. Humphrey</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Roy Inbody</td>
<td>Farmington</td>
</tr>
<tr>
<td>L. V. Jackson</td>
<td>Moccasin</td>
</tr>
<tr>
<td>Perry Jeffries</td>
<td>Fort Benton</td>
</tr>
<tr>
<td>Herman Johnson</td>
<td>Eden</td>
</tr>
<tr>
<td>J. A. Johnson</td>
<td>Benchland</td>
</tr>
<tr>
<td>J. R. Jones</td>
<td>Pendroy</td>
</tr>
<tr>
<td>J. W. Jones</td>
<td>Great Falls</td>
</tr>
<tr>
<td>C. O. Juelfs</td>
<td>Dutton</td>
</tr>
<tr>
<td>P. W. Kaetchz</td>
<td>Grass Range</td>
</tr>
<tr>
<td>Herman Kemp</td>
<td>Geyser</td>
</tr>
<tr>
<td>Paul Koetitz</td>
<td>Grass Range</td>
</tr>
<tr>
<td>J. F. Killion</td>
<td>Aznoe</td>
</tr>
<tr>
<td>Glenn Kitterman</td>
<td>Great Falls</td>
</tr>
<tr>
<td>John Knudson</td>
<td>Shonkin</td>
</tr>
<tr>
<td>W. F. Kruckenberg</td>
<td>Stanford</td>
</tr>
<tr>
<td>Mrs. L. F. Kuhr</td>
<td>Cleveland</td>
</tr>
<tr>
<td>L. R. Kuhr</td>
<td>Cleveland</td>
</tr>
<tr>
<td>L. C. Leavitt</td>
<td>Fowler</td>
</tr>
<tr>
<td>Theo. LeFebre</td>
<td>Ulm</td>
</tr>
<tr>
<td>Vernon E. Lewis</td>
<td>Fort Benton</td>
</tr>
<tr>
<td>John Leys</td>
<td>Conrad</td>
</tr>
<tr>
<td>C. E. Lillegard</td>
<td>Geyser</td>
</tr>
<tr>
<td>E. M. Linn</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Mary C. Love</td>
<td>Fort Shaw</td>
</tr>
<tr>
<td>Wm. M. Love</td>
<td>Fort Shaw</td>
</tr>
<tr>
<td>John R. Loy</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Ed. Mack</td>
<td>Lewistown</td>
</tr>
<tr>
<td>Edwin Madell</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Mrs. Paul Mathis</td>
<td>Bole</td>
</tr>
<tr>
<td>John Maxell</td>
<td>Millegan</td>
</tr>
<tr>
<td>C. R. McClave</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Leslie McKamie</td>
<td>Great Falls</td>
</tr>
<tr>
<td>John M. McKenzie</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Howard McLean</td>
<td>Lewistown</td>
</tr>
<tr>
<td>Fred Mehmke</td>
<td>Armiton</td>
</tr>
<tr>
<td>Frank F. Miles</td>
<td>Grass Range</td>
</tr>
<tr>
<td>Mrs. C. D. Miller</td>
<td>Cleveland</td>
</tr>
<tr>
<td>J. A. Moll</td>
<td>Augusta</td>
</tr>
<tr>
<td>Z. L. Money</td>
<td>Geraldine</td>
</tr>
<tr>
<td>W. M. Moore</td>
<td>Great Falls</td>
</tr>
<tr>
<td>G. L. Morey</td>
<td>Geraldine</td>
</tr>
<tr>
<td>C. R. Mountjoy</td>
<td>Stanford</td>
</tr>
<tr>
<td>George Morgan</td>
<td>Havre</td>
</tr>
<tr>
<td>H. D. Myrick</td>
<td>Square Butte</td>
</tr>
<tr>
<td>E. E. Nelson</td>
<td>Choteau</td>
</tr>
<tr>
<td>D. B. Noble</td>
<td>Lewistown</td>
</tr>
<tr>
<td>G. H. Nogengart</td>
<td>Montague</td>
</tr>
<tr>
<td>C. L. Oren</td>
<td>Brady</td>
</tr>
<tr>
<td>H. M. Packard</td>
<td>Stanford</td>
</tr>
<tr>
<td>J. C. Faugh</td>
<td>Fort Benton</td>
</tr>
<tr>
<td>Daniel Payne</td>
<td>Great Falls</td>
</tr>
<tr>
<td>W. D. Proctor</td>
<td>Great Falls</td>
</tr>
<tr>
<td>T. N. Quame</td>
<td>Brady</td>
</tr>
<tr>
<td>Mrs. J. Quickendon</td>
<td>Lewistown</td>
</tr>
<tr>
<td>M. E. Randall</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Mrs. Nels Rasmussen</td>
<td>Fort Benton</td>
</tr>
<tr>
<td>Charles Reid</td>
<td>Eden</td>
</tr>
<tr>
<td>C. A. Robinson</td>
<td>Moore</td>
</tr>
<tr>
<td>C. C. Ross</td>
<td>Fort Benton</td>
</tr>
<tr>
<td>Donald R. Ross</td>
<td>Great Falls</td>
</tr>
<tr>
<td>J. A. Rowinger</td>
<td>Flowerie</td>
</tr>
<tr>
<td>James Sanders</td>
<td>Conrad</td>
</tr>
<tr>
<td>Geo. O. Sanford</td>
<td>Fairfield</td>
</tr>
<tr>
<td>Joe Sarzin</td>
<td>Stockett</td>
</tr>
<tr>
<td>John Schwartz</td>
<td>Highwood</td>
</tr>
<tr>
<td>C. A. Sejar</td>
<td>Cascade</td>
</tr>
<tr>
<td>Joseph Skerik</td>
<td>Great Falls</td>
</tr>
<tr>
<td>B. A. Small</td>
<td>Highwood</td>
</tr>
<tr>
<td>Frank S. Smith</td>
<td>Lewistown</td>
</tr>
<tr>
<td>W. W. Smith</td>
<td>Choteau</td>
</tr>
<tr>
<td>R. W. Speir</td>
<td>Valier</td>
</tr>
<tr>
<td>Frank Spencer</td>
<td>Geyser</td>
</tr>
<tr>
<td>M. E. Stebbins</td>
<td>Helena</td>
</tr>
<tr>
<td>C. M. Storm</td>
<td>Power</td>
</tr>
<tr>
<td>H. I. Sturman</td>
<td>Great Falls</td>
</tr>
<tr>
<td>R. L. Talbott</td>
<td>Geyser</td>
</tr>
<tr>
<td>Mrs. E. E. Taylor</td>
<td>Great Falls</td>
</tr>
<tr>
<td>Elmer E. Taylor</td>
<td>Great Falls</td>
</tr>
<tr>
<td>R. Thun</td>
<td>Great Falls</td>
</tr>
<tr>
<td>R. W. Urton</td>
<td>Genou</td>
</tr>
<tr>
<td>A. D. Wamsley</td>
<td>Moccasin</td>
</tr>
<tr>
<td>H. C. White</td>
<td>Buffalo</td>
</tr>
<tr>
<td>John A. Wilson</td>
<td>Stanford</td>
</tr>
<tr>
<td>J. H. Wilson</td>
<td>Coffee Creek</td>
</tr>
<tr>
<td>G. W. Wolverton</td>
<td>Great Falls</td>
</tr>
<tr>
<td>H. S. Woodward</td>
<td>Hobson</td>
</tr>
<tr>
<td>Earl G. Woods</td>
<td>Fairfield</td>
</tr>
<tr>
<td>Emil H. Zanto</td>
<td>Highwood</td>
</tr>
<tr>
<td>Wm. L. Zanto</td>
<td>Highwood</td>
</tr>
</tbody>
</table>
Part III—A Program of Agricultural Development for Western Montana

The agricultural economic conference for western Montana was held at Missoula, March 15-16, 1927. Representative farmers, stockmen and business men from all of the important farming and livestock sections of the western part of the state were present. The counties included in this district are Ravalli, Missoula, Granite, Mineral, Sanders, Lincoln, Lake, Flathead, Powell and Deer Lodge.

