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1947

AGRICULTURAL

Planning and Outlook

CONFERENCE

Report

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Approved by Conference Held
In Redmond, Oregon, January
29, 1947

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FOREWORD

The published report, herein contained, of the 1947 session of the Deschutes County Outlook and Planning Conference, was authorized by vote of the Conference itself. It apparently was the unanimous opinion that the information and suggestions, pertaining to the management of the farms and homes, and recommendations for the well-being of the young people, were of such a nature that they should be compiled and preserved in permanent form, and made available to all persons interested in the rural life of Deschutes County.

It should be noted that in formulating their recommendations, the various committee members responded in a fine manner, and put forth every effort toward making the conference the success it was. Even though the ten committees, each with their sub-committees, were at work for weeks in preparation for their reports, it must be understood that Deschutes County agriculture presents questions of too broad a nature to be entirely covered in the time allotted.

All of the local members of the Oregon State College Extension Service performed splendid work by way of assembling detailed information, which was used in conjunction with the knowledge gained by experience and observation of the committee members themselves.

Recognition should be given to the Bend Bulletin and the Redmond Spokesman for their fine cooperation in giving publicity to the conference, both before and after it was held.

The organizations and business firms whose names are listed on the opposite page have indicated their interest in the conference by making donations sufficient to have this conference report published.

FRED C. SHEPARD
General Chairman

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FARM CROPS COMMITTEE REPORT

Since 1935 the income from farm crops in Deschutes County has been about one third of the total agricultural income. In 1944 the crops income amounted to slightly more than \$1,100,000. Natural advantages of this county's farm land in the production of

legume seeds, potatoes, excellent quality hay and pasture and to some other crops of lesser importance have set the pattern for a sound cropping program.

Variation and trends of the principal crops grown are shown by the figures in the following table:

Legume Seed Crops:	1939	1940	1941	1942	1943	1944	1945
All Clover Seed	5700	5130	3820	1660	950	1465	1300
Alsike Clover	5200	4800	3500	1500	850	1200	1000
Red Clover	350	200	160	100	75	250	200
Ladino Clover	150	130	150	60	25	15	100
Hairy Vetch	250	950	1600	3500	1500	1600	1034
Austrian Peas	1250	1600	550	800	600	150	200
All Grain Crops:	7850	7500	8600	7350	6350	7900	8900
Rye	700	1200	1900	1500	1200	1400	2000
Wheat	1700	1600	1800	1200	750	1000	1200
Oats	3350	2800	2600	2050	2300	3100	2700
Barley	2100	1900	2300	2600	2100	2400	3000
Hay Crops:							
Alfalfa	11250	11700	12000	12500	10800	10800	13000
Grain Hay	5000	4928	3800	4000	5000	4800	5940
All other Hay	1250	1600	1650	1500	2400	2350	2300
Potatoes	1900	2300	1900	2100	4100	3800	4500
Rotation Pasture	5400	5800	6600	7200	12500	12500	10000

HAY

Large quantities of alfalfa hay have been exported from Deschutes county to Willamette Valley markets during the past few years. This has been due to high prices offered and also to unfavorable dairy products and livestock prices which resulted in a reduction of dairy animals and numbers of livestock on feed. About 15% or 4000 tons of all alfalfa hay produced in the county is being exported at the present time. This committee recognizes this as an unsound practice which is resulting in loss of fertility and recommends growers consider a livestock feeding program to utilize this surplus production.

About 50% of the cropland (not including cropland pasture) in the County is used to produce hay crops annually. In 1944 there was 13000 acres of alfalfa, 6000 acres of grain and 1700 acres of other crops harvested for hay in the county. There has been an increase in acreage of hay harvested in re-

cent years of about eight per cent.

An average yield of at least 3 tons per acre can be obtained from alfalfa and under best management practices 4 tons can be expected on most farms in the county. This committee believes there is a tendency to continue harvesting hay from alfalfa fields that should be plowed up due to poor stands. Fields that have become grassy and produce 2 tons or less per acre should be considered as no longer profitable and should be planted to grain or a cultivated crop to use the fertility that has been added.

This committee believes one of the principal causes of stands being crowded out by blue grass is due to too early application of irrigation water in the spring. The first irrigation should be delayed until blue grass has dried out completely after being cultivated and the weather is warm enough to start fast growth of the alfalfa. The Ladak variety is recommended for this area due to its wilt

resistance, winter hardiness and satisfactory yield of excellent quality hay. Other hardy varieties have also been satisfactory.

