

Oregon Agricultural College

Extension Service

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Agricultural Program

FOR

Malheur County

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REPORTS ADOPTED BY THE MALHEUR COUNTY AGRICULTURAL
ECONOMIC CONFERENCE, ONTARIO

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Foreword

The work of the Malheur County Agricultural Economic Conference was organized under four general heads with thirteen sub-committees, as follows:

A. FUNDAMENTAL DEVELOPMENT.

- | | |
|-------------------|---------------------|
| 1. Transportation | 3. Land Settlement. |
| 2. Reclamation | |

B. PERISHABLE FARM PRODUCTS:

- | | |
|-----------|---------------|
| 1. Apples | 3. Potatoes |
| 2. Prunes | 4. Vegetables |

C. STAPLE FARM PRODUCTS:

- | | |
|-------------------------------|---------------|
| 1. Supply Crops | 3. Seed crops |
| 2. Cash and Feed Grain Crops. | |

D. ANIMAL HUSBANDRY:

- | | |
|-------------|-------------------------|
| 1. Dairying | 3. Beef, sheep and hogs |
| 2. Poultry | |
-

Representative farmers and business men from points throughout the county and various specialists from the state agricultural college participated in the conference. Each sub-committee studied its subject from all angles and compiled a written report that took into account the best available statistical data as supplied from local sources and by the college specialists. The findings of the State Economic Conference held at Corvallis January 23 to 25 were considered, and were included in the county reports to the extent that they had local application. These reports were presented to the general assembly on the last day of the conference, considered and adopted by that body.

Taken together these reports constitute a program for Malheur County agriculture. Singly, they represent the most approved practices in the production and marketing of the county's major agricultural products.

The conference was a beginning. Its ultimate value depends upon the extent to which its recommendations are followed by the various communities of the county. It is hoped that individual producers will familiarize themselves with these reports and use them as a general guide in developing the agriculture of the county. It is not assumed that the program is perfect. It will require correction and amendment as conditions change and new facts are developed.

Farmers and town people have cooperated in formulating the program. Let us continue this spirit of cooperation in our effort to accomplish its aims and apply reason and judgment to all problems requiring united action.

Publication of these reports has been made possible by the cooperation of the Ontario Argus, which donated the equivalent of the cost of setting the type in this bulletin.

GROWTH OF MALHEUR COUNTY AGRICULTURE

Malheur County was created February 17, 1887, being taken from Baker County. The 1890 U. S. census credited the county with a total population of 2601 and 378 farms. Growth since that time is recorded in table number one, below:

Growth of Malheur County Agriculture

Table No. 1. Growth in Population, Farms and Farm Land
(U. S. Census)

Census Year	Total Population	Number Farms	Area in Farms		Total (acres)
			Unimproved (acres)	Improved (acres)	
1890	2601	378	49,005	38,185	87,190
1900	4203	583	125,793	95,250	221,043
1910	8601	801	148,274	81,901	230,175
1920	10907	1,322	336,486	129,365	465,851

Agricultural growth of this count is reflected in the valuation of farm property given in Table number two, below:

Table No. 2. Valuation of Farm Property		Average valuation per farm (dollars)
Census Year	Value of all farm property (dollars)	
1890	1,689,750	4,735
1900	5,397,497	9,258
1910	12,795,304	15,974
1920	29,766,131	22,516

Present Status of Malheur County Agriculture

The 1920 census gives the following area statistics:

Area of county	6,325,120 acres...
Per cent of total area improved	2.04
Per cent of total area in farms	7.4
Per cent of farm land improved	27.8
Population per square mile	1.1

SOURCES OF AGRICULTURAL INCOME

Table numer three shows the sources from which this county derived its agricultural income in 1919 (U. S. census). The amounts received from various commodities and percentages have undoubtedly been changed in the last few years. However, these figures give an idea of the main sources of agricultural revenue.

Table No. 3 Receipt from Sales of Farm Products
Malheur County, 1919
(U. S. Census)

Product	Income (Dollars)	Percent of total income
Livestock and meats	2,036,000	35.2
Hay and forage	1,900,000	32.9
Wool and mohair	938,000	16.2
Cereals	450,000	7.8
Fruits	270,000	4.7
Dairy products	120,794	2.1
Poultry Products	48,707	0.8
Vegetables (including potatoes).....	15,000	0.3
Totals	5,779,000	100.00

TOTAL VALUE OF CROPS AND LIVESTOCK

Figures on receipts from sales above do not represent the entire magnitude of the agricultural industry. The valuations of crops produced and of livestock on farms are therefore given in Table number four, as reported by the 1920 U. S. Census.

Table No. 4 Total Value of Crops and Livestock.

CROPS PRODUCED:	Value (dollars)
Hay and forage	3,955,286
Cereals	599,491
Fruits	336,131
Other grains and seeds	126,137
Vegetables (including potatoes).....	100,481
All other crops	656
Total value of crops	5,118,182

LIVESTOCK AND POULTRY:

Sheep	5,205,979
Beef cattle	2,814,319
Horses	1,009,531
Dairy Cattle	264,117
Swine	81,856
Mules	78,197
Poultry	54,466
	<hr/>
Total value of livestock	9,454,841

Committee Reports

On succeeding pages will be found the complete reports of the various conference sub-committees.

In printing these reports the following general outline has been observed:

1. Brief history of the commodity.
2. Present status of the commodity.
3. Digest of facts and committee recommendations as approved by the conference.
4. Details supporting committee findings.

Livestock Group

This report deals with the livestock situation in Malheur county, covering production, consumption and marketing of livestock products coming from range cattle and sheep, farm sheep and swine. In preparing the material, only approximate data was available on the present status of the range utilization in the county. Information on cost available was limited.

A. HISTORICAL:

Figures available on the numbers of beef cattle, sheep and swine in the county for a period from 1890 to 1922 are as follows:

Beef Cattle	Sheep	Swine
1890; 19,335	56,974	715
1900; 48,117	294,898	1902
1910; 24,971	360,477	2918
1920; 57,836	403,685	4469
1921; 55,000	303,500	4200
1922; 55,000	294,000	5300

It will be noted that the number of beef cattle and sheep in 1922 were on the same basis that they were in 1900, and swine had steadily increased in numbers.

The income from livestock and meats in Malheur county is \$2,036,000, and from wool and mohair 938,000, or about 50 per cent of the total agricultural income. There are at present about 40,000 beef cattle; 294,000 sheep, and hogs around 5000. The sheep and cattle are ranged on privately owned land to some extent, but the greater part of them graze the six million acres of public lands in the county.

Hog production is at a comparatively low ebb. In fact, Malheur county at present produces just about enough for local consumption.

Range livestock production comes in direct competition with all western range states as well as production on pastures in the Middle Western and Eastern states. Un-

der western conditions such cheap production depends entirely on the amount of grass available. Abuse of grazing unappropriated lands has reduced the carrying capacity of these lands.

Malheur county hay surplus amounts to 50,000 tons after the wintering of her livestock has been taken care of.

Owing to the fact that our beef production has not kept pace with our increase in population for the nation as a whole, it has been possible to dispose of all of the beef produced although we have exported about 228,000,000 pounds to other countries. It is significant to note that Oregon produces 166 per cent of the beef consumed in the state. On the other hand, the three states of Washington, Oregon and California together produce 87 per cent of their combined beef requirement. It should be recognized that Idaho and Nevada contribute to the same markets on the coast while some Oregon beef goes to Eastern markets. Twenty-three percent of the beef production in 1922 was contributed by the dairy industry.

Wool has a world market. Fifty percent of the wool consumption of the United States is imported. While markets for livestock at present are not entirely satisfactory from a price standpoint it is always possible to sell market classes. Feeder classes of stock have in the past found a market at the feeding centers. Our coast markets have not been considered feeder markets, because of the fact that feeder stock sent to these markets have been returned to the feed production centers for finishing, thus expending considerable money to shipping charges.

The above facts have been considered by the livestock group in

drawing up the following recommendations relative to the situation in Malheur county.