Fred T. Parker of Hamilton was general chairman of the conference and the following were the regularly appointed chairmen of the various conference committees: Grain and forage, Niel Parker, Creston; livestock, Clyde Weythman, Polson; fruit, R. C. Ostergren, Darby; potato and truck crops, A. H. Small, Creston; dairy, F. M. Hillman, Lonepine; poultry, Dr. W. B. Walker, Missoula; land utilization, E. L. Johnson, Plains. In cases where the appointed chairman was unable to be present the name of the acting chairman is given with the committee reports which follow.

DISTRICT RECOMMENDATIONS OF LAND UTILIZATION COMMITTEE

E. L. Johnson, Plains, Chairman

The following findings and recommendations for western Montana were approved by the committee:

1. The irrigated lands of the western district have the widest range of crop production possibilities of any of the districts in the state, making possible a high degree of diversification and intensified production. The extent of production of many crops produced in the district is dependent upon marketing possibilities rather than on production possibilities.

2. On irrigated lands a dairy type of farming is particularly adapted. Climate is favorable and high quality feeds can be produced at low cost and in abundance. Proximity to Pacific Coast markets is an advantage.

3. Production of wheat is limited largely to filling a place in adapted cropping systems in which the chief emphasis must be given to the production of feed crops.

4. There is a need for a market for additional intertilled cash crops that will fit in with farming conditions. Sugar beets offer a possibility. Certain parts of the district are suited to commercial and seed potato production which are rather specialized farm activities. Corn is being grown to advantage and offers possibilities for increase.
5. With dairying as a nucleus many farmers are branching out into hog production, poultry, orcharding and other enterprises, thus developing farming systems well adapted to conditions and desirable from a farm management standpoint.

6. The commercial production of vegetables, small fruits and canning crops offers possibilities from a production standpoint but are generally limited by the extent of the available market.

7. There should be no increase in apple production. The McIntosh is the best variety for the district and should replace other varieties grown for commercial purposes.

8. The conditions of production on much of the non-irrigated farm land in the district are generally more favorable from the standpoint of rainfall and length of season than in many other parts of the state but in general the problems are covered by the state-wide recommendations. Wheat constitutes the major cash crop and low cost of production is essential. Increased production of feed crops and livestock is desirable.

9. There is much available grazing land in the district but it has not been utilized to the fullest extent by local farmers and stockmen. Stock growers from other districts and other states are filling the district a favorable summer grazing area. Stockmen and farmers in the district should take advantage of the resources at hand.

DISTRICT RECOMMENDATIONS OF GRAIN AND FORAGE COMMITTEE

B. R. McAllister, Kalispell, Acting Chairman

The following findings and recommendations for western Montana were approved by the conference:

1. Feed crop production is the fundamental factor in the cropping system of western Montana and alfalfa is the fundamental forage crop. Livestock is the basis for successful farming in the district.

2. The difficulty of obtaining stands of alfalfa on many farms may be partly overcome by using the corrugation system of irrigation, by more attention to seed bed preparation and by planting the seed without a nurse crop on heavier soils. To overcome trouble from winter killing only hardy, northern-grown seed of Grimm or Cossack varieties should be grown.

3. The quality of hay produced in the district may be improved by cutting somewhat earlier and by curing it in the windrow instead of letting it dry out in the swath.

4. Possibilities for red clover production are encouraging and should be investigated.
5. Sweet clover is the recommended legume for hay and pasture on non-irrigated land or for pasture on irrigated land. Its importance will increase as farming becomes more intensive.

6. The Huntley pasture mixture with modifications is recommended where a permanent pasture of high carrying capacity is needed. High priced land may be used profitably for such pasture planting.

7. Barley is the recommended small grain feed crop. Trebi is recommended for irrigated land. Faust's Blue Hulless is best for hay and pasture.

8. Victory oats are recommended but Markton is favored where seasons are especially short.

9. Local variety tests are advised to determine the best winter wheat for the area.

10. Supreme or registered Marquis spring wheat are especially recommended. Dicklow and Federation are favored for the soft white wheat sections of the district where hard red spring wheats are usually starchy and of low quality.

11. There is room for considerable improvement in the small grains grown in the district and the Montana crop standardization plan is recommended for counties employing county agricultural agents.

12. In many parts of the district corn may be grown successfully, particularly for stocking-off and fodder purposes and variety tests are recommended to determine strains best adapted to different localities.

13. Weeds are becoming serious on certain irrigated farms and community or county-wide eradication efforts are urged. Immediate attention to infestations at the very beginning is advised as a good investment.

DISTRICT RECOMMENDATIONS OF LIVESTOCK COMMITTEE
D. M. Conner, Darby, Acting Chairman

The changes in livestock population in western Montana in recent years are shown in the following table. The figures are taken from assessors' reports.

<table>
<thead>
<tr>
<th>County</th>
<th>All Cattle 1923</th>
<th>All Cattle 1926</th>
<th>Sheep 1923</th>
<th>Sheep 1926</th>
<th>Swine 1923</th>
<th>Swine 1926</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flathead</td>
<td>13175</td>
<td>8763</td>
<td>3410</td>
<td>3116</td>
<td>1664</td>
<td>549</td>
</tr>
<tr>
<td>Granite</td>
<td>11254</td>
<td>10014</td>
<td>8933</td>
<td>14680</td>
<td>469</td>
<td>230</td>
</tr>
<tr>
<td>Lake</td>
<td>8119</td>
<td>11807</td>
<td>1256</td>
<td>12989</td>
<td>1850</td>
<td>1531</td>
</tr>
<tr>
<td>Lincoln</td>
<td>2676</td>
<td>2600</td>
<td>76</td>
<td>106</td>
<td>71</td>
<td>133</td>
</tr>
<tr>
<td>Mineral</td>
<td>718</td>
<td>877</td>
<td>14</td>
<td>44</td>
<td>95</td>
<td>15</td>
</tr>
<tr>
<td>Missoula</td>
<td>9123</td>
<td>8378</td>
<td>1667</td>
<td>826</td>
<td>1148</td>
<td>1085</td>
</tr>
<tr>
<td>Ravalli</td>
<td>19347</td>
<td>16228</td>
<td>18895</td>
<td>27822</td>
<td>3842</td>
<td>2232</td>
</tr>
<tr>
<td>Sanders</td>
<td>9322</td>
<td>8003</td>
<td>2826</td>
<td>16623</td>
<td>269</td>
<td>225</td>
</tr>
<tr>
<td>District total</td>
<td>73744</td>
<td>66676</td>
<td>37077</td>
<td>76206</td>
<td>9328</td>
<td>6060</td>
</tr>
<tr>
<td>State total</td>
<td>1118247</td>
<td>1056790</td>
<td>1798950</td>
<td>2220625</td>
<td>73670</td>
<td>60262</td>
</tr>
<tr>
<td>U. S. total (thousands)</td>
<td>66156</td>
<td>59148</td>
<td>37223</td>
<td>39864</td>
<td>61189</td>
<td>52025</td>
</tr>
</tbody>
</table>
This area of the state is adapted to small livestock units and apparently will continue so. In general there is a slight surplus of feeds in relation to numbers of livestock but no surplus of spring and fall range. Irrigated pastures have proved profitable on good lands and acreage is increasing. The following recommendations were approved by the conference:

1. That as rapidly as finances are available, the district should replenish its livestock to full carrying capacity.

2. That the class of stock to be kept must be determined by the ability and inclination of the individual operator and the adaptability of his ranch.