For best yields of alfalfa hay sulphur must be applied at 50 pounds per acre per year. In some communities highest yields have been obtained by fertilizing with treble phosphate at 100 pounds plus 50 pounds of sulphur.

All grain hay yields on an average about a ton to the acre. This committee can not see any justification for growing a grain hay crop except as a nurse crop for legumes because of higher yields obtained from alfalfa, red clover, or vetch. Yields of grain hay may be increased by adding 100 lbs. of sulphate or ammonia or equivalent of other nitrates per acre at planting time, or by adding spring vetch or peas.

RED CLOVER

The acreage of red clover grown for seed has never been of much importance in Deschutes county because yields of seed from it generally average about half the yields obtained from Alsike clover, whereas the price for the red clover seed has averaged but little more than the price for alsike.

Red clover has an advantage on dairy or livestock farms since a hay crop is taken off by not later than June 1 that usually averages about a ton per acre. It may be pastured until about May 15 if that is preferred.

Growers have received a premium for seed grown of the Midland strain or other strains especially requested by the principal markets for the seed. It is likely that this demand will continue for some time; therefore, growers should plant the Midland strain or other improved strains for which there is greatest market demand in place of common red clover. These improved strains must be grown on fields where common red-clover has not been grown recently enough to be a volunteer problem.

Red clover has been better than other clovers in a crop rotation for adding fertility and organic matter to the soil in the opinion of this committee.

AUSTRIAN PEAS

The acreage of Austrian peas grown in the county has declined from 1600 in 1940 to approximately 100 acres in 1946. This decline has been due to a decrease in the price of the seed and to infestations of aphid and weevil to where the crop is no longer profitable. Very good yields of Austrian peas can be obtained with proper insect pest control and there are advantages to growing this crop in Deschutes county if prices again become favorable.

GRAIN CROPS

Acreage of grain crops has gradually increased from approximately 10% of the county cropland in 1939 to 22% in 1944. Acreage of the grain crops has been divided about one third oats, one third barley and one third wheat and rye.

The following table indicates the average acreage and production per acre produced in 1939 and 1944.

Grain	Acreage	Ave. Lbs. Per Acre
barley	2120	1632
oats	2575	1296
rye	1125	522
spring wheat	1001	1680
winter wheat	354	1350

Deschutes county is a net importing area of grains to be used in livestock and poultry feeding and this committee believes this is a sound condition and that no further increase of grains should be recommended. Normally a small amount of barley has been exported but imports of other grains, primarily corn, wheat, and oats have exceeded the exports of barley.

This committee recommends an increase in the acreage of oats grown for grain. This increase should not be an increase in total grains grown but should replace other grains in the rotation.

Relative to oats we believe better yielding varieties are needed and recommend considerably more work be done towards developing better varieties for the county.

Using certified seed of grains to be planted is recommended by

the committee and more certified seed production is needed.

This committee wishes to point out that grain crops can only be produced profitably as nurse crops for legumes on irrigated cropland except as the growing alone may be necessary to change to a proper rotation or some similar reason.

ALSIKE CLOVER **General Situation**

Alsike seed production has been one of the most consistent profitable cash crops grown in Deschutes county. The acreage has varied from a peak of 5200 in 1939 to a low of 850 in 1943. This decrease in acreage during the war years is definitely related to the large increase in the acreage of potatoes grown. Since 1943 the acreage has been gradually increasing and we are of the opinion that a much larger increase is justified in the county.

Management

This committee believes one of the most serious problems facing the alsike clover seed grower is the increasing rate of clean out, or shrink, from field run to marketable seed that is due to weed seed. This shrink averaged over 37% on all seed harvested in Deschutes county in 1946. In 1936 best estimates indicate the shrink as being 10 to 11 per cent. This increase in shrink has been due to:

1. Use of combines instead of clover hullers.
2. A substantial increase in amount of weed seed in the uncleaned seed.
3. An increase in other crop seed.
4. Insect damage to clover seed.

The increase in weed seed is mostly due to annual weeds as follows: buckhorn, peppergrass, wild pansy, false flax, alfilaria, lambsquarter, and dock.

Bladder catchfly, a perennial, is the most serious weed at the present time and the committee believes more attention must be given to its control and eradication. The following program is suggested:

1. A refusal on the part of all local seed houses to sell for local use any seed containing bladder

campion. Growers should not use their seed if it contains the catchfly seed.