B. DIGEST OF RECOMMENDATIONS:

1. Present beef cattle shortage will benefit the ranges.
2. Supply of range sheep at present balances available grass.
3. Overstocking of ranges should be avoided.
4. Changing from cattle to sheep, or vice versa, not advisable.
5. Higher per centage of calves should be had.
6. Range production costs should be studied.
7. Cattle and lamb feeding offers outlet for hay surplus. Because of hazards involved, however, inexperienced feeders should start with one carload, and increase scale of operations as he gains experience. Good stock and good feeds are important factors in success.
8. Expand farm sheep industry. Avoid overstocking. From 25 to 50 ewes usually sufficient. Irrigated pastures show good returns.
9. Reasonable increase in hog production is justified.
10. Cooperative livestock shipping association most feasible system of marketing where livestock is kept on farms in less than car lots.

C. DETAIL OF RECOMMENDATIONS:

1. **Shortage of Cattle a Benefit**
It is estimated that the numbers of beef cattle are a little short at present in Malheur county from the standpoint of the available range, however this shortage is considered of economic importance at this time, in that it will allow for some re-seeding of the ranges of the county or range improvement.
2. **Balance Stock and Grass**
It is recognized that the production of range cattle and sheep in the

county must be based on available grass; it is therefore recommended that it be maintained on that basis. Overstocking of range lands should be guarded against at all times from the standpoint of possible return.

3. Stabilize the Range Industry

Range lands best suited to sheep or cattle should continue to be used as such. Changing from cattle to sheep, or vice versa, is not considered a sound system of livestock production.

4. Higher Percentage of Calves

It is recommended that more careful attention be given to the percentage of calves raised in the county, as this is one of the means by which returns from the business can be increased. As the outstanding means of bringing this about, we recommend a careful distribution and management of bulls.

5. Study Range Costs

We recommend a careful study of production costs on the range as by this means it is possible to recognize some conditions which might be improved by a change of management.

6. Feed Cattle and Lambs

As Malheur county produces a hay surplus annually, and likely will continue to do so, we recommend as one means of marketing this surplus the consideration of cattle and lamb feeding. Malheur county can produce good corn ensilage with a high grain content. Experience has shown this to be an excellent fattening feed for cattle with alfalfa hay. For lambs, we recommend hay and a daily ration of one pound of grain per lamb. We wish to call attention to the hazards in connection with feeding of livestock. It is important that the new inexperienced feeder start with one carload and increase his feeding operations only as he gains in experience or as his supply of feed

will justify. The most successful feeders are those who feed every year within reason. We recommend the importance in this connection of using good stock, good feeds and giving careful attention to details in management. Climatic conditions in this connection are very favorable.

7. Expand Farm Flocks

We recommend an expansion in the raising of farm sheep in Malheur county. In this connection we call attention to the fact that there is on every farm a considerable amount of weeds or waste feeds that can be utilized by farm sheep. We wish to caution against over stocking beyond the feed supply. It is considered that under ordinary conditions 25 to 50 ewes is sufficient as a farm flock. In connection with farm sheep we recommend the use of irrigated pastures as a means of supplementing the farm wastes. Irrigated pastures have shown an excellent return in Idaho and Colorado with sheep. As many as 8 to 10 ewes and their lambs have been carried on an acre,—80 to 100 pounds of wool and 560 to 700 pounds of mutton production annually per acre. It should not be overlooked however, that close confinement of sheep on pastures without rotation of pasturing will bring

about internal parasites. Danger from this source can be avoided largely by the proper number of divisions and rotating.

8. Hogs to Clean Up Wastes

We recommend hogs on all farms of Malheur county, at least enough to clean up wastes. The marketing of home grown corn or barley through hogs will in the long run bring the best return. Pastures with the grain is recommended as a means of keeping down costs. With the production of corn possible in Malheur county, as well as barley, the livestock committee feels that there can profitably be a reasonable expansion in hog production. This is based on the fact that the three coast states raise only 41 percent of the pork consumed. We recommend to all farmers that it be their policy to always keep a few hogs on their farms and not sell out entirely when prices are low, as this practice causes considerable lost motion.

9. Cooperative Shipping

We recommend as the most feasible system of marketing of hogs or farm sheep, a cooperative livestock shipping association where such stock is kept in less than car lots on the farms. We further wish to go on record as favoring any logical system of orderly marketing.



Poultry

1. INTRODUCTION:

It is intended that this report shall give the present status of the poultry industry of Malheur county; its future possibilities of economical development; the marketing agencies that may be supported and such subject matter recommendations as are deemed fundamental to permanent poultry farm management.

A. HISTORICAL.

The poultry industry in Malheur county is an increasing agricultural asset. However, the increase has taken place slowly in comparison to the development of many Oregon counties. The increase has been due to the natural increase in the number of farmers during the past three decades, most of whom maintained a small farm flock. The increase has not taken place thru the establishment of many large farm flocks or commercial farms. According to the U. S. census figures of 1900 the value of all poultry was \$8196; in 1910, \$13,501, and in 1920, \$42,956. In 1920 the county produced \$148,450 worth of poultry and eggs; selling \$48,707 worth of chickens and eggs. In 1920 the county ranked 16th in the value of chicken and eggs produced.

The poultry industry in Malheur county has been of comparative minor importance because of greater specialization in major crops and livestock interests to which the county has been more naturally adapted. As the size of holdings are reduced and diversified interests increase, poultry keeping will fill a more important place in Malheur county agriculture.

B. PRESENT SITUATION:

The county at present produces a surplus of eggs that must find a market outside. Facing this exporting

marketing problem, the natural increase in poultry production and the growing tendency of many farmers to specialize in poultry keeping, the interests of the county must consider now or later the cooperative marketing of surplus products. Any expansion of the industry must also be along the lines of producing a product of exportable quality.

C. FUTURE OUTLOOK:

The poultry industry has suffered less in the agricultural deflation than most any other agricultural products. Its expansion should be encouraged in the county because conditions warrant it and a larger volume can be more economically marketed, if a quality product is maintained.

The present per capita consumption of eggs for the United States is one half egg per day. The poultry industry has long since passed the billion dollar mark in the United States and is a growing industry on merit alone. No fears are held regarding an overproduction of poultry products in the country as a whole. Advertising the food value of eggs; the turn over in the personnel of producers; the technical nature of the business and vast amount of hard work required are all factors that will tend to prevent over production in the U. S.

The entire Pacific Coast region produces a vast surplus of eggs. Malheur county must recognize this fact in increasing its production because home and nearby markets no longer exist. The poultry industry here faces the problem of exporting its surplus and this surplus must be of a quality that outside markets will buy at a price the producer can afford to accept.

D. DIGEST OF RECOMMENDATIONS:

1. Farm flocks should either number 400 or about two dozen.
2. Not less than 10 acres of tillable soil for each 1000 hens.
3. Soil must be disease free if healthy pullets are to be raised.
4. Green feeds necessary. Supplement alfalfa with succulent crops such as cabbage, etc.
5. State veterinarian needed to study diseases.
6. Hatch chicks in March and April so they will begin laying by October.
7. Where only one brooding outfit is available secure all chicks at one time.
8. In building new houses, be guided by plans recommended in O. A. C. Station Circular 51.
9. Endorsement of the Oregon Poultrymen's association.
10. Increase in turkey production justified.

D. DETAILS OF RECOMMENDATIONS:

1. Either 400 or 24 Hens

Small farm flocks too small to be considered an important unit of farm work suffer from poor management. Eggs of exportable quality will never be produced by the haphazardly managed nondescript, ill kept flocks. It is hereby recommended that the farmers of Malheur county who are interested in a side line poultry industry, keep a flock of not less than 400 hens. For the farmer not interested in poultry it is recommended that he keep only enough to supply the needs of the home table, preferably two dozen hens or less.

2. Ten Acres Per 1000 Hens

The greatest undermining factor of poultry keeping is the general lack of understanding upon the part of everyone relative to the amount of land necessary to commercial poultry keeping. Many

farms fail because of soil contamination. It is therefore recommended that no one be encouraged to engage in commercial poultry keeping on less than 10 acres of systematically yarded, tillable soil for each 1000 hens, where young stock is to be reared each year to maintain this number. Commercial poultry keeping on one, two and three acre tracts must be considered only a temporary and dangerous undertaking. The same applies to farmers with large farms when they fence off a small yard for the poultry unit.