3. That considerable expansion in pork production is justified to supply a deficient west coast market that may be reached at an advantageous freight rate. Dairy by-products, cheap forage and high yields of barley and soft wheat that make for economical gains put this section in a favorable position in the competition with other regions.

4. That the production of quality livestock is absolutely essential and should be encouraged in every way. Pure bred sires of the approved type must be used for the production of stock that will meet present market demands. The present offers an opportune time for culling out off-type and undesirable females.

5. That cooperative marketing of livestock and livestock products is recommended where the volume of business will justify the employment of competent management. As improved quality of product is the primary objective of this system of marketing, it is most important that the association stand back of the quality of the offerings.

6. That the state law relating to bulls on the range be rigidly enforced.

7. That winter feeding of beef cattle for marketing is recommended as a desirable way of marketing surplus hay.

RECOMMENDATIONS OF THE HORTICULTURAL COMMITTEE
R. G. Ostergren, Darby, Chairman Fruit Division
A. H. Small, Creston, Chairman Potato and Truck Crop Division

The following findings and recommendations for western Montana were approved by the conference:

Fruits

1. Low cost of production and high quality make certain parts of the district particularly favorable for the production of McIntosh apples. No increased acreage of apples is advocated but growers should replace other varieties with McIntosh and make every effort to build up the vitality and productiveness of their orchards.
2. The apples of the district are now marketed by from 25 to 30 small groups or individuals under a great many different brands. Market gluts and low returns are inevitable under such conditions. Individual growers are urged to organize marketing associations and a close cooperation between local associations is recommended. Such organization is necessary at present and will be all the more needed when the various producing areas of the district return to normal production.

3. The sour cherry produced in the district has a high quality and brings a premium on the markets. Increased plantings are recommended. Plantings should consist of 80 to 90 per cent Large Montmorency and 10 to 20 per cent Morello, the latter being necessary for pollination purposes.

4. Market conditions favor increased strawberry production for commercial purposes. In most cases acreage should be limited to two to three acres per farm to hold down the cost of labor.

5. Bush fruits, particularly red raspberries, offer about the same possibilities for increase as the strawberry and practically the same conditions apply.

6. Fruit growers are urged to reduce risks by planting a variety of fruits. A combination of apples, sour cherries and strawberries is suggested as a means of insuring against total crop loss in any one year.

7. Further study of freight rates to the leading markets for the products of the district was recommended.

Potatoes and Truck Crops

1. Conditions in many parts of the district are favorable for the production of seed and commercial potatoes.

2. Growers should standardize their products and only the Netted Gem variety should be grown either for seed or for commercial purposes.

3. Only the lighter soils should be used for potato production.

4. Potato growers should affiliate with the Potato Association of America, the Northwestern Potato Growers' Association and the Montana Potato Improvement Association and should subscribe to the Potato Growers' Journal.

5. Growers should give their support to demonstrations in the Yakima and other seed consuming districts to aid in the work of extending the market for Montana-grown seed.

6. Head lettuce, celery and asparagus are among the vegetables that offer possibilities for commercial production for shipments out of the district. Growers must be familiar with production requirements and markets to make a success of specialized vegetable production.
7. Other vegetables may be grown for home use and for local market needs only.

8. Various kinds of seed production have possibilities within the district but markets must be developed before such production is undertaken.

DISTRICT RECOMMENDATIONS OF DAIRY COMMITTEE

W. S. Weatherill, Missoula, Acting Chairman

The following findings and recommendations for western Montana were approved by the conference:

1. That cream grading is a desirable practice. Dairymen should use every means to increase the quality of dairy production in the district.

2. That local creameries deserve patronage provided a satisfactory price and equitable service can be obtained.

3. That cream routes be established wherever possible as a means of lowering cost of marketing cream and also to improve the quality by more frequent deliveries.

4. That every effort be made to help creameries establish a reputation for high-grade butter scoring 92 points or better. Producers can help by delivering uniformly high quality cream.

5. That when cows are bought they should be free from disease and have high production records. When dairy calves are purchased, they should be from cows producing 300 pounds of butterfat or more, and sired by registered, pure bred bulls. Buyers of dairy cows should provide adequate feed and shelter for their stock before buying.

6. That farmers sell milk cows of inferior quality to the butcher rather than to other farmers as desirable milk cows.

7. That silos are adapted to small tracts of land where a large number of cows are being fed high priced feed. Where a large quantity of cheap alfalfa can be grown successfully the value of the silo is questionable.

8. That herd sires be kept separate from the herd and not permitted to run at large. The "safety" bull pen is recommended.

9. That farmers have at least ten cows where dairying is a regular part of the farm business, to hold down labor and overhead costs.

10. That sweet clover is highly advisable as a dry land pasture crop. Sweet clover also can be used to good advantage as a pasture crop on heavy, wet alkali lands. Yellow blossom sweet clover has proved superior to the white blossom variety for pasture purposes. Rye should be planted for use as pasture in early spring and late fall.
11. That it is profitable to use a sufficient acreage of high-priced, tillable ground as permanent pasture for dairy purposes wherever suitable pasture on non-tillable land is not available.

12. That Montana people be urged to use more Montana dairy products.

DISTRICT RECOMMENDATIONS OF POULTRY COMMITTEE  
Dr. W. B. Walker, Missoula, Chairman

The following findings and recommendations for western Montana were approved by the conference:

1. That conditions in western Montana are favorable for the organization of a cooperative egg marketing organization, since certain parts of the district are well adapted to commercial egg production. It was agreed that the output of at least 30,000 hens would be necessary before a marketing association of this kind could function properly.

2. That there is opportunity for expanding the chick hatcheries of the district to supply local demand. It is estimated that 20,000 chicks were shipped into the district in the spring of 1927. The proposed state accrediting plan for hatcheries is favored.

Following is a list of those who attended the conference and helped draw up the reports:

<table>
<thead>
<tr>
<th>Name</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chas. L. Anderson</td>
<td>Missoula</td>
</tr>
<tr>
<td>Daniel Arms</td>
<td>Missoula</td>
</tr>
<tr>
<td>F. A. Asbury</td>
<td>Deer Lodge</td>
</tr>
<tr>
<td>Joe B. Baker</td>
<td>Kalispell</td>
</tr>
<tr>
<td>Ed. R. Ball</td>
<td>Missoula</td>
</tr>
<tr>
<td>W. A. Barto</td>
<td>Thompson Falls</td>
</tr>
<tr>
<td>H. S. Bates</td>
<td>Missoula</td>
</tr>
<tr>
<td>G. H. Beckwith</td>
<td>Missoula</td>
</tr>
<tr>
<td>H. W. Bell</td>
<td>Hamilton</td>
</tr>
<tr>
<td>Otto Benson</td>
<td>Missoula</td>
</tr>
<tr>
<td>J. S. Bonham</td>
<td>Charlo</td>
</tr>
<tr>
<td>Geo. Boyer</td>
<td>Frenchtown</td>
</tr>
<tr>
<td>Scotty Brown</td>
<td>Missoula</td>
</tr>
<tr>
<td>J. Y. Campfield</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. F. A. Carey</td>
<td>Missoula</td>
</tr>
<tr>
<td>C. H. Clapp</td>
<td>Missoula</td>
</tr>
<tr>
<td>R. G. Claric</td>
<td>Missoula</td>
</tr>
<tr>
<td>Ed. Cobb</td>
<td>Missoula</td>
</tr>
<tr>
<td>D. M. Conner</td>
<td>Darby</td>
</tr>
<tr>
<td>A. B. Cook</td>
<td>Bonita</td>
</tr>
<tr>
<td>A. C. Cooley</td>
<td>Salt Lake City</td>
</tr>
<tr>
<td>A. B. Corey</td>
<td>Kalispell</td>
</tr>
<tr>
<td>F. W. Cowan</td>
<td>Missoula</td>
</tr>
<tr>
<td>Calvin Cowan</td>
<td>Missoula</td>
</tr>
<tr>
<td>H. Danforth</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. A. Day</td>
<td>Missoula</td>
</tr>
<tr>
<td>Armand P. Deschamps</td>
<td>Missoula</td>
</tr>
<tr>
<td>A. R. Deschamps</td>
<td>Missoula</td>
</tr>
<tr>
<td>R. L. Deschamps</td>
<td>Missoula</td>
</tr>
<tr>
<td>Tony Deschamps</td>
<td>Missoula</td>
</tr>
<tr>
<td>U. W. Deschamps</td>
<td>Missoula</td>
</tr>
<tr>
<td>Edward Dickey</td>
<td>Missoula</td>
</tr>
<tr>
<td>Pat Dineen</td>
<td>Victor</td>
</tr>
<tr>
<td>Jos. M. Dixon</td>
<td>Missoula</td>
</tr>
<tr>
<td>Chas. Dochow</td>
<td>Missoula</td>
</tr>
<tr>
<td>G. G. Doktor</td>
<td>Missoula</td>
</tr>
<tr>
<td>F. L. Dolittle</td>
<td>Lolo</td>
</tr>
<tr>
<td>T. H. Durnford</td>
<td>Lolo</td>
</tr>
<tr>
<td>Conrad Faick</td>
<td>Missoula</td>
</tr>
<tr>
<td>James W. Faulds</td>
<td>Missoula</td>
</tr>
<tr>
<td>L. M. Felton</td>
<td>Missoula</td>
</tr>
<tr>
<td>H. D. Fisher</td>
<td>Missoula</td>
</tr>
<tr>
<td>S. F. Flynn</td>
<td>Missoula</td>
</tr>
<tr>
<td>H. G. Ford</td>
<td>Missoula</td>
</tr>
<tr>
<td>Edwin Fox</td>
<td>Missoula</td>
</tr>
<tr>
<td>C. P. Frost</td>
<td>Hamilton</td>
</tr>
<tr>
<td>W. J. Fullerton</td>
<td>Hamilton</td>
</tr>
<tr>
<td>H. M. Gilbertson</td>
<td>Kalispell</td>
</tr>
<tr>
<td>F. A. Givan</td>
<td>Hamilton</td>
</tr>
<tr>
<td>G. E. Graham</td>
<td>Whitepine</td>
</tr>
<tr>
<td>P. E. Gray</td>
<td>Plains</td>
</tr>
<tr>
<td>E. F. Groff</td>
<td>Victor</td>
</tr>
<tr>
<td>H. C. Groff</td>
<td>Victor</td>
</tr>
<tr>
<td>Name</td>
<td>Location</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Clarence Haines</td>
<td>Creston</td>
</tr>
<tr>
<td>Ira F. Halling</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. E. Harriott</td>
<td>Missoula</td>
</tr>
<tr>
<td>R. E. Harriott</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. J. Haselrud</td>
<td>Thompson Falls</td>
</tr>
<tr>
<td>Henry F. Hayes</td>
<td>Potomac</td>
</tr>
<tr>
<td>L. H. Helphrey</td>
<td>Plains</td>
</tr>
<tr>
<td>Fred Hensolt</td>
<td>Missoula</td>
</tr>
<tr>
<td>James Herbert</td>
<td>Polson</td>
</tr>
<tr>
<td>H. B. Hermes</td>
<td>Paradise</td>
</tr>
<tr>
<td>Almon Hocker</td>
<td>Charlo</td>
</tr>
<tr>
<td>Wm. H. Hodgson</td>
<td>Kalispell</td>
</tr>
<tr>
<td>Cloise R. Howd</td>
<td>Missoula</td>
</tr>
<tr>
<td>Geo. Jalling</td>
<td>Hamilton</td>
</tr>
<tr>
<td>L. H. Jeannot</td>
<td>Dixon</td>
</tr>
<tr>
<td>M. R. Jeffrey</td>
<td>Hamilton</td>
</tr>
<tr>
<td>Chris Johnson</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. L. Johnson</td>
<td>Plains</td>
</tr>
<tr>
<td>John Kack</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. L. Kelley</td>
<td>Kalispell</td>
</tr>
<tr>
<td>W. M. Kinney</td>
<td>Ronan</td>
</tr>
<tr>
<td>J. E. Kirkwood</td>
<td>Missoula</td>
</tr>
<tr>
<td>R. Kjeldsen</td>
<td>Hamilton</td>
</tr>
<tr>
<td>E. C. Lehsou</td>
<td>Missoula</td>
</tr>
<tr>
<td>F. S. Lusk</td>
<td>Missoula</td>
</tr>
<tr>
<td>M. R. Marshall</td>
<td>Missoula</td>
</tr>
<tr>
<td>B. R. McAllister</td>
<td>Kalispell</td>
</tr>
<tr>
<td>L. L. McCart</td>
<td>Missoula</td>
</tr>
<tr>
<td>J. A. McGeorge</td>
<td>Ronan</td>
</tr>
<tr>
<td>R. B. McKee</td>
<td>Kalispell</td>
</tr>
<tr>
<td>W. C. McKenzie</td>
<td>Missoula</td>
</tr>
<tr>
<td>Archie McKillop</td>
<td>Hamilton</td>
</tr>
<tr>
<td>C. H. McLeod</td>
<td>Missoula</td>
</tr>
<tr>
<td>L. B. Miller</td>
<td>Ronan</td>
</tr>
<tr>
<td>Russell H. Miller</td>
<td>Missoula</td>
</tr>
<tr>
<td>J. L. Mills</td>
<td>Lolo</td>
</tr>
<tr>
<td>C. D. Moore</td>
<td>Hamilton</td>
</tr>
<tr>
<td>David Morris</td>
<td>Charlo</td>
</tr>
<tr>
<td>J. H. Morris</td>
<td>Missoula</td>
</tr>
<tr>
<td>E. J. Mulick</td>
<td>Perma</td>
</tr>
<tr>
<td>R. G. W. Newell</td>
<td>Stevensville</td>
</tr>
<tr>
<td>Edwin J. Nickel</td>
<td>Darby</td>
</tr>
<tr>
<td>G. A. Norris</td>
<td>Helena</td>
</tr>
<tr>
<td>R. A. O'Hara</td>
<td>Hamilton</td>
</tr>
<tr>
<td>Chas. Ohnesorge</td>
<td>Missoula</td>
</tr>
<tr>
<td>M. M. Oliphant</td>
<td>Missoula</td>
</tr>
<tr>
<td>R. G. Ostergren</td>
<td>Darby</td>
</tr>
<tr>
<td>P. E. Pagenkopf</td>
<td>Hamilton</td>
</tr>
<tr>
<td>Fred T. Parker</td>
<td>Hamilton</td>
</tr>
<tr>
<td>Rutledge Parker</td>
<td>Missoula</td>
</tr>
<tr>
<td>W. L. Perry</td>
<td>Missoula</td>
</tr>
<tr>
<td>L. E. Peterson</td>
<td>Victor</td>
</tr>
<tr>
<td>Albert Plett</td>
<td>Missoula</td>
</tr>
<tr>
<td>W. E. Pollinger</td>
<td>Corvallis</td>
</tr>
<tr>
<td>Chas. E. Probstetal</td>
<td>Stark</td>
</tr>
</tbody>
</table>


Billings: W. P. Stapleton.

Hamilton: G. H. Shellhammer.


Hutton: L. H. Helphrey, W. M. Kinney.