2. Spot spraying or pulling of infestations on farms where there is not too much of it.

3. On seriously infested farms, keeping them out of alsike production for a time until it appears that the weed has been destroyed.

4. Spraying or cultivation on all badly infested fields.

5. Spraying grain fields to be seeded to alsike clover to reduce weed stand.

Normally two seed crops are profitable from a planting of alsike. However, where a special effort is not made to eliminate annual weeds and bladder catchfly from the seed bed before the clover is planted the seed crop the second year may not be profitable. Also insect damage is sometimes a factor the second year. This must be watched and controlled.

Nurse Crops

Since volunteer grains create a problem in the alsike clover seed when harvested the grower should give consideration to a grain crop that does not volunteer. Oats and barley have proven to be most satisfactory. Improved varieties would be of assistance to growers and the committee believes more trials of adapted varieties should be established. Winter wheat, winter barley, and rye should not be used. These winter grains are not a problem if a thick stand of clover is obtained. Pasturing in the spring also keeps the grains from becoming a problem.

The weed problems are often complicated by planting a grain nurse crop that has not been cleaned. This committee urges all growers to have all grains recleaned before planting.

Harvesting

Most of the alsike clover is now harvested by combine. This method of harvesting as compared with mowing and then running through a clover huller is more convenient, cheaper because of smaller labor requirement, and saves as much seed as a huller. It also has the

advantage of spreading the straw at harvest time.

Fertilizer

Yields of seed are increased by the application of 50 pounds of sulphur per acre and 200 pounds of superphosphate. Treble phosphate at 100 to 150 lbs. with 50 lbs. of sulphur is equally as beneficial.

Growth of the clover is about the same the second year, when these fertilizers are applied, as it is the first year.

Irrigation

Although alsike clover may not be damaged by becoming dry in the spring it must not be allowed to become dry after it is irrigated in the spring. It should not be irrigated later than August 10. The interval between irrigations during the irrigating season is normally about two weeks but on lighter soils more frequent irrigating is necessary. Too much water is equally as bad and sometimes results in a poor set of blooms.

Pollenization

There should be at least one stand of bees per acre of alsike. This is as important as any other thing in raising alsike clover seed.

Yield

Yields in this area are considerably higher than the national average and are superior to most competitive areas. Normally growers can expect a yield of from 4 to 6 bushels per acre of clean seed but double these yields are not uncommon with best management and growing conditions.

Recommendations:

1. This committee recommends that some type of seed improvement and classification program be established and until this is done no locally grown or imported seed should be used for reseed.
2. This committee cannot emphasize too much the need for a thorough weed control program if this crop is to be maintained on a profitable basis and as a major crop enterprise.
3. Because of natural advantages which permit growing high quality seed and obtaining high yields the committee recommends an expansion of the alsike clover seed acreage.

HAIRY VETCH

Decline of hairy vetch acreage in Deschutes county from a peak of 3,500 acres in 1942 to 1,000 in 1946 reflects competition from high priced potatoes and dissatisfaction with harvesting methods. A third factor, vetch weevil, now appears to be discouraging the few remaining growers.

Hairy vetch offers definite advantages as a seed crop and it would be a benefit to central Oregon agriculture if the objections to it could be overcome and the acreage increased. It is a one-year cash crop which can be grown for successive years on the same field with minimum re-seeding and soil preparation cost. It is an early crop which can be seeded during otherwise slack winter months and harvested ahead of other crops between hay cuttings. Irrigation water is released for other crops by mid-season. There is a definite soil improvement effect from this strong growing legume and the straw can either be used for soil building or for wintering livestock.

Yields should range from average good fields, 600 to 1,000 pounds of clean seed per acre, which at present market price returns a gross of \$78.00 to \$130.00 per acre. Market should continue strong for several seasons as current production is well below the requirements of Cotton Belt States. Cost of production being low, net returns should exceed returns from grain and from the less than average quality potato lands.

Production problems now limiting acreage are weevil control, harvesting, and control of volunteer. Weevil control with DDT is now simple and inexpensive, requiring during 1946 only one application. This can be made by airplane or with the potato dusters now in general farm ownership. This problem is exaggerated in the minds of most growers.

Harvesting requires careful timing to minimize losses, both from spoilage from cutting too green and from shattering. It is probable that individual farm

acreage should be held to a maximum of about twenty acres per thrashing unit in order to shorten period between cutting and threshing. Harvest time losses can be held to a reasonable level by careful timing of cutting and proper and prompt handling after cutting.