3. Clean Soil Essential

Healthy pullets can only be raised on clean disease free soil. On farms desiring to build a permanent brooder house it is recommended that it be constructed in the center of a given area, so that the area can be divided into four yards; one yard to be used each year only until the pullets are old enough to be moved out on free range as recommended in Station Circular 54 of Oregon Agricultural College. The movable colony brooder house is more strongly recommended on farms wherever possible as explained in Station Circular 52.

4. Succulent Feeds Necessary

Green feed is one of the four major classes of poultry feeds. Alfalfa should be supplemented in winter months, with a supply of succulent crops, cabbage, etc. It is therefore recommended that Malheur county poultrymen protect the health, growth and production of its flocks against disaster by growing above named succulent feeds.

5. Investigate Diseases

A great limiting factor of Malheur county poultry production is the increase in poultry disease. It is recommended that this assembly endorse the action of the poultrymen at the State Agricultural Conference in asking the State to employ one veterinarian to devote

full time to investigation of poultry diseases and their prevention. The poultry industry in Oregon last year was in excess of ten million dollars. Its magnitude and future security warrants at least a one man study of its disease problems.

6. Hatch Chicks Early

Poultry producers must have the benefit of the high price fall and winter months and the production of these months in order to get more months of lay from the pullet before molting time. Profit depends upon the average price per dozen throughout the year, not upon a few months of cheap eggs preceding the molting period. It is recommended that chicks be hatched early enough to be old enough to lay by October, which means March and April hatching.

7. Secure All Chicks at One Time

It is cheaper for the average farmer to purchase day old chicks than to attempt to hatch several hatches from one small incubator. A uniform lot of chicks of one age simplifies the brooding, feeding, housing and production problems and contributes largely toward a successful undertaking. It is recommended that every farmer be influenced to secure all of his chicks at one time where only one brooding outfit is available.

8. Follow O. A. C. Building Plans

There is too great a tendency for poultrymen to construct poultry houses along lines of individual hobbies rather than taking advan-

tage of proven information. It is recommended, therefore, that producers desiring to construct new laying houses be guided by the plans recommended by the Oregon Agricultural College as fully explained in Station Circular 51.

9. Support State Association

The poultrymen of Oregon in January, 1924 organized an association to secure the passage and enforcement of legislation or to secure recognition in other ways, which will protect and develop the welfare of the industry. For example, efforts will be made to secure a veterinarian to study the disease work.

The annual dues of the association are one dollar, and any one interested in the poultry industry is eligible to membership. It is recommended that the formation of "The Oregon Poultrymen's Association" and its work be endorsed by this conference.

10. Malheur county can profitably increase its turkey production as climatic conditions are favorable. The crop of 1923 was not as profitable as in average years, but on an average the crop is profitable. By ranging the young turkeys in alfalfa pastures they can be raised profitably as demonstrated by many farmers in the county during recent years. Farmers, however, should profit by the experience of other counties where it has been found to be inadvisable to range turkeys and poultry together, because of diseases.



Dairy Committee Report

The dairy section of the Malheur County Economic conference recognizes the probable expansion of the dairy industry in the county and believes that in view of the alfalfa surplus such expansion may be profitable. It is also recognized that though expansion in the U. S. as a whole is not impossible yet in view of the large imports of dairy products to this country the past year and the fact that labor is well employed, such a condition is not probable in the very near future. They further wish to call attention to production and consumption statistics for the western states. There statistics indicate that the eleven western states produce about 80 percent of their normal consumption, and that their requirements are filled from imports of Wisconsin cheese and Australian, New Zealand and Canadian butter. Even in the face of this seemingly favorable condition it should be remembered that consumption is materially affected by industrial conditions and that serious depression decrease product consumed.

Attention is called to local statistics on which our recommendations are based.

A. PRESENT SITUATION:

1. **Production Statistics.** According to the last census there are in Malheur county 4500 cows 2 years of age or older which have produced approximately 675,000 pounds of butterfat or an average production of 150 pounds of butterfat per cow. There are 80 bulls one year old in the county. In the production of roughage alfalfa amounts to 190,000 tons and succulent feeds to 7500 tons.

The production of 675,000 pounds of butterfat in the county is about 50 per cent more than that consumed in the county if the per capita con-

sumption conforms with that in the United States as a whole.

2. **Manufacturing and Marketing Statistics.** The average Portland price of butterfat in 1923 was 46.6 cents per pound. The average price received at the Paytte Farmers Creamery was 48 cents.

B. ANALYSIS OF STATISTICS

1. That efforts be made to increase the average production of the individual cows in Malheur County through the keeping of records and that as soon as possible cow testing associations be fostered.

2. That every legitimate effort be made to eliminate the scrub and grade bulls in the county and that only registered grade sires be used in dairy herds.

3. That every advantage be taken of government and state aid in tuberculosis testing and that as soon as possible sentiment be created for the compulsory method of tuberculosis eradication in other counties.

4. That every dairyman strive to provide at least twenty-five pounds of succulent feed daily for each dairy cow when not on pasture and that the growing of permanent pasture be encouraged.

5. That since production costs are higher on the very small herds and since those herds are frequently the source of products of poorer quality, 10 cows be recognized as the minimum for economical production and further that all dairymen strive to produce products of the highest quality.

6. That production cost records be obtained on at least 10 herds in the county during 1924.

7. That only creameries grading cream and paying on grade be supported and further that creameries adjacent to the county be supported by all dairymen of the county.

8. That we support the Oregon Dairy Council in its advertising and educational work relative to dairy and oleo law.

9. That the state dairy association receive our moral and financial support.

10. That we encourage boys and girls calf and dairy record clubs and that we give all club work our fullest support.

The abortion disease is becoming more prevalent and greater care must be exercised in purchasing cattle, and recognized methods of control must be given greater support.

C. DETAIL OF RECOMMENDATIONS:

1. Increase Average Production

The production of 150 pounds of butterfat per cow annually in Malheur county is 20 pounds lower than the state average, and is 90 pounds less than the average for Tillamook county. Cost studies show that a production of 240 pounds of fat per year on the average is required to make profits above production costs.

2. Use Only Pure Bred Sires

The 80 bulls in the county are probably no better bred than the average for the state, which would indicate that 40 of them are grade or scrubs.

3. Continue T. B. Testing

Tuberculosis testing has covered

the county but should be continued to make the county a free area.

4. More Succulent Feeds Needed

There is a surplus of legume hay amounting to 50,000 tons. The production of 7500 tons of succulent feed is 15,000 tons short of the dairy cows' requirements.

5. Ten Cows the Minimum Herd

The 4500 dairy cows of Malheur county are on approximately 500 farms, making about 9 cows per farm. The cost of production studies in other sections indicate this is too small a unit for economical production, and on this account the minimum here should consist of at least 10 cows.

7 Support Adjacent Creameries

In view of the prices received for products in creameries adjacent to the county there appears little reason for shipping to distant plants.

The creameries adjacent to the county are adequate to take care of all the products produced in the county. In view of facts presented at the State Economic Conference cheese factories or condensaries are not to be recommended. Butter manufacture should receive first consideration and quality of products must be emphasized.

NOTE: The section of the State Conference report referred to discusses at some length the relative importance and requirements from a market standpoint of butter, cheese and condensed milk.



Supply Crops Committee Report

I. HAY PRODUCTION

From the standpoint of acreage, hay is by far the most important crop in Malheur county. Acreages at the time of the 1920 census were as follows:

Hay	76,067
Wheat	5,960
Oats	1,032
Barley	2,720
Corn	1,754
Rye	4,343
Potatoes	215
Apples	1,800
Prunes	440

At that time the acreage in hay was more than three times as great as the acreage in all other crops combined.

This condition was brought about by the fact that this county has only 2% of its entire area in improved land, the balance being used principally for range. It follows then, that the cattle and sheep on these 6,000,000 acres of range land must have hay for winter feed. This makes the growing of large amounts of hay necessary.

A. HISTORICAL:

The acreage of hay is increased up to 1919 as shown by the census figures.

Year	Total Production of County
1889	16,455 tons
1899	68,132 tons
1909	104,325 tons
1919	197,833 tons....