Polson: James Herbert.

Dixon: L. H. Jeannot.

Paradise: H. B. Hermes.

Stevensville: W. L. Perry.

Kalsipell: J. E. Kirkwood.

Arlee: Ernest HaJllng.

Missoula: S. Roberts.

Grass Valley: J. F. Suneson.

Potomac: R. E. Harriott.

Stark: Chas. E. Probstetal.

Bonner: R. E. Harriott.

The agricultural economic conference for north central Montana was held at Havre, March 29-30. Representative farmers, stockmen and business men from all of the important farming and livestock sections of the northern part of the state were present. The counties included in this district are Hill, Blaine, Phillips, Liberty, Toole, Glacier and northern Chouteau.

George W. Gustafson of Chinook was general chairman of the conference and the following were the regularly appointed chairmen of the various conference committees: Grain and forage, J. N. Mangis, Malta; livestock, Tom Ross, Chinook; dairies, R. B. Snedecor, Chinook; poultry, A. G. Kurtz, Gildford; horticulture, J. C. Cronk, Coburg; land utilization, Thos. Connolly, Havre. In cases where the appointed chairman was unable to be present the name of the acting chairman is given with the committee reports which follow.

**DISTRICT RECOMMENDATIONS OF LAND UTILIZATION COMMITTEE**

Thomas Connolly, Havre, Chairman

The following findings and recommendations for north central Montana were approved by the conference:

1. There has been a marked decrease in the number of farms of the district but farm units have become larger. It was agreed that the agricultural success of the district depends upon the success of those now on the land.

2. Wheat production is the major farm enterprise but straight wheat farming is not advisable because of seasonal fluctuations in production, soil blowing, poor labor distribution and the price risk involved in single crop farming.

3. The production of feed and livestock offer the best opportunities for overcoming the objections to straight wheat farming.

4. Successful wheat production in the district calls for farm units of approximately two sections with at least one-third of crop land in summer fallow and approximately one section planted to wheat each year.

5. Low cost production methods are particularly essential in this district.

6. In many parts of the district it appears advisable to combine tillable land with rougher grazing land into single farm units of at least two sections in size. For the minimum sized farm of this type, 25 head of cattle, from five to ten brood sows, or 50 head of sheep in place of the hogs, is desirable.
7. Corn, small grain feeds and sweet clover produced in sufficient quantity for the amount of livestock are recommended as the desirable feeds of the district.

8. Feed production is the keystone of successful farming in this district and a feed reserve of at least one year's supply is essential.

9. Detailed studies of farm costs by individual farmers are necessary as a basis for future farm adjustments.

10. The general state recommendations dealing with grazing lands apply particularly to this district. The conference recommended the appointment of county committees to make further study of the grazing land situation.

DISTRICT RECOMMENDATIONS OF GRAIN AND FORAGE COMMITTEE

Jess Conrad, Chinook, Acting Chairman

The following findings and recommendations for north central Montana were approved by the conference:

1. Wheat is the major cash crop of the district but variable rainfall conditions make it a less reliable crop than in some other parts of the state, thus raising feed and forage crops production to an essential place in the farming systems.

2. The uncertainty of rainfall makes summer tillage and adapted cultural practices indispensable to successful crop production.

3. Summer tillage is necessary throughout the district and there is room for considerable extension and improvement of this practice.

4. Since much of the rainfall comes in May and June, summer tillage operations must start early to take advantage of this early moisture supply.

5. Where soil blowing has become a problem modified summer tillage practices discussed in the state program should be followed.

6. Plowing for summer fallow should be done before May 15 and is of little value if done later than June 1. Where it is done after May 15th the soil should be cultivated before plowing to start weed growth and provide a better soil condition for the retention of moisture.

7. Where weeds have blown over the land during the winter it is best to delay seeding so that weeds may be checked before grain is planted. In cold seasons when grain growth is slow, two cultivations to check weeds may be necessary before planting.

8. Duckfoot summer fallow is proving successful under many different conditions in the district and is worthy of careful trial.

9. Supreme wheat is recommended for the district. Registered Marquis has proved better than common Marquis.
10. Barley is the highest yielding small grain feed crop for the area. Varieties recommended are Horn for dry land, Trebi for irrigated land, and Faust's Beardless Blue Hulless where beards are not desired.

11. The Victory and Markton varieties of oats are recommended. Oats give the highest yields of any of the small grains when cut for hay.

12. Prolific spring rye is recommended for trial because of its earliness and its good yields when cut for hay.

13. Yellow blossom sweet clover is the best legume for hay and pasture.

14. Corn is not a major crop in the district but deserves a place on many farms. Only the earliest, adapted varieties should be planted.

15. Flax may be grown in certain areas where weeds are not too abundant, providing it is sown on clean land.

---

**DISTRICT RECOMMENDATIONS OF LIVESTOCK COMMITTEE**

Tom Ross, Chinook, Chairman

The changes in livestock population in north central Montana in recent years are shown in the following table. The figures are taken from assessors' reports.

<table>
<thead>
<tr>
<th>County</th>
<th>All Cattle 1923</th>
<th>All Cattle 1926</th>
<th>Sheep 1923</th>
<th>Sheep 1926</th>
<th>Swine 1923</th>
<th>Swine 1926</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blaine</td>
<td>36655</td>
<td>34735</td>
<td>103458</td>
<td>117988</td>
<td>1170</td>
<td>891</td>
</tr>
<tr>
<td>Chouteau</td>
<td>25852</td>
<td>29713</td>
<td>35281</td>
<td>46777</td>
<td>1850</td>
<td>1007</td>
</tr>
<tr>
<td>Hill</td>
<td>13567</td>
<td>15129</td>
<td>13960</td>
<td>14599</td>
<td>1115</td>
<td>1455</td>
</tr>
<tr>
<td>Liberty</td>
<td>5854</td>
<td>8705</td>
<td>5988</td>
<td>10129</td>
<td>192</td>
<td>125</td>
</tr>
<tr>
<td>Phillips</td>
<td>25946</td>
<td>26294</td>
<td>50120</td>
<td>49521</td>
<td>1314</td>
<td>1120</td>
</tr>
<tr>
<td>District total</td>
<td>108204</td>
<td>114576</td>
<td>205807</td>
<td>239014</td>
<td>5596</td>
<td>4698</td>
</tr>
<tr>
<td>State total</td>
<td>1118247</td>
<td>1055790</td>
<td>1788950</td>
<td>2206757</td>
<td>73760</td>
<td>69262</td>
</tr>
<tr>
<td>U. S. total (thousands)</td>
<td>66156</td>
<td>59148</td>
<td>37223</td>
<td>33664</td>
<td>61189</td>
<td>52025</td>
</tr>
</tbody>
</table>

The following recommendations were approved by the conference:

1. That a reclassification of lands be made to bring about a better and more efficient use of the lands that are adapted only to grazing.

2. That since the value of grazing land is determined only by what it will produce, the present asking prices and leases on lands are too high in relation to the prices received for livestock products. Figures available show that sheep production costs on owned land exceed those on leased land by at least 15 per cent.
3. That where the classification shows a sufficient available acre-age of abandoned land and public domain to justify, that these lands be brought under controlled grazing through their sale at actual value or through long-time leases.

4. That controlled grazing of public lands can bring about a greatly increased carrying capacity and this committee favors the necessary action to bring this about.

5. That every effort be made to establish direct marketing of feeder livestock to the feed lots of the corn belt. The essentials for success in this business are, sufficient numbers to attract buyers, high quality, uniformity and fair dealing.

6. That only the highest quality of sires be used and a more rigid culling of undesirable females be practiced.

7. That pork production be increased since hogs produced in this section have an advantageous freight rate to an undersupplied west coast market and the feeds produced in this section make for economical gains that may compete with other sections.