Winter grain should not follow vetch because of the volunteer problem, although hairy vetch is easily killed in grain with the wood killed, 2-4D. Potatoes can be grown satisfactorily, preferably with late spring plowing. Alfalfa quickly eliminates the problem, as does pasture, and one of these crops should precede a clover seeding or grain crop.

Pasture

The committee believes the returns from a good irrigated pasture are comparable with returns from cash crops in the county.

To emphasize the value of a good irrigated pasture as compared with alfalfa hay or a barley grain crop the following comparisons are made relative to the total digestible nutrients of the three crops:

	Pounds of Total Digestible Nutrients
3 tons alfalfa hay	3000
50 bushels barley	1800
1 acre good pasture	4600
Relative cost of 100 pounds of this T.D.N. under normal costs:	
Grain	\$2.00 per cwt.
Alfalfa	\$1.00 per cwt.
Pasture	\$.50 per cwt.

Most irrigated pastures are primarily bluegrass and white clover. This type pasture is not economically sound. Returns from such pastures are at least one-third less than returns from a good seeded grass-ladino clover pasture.

Management

1. Pastures should be allowed to get well started in the spring before stock is turned in. This committee believes a growth of at least four inches is essential to good pasture yields the balance of the pasture season.

2. The life of a seeded pasture is on the average about 10 years if properly cared for.

3. It is essential to best pasture

yields that the pasture be rotated.

4. Pastures retained too many years tend to become unprofitable due to loss of stand and becoming sod bound; therefore, the committee recommends run-out pastures be plowed and seeded to cultivated crops to benefit from fertility built up by pasture.

5. Because of fertility built up by a permanent pasture a run-out pasture should always be followed by at least two year cultivated crops before reseeding to pasture.

6. The committee believes average farms under favorable conditions with livestock or poultry enterprises should have at least 20% of the cropland in improved pasture.

Watering

A ladino clover pasture must receive frequent irrigations during the growing season. Rotation irrigation with other crops in the summer months will not be adequate if this rotation is longer than one week.

Mixtures

Grasses that have proved to be adapted to planting in an irrigated pasture mixture include alta fescue, orchard grass, smooth brome, meadow foxtail, and perennial ryegrass. The ryegrass and brome grass provide the most forage the first two years after the pasture is seeded. Since neither grass is long lived in this county they are soon replaced by other grasses in the mixture which are long lived, high yielding and palatable grasses. Every mixture must contain ladino clover to provide the best and most pasture. White clover will appear in nearly every pasture but this clover is not a suitable substitute for ladino because it provides much less forage. White clover should never be seeded on a farm if the grower thinks that he might ever want to grow ladino clover for seed.

For improving dryland pasture areas' grazing capacity, this committee recommends crested wheat grass.

The application of commercial fertilizer is recommended. Properly fertilized pastures are more palatable and will be more even-

ly grazed. Sulphur must be applied at the rate of 50 pounds per acre annually either as landplaster or elemental sulphur. Applications of nitrate fertilizers where barnyard manure is not available will be profitable. In the main, treble phosphate and sulphur mixed have been beneficial and more so than superphosphate. Barnyard manure applied during the winter months is often as beneficial to pasture as to any other crop. Alsike or ladino clover straw also makes good fertilizer for pastures.

This committee does not believe that production of grass seeds in this county should be recommended at the present time because other seed crops, for which there is a natural advantage in growing, are more profitable. Grass seed yields are no higher here than on dryland where expense is less.

Experiment Station

The farm crops committee, in

making studies for this report, as well as in our farming programs, finds a very definite need for information that can only be determined at an experiment station. We recommend an agricultural experiment station be established in central Oregon since the climate and soils are not similar to any other area in the state where experiment stations are located at present.

This report has been prepared and is approved by the following members of the Farm Crops Committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on January 29, 1947: Carl Baker, Carl Livesley, Wm. Collins, Lee Goodrich, Ronald MacGregor, Byrle King, Willard Cyrus, Phil Farrell, Jim Chamberlain, Gene Fitzgerald, Paul Standard, Herb Farquharson, Ralph Ziegler, Jim Short, Don Brown, Wallace West, J. E. Thompson.

POTATO

COMMITTEE REPORT

Potato production is the foundation for nearly all cash crop farm systems in Deschutes county. Acreage of potatoes grown in the past eight years has been increasing from the 1900 acres grown in 1939 to 4750 acres or approximately 12 per cent of all crop land in 1945. The following table indicates the acreage trend:

1939	1900
1940	2300
1941	1900
1942	2100
1943	4100
1944	4500
1945	4750

The present acreage is larger than should be grown in the county, the committee believes. This over-expansion has been justified in the past due to urgent demands for all-out production. The committee recommends the acreage to be planted to potatoes normally should be the maximum acreage on every farm that is possible

under a good crop rotation program.