Peak is Reached

The year 1919 saw the peak of the hay acreage. There has been a steady decline in acreage and yields since then. In that year the comparative acreage between alfalfa and other hay (mostly marsh and rye hay) was:

Other hay	38,816 acres	46,520 tons
Alfalfa	37,251 acres	151,313 tons

Decline Begins

About that time a combination of factors began to work to reduce the hay acreage. The alfalfa weevil began to play havoc with yields. A quarantine to the west, and high freight rates to the east and west made shipping of the surplus impossible. The sudden collapse of war prices for livestock threw the livestock business into chaos and liquidation of livestock began, thus reducing the demand for hay. Stock was formerly brought here from other counties in Oregon and from Idaho, Nevada and other points for winter feeding. Liquidation of stock in those territories and development of hay growing in those counties, both operated to stop that practice and thus the market for hay here was still further weakened. Hay growers found it difficult to sell their product at any price and ruinously low prices prevailed.

As a result of these and other factors, the alfalfa hay acreage fell from 37,251 in 1919 to approximately 25,000 in 1923, a drop of just one-third.

It is probable that this plowing up of hay land has gone about as far as is economically sound. Much of the land now in alfalfa can not be profitably farmed with any other crop, unless it be pasture, due to its low producing value when in other crops, and to the labor and other costs connected with other possible crops. The 38,000 acres in other hay is mainly on land incapable of growing anything but hay.

B. PRESENT SITUATION:

We are then confronted with the question of a hay surplus still existing in this county which is in the center of a large hay growing section, having a surplus of over 300,000 tons. Most of this staggering

surplus is in adjacent Idaho territory so that it sets the price of our hay to a large extent.

This hay cannot be shipped out due to the quarantine now existing and to prohibitive freight rates to all other consuming centers.

The problem can best be attacked by considering, first the possibility of a growing demand for the hay at home and, second, the possibility of reducing the acreage still further.

A. Will the local demand increase?

Will Demand Increase?

The probabilities are that it will. Dairy cattle are increasing which will help to a slight extent. The increase is so slow that its effect is hardly noticeable. There is an increased interest in feeding both cattle and sheep. Feeders made money this year on both of these classes of livestock, and this may be expected to lead others into the feeding business. One of the most hopeful signs is that the Eastern Oregon Land company with upward of 2000 acres of alfalfa is planning on gradually working into the livestock business. This will take about 8000 tons of surplus hay per year off from the market. The ranges are not up to their full carrying capacity in some cases, and an increase of range cattle and sheep may be expected. All of these things will probably lead to a gradual increase in demand for the hay and a consequent reduction or wiping out of the surplus.

Substitute Other Crops

It is estimated that during the past four years, from 2,000 to 4,000 acres of alfalfa have been abandoned or turned into pastures. In addition, 8,000 acres were plowed up and put into crops as follows:

Barley	2,000
Corn	2,500
Clover	1,250

Potatoes	1,500
Vegetables and miscellaneous crops	750
Total	8,000

It will be noted that of the land planted to other crops, much of it is still growing feed for livestock. Whether an individual farmer plows up his alfalfa and plants it to corn or clover, is his own individual problem; but if he grows some other kind of stock feed it bears upon the feed question as a whole, because his acres are still growing hay or other feed. It is manifestly impossible to put enough land into non feed crops as potatoes or lettuce, to seriously upset the hay problem. The only other possibility is grain for shipping out of the county and this on irrigated land is a doubtful practice. Although it must be granted that surplus grain is much more marketable than surplus hay which cannot be moved.

Production Costs

We have seen that even though the hay surplus is wiped out, that hay will still be the leading crop of the county. The problems of production will always be important. One of the most serious of these is the weevil question. The weevil has reduced the yield of alfalfa in infested areas about one-third. The committee feels that in spite of the weevil, alfalfa hay is better than any other kind. This is because of its long life and consequent low cost of production. It also has a higher feeding value than any other kind. Spraying is necessary to get maximum yields. Spraying will cost about \$1.50 per acre on the average. A return of at least one and one half tons per acre may be expected over the return on unsprayed fields, whenever the weevil is serious.

Counting all items, as interest, labor, overhead, such as taxes and

water, the average acre of alfalfa costs the grower approximately \$43.00. It must be remembered that only about half of this, or about \$22.00 are cash costs. The balance is money which the grower pays to himself for his labor and interest on his investment if his receipts amount to as much as \$43.00 per acre.

If the price for his hay is \$8.00 per ton, he must thus get a yield of better than 5 tons of hay to pay the cash cost of growing it, and in addition pay interest on his investment and going wages for his work.

C. RECOMMENDATIONS:

1. Very little further reduction in alfalfa hay acreage is warranted due to the lack of suitable crops to replace it and due to the fact that much of the present hay acreage is now land which cannot profitably grow other crops.

2. The present surplus will in time be absorbed by the expansion of the livestock and dairy industry.

3. A surplus in adjacent Idaho territory may be expected for several years, thus limiting hay prices

here under normal conditions.

4. Increases in the hay acreage and decreases in the livestock in adjacent Oregon territory may be expected to have practically stopped the former practice of bringing large numbers of sheep and cattle here to winter.

5. From the standpoint of the hay grower it does not help any to replace the hay acreage by other feed crops, although it may pay individual growers to do so. The main help to the general situation can only be more livestock to consume the present surplus.

6. The individual hay grower can help the general situation by either acquiring a small flock of sheep to keep under farm conditions, by buying feeder cattle or lambs, or by dairying.

7. For hay, alfalfa is better than clover, but clover is often more satisfactory due to the chance to grow a seed crop from it in addition to one hay crop per year.

8. Alfalfa must be sprayed to get satisfactory returns in a weevil infested area.

C I O D

II. PASTURES

A. PRESENT SITUATION:

This county has a relatively long growing period and the irrigation projects are planned so as to afford a practically continuous flow of water throughout the season. There is an increased interest in dairying and farm flocks of sheep. One of the things holding back the development of dairying is the labor question. Farmers already rushed with work throughout the summer hesitate to take on the additional work of attending to dairy cows.

HIGHER RETURNS PER ACRE

Experiments at Gooding, Idaho, running over a period of several years, showed that under the conditions there, grass pastures furnished continuous feed for five months, and when properly managed the pastures returned larger amounts of butterfat, mutton, or beef per acre than the same ground did if the feed were harvested and fed as hay or grain.

The returns when dairy cattle, sheep and beef, respectively were pastured were:

- Butterfat300 lbs. per acre
- Mutton 907 lbs. per acre
- Beef732 lbs. per acre

No other feed was given to the stock. An acre of pasture carried two cows all the season and three part of the time, or seven ewes and their lambs, or three steers.

PASTURES SAVE FEED AND LABOR

Figuring on a basis of two cows per acre, these two cows, if kept up during the summer would have required 4½ tons of hay and 1.8 tons of barley or corn. With hay at \$8.00 and grain at \$20.00 a ton, this would total \$72.00 worth of feed saved. Figuring this on an acreage basis rather than on a cost basis, the acre of pasture furnished as much feed as an acre of hay, plus an acre of barley or corn, figuring that hay yields 4½ tons per acre, the barley 75 bushels and the corn 64 bushels.

In addition to saving feed or saving ground, there was a very large saving in labor. Pasture is the least expensive crop on the place. The cost of growing, harvesting and feeding grain or hay crops is considerable. Counting all factors, labor, interest on investment, taxes, etc., pasture compares as follows with other crops in this county:

Crops	Cost per year per acre togrow	Yield necessary to pay cost of production
Alfalfa hay	\$43.00	6 tons
Corn Ensilage	67.50	16 tons
Clover for seed and hay	48.60	5 bu.
Beans	64.25	20 bu.
Corn for grain	55.00	65 bu.
Wheat, oats or barley	52.00	50 bu. wheat
Pasture	29.00	

With prices for butterfat which have prevailed for the past five years, it can be seen that 75 pounds of butterfat would make a gross re-

turn of \$29 cash. The Gooding station received a total return of 300 pounds of butterfat per acre. At 40 cents this would make a

gross return of \$120 per acre. Probably half of this can be charged up to labor and the other costs of dairying, leaving a return of \$60 per acre for the feed.

CONDITIONS FAVORABLE HERE

The season is longer here than at Gooding, and other conditions fully as favorable. Some of those who have tried good pastures and have practiced rotation grazing have secured a carrying capacity of three cows per acre here, for six months or longer.