8. That an increase in pork production be made according to available feed supplies. Feed reserves are absolutely essential.

9. That where feeds are available and the owner desires to stay in the business through bad times as well as good, small flocks of sheep should be encouraged.

10. That a more rigid culling of sheep be practiced by everyone. Where ranges are fully stocked culling should be increased 10 per cent to improve breeding stock.

11. That where surplus feeds are available the finishing of livestock offers possibilities.

12. That greater support be given to cooperative marketing agencies for handling livestock products and that shipping dates be arranged to bring about more uniform distribution of receipts at terminal markets.

DISTRICT RECOMMENDATIONS OF DAIRY COMMITTEE

R. B. Snedecor, Chinook, Chairman

The following findings and recommendations for north central Montana were approved by the conference:

1. That only well-bred animals of dairy breeding be used on irrigated farms for specialized dairy production.

2. That the dual purpose type of cow seems better adapted to most dry land conditions when feeds are not particularly adapted to intensive dairying. Dry lands that produce legume hay and provide ample pasture can handle dairy-bred animals.
3. That the introduction of heifer calves from dairy districts, from high producing cows is a safe and economical way of increasing dairy stock.

4. That the practice of shipping in dairy stock from other states is not recommended as a general practice. Generally cows and calves can be purchased locally or within the state to satisfy needs for expansion.

5. That for irrigated farms, alfalfa hay with a variety of concentrates such as barley and oats, is recommended. Silage and root crops should be used when practical.

6. That for dry land, corn seems to be the most dependable crop. Alfalfa and sweet clover should be grown where possible. Grain, hay and root crops are possible under most conditions.

7. That excessive expenditures for barns lessen the chance for net profit. Suitable equipment for sanitary and quality production and for the maintenance of health in the cows is emphasized.

DISTRICT RECOMMENDATIONS OF POULTRY COMMITTEE
A. J. Kurtz, Gildford, Chairman

The following findings and recommendations for north central Montana were approved by the conference:

1. That the district has the necessary train service to take advantage of favorable marketing conditions in Great Falls and that the commercial egg producers of the district affiliate with the Cascade County Cooperative Egg and Poultry Association for the purpose of marketing their product.

2. That since there are little over 300,000 birds in the district the organization of egg marketing units within the district is not advisable at this time.

3. That increased turkey production offers possibilities, particularly since most of the counties have well established marketing pools. Two of the pooling associations already market turkeys under the state brand, and others are urged to improve their grading and marketing practices to conform to the state brand requirements.

RECOMMENDATIONS OF THE HORTICULTURAL COMMITTEE
C. A. Slyngstad, Havre, Acting Chairman

The following findings and recommendations for north central Montana were approved by the committee:

1. The district is one of the main certified seed potato producing areas of Montana. Conditions favor the production of a high quality product but present markets do not favor any great in-
crease in production. Growers must cooperate in the work of extending and developing markets. The seed potato business depends entirely upon the production of high quality stock, and this is the only basis on which the business should be developed.

2. For certified seed, production should be limited to the Bliss Triumph and Irish Cobbler varieties.

3. Better seed potato storage facilities are recommended for the district.

4. A careful study of the factors causing low germination is advised.

5. The reputation of the district demands strict adherence to contracts with purchasers of seed.

6. The need for a salesman in the seed consuming districts to promote sales of Montana certified seed potatoes is recognized.

7. Commercial potato production offers little possibility except to supply local markets.

8. Vegetables and fruits should be grown on all farms but for home and local needs only.

9. Comparatively few farms have shelterbelt and homestead tree plantings and these are recognized as being particularly desirable in this district.

Following is a list of those who attended the conference and helped draw up the reports:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. S. Anderson</td>
<td>Gildford</td>
<td>Oscar Ekre</td>
<td>Whitewater</td>
</tr>
<tr>
<td>John Barber</td>
<td>Lloyd</td>
<td>Paul Entorf</td>
<td>Cleveland</td>
</tr>
<tr>
<td>A. M. Bennett</td>
<td>Gildford</td>
<td>Ezra Ereaux</td>
<td>Wagner</td>
</tr>
<tr>
<td>E. C. Bentley</td>
<td>Dodson</td>
<td>John Etchart</td>
<td>Tampico</td>
</tr>
<tr>
<td>W. C. Blackwood</td>
<td>Bearpaw</td>
<td>Will Felton</td>
<td>Bearpaw</td>
</tr>
<tr>
<td>W. E. Blackwood</td>
<td>Chinook</td>
<td>E. G. Ferguson</td>
<td>Havre</td>
</tr>
<tr>
<td>C. S. Bradford</td>
<td>Inverness</td>
<td>Clarence Finch</td>
<td>Chinook</td>
</tr>
<tr>
<td>Walter Brown</td>
<td>Havre</td>
<td>R. A. Finley</td>
<td>Zurich</td>
</tr>
<tr>
<td>J. R. Brownlee</td>
<td>Gildford</td>
<td>C. D. Fulton</td>
<td>Chinook</td>
</tr>
<tr>
<td>Mack Brownlee</td>
<td>Gildford</td>
<td>Lars Gjerde</td>
<td>Laredo</td>
</tr>
<tr>
<td>E. L. Buchholz</td>
<td>Kennilworth</td>
<td>J. M. Grass</td>
<td>Box Elder</td>
</tr>
<tr>
<td>A. A. Bunker</td>
<td>Lohman</td>
<td>W. S. Gregorie</td>
<td>Havre</td>
</tr>
<tr>
<td>Andrew Christensen</td>
<td>Chinook</td>
<td>G. W. Gustafson</td>
<td>Chinook</td>
</tr>
<tr>
<td>R. H. Clarkson</td>
<td>Chinook</td>
<td>Oscar Haden</td>
<td>Chinook</td>
</tr>
<tr>
<td>Thomas Connolly</td>
<td>Havre</td>
<td>L. R. Hambleck</td>
<td>Havre</td>
</tr>
<tr>
<td>Jess Conrad</td>
<td>Chinook</td>
<td>C. G. Hammond</td>
<td>Savoy</td>
</tr>
<tr>
<td>Earl R. Couts</td>
<td>Havre</td>
<td>J. W. Hamlock</td>
<td>Havre</td>
</tr>
<tr>
<td>Gilbert Crosby</td>
<td>Laredo</td>
<td>Harry Harlem</td>
<td>Chinook</td>
</tr>
<tr>
<td>Ed. Culbertson</td>
<td>Chinook</td>
<td>R. A. Hegle</td>
<td>Havre</td>
</tr>
<tr>
<td>Wm. Curry</td>
<td>Laredo</td>
<td>Mrs. H. A. Herrington</td>
<td>Havre</td>
</tr>
<tr>
<td>P. M. Delp</td>
<td>Laredo</td>
<td>Peter Hoogland</td>
<td>Malta</td>
</tr>
<tr>
<td>Hugh L. Dixon</td>
<td>Gavenlock, Sask.</td>
<td>E. B. Hovee</td>
<td>Inverness</td>
</tr>
<tr>
<td>M. A. Donoghue</td>
<td>Harlem</td>
<td>H. H. Johnson</td>
<td>Malta</td>
</tr>
<tr>
<td>E. B. Duncan</td>
<td>Havre</td>
<td>W. W. Jones</td>
<td>Havre</td>
</tr>
<tr>
<td>Phillip Dunn</td>
<td>Gildford</td>
<td>A. W. Kickbusch</td>
<td>Fairchild</td>
</tr>
<tr>
<td>E. P. Ekegren</td>
<td>Harlem</td>
<td>S. E. Kodalen</td>
<td>Dodson</td>
</tr>
</tbody>
</table>
Part III—A Program of Agricultural Development for Northeastern Montana

The agricultural economic conference for northeastern Montana was held at Bainville, March 31, 1927. Representative farmers, stockmen and business men from all of the important farming and livestock sections of the northeastern district were present. The counties included in the district are Valley, Daniels, Sheridan, Roosevelt, Richland and northern McCone and Garfield.