The average yield per acre has been increasing for the county. For recent years the average has been: 110 sacks for 1943, 117 sacks for 1944, and 121 sacks for 1945 per acre. This committee, however, is of the opinion that this county average yield is not a good indication of what yield can be expected if proper care and management is given in growing a crop. Many experienced growers have obtained 175 sacks per acre or better of marketable crop in recent years.

A study of cost of production for potatoes has indicated a great variation in cost from farm to farm. However, the committee believes for a yield of 300 bushels per acre the average cost per acre was \$200 in 1946. This cost of production is about the same as in other areas where similar yields are obtained. The most efficient

operators grow the crop for about \$175 per acre.

1. Acreage per Farm

The committee wishes to point out that a minimum acreage per farm should be 10 acres. Smaller acreages do not justify necessary expenditures for machinery and for a good cellar. Growers with less than ten acres should determine that planting, cultivating, dusting and harvesting equipment will be available from neighbors or custom operators before planting.

To obtain best yields and follow a sound crop rotation program this committee believes the maximum acreage that should be grown should not exceed 20 per cent of the irrigated cropland annually on any one farm.

2. Crop Rotation and Fertilizer

To be a profitable enterprise high yields must be obtained. This is only possible and feasible in Deschutes county by growing potatoes on soils that have been enriched by growing legume crops in the rotation. The committee recommends planting potatoes as follows:

1. After two years of red, alsike, or ladino clover (for one year).
2. After permanent pasture is plowed (for two years).
3. After alfalfa (for two years).
4. After hairy vetch (for one year).

A large amount of organic matter must be turned into the soil for the best results. Clover and vetch straw is good, green manure crops of alfalfa (third cutting) red or sweet clover, or rye is beneficial and grain straw and stubble plowed under with the addition of 150 pounds of sulphate of ammonia per ton of straw will add fertility. Barnyard manure is also desirable but should be plowed under in the fall before planting. Plowing manure under prior to planting in the spring usually results in scabby potatoes. The same is true of straw. It is not the straw or manure that produces the scab, but scab requires plenty of air and straw holds up the soil, allowing air pockets.

Where potatoes are to be grown two years in succession the com-

mittee recommends a green manure crop be planted immediately following harvest of the crop the first year. This green manure crop should be plowed under with 100 pounds to 150 pounds of sulphate of ammonia the first of May the second year.

In addition to the organic fertilizers this committee recommends the application of a complete commercial fertilizer at planting time at about 500 pounds per acre. Fertilizer trials have indicated definite yield and quality improvement from application of high rates of potash fertilizer; therefore, it should be included.

Some growers have found applications of landplaster at 200 pounds per acre beneficial and profitable.

Marketing

For many years potatoes grown in central Oregon have sold at higher prices than those grown in competing areas, at Portland and in San Francisco, the principal markets for this area, and also in other markets of less importance. This market preference is due to the attractive appearance of potatoes grown in Deschutes county, the superior quality, well shaped potatoes that have a low peeling loss, low freight rates to principal markets, and potatoes that have been free of internal discoloration or browning which which is a serious problem in most competing areas.

This committee believes that every effort must be made to market a superior quality product in the future and in this connection recommends the following:

1. A uniform, high quality grade with no potatoes in a U. S. No. 1 grade smaller than 3 ounces, and none in a U. S. No. 1 size A grade smaller than 4 ounces.
2. Growers should endeavor to find other markets for lower grades in order to maintain a superior table stock grade. In this connection this committee recommends a committee be appointed to make a study of establishing facilities in this area or using facilities in other areas for making glucose or other products from

low grade potatoes; also that the directors of the Central Oregon Potato Growers association give this matter careful consideration.

3. A minimum amount of handling the potatoes while grading, sacking and shipping because this handling results in bruise damage.

4. Marketing of immature potatoes be discouraged and kept at an absolute minimum.

5. Growers strive continually to grow a crop that will grade 75% No. 1's or better. This percentage is commonly reached by better growers.

6. Growers use only good, disease free seed and follow the best known method of seed treatment. Planting certified seed is recommended and the increased cost of certified seed over uncertified is always returned many times in increased yield and quality.