B. CONCLUSIONS AND RECOMMENDATIONS:

1. Pastures offer a better opportunity at present to get maximum net returns per acre than any of the common field crops such as hay, corn, wheat, etc.

2. We urge a careful investigation of the possible results of pasturing by every owner of dairy cows or sheep.

3. There is a better chance to get the cost of production from pastures than from any other field crop.

4. Pastures must be divided into two or more fields and these must be grazed alternately to get the best results.

5. Bluegrass pastures are not as productive and need more water than other possible grass mixtures.

6. Pastures should be plowed up in from three to six years in order to get the benefit of increased yields from other crops.

7. On the good lands here on well managed pastures, farmers can count on carrying at least $2\frac{1}{2}$ cows for six months and in many cases 3 cows. From 8 to 10 ewes with their lambs should be carried per acre.

III. ENSILAGE CROPS

A. PRESENT SITUATION:

The number of silos in the county is relatively low. There are now

about 7000 dairy cattle in the county, all ages. If all of these were fed ensilage during the winter it would require a total of 2000 acres of corn.

It is not profitable for the owner of only four or five cows to own a silo as he cannot feed ensilage fast enough in warm weather to keep it from spoiling unless the silo is very small. In the latter case the cost of machinery is excessive.

Silo Has Advantages

For the owner of larger herds, however, the silo has many advantages. A succulent feed is necessary in order to get the full returns from dairy cows. A larger acreage return of feed may be secured with ensilage crops than with hay.

It costs \$67.50 per acre to grow ensilage. The average yield here is scarcely 12 tons per acre. The silage thus costing about \$6.00 per ton. The cost can be reduced by increasing the yield and the quantity made.

B. CONCLUSIONS AND RECOMMENDATIONS:

1. A silo should be the goal to work toward, for every dairyman with more than 6 cows.

2. Owners of smaller herds can probably better afford to grow root crops or squash for succulent winter feed.

3. Corn is the only ensilage worth considering for local conditions.

4. Sheep and even beef cattle owners can well consider carefully the benefits of feeding silage.

5. Since labor and cost of filling are the main drawbacks to the construction of more silos, their erection in most cases should be a community project, several neighbors going in together on the purchase of filling equipment. These same neighbors can then exchange work at silo filling time.

III. CORN FOR HOGGING AND SHEEPING OFF

A. PRESENT SITUATION

The practice of sheepling and hogging off corn is worthy of greater consideration. This is the most economical way of harvesting corn and in addition to the value of the grain, there is a return from the fodder, weeds and grass, etc. along the fences and ditches. On the ordinary farm it will cost about \$50 per acre to grow a corn crop up to the time of harvest.

There are no definite figures on the amount of mutton or pork which farmers here have succeeded in getting per acre by hogging or sheepling off, due to the fact that in most cases there is other feed in the field. Sheep men have been paying as high as \$45 per acre for corn in the field and have apparently been satisfied with results.

Lambs turned into corn at the time the corn is ready are often fit to sell too soon to hit the highest market.

B. CONCLUSIONS AND RECOMMENDATIONS:

1. From the standpoint of economical production of pork or mutton, it is doubtful if there is any

other system as cheap as hogging off corn.

2. This practice should be encouraged but growers are urged to enter it with caution and with a full realization of the risks involved, especially if they have to go into the market and buy hogs or lambs. If they are raising the stock themselves the risks are not so great.

IV. ROOT CROPS

A. PRESENT SITUATION:

Root crops yield well here, but have a high cost per acre for growing. They serve very well as a succulent feed for owners of small dairy herds or farm flocks of sheep. All dairymen should have succulent feeds in order to get the best results from their cows with the least expense. Probably a silo furnishes this cheaper for large herds but for small herds roots do nearly as well.

Potatoes furnish succulent feed and if grain is \$20 per ton, potatoes may be considered worth \$5.00 for cows. This should be an outlet for the off-grade potatoes.

B. RECOMMENDATION:

Every owner of a small herd of cows should plan on growing a small acreage of roots.



Cash Grain and Feed Crops Committee Report

I. CORN

The acreage of corn has been increasing in Malheur county. The U. S. census figures are:

1889	228 acres
1899	349 acres
1909	101 acres
1919	1754 acres
1923	4500 acres (estimated)

B. PRESENT SITUATION:

High Yields Possible Here

Malheur county has the highest average yield of corn of any county in Oregon and doubtless in the west. Yields of 100 bushels are sometimes secured and 60 to 70 bushel yields are rather common. The average yield is given in the census reports as about 40 bushels. This corresponds with the average in the best of the corn belt. State averages are: Iowa 42, Missouri 27, Minnesota 38, Michigan 36.

Low Cash Cost Per Acre

The total cost of growing an acre of corn is \$55 on the average farm. Most of this is labor cost. The cash cost for seed, taxes, water, interest, etc. amounts to about \$25.00.

It has a lower cash cost per acre if a man does his own work, but if the farm is large and most of the work is hired, it has a higher cost than wheat or barley.

This year there is some surplus corn in the county. There would have been no surplus had no corn been shipped in, but some livestock men, dealers, etc., shipped in middle western corn when good corn was available locally.

Corn Deficit in Northwest

There is an available market in the Northwest for more corn than will ever be grown in this county.

There is a large corn deficit in the Pacific Northwest. Portland, and Seattle import annually about 2000 carloads of corn, or 3,000,000 bushels. In addition, probably 250

cars are imported by intermediate points as Hermiston, Walla Walla, Heppner, etc. It would take 84,000 acres of corn at 40 bushels per acre to make up this deficit.

Freight Rates, Comparable to Omaha

Freight rates west on corn are approximately equal to the rates from the middle west and as long as this condition prevails, it is doubtful if a large corn export business will be built up here, due to lower costs of production in the corn growing states.

The freight rate from Ontario and Portland on corn is approximately the same as from Omaha to Portland. In addition, the middle western shippers have the privilege of diverting shipments to practically any other points at the same rate. The rate from here to Portland is \$5.40 a ton.

Roughly, 500 pounds of corn will produce 100 pounds of pork. The freight on 500 pounds of corn is \$1.35. The freight on 100 pounds of pork, counting shrinkage is about 75c.

Quality Must Improve

The outside market for our corn and even part of our own market has been nearly killed by producing immature and watery corn.

Malheur corn has not enjoyed the best of reputation due to too much water. This has been due to planting seed of late maturing varieties and to poor storage. No outside market can be built up until the corn establishes a reputation for itself as good, dry and of reliable keeping qualities.

Corn Gives Most Pounds Per Acre

The average yield of corn and other crops as reported by the Federal statisticians for 1923, was:

Grain	Bu. per acre	Lbs. per Acre
Spring Wheat	35	2100
Oats	60	1920
Barley	50	2400
Corn	45	2520

(The yield of oats last year was exceptionally high.)

The cost of growing corn is slightly in excess of the cost of growing other grain, but the cash cost is lower. In other words, a larger proportion of the cost of growing corn is because of the larger amount of man and horse labor per acre is compared with wheat.

The man considering whether it will best pay him to grow corn or other grain must take into consideration many factors such as the size of his farm; the use to which the grain is to be put, whether fed on the farm or sold; the amount of labor hired, etc.

The crop committee believes that it is impossible to say in general terms whether it is better paying practice to grow corn than it is wheat or barley, as this depends upon the individual farm. The following conclusions are apparent facts.

C. RECOMMENDATIONS:

1. It is cheaper and a sounder practice to export corn fed hogs from Malheur county than it is corn as grain, and we recommend this fact to the attention of all corn growers.

2. The corn acreage can only expand through the use of good locally grown seed of the right varieties. We particularly endorse the Golden Jewel variety.

3. Every corn grower should have good storage. This means cribs with tight tops.

4. On small farms where owners are largely doing their own work and where grain harvesting charges are high per bushel due to the small

amount of grain raised, we believe that it is preferable to grow corn for grain rather than barley or wheat. On large farms where the labor must be hired and grain harvesting is cheaper, this recommendation does not apply.

5. We recommend only a gradual increase in the corn acreage to take care of home needs for feed, unless the freight rate situation is changed.