Augustus Vaux of Sidney was general chairman of the conference and the following were the regularly appointed chairmen of the various conference committees: Grain and forage, Harry C. Anderson, Sioux Pass; livestock, Henry C. Lowe, Culbertson; dairy, Lars Angvick, Reserve; poultry, V. A. Lovell, Wolf Point; horticulture, George W. Points, Daleview; land utilization, A. P. Smerud, Flaxville. Where the appointed chairman was unable to be present the name of the acting chairman is given with the committee reports which follow.

DISTRICT RECOMMENDATIONS OF LAND UTILIZATION COMMITTEE
F. F. Smith, Opheim, Acting Chairman

The following findings and recommendations for northeastern Montana were approved by the conference:

1. Wheat production is the major farm enterprise in this district with production limited to three general types of farms: (1) the small all-tillable general farm, (2) the larger specialized wheat
farm particularly adapted to low cost methods, and (3) the farming-grazing farms where tillable land is combined with rougher grazing land.

2. On the smaller farms where all the land is tillable, though wheat is the important cash crop, feed crop and livestock production are essential to provide needed cash returns. A comparatively intensive system of farming is necessary for this type of farm. Men with more managerial ability may profitably extend this type of farming to larger units.

3. Specialized wheat farms require a farm unit of at least one section and, in many cases, larger units are more profitable. Labor distribution is the most serious problem on this type of farm. Suggested means of spreading labor throughout the season are more summer fallowed land, devoting part of acreage to winter wheat where possible, use of duckfoot summer fallow and planting some of wheat on clean summer fallowed stubble land.

4. Labor efficiency can be increased by the use of larger teams, medium sized tractors, larger tillage implements and the combine-harvester.

5. Moisture reserves, cash reserves and seed reserves are especially important to reduce the risk of straight wheat type of farming.

6. On the farming-grazing types of farms, while wheat may be the important cash crop, the production of feed is most essential. Corn, sweet clover and small grains must be depended upon to supply the necessary feed. These farms range from one to several sections in size.

DISTRICT RECOMMENDATIONS OF GRAIN AND FORAGE COMMITTEE

Harry C. Anderson, Sioux Pass, Chairman

The following findings and recommendations for northeastern Montana were approved by the conference:

1. Wheat is the major cash crop of the district and the rainfall is erratic and variable, making the use of proper tillage methods and implements of the utmost importance.

2. Some of the oldest dry land farming areas of the state are in this district. Summer fallowing is being practiced to a considerable extent but there is room for its further adoption and improvement.

3. Soil blowing has become a problem on certain farms and the summer tillage modifications discussed in the state program have particular application to such instances.

4. The depletion of soil fertility through continuous cropping has not yet become a problem but may demand special attention in the near future.

5. A combination system of farming placing chief emphasis upon the production of cash grains and feed crops is recommended.
6. Since the district can produce corn, this crop may be used to some extent as a substitute for straight summer fallow. Summer tillage practices used successfully in central Montana deserve careful trial as there probably is a place for the duckfoot method of summer fallow in this district. Summer tillage work should start before June 1.

7. Corn is the most dependable producer of roughage in the district. Only the earliest strains and varieties should be grown and local tests should be conducted to determine those best adapted. Demonstrations show that the listing of corn is successful in this part of the state and is recommended because it saves labor, permits better weed control, is more efficient in utilization of moisture and permits more extensive acreage.

8. Barley is the leading small grain feed crop and the Horn variety is recommended.

9. Victory is the leading oat variety and may be planted earlier than is customary in some parts of the district.

10. The production of small grains for hay should be increased. Wheat is recommended for horses when cut in the dough stage. Oats are inclined to be washy when cut for hay but are satisfactory when the hay is held over for about six months or when fed with ground barley or barley hay. Barley hay yields less than other small grains but is of excellent quality. Faust's Blue Hulless is recommended for this purpose.

11. Alfalfa is not dependable in dry years, therefore sweet clover is most important as a legume hay and pasture crop. To get a good stand seed should be sown early in fall or spring. If planted in spring, scarified seed should be used. Summer fallow or corn ground supplies the necessary moist, firm seed bed. Small grain may be used as a nurse crop.

DISTRICT RECOMMENDATIONS OF LIVESTOCK COMMITTEE
Henry C. Lowe, Culbertson, Chairman

The changes in livestock population in northeastern Montana in recent years are shown in the following table. The figures are taken from assessors' reports.

<table>
<thead>
<tr>
<th>County</th>
<th>All Cattle 1923</th>
<th>All Cattle 1926</th>
<th>Sheep 1923</th>
<th>Sheep 1926</th>
<th>Swine 1923</th>
<th>Swine 1926</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniels</td>
<td>10352</td>
<td>10115</td>
<td>3068</td>
<td>4694</td>
<td>967</td>
<td>1530</td>
</tr>
<tr>
<td>McConel</td>
<td>18048</td>
<td>17275</td>
<td>27784</td>
<td>22636</td>
<td>1214</td>
<td>1178</td>
</tr>
<tr>
<td>Richland</td>
<td>18222</td>
<td>16426</td>
<td>1501</td>
<td>4025</td>
<td>1501</td>
<td>1954</td>
</tr>
<tr>
<td>Roosevelt</td>
<td>13878</td>
<td>16725</td>
<td>1146</td>
<td>977</td>
<td>1188</td>
<td>1359</td>
</tr>
<tr>
<td>Sheridan</td>
<td>18636</td>
<td>16739</td>
<td>7683</td>
<td>6913</td>
<td>1625</td>
<td>1681</td>
</tr>
<tr>
<td>Valley</td>
<td>28276</td>
<td>27305</td>
<td>65446</td>
<td>76458</td>
<td>2408</td>
<td>1961</td>
</tr>
<tr>
<td>District total</td>
<td>107412</td>
<td>104645</td>
<td>107177</td>
<td>115703</td>
<td>8993</td>
<td>9553</td>
</tr>
<tr>
<td>State total</td>
<td>1118247</td>
<td>1055790</td>
<td>1783550</td>
<td>2206257</td>
<td>73670</td>
<td>60262</td>
</tr>
<tr>
<td>U.S. total (thousands)</td>
<td>66156</td>
<td>58148</td>
<td>37223</td>
<td>39864</td>
<td>68189</td>
<td>52025</td>
</tr>
</tbody>
</table>
Livestock production at present is incidental to grain production on the farms of this district. However, many specialized stock ranches are in successful operation. Feed reserves are essential for some small units carry too much livestock for the feeds available in unfavorable years, but in general there are far too many farms that do not carry enough stock to utilize the by-products of the farm.

The following recommendations were approved by the conference:

1. That more hogs should be raised and forage crops of either spring rye, sweet clover or alfalfa should be available. For late summer feeding, hulless barley to be followed in the fall by a corn field of sufficient size for finishing, is desirable.

2. That the hog business should be started on a small scale. Increased production should be limited to the increase in feed crops.

3. That the cattle business in small units should closely approach a cow and calf basis. Cows may be wintered successfully on cottonseed cake and straw. To meet market demands for finished young cattle good quality is absolutely essential.

4. Small flocks of sheep are highly profitable but at present prices caution should be observed in purchasing. The operator must have a leaning toward sheep and a desire to stay in the business through bad times as well as good. Sheep of Rambouillet breeding are preferred.

5. The choice of livestock on any farm must depend upon the owner's preference and the conditions under which he must operate.