7. That every grower own a good cellar. Pitting in dirt covered pits often results in dark, unattractive potatoes that are a detriment to the reputation of the district.

Facilities available for sorting and grading the crop in this area have not been adequate in the past and the committee recommends more such facilities be made available.

Seed Production

The success or failure of the potato industry in Deschutes county is directly related to the potato seed certification program.

Production of certified seed has been a profitable, specialized project in Deschutes county for many years. The acreage grown and sacks marketed in the county since 1937 have been as follows:

Year	Acreage	Sacks
1937	25	1065
1938	74	
1939	84	4591
1940	59	3411
1941	84	1312
1942	70	4201
1943	58	
1944	139	
1945	448	
1946	684 (74 acres passed)	

This committee recommends the following practices to aid in successful seed production.

1. Fields be isolated from other potato plantings—the farther the better.

2. Tuber unit planting of at least a sufficient size plot to plant the acreage to be entered for certification the following year. Tuber unit planting is recommended for all certification acreages if suitable equipment becomes available for planting.

3. Very careful, early and frequent roguing. Roguing all plants that appear to have something wrong with them, whether they show a recognizable disease or not.

4. A regular and thorough insect pest control program. This includes control of aphids and all other sucking type insects that are known to be serious spreaders of disease.

5. Plant where potatoes have not been grown before for at least two years.

6. Eye indexing selected tubers is recommended for growers of foundation seed as soon as greenhouse facilities are available.

7. Growers of certified seed should consider disease readings of field test plots in selecting seed for planting.

Producers of certified seed in years past have received an average of about 50c per sack more for their seed than commercial lost sold for. Since more expense is now involved in producing good certified seed this committee believes growers should expect to have to pay proportionately more for seed in the future. A premium of \$1.00 over the price received for commercial U. S. No. 1 grade should be paid for good certified seed.

Because of specialized techniques involved in producing certified seed this committee recommends this project only to growers who intend to continue in the business over several years.

General Recommendations

1. The practice of using drop-seed (from uncertified seed lots), exports or culls for seed is a practice that is not recommended and nearly always results in reduced yield and poorer quality.

The best seed is generally the cheapest seed.

2. This committee wishes to commend the Central Oregon Potato Disease Council and the Federal State Shipping Point Inspection Service for their successful efforts in maintaining this area a ring rot free district. The committee recommends every effort be continued to keep this area free of this disease.

3. The Central Oregon Potato Growers association is recommended and all potato growers

are urged by the committee to support it.

This report has been prepared and is approved by the following members of the Potato Committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on anuary 29, 1947:

B. L. Fleck, John McLaughlin, Walter Low, E. E. Burgess, Dean Davis, Pearl Weigand, John Hanson, Ray Gibson, Kenneth Ferguson, Clyde Carlson, M. K. Baessler, Ben Davidson.

WEED & PEST CONTROL

COMMITTEE REPORT

GENERAL SITUATION

For a period of five years shortage of labor and farmers' concentration on all out production of crops and livestock in the county have resulted in reducing the amount of weed, pest, rodent and predatory animal control efforts in the county, and as a result crop losses have increased.

The committee wishes to point out effective measures to control and eradicate weeds and pests must be on a community-wide basis in as much as they are community problems and not individual problems.

Weed Control

Deschutes county is an organized county-wide weed control district. This committee recommends this be continued in the future to aid in getting weed control and eradication work accomplished.

Perennial Weeds

At present the more serious perennial noxious weed in the county are quackgrass, bladder catchfly, white top, Russian Knapweed, Canadian thistle and wild morning glory. There are some of these weeds in every community in the county.

Quackgrass

Most farms in the county have some quackgrass on them. It is by far the most serious weed problem in the county from the

standpoint of reducing the crop production on farms. Small patches of this weed are not expensive to treat with chemicals to kill them and this is recommended. Sodium chlorate, (two applications about a month apart) and prochlor have been fairly effective in killing these spots. Some large areas have been killed out in one season by plowing in the spring and leaving the sod turned on edge to dry out. Pasturing any growth is desirable. Planting a field of rye in the fall preceding the spring plowing will increase the effectiveness by using up more of the moisture. Another effective method of eradication has been to cultivate the roots to the surface and let the sun dry them out. The roots should be raked up and burned or hauled off the field if not cleaned up by livestock. If there are small patches of quackgrass in the field to be cultivated by any kind of cultivation equipment it will spread by small pieces of the roots if the equipment is used on these patches. It is best not cultivate them. This committee recommends infested ditch banks, fence rows, and roads be chemically treated to kill quackgrass in these areas if fields are cleaned by cultivation, otherwise the field will soon be re-infested.