6. In order to be at least on a parity with the middle west, we ask farm and city organizations of the county to work for a diversion rate to points other than Portland similar to that now in effect from middle western points.

II. WHEAT

A. HISTORICAL:

The wheat acreage has been increasing in this county with the development of irrigation. It has been a crop for which at any day in the year, there was a cash market—not always a profitable market, but a market of some kind for cash. This fact will always make wheat one of the main grain crops of the west and probably of Malheur county. The acreage in past years has been (U. S. census):

Year	Acres
1889	248
1899	1248
1909	2695
1919	5960
1920	4890
1921	5700
1922	5750
1923	5000

About 90% of the acreage is in spring wheat. There is a small amount of winter wheat raised on dry land.

A wheat variety survey of the county in 1921 showed the following percentages of the various wheats:

Variety	Acres	%	Total
Pacific Bluestem	1669	28	
Dicklow	1490	25	
Jenkins Club	715	12	
Little Club	715	12	
Other Clubs	238	4	
Early Baart	715	12	
Marquis	358	6	
Miscellaneous	60	1	
	5960	100	

Since that time Federation wheat was distributed by the Oregon Experiment Station and tests by farmers in cooperation with the county agent have definitely established it as a higher yielding variety than any of the above. In 1923, it comprised about 8% of the acreage, this will be at least doubled in 1924.

B. PRESENT SITUATION:

Surplus is Produced

About 100 carloads of wheat are exported from the county every year. Part of this goes to nearby saw mills, but the larger part goes to Portland. Part is marketed through the Oregon Cooperative Grain Growers, and part through buyers at local points.

Good Yield Essential to Profit

It costs \$52.75 per acre to grow wheat on an average Malheur county farm. About \$30.00 of this is cash cost and the balance labor and interest on owned capital invested. It is apparent then that a fairly good yield is necessary to pay the cash costs of production and an exceptionally high yield is necessary to pay in addition the going wages for work on the crop.

The costs of production may be materially lowered if grown in rotation so that plowing is not practiced every year. Such a rotation is potatoes, Wheat, clover 2 years.

The cost of production per acre in comparison with other crops is as follows:

Alfalfa hay	\$43.00
Corn for grain	55.00
Potatoes	100.00
Clover	48.60
Wheat	52.75

A larger percent of the total cost of wheat is cash cost than is the case with corn and a lower percent is labor cost. On small farms where harvesting and threshing expenses are high per bushel, it is doubtful if it pays to grow any crops which must be threshed.

Additional acreage of wheat coming into production in competing countries as Canada, Argentine, and Russia, where production costs are lower than in the United States, would seem to forecast an era of wheat prices very little if any higher than at present except perhaps in occasional years of crop shortages.

B. RECOMMENDATIONS:

1. Wheat should be grown in this county only in a rotation with a legume and a cultivated crop.
2. Wheat offers the most reliable market for grain shipped out of the county of any of the grains and should be grown by people producing grains for shipping out rather than corn, barley or oats.
3. All growers are urged to standardize on Federation wheat, use certified seed of that variety and test with copper carbonate.
4. Wheat is not a satisfactory crop on very small farms due to excessive threshing and harvesting costs.
5. Very little, if any reduction in acreage is recommended due to the lack of a satisfactory cash crop to replace it. As more livestock is kept, a gradual reduction in acreage may occur in favor of feed crops.

III. BARLEY AND OATS

A. PRESENT SITUATION:

Barley and oats are competing crops in that practically all of the crop produced in Malheur county is used locally for feed and they are

more or less interchangeable so far as feeding value is concerned. Barley is a better feed to go with alfalfa or clover hay than oats. Following are the acreages of each grown here:

Census year	Oats	Barley
1889	548	696
1899	462	1066
1909	1523	1892
19	1032	2720
20	1200	3000
21	1000	2700
22	1000	3000
23	1000	4700

It can be seen from the above that these cereals were about even in acreage in 1889, but that during the past 10 years the oat acreage has remained about the same and the barley acreage has greatly increased. The experience of farmers bears out the testimony of the census figures that these two grains yield about the same number of bushels per acre. Because of the greater weight per bushel of barley, during the past 5 years it has averaged 720 pounds per acre more than oats. The figures are:

Crop	5 year av yields, 1919-1923	
	Bu. per acre	Lbs. per acre
Oats	37.5	1200
Barley	40.	1920

It would seem then that beyond the actual feeding requirements there is no place for oats. It is probable that this need is being met now and the crops committee makes the following recommendations:

B. RECOMMENDATIONS:

1. Barley yields more pounds per acre under average conditions than oats and is a better feed to go with alfalfa or clover hay. Some oats are needed to lighten the grain ration of dairy cows, but beyond this need, oats should not be grown. Oats should under no conditions be grown for shipping out of the county. The oat acreage should not be increased except as dairy cows increase.

2. Swedish Select or Idamine oats are recommended. We urge trials of the Golden Rain variety.

3. Barley should be grown for feeding purposes within the county only. If a grain crop is to be grown for selling outside the county we recommend wheat instead of barley. Even with the low prices now prevailing for wheat, it averages higher than the price on outside markets for barley or oats.

4. We recommend Trebi barley and urge the use of pure seed of that variety.

**SEED CROPS COMMITTEE
REPORT**

I. CLOVER SEED

A. HISTORICAL:

In 1889 the census records 7 bushels of clover seed threshed in Malheur county. This has increased as follows:

1889	6881
1899	327 bu.
1919	1000 bu (Estimated)
1923	9000 bu.

The acreage of clover has increased from 245 acres in 1919 to 1500 in 1923. This increase has been due to various factors. Among them are havoc in alfalfa fields wrought by the weevil and the consequent quarantine on alfalfa hay, and the low prices prevailing since that time.

B. PRESENT SITUATION:

The county is producing 9000 bushels of clover seed on 1500 acres, averaging 6 bushels of seed per acre. There is a growing interest in the crop.

Local Yields Relatively High

Yields are so much higher here than in competing territory that we can profitably grow it at prices which are ruinous to middle-western producers. This will always tend to keep the acreage checked in the Middle West.

The principal clover seed growing states with the average yield and price received per bushel by growers are as follows:

State	Production bu.	Price per bu.	Yield per acre
Ohio	215,000	10.70	1.1
Illinois	250,000	9.80	1.4
Michigan	130,000	10.35	1.5
Iowa	200,000	10.00	1.6
Idaho	80,000	9.75	5.0

Local Yield Just Drop in Bucket

Any increase in acreage in this county is apt to have little or no effect on the general situation.

The production in the United States has raised in the past 6 years from 197,000 bushels to 1,944,000 bushels, averaging about one and a half million bushels.

The imports from other countries were as follows in the given years:

Year	Bushels
1919	117,000
1920	211,500
1921	275,400

It would require 33,000 acres in Malheur county to equal the clover seed deficit. There is no way of forecasting the probable price of clover seed, but there is little likelihood that any expansion of acreage of clover in this county would seriously affect the total demand. If a drop in price should come, it will come no matter whether this county raises one thousand bushels or ten thousand.

Is Profitable Crop

Clover seed is one of the surest and most profitable cash crops so far developed for Malheur county.

The total cost of production of an acre of clover is \$48.60. This compares with other crops as follows:

Alfalfa hay	\$ 43.00
Beans	64.25
Corn for grain	55.00
Wheat	52.75
Potatoes	100.00
Clover	48.60

The average price for clover seed for the five years preceding the war was \$9.00 per bushel. The average since then has been higher, averaging \$10.00 per bushel for the 10

year period 1909-1918. It is thus seen that under average conditions the grower of clover seed here may expect to receive interest on his investment and pay for his labor with the value of the hay crops as profit.

About 40% of the total crop is marketed through either the local association or the Western Seed Growers Marketing Company. The balance is sold to local representatives of Eastern buyers or to buyers who come into the country looking for seed.

Good Quality Grown

Some of the locally produced seed has dodder in it and there are some weed seeds which are present and hard to clean out. On the whole, however, the local seed is of good quality.

Fits in Well

Clover fits ideally into a farm program in that it makes plowing unnecessary for 3 years, enriches the soil, and provides both a feed and a cash crop the same year.