DISTRICT RECOMMENDATIONS OF DAIRY COMMITTEE
Lars Angvick, Reserve, Chairman

The following findings and recommendations for northeastern Montana were approved by the conference:

1. That the dual purpose type of cow seems better adapted to intensive dairying. Dry lands that produce legume hay and provide ample pasture can handle dairy bred animals.

2. That the introduction of heifer calves from high producing cows is a safe and economical way of increasing dairy stock.

3. That the shipping in of dairy cows from other states is not recommended as a general practice. Generally cows and calves can be purchased locally or within the state to satisfy needs for expansion.

4. Sweet clover and corn are the most dependable and efficient feed crops. Sweet clover is the best pasture crop in the district.
5. Equipment should be such as to make possible the production of clean milk and to maintain cows in healthy condition. Excessive expenditures for barns lessen the chance for net profit. Suitable equipment for sanitary and quality production is emphasized.

6. To encourage the industry and give protection to both buyers and sellers compulsory cream grading laws are recommended.

DISTRICT RECOMMENDATIONS OF POULTRY COMMITTEE

Elmer Dengel, Medicine Lake, Acting Chairman

The following findings and recommendations for northeastern Montana were approved by the conference:

1. That expansion of commercial egg production in the district is not advised at this time because of unfavorable marketing facilities.
2. That the general standards of poultry production are poor and that the first steps taken to build up the poultry industry of the district must deal with improved housing and better feeding and breeding practices.
3. That a strong educational campaign be started to bring about the necessary improvement in poultry raising practices.
4. That when production methods have been brought to the proper standard poultry production can be made profitable even with present marketing facilities.

RECOMMENDATIONS OF THE HORTICULTURAL COMMITTEE

George W. Points, Redstone, Chairman

The following findings and recommendations for northeastern Montana were approved by the conference:

1. Seed potato production should be increased in favorable producing areas of this district. Increases must be limited to market demands and must be made gradually. There are possibilities of extending the market if proper business methods are used and only high quality seed potatoes produced.
2. Commercial potato production is limited largely to meeting local needs because of the distance from large consuming centers.
3. Shelterbelt and farmstead plantings are possible in almost every part of the district. Very few farms in northeastern Montana have such plantings at present so that there is a decided need for a swing of sentiment in favor of more trees and shrubs.
4. With shelterbelts, fruits and small fruits may be grown for home use and home garden possibilities increase. Farm living conditions would be improved, farm values would increase and the district generally be greatly improved if more attention were paid to these side lines. The general state recommendations on varieties planting requirements apply to this district.
Following is a list of those who attended the conference and helped draw up the reports:

M. M. Allen ............................................................... Bainville
John S. Alling ......................................................... Fairview
B. J. Anderson ......................................................... Fairview
H. C. Anderson ......................................................... Sioux Pass
Selmer Anderson ....................................................... Bainville
Lars Angvik ............................................................. Reserve
Rene Beauchene ....................................................... Bainville
Elmar Bensen ........................................................... McCabe
Oscar Berard ........................................................... Dore, N. D.
E. M. Bergstrom ....................................................... McCabe
H. C. Bjorge ............................................................ Culbertson
R. P. Blair .............................................................. Sidney
Sid Blair ................................................................. Culbertson
Howard Bogart ......................................................... Poplar
C. K. Bolstad ........................................................... Homestead
J. B. Bourassa .......................................................... Flaxville
Carl Brickman .......................................................... Dugger
Jens Brickman .......................................................... Dugger
Wm. Brough ............................................................. Fairview
Orr Burgett ............................................................ Scobey
F. C. Bydeley .......................................................... Scobey
J. H. Clark .............................................................. Bainville
L. J. Crippen ........................................................... Lambert
Anton H. Dahl .......................................................... Dore, N. D.
T. P. Danielson .......................................................... Poplar
Charles Dehring ....................................................... McCabe
E. R. Denger ............................................................ Medicine Lake
H. F. DePue .............................................................. Sidney
Alvin DeTienne ......................................................... Bainville
Halvor Eldum .......................................................... Fairview
Wm. Erickson ........................................................... Bainville
John Etchepare ....................................................... Glasgow
Chris Grindland ....................................................... Bainville
Andrew Harbo .......................................................... Froid
F. S. Harvey ............................................................ Bainville
C. G. Hawkins ........................................................ Culbertson
Carl Holje .............................................................. Reserve
Jens Ibsen .............................................................. Dooley
Mrs. E. W. Iverson .................................................... Antelope
E. W. Iverson .......................................................... Antelope
R. A. Iverson .......................................................... Bainville
Lawrence Jensen ...................................................... Bainville
N. C. Jessen ............................................................ Dugger
Jim Knae ............................................................... Dugger
E. C. Kaylor ............................................................ Bainville
D. C. Knapp ............................................................ Scobey
Martin Korkom ....................................................... Sioux Pass
P. C. Kuelhe ............................................................ Poplar
Jess LaPoint ........................................................... Wolf Point
George C. Lee .......................................................... Culbertson
John LePage .......................................................... Bainville
A. T. Listug ............................................................ Wolf Point
D. Lohn ................................................................. Froid
Henry C. Lowe ........................................................ Culbertson
George N. Lund ...................................................... Reserve
O. M. Lutnes ............................................................ McElroy
C. L. Marshall ....................................................... Wolf Point
Percy Martin .......................................................... Bainville
G. A. McConnell ..................................................... Bainville
George McDowell .................................................... Bainville
H. E. Melsenbach .................................................... Sidney
M. C. Mellott .......................................................... Bainville
C. H. Metz ............................................................. Spokane, Wash.
A. H. Moiler ........................................................... Poplar
D. M. Moothart ....................................................... Culbertson
T. H. Moothart ....................................................... Culbertson
E. D. Morek ........................................................... Antelope
Fritz Mortensen ..................................................... Bainville
G. S. Nelson .......................................................... Culbertson
Ole C. Nelson ........................................................ Homestead
Pete Nyquist .......................................................... Glasgow
J. P. Olson ............................................................. Baison
O. C. Olson ........................................................... Baison
M. P. Ostby ............................................................ Plentywood
A. C. Peterson ....................................................... Culbertson
C. C. Peterson ....................................................... Culbertson
Jens H. Peterson .................................................... Sidney
Svend Peterson ....................................................... Dagmar
A. H. Phillips ....................................................... Fairview
G. L. Piercey .......................................................... Baison
G. W. Points .......................................................... Redstone
M. R. Powell .......................................................... Dore, N. D.
E. T. Powers .......................................................... Medicine Lake
C. J. Ranney ........................................................... Scobey
Oscar Romo ........................................................... Bainville
S. J. Ronning .......................................................... Bonetrail, N. D.
J. M. Sholtus ........................................................... Nashua
C. K. Shostrum ........................................................ Sioux Pass
Lee Thinker ............................................................ Poplar
Augustus Vaux ........................................................ Sidney
Alvin Warden .......................................................... Culbertson
Ed. J. Weinrich ....................................................... Culbertson
C. H. Willson ........................................................ Glasgow
Fred Winther .......................................................... Dagmar
Juil Winther .......................................................... Dagmar
A. W. Warden .......................................................... Poplar
E. A. Watts ........................................................... Fairview
Mrs. C. E. Smith ..................................................... Bainville
C. E. Smith ........................................................... Bainville
F. F. Smith ........................................................... Ophelin
H. L. Smith ........................................................... Scobey
Lee Thinker ............................................................ Poplar
L. W. Thompson ...................................................... Fairview
A. W. Warden .......................................................... Culbertson
Mrs. E. M. Wix ........................................................ Lanark
J. W. Wulf ............................................................. Froid
Leon J. Young ........................................................ Fairview