Bladder Campion (catchfly) a relatively new weed in Deschutes county is spreading faster and is a more serious immediate threat to the irrigated cropland than any other perennial weed. It is being spread primarily in alsike clover seed. This weed is now making crop production unprofitable on a small acreage in the county and is threatening a much larger acreage unless control and eradication measures are undertaken immediately. Alsike clover growers should not use seed containing any of this weed seed. All grain crops should be recleaned before using for seed. Small patches may be killed by treating with chlorate, carbon bisulphide or prochlor. Larger acreages may be sprayed or continuously cultivated to kill it. Seriously infested fields or farms should be kept out of crop production, and especially clover seed until the weed has been destroyed. The selective weed sprays have promise for killing it and getting a grain crop at the same time.

Other Perennial weeds in the county are nearly all in small patches which can be treated and killed. Exceptions to this are several farms with large infestations of Canadian thistle. The selective weed spray is effective in killing Canadian thistle, white top and morning glory with one or more applications. It is especially effective in fall grains.

Annual Weeds

Annual weeds are becoming more and more of a threat to the small seed business of Deschutes county. On some farms in the county alsike clover seed production is no longer profitable for the second year, and therefore must be plowed up after the first year's seed crop. This is almost entirely due to the large increase in annual weeds. The shrinkage in cleaning of all alsike clover shrinkage was due to weed seed cleanout. In addition to the cleanout shrinkage the weed competition is resulting in much lower yields.

This committee recommends more consideration be given to

control of these annual weeds by performing cropping practices that will reduce the infestations such as, cultivated crops, grain crops sprayed once or twice with selective weed killers, and additional cultivations before planting crops wherever possible to germinate seed and kill the young plants.

General Recommendations:

1. We recommend the County Court appropriate funds to purchase equipment adequate to provide effective weed control and eradication in the county. We further recommend the County Weed Council, with the cooperation of Oregon State college, advise the county court as to equipment needed and the county court and weed council establish the operating basis for this equipment.

2. This committee believes the irrigation water is one of the commonest sources of new infestations of perennial weeds and many annual weeds and recommends irrigation districts give strict attention to eradication of all noxious weeds on or near ditch or canal banks.

3. The committee recommends the county court continue the appropriation for weed control and that the amount be increased to provide for a weed supervisor to work during the seasons when treating perennial, noxious weeds is effective for eradication and control.

4. It is recommended that growers plant only grains that have been recleaned. Oats especially are likely to contain quackgrass seed.

5. The State Highway Commission, railroads, irrigation districts and the county court have cooperated in weed control and eradication programs of the past. The committee commends this cooperation and recommends it be continued.

Rodent & Pest Control:

Pocket gophers have increased in recent years and are causing great losses in irrigation water and time and causing expense due to repair of damages to ditches.

Community programs of poisoning the gophers is recommend-

ed by the committee. It is believed such a program can best be conducted with the air and cooperation of the subordinate granges in the county. It is recommended that the poison bait be prepared for an entire community at one place but that each farmer be responsible for putting out the bait on his farm and purchasing the bait used. The cooperation of public land owners must be obtained and their lands treated at the same time as the farm land in the community.

Woodchucks are not a general serious problem in the county but infestations are becoming greater in the opinion of this committee. The committee recommends more educational work be done relative to control of these rodents since they are readily eradicated by present methods. A poison bait of chopped green alfalfa placed in the rock piles where they are living is effective.

Ground Squirrels continue to be a problem but of less importance than gophers in the county. The committee believes any community having a serious problem should organize on a community-wide basis similar to program outlined for pocket gopher control.

Magpies and Jack Rabbits. The committee wishes to express appreciation to sportsmen's organizations of the county in assisting with control of these two pests. Jack rabbits are no longer a problem but the committee recommends more control efforts be expended towards reducing numbers of magpies.

This committee commends the Deschutes county court on the predatory animal control program that has been sponsored in the past which included government trappers as well as a bounty payment and recommends continuation of this program. The numbers of coyotes does not seem to

be decreasing and livestock and poultry losses continue to be serious over much of the irrigated sections of the county.

Additional trapper personnel is recommended so that more attention can be given to trapping on land adjoining cropland areas of the county, thus providing better control on range areas as well as farming areas.

Insect pest infestations have been serious economic factors in the production of clover seed, vetch seed, Austrian pea seed, and potatoes in this county.