Freight Takes Little

The freight takes the smallest percentage of this crop of any farm crop grown here.

C. RECOMMEDATIONS:

1. The committee recommends that clover seed be considered as the most reliable and safest cash field crop for all farms where it can be successfully grown in Malheur county.

2. The seed associations have a beneficial influence on the market which is to the advantage of all growers, whether members or not, and we urge all growers to give these associations their support.

3. More care should be exercised in buying seed for planting when the buyer intends to produce

seed. Seed with dodder or other bad weeds is the highest priced seed no matter what the grower pays for it. Every producer of fine clover seed helps to build the reputation of this district and every producer of dirty seed helps to tear that reputation down.

4 Fall planting in grain stubble is best.

II. BEANS

A. PRESENT SITUATION:

There is considerable interest in bean growing. Last year about 100 acres were grown. There have been many cases where growers decided to go into the bean growing business, only to go out of it at the end of the second year.

Yield Per Acre Very High Here

Beans can be profitably grown here. Occasionally yields run as high as 40 bushels.

The principal bean growing sections which would compete in this district would be:

State	Acreage	Yield per A
Michigan	458,000	11
California	325,000	14
Idaho	26,000	14
New Mexico	45,000	5

Other states srceue yields varying from 3 to 9 bushels.

The average yield here may be so much more than in other states that competition in the long run may not be serious, but yields depend so greatly upon so many factors that they are very uncertain.

In 1921 about \$7,000,000 worth of beans were imported into the United States. In 1923 this deficit had been made up and we produced beans for export.

Future Average Price Around \$3.00

The average price to farmers for beans before the war was about four cents a pound, or \$2.30 per bushel. Since the war the price has fluctuated widely, ranging from \$2.73 per bushel in May, 1921 to \$7.08 a bushel in February, 1918. It is probable that growers cannot count

on an average price greater than \$2.50 to \$3.00 per bushel, from now on.

..20 Bushels to Break Even

Counting all factors, such as labor, interest, etc., it costs \$64.25 to grow an acre of beans. It is seen therefore that to get costs of production from this crop, one must get a 20 bushel yield. It must be remembered that only about half of the above costs are cash costs, and the balance would be what the grower would pay to himself for his own labor, interest on investment, etc.

Diseases Limit Yields

The biggest checks to successful bean growing have been poor seed, weeds, and poor ground. Of these the seed is the most important. Beans are beset by a multiple of bad diseases, such of mosaic, rhizoctonia, blight, etc. Many of these are carried in the seed. Badly diseased seed will never produce satisfactory crops, and some of these diseases spread so rapidly that a lot of seed may be completely ruined in one year's time.

Special Machinery

Special machinery required to grow beans will not exceed \$200, and for small lots will not be as much as this.

Soy beans so far have not yielded any more than field beans.

B. RECOMMENDATIONS

1. The committee sounds a conservative note of warning about greatly expanding the bean growing industry. They can be profitably grown only if all conditions are observed.

2. If a grower wishes to try them, we recommend that he begin growing beans on a small scale.

3. We recommend the Robust variety and recommend only certified Michigan seed.

4. We urge that they be planted only after cover, or other meadow crop.

III. OTHER SEEDS

RECOMMENDATIONS:

Sweet clover seed growing is worth considering by the owners of poorly drained land or land where red clover does not do well. We believe that on good red clover land growers will do well to stick to this variety rather than to experiment with other kinds. Alsike clover may be profitable on poorly drained lands

where red clover is not suited.

Alfalfa seed growing is not practical because of the weevil.

Sweet clover produces seed in great abundance here, but the market is uncertain and weevil attack it.

Soy beans have so far proved of no advantage over other beans.

Grass seed production has no advantages over red clover seed production.

Vegetable Crop Committee Report

Due to the fact that the Vegetable industry in Malheur county is more or less in the experimental stage, the suggestions of the committee must be of necessity founded more on opinion than on statistical information and experience.

Until 1922 very little land, probably not over an average of 50 acres, was devoted to commercial vegetables. In 1922 there came an expansion, some 300 acres being planted to lettuce. A beginning was made in cauliflower and celery, and other vegetables were planted on an experimental basis.

In 1923 we again planted some 400 acres to lettuce, about 50 acres to cauliflower, approximately 5 acres to celery, and 30 acres to onions.

I. LETTUCE

A. PRESENT SITUATION:

The consumption of head lettuce in the United States in the last five years has increased from 8,000 cars to over 27,000 cars.

Sharing in the production of this lettuce for consumption have been the states of Oregon, Washington, Idaho and Colorado, in each of which the acreage planted to lettuce has grown from practically nothing to present proportions in five years. These last three

states have produced on an average ranging from 1100 each, to 168 cars for Oregon in 1923. The largest acreage in Oregon is in Malheur County.

Competitive Factors

Expensive freight rates in shipping lettuce to eastern points remove a considerable amount of possible profit to the grower.

Lettuce is a commodity which can be grown in many northern sections which will be producing a crop at the same time as the Malheur crop. To meet this competition, a high grade pack must be the main factor.

During the year 1922 the principal states shipping lettuce from October 1st to December 1st, were as follows:

California	956 cars
Idaho	787 cars
New Jersey	426 cars
New York	355 cars
Florida	197 cars
Oregon	117 cars
Colorado	83 cars
Washington	63 cars
Others	75 cars
Total	3059 cars

Shipments by weeks were as follows:

Week ending	1921	1922
October 7	327	344
October 14....	319	376
October 21	285	363
October 28	248	342
November 4	180	258
November 11	299	288
November 18	538	425
November 25	317	377
December 1	351	286
Total	2864	3059

From the above statistics it is noted that the shipments during the first two weeks in November are less than before and after that time, probably indicating that our time of planting should be timed to meet this possible advantage.

Much Spring Lettuce

In 1923 twenty cars of spring lettuce were shipped from Malheur county. Experience indicates that shipments made during the last two weeks of May offered best opportunity for profit, therefore cultural methods should be such as to have this lettuce matured at that time.

Both weather and market conditions lead the committee to believe that cultural methods should be such as to enable the grower to complete his shipments not later than June 10th.

Figures submitted by experienced growers indicate that the cost of production per acre of lettuce amounts to \$65 to \$70. When an allowance of \$20 to \$25 is made for land rental, labor expenses per packed crate are estimated at 15 cents for cutting and packing in field crates. Hauling to the packing house would probably average from 5 cents to 20 cents, according to distance. Delivered to the packing house, on a basis of 150 packed crates to the acre, the cost would be around 65 cents per crate. Packed F O B car, lettuce should bring \$1.50 to cover the entire cost.

Problems Are Varried

The main production problems experienced are as follows:

1. The obtaining of high grade, uniformly producing seed strains
2. Varying weather conditions during the growing season and particularly during the heading.
3. Injury by insects and English sparrows.
4. Time of planting.

The net returns on lettuce production and marketing formerly considered to be high, have shown during the past seasons to average considerably lower than previous anticipations, fifty to sixty cents per crate net to the grower being obtained on an average after deducting marketing expenses.

B. RECOMMENDATIONS:

1. That a test with different seed strains be made.
2. That a more accurate test of commercial fertilizers be made, particularly having in mind the nitrate fertilizers on the spring crop.
3. Experience indicates that practically all lettuce sown before August 1 has gone to seed and we believe that planting from August 5th to August 10th offers a better chance of producing a better quality provided cultural methods are intensive. For spring lettuce we recommend that fall seeded lettuce should be of considerable size before winter sets in and plantings made between September 20 and October 1, should produce the desirable size.

II. CAULIFLOWER

We recommend experiments with cauliflower. Interview growers in previous season and take advantage of their experience. Marketing conditions are believed to be rather opportune and if successful, very satisfactory returns per acre may be had.

Points to keep in mind are:

1. Strains adapted to this community.
2. Time of planting.
3. Pest control.

III. ONIONS

Experiments indicate that onions can be grown successfully in Malheur county and the committee believes that good growers, getting uniform acreage each year, will be successful.

The crop is subject to wide fluctuations in market price.

In reference to the future expansion of the industry, it is recommended that inexperienced growers go slow until they learn the intricacies of the business. Experience in production is one of the main factors. We warn prospective growers against danger of contaminating their soils with onion smut.

IV. CELERY

We recommend further experiments with celery, as growing and marketing values are rather inconclusive.

Potato Committee Report

A. HISTORICAL:

The census gives the following growth of the Potato industry here:

	Acres	Bushels
1889	2651	180,152
1899	241	28,123
1909	307	39,715
1919	215	18,391
1922	3500	700,000

The census figures of 1899 and 1922 are not comparable except as to acreage as the bulk of the potatoes in the earlier days were of late varieties whereas those of the present time are almost all early varieties for digging in the last part of July and first part of August.

The statistics presented should be studied by every grower for they furnish an index pointing to the proper time to have the crop grown here ready for market.

B. PRESENT SITUATION:

The yield per acre in this county is 200 bushels as compared with a state average of about 100.

The bulk of the crop goes to the territory including Missouri and Kansas and the states South. The average price by months covering the period of the last 15 years,

gives the August market as the highest of any month during the year. There is an average drop of 50 cents a hundred between August and October.

The summer and fall prices have averaged as follows for the U. S.:

July	\$2.19
August	2.28
September	2.06
October	1.78
November	1.71

Freight rates to the southern and middle western states take a high percentage of the total crop, but it is safe to say that the average price would be \$1.00 per cwt. over a period of years.

The total cost of growing potatoes is \$100 per acre, about \$60.00 of which is cash for seed, sacks, taxes, interest, water, etc. and the balance labor.

Nearly all of the potatoes are Idaho Rurals. There are a few Nettle Gems grown and there is quite an interest in getting some variety, a little earlier, as the Irish Cobblers, Earliest of All, etc. Marketing is carried on in a variety of ways. Some growers have marketed through the Idaho Producers Union, others have con-

signed, others sold F. O. B. to local buyers, etc. There is more or less discontent over the present marketing situation. It is believed that cooperative marketing has been a stabilizing influence and has helped both members and non-members.

A large amount of the seed is shipped in. It is estimated that \$20,000 will be paid out for seed this year. This does not reflect the true loss because of the seed situation. Every year hundreds of acres are planted to poor seed. Sometimes the grower thinks he is getting good seed and pays for good seed, but it turns out to be badly diseased. Growers who have tried to grow their own seed have often suffered reduced yields of from 25 to 100 sacks per acre. During the past two years a small group of growers have been conscientiously trying to produce seed here by planting late, roguing out diseased plants, and storing the seed. Results have been very satisfactory and in a test last year this seed produced as much as the best of the imported seed.

C. CONCLUSIONS:

1. Potatoes on the average have made the highest net returns per acre of any crop except such highly specialized crops as lettuce or berries.

2. They fit well into a good farm program as they bring in money at a time when needed, put the ground in good condition, and help to free it of weeds.

3. Good yields are absolutely

necessary in order to overcome the freight handicap of about \$1.00 per cwt., and in addition to paying the large cash costs of growing.

4. Cooperative marketing has helped the entire marketing situation.

5. It is possible to grow seed locally.

D. RECOMMENDATIONS:

1. We urge that at least a small acreage of cultivated crops be included in the farming operations of every farmer. In most cases the only cultivated crops considered are corn and potatoes. Potatoes are the best cash crop.

2. We recommend that support be given to the Malheur Producers Cooperative Association.

3. We commend the action of the county agent in planning on strain tests of Idaho Rural potatoes in order to thoroughly test out the yielding power of seed from different sources.

4. We endorse the effort of the state extension service in attempting to grow seed in our own state, both here and in Baker county.

5. The plan of some growers of growing small seed plots planting late roguing out the weak and diseased plants, is worthy of trial by more growers.

6. We believe that federal inspection of Malheur potatoes should be conducted from the Boise rather than the Portland office, and if the state potato grading law is strengthened we ask that the position of Malheur county be considered.

Prune Committee Report

A. PRESENT SITUATION

Prune production in Malheur county is limited to 400 acres in bearing, and about 200 acres non-bearing. Records show 4073 cars of green prunes were shipped from Oregon, Washington and Idaho in 1923. Malheur county is interested mainly in the green prune trade. Last years' trade indicated that there were more green prunes than the markets which could be reached could consume, and for that reason we would recommend.

B. RECOMMENDATIONS:

1. **That the Acreage Should Not be increased.** This is true, at least, until the new plantings have come into bearing, increased production has stopped and markets or demands have grown to such an extent that they will at least balance the production.

2. **That the Size and Quality be Improved.** We are producing entirely too many small prunes and our energy should be used in better growing methods for the purpose of increasing the size and quality of product rather than for expanding the industry. The average size can be materially increased by better soil practices, including building up the organic content of the soil, and better pruning practices.

3. **Standardize and Advertise.** The extreme high prices asked by the retailer for the green prune is a factor in cutting down the consumption. Variation in the quality of the pack of prunes is a big factor in holding down the consumption. This will continue to be the case so long as the uniform grade and pack

is not constantly followed by all packers in the Northwest. Satisfactory marketing of the product will hinge on standard packs and quality which will allow far more effective advertising. Also it is obvious that the picking of prunes that are not fully mature and of sufficient sugar content, have a tendency to glut the markets because they are unfit for consumption. We recommend that the inspection rules be amended so as to prohibit the shipment of prunes that do not have a sufficient sugar content to make them sweet and palatable when they arrive on the market.

4. Sales for Cash Favored

Whereas, we have been increasing the tonnage of Italian prunes without regard to an outlet, and whereas the increase in tonnage will be considerable for some years to come, and whereas, therefore, the markets need expansion on a large scale;

NOW, THEREFORE, we realize that the closest cooperation in collective bargaining, alone can save the situation, and since a large tonnage is controlled by non-cooperators, we believe it impracticable to insist upon such cooperation as will control the sale of prunes, with a view of satisfying the growers. The chances for success are against it, and true cooperative marketing would receive a set-back.

As the prune growers' losses have been such as to cripple his operations, we prefer for the time being sales for cash, until at least 70 per cent of the crop can be marketed through one sales agency.

Apple Committee Report

Only meager statistics are available in the preparation of this report owing to neglect of growers in sending in results, so that much of this report in that respect must be on the basis of estimates.

A. HISTORICAL:

In general, the commercial orchards of our county are fourteen years old and younger, so that very few have come into full bearing. Many were set out merely as promotion enterprises by individuals who were not good orchard men so that they did not have the best chance to demonstrate possibilities.

B. PRESENT SITUATION:

At present there are approximately 1800 acres of commercial orchard. From such statistics as are available the average yield over a number of years is only 150 boxes per acre,—doubtless this is somewhat low. There has been practically no co-operative effort in handling the problems, and marketing has been very unsatisfactory.

C. FUTURE OUTLOOK:

There will probably be very little increase in plantings, but considerable increase in production from present orchards,—some development in marketing may result from the proposed railroad across Central Oregon in reaching the California markets. There are practically no storages; and the inspection in field and on track is unsatisfactory. There has been a noticeable lack of law enforcement as to disease and pest control.

D. RECOMMENDATIONS:

In view of the facts briefly set forth above, we, your committee, make the following recommendations:

1. No general increase recom-

mended at present in plantings.

2. A minimum yield of 250 boxes per acre.

3. Standardize varieties, viz: Winesap, Rome Beauty, Delicious, Jonathan and Arkansas Blacks.

4. Better handling important. It is the consensus of opinion that much good would come to the apple industry if better methods of handling were employed. Many of our varieties are still going onto the market at the wrong season. Much of our fruits deteriorate in quality because of improper storage. Some of our varieties never attain their best quality because they are harvested at the wrong time. Generally we need more information on the handling requirements of individual varieties.

5. Material reduction in number of distributors.

6. That a Federal licensing system for distributors be put into effect.

7. A creation of adequate funds for advertising.

8. We recommend unified action on the part of the entire Northwest, looking to reduction in freight rates on perishable fruits.

9. That Federal inspection be arranged for Malheur county and that our county fruit inspector qualify to act in this capacity.

10. That a stringent field inspection and law enforcement in our county be required of our county inspectors.

1. That growers provide for adequate storage to enable them to market in an orderly way, and to protect themselves against a shortage of refrigerator cars.

12. We recommend that the growers of this county organize in order to carry out the purposes of these recommendations.