The advent of new insecticides has been the solution to some of these problems; however, growers can expect to continue to be faced with serious problems. Airplane dusting has proven to be satisfactory for control of many insect pests and most farms are situated so that the fields can be effectively dusted by plane. Fance rows, ditch banks, and other areas inaccessible to ground dusters can be effectively dusted by plane. This practice is recommended for control of potato flea beetle and materially reduces the infestation if the dusting is done early enough to catch early hatches. Regular dusting has effectively controlled the flea beetle during the potato growing season.

Infestations of hairy vetch weevil is now a problem in parts of the county and growers are advised this is likely to be a county-wide pest. These insects were effectively controlled in fields in 1946 by one dusting by plane.

Extent of damage to clover seed crops by insects is a variable and somewhat unknown quantity. All second year stands of alsike and ladino clover must be carefully observed for insect damage early in the spring. The clover leaf weevil is effectively controlled by early spring dusting with calcium arsenate.

This committee recommends growers give considerable attention to new developments in the field of insect pest control.

This report has been prepared and is approved by the following members of the Weed & Pest Control Committee to be submitted to the Deschutes County Ag-

ricultural Program Planning and Outlook Conference on January 29, 1947:

Wm. Hall, Sam Shaver, E. E. Varco, George Billingsley, George Murphy, George MacGregor, Cal Butler, Floyd Holt, Warren Cyrus, Roe McDaniels, C. L. Allen, B. E. Harrison.

FARM HOME & RURAL LIFE

COMMITTEE REPORT

Every rural family in Deschutes county should have an opportunity for a well balanced life—one that provides not only for the social need for good family living, but the material necessities for a comfortable living which includes adequate housing, clothing, and food. In order to accomplish this, consideration should be given to the status of the health situation, social life, population trends, educational facilities, and financial possibilities.

The shift of population in this county has been very great. This means that many people are new to this area as well as new to farming situations. Adjustments are necessary to change from war time conditions to peace time conditions. Great changes are noted in prices, land values, increase in use of machinery replacing hand labor.

Figures indicate that Deschutes county is quite well electrified, and that those not receiving this service at the present time will have the opportunity to receive it in the near future. The great variations in the altitude, climatic conditions, and soil formation of this county provide particular problems for study.

HOUSING AND LANDSCAPING

Better housing is recognized as one of the outstanding problems in the county. The lack of housing of any type is also a problem. Research and home visits have shown that many of the farm dwellings are in a bad state of repair, and lacking in facilities commonly accepted as essential

to minimum standard of living.

There is no figure for comparison, but the 1945 data shows that there are 1253 dwellings on farms with 1,054 occupied. In comparing data from the 1940 and 1945 census we find a good increase in number of farms now having advantages of essential public utilities. In 1940 only 383 as compared to 824 in 1945 reported having electric lighting. There were telephones in 1940 on 369 farms as compared to 386 in 1945. This figure has probably increased in the last year.

Radio seems to be about the same. In 1940 the reported number was 852 while in 1945 it was 833. The figure is not available for 1940, but in 1945 only 493 farms reported having running water. Heating equipment was almost 100 per cent wood heating stoves. In 1940 only 36 families reported having other means of heating, but 1945 figures are not available for comparison.

In 1940 166 families reported having mechanical refrigeration; this is almost 16 per cent; 142 had ice, 141 reported other refrigeration and 597 reported having no means of refrigeration. The 1945 figures are not available.

The period from 1910 to 1919 showed greatest building on rural farms, while rural non-farms had their greatest building in the period of 1935 to 1940. This would substantiate the belief that the back to the soil migration is on.

Improvement in housing in the next few years will depend on several things: farm family in-

come, cost and availability of building materials, availability of credit, availability of advisory and educational services. Many families will welcome assistance in solving their housing problems, for many it is the decision of whether to try to remodel or build new. In either case they may need help in selecting plans, determining advantages and disadvantages of available materials, and long-time building program plans. Families will be interested in acquiring skills that will enable them to do their own construction work.

Four years of war and many years of depression before the war have resulted in run-down condition of the entire farmstead in many instances. In view of these facts, a long-time building program should consider the development of the entire farmstead for efficiency and appearance. It is also evident that sanitary conditions in the farm homes of the country could be greatly improved. Houses still exist where water is carried from an irrigation ditch, or from a very small cistern outside the house. Many farm families haul their water in cream cans the year-around. Days, weeks and even months of valuable farm labor go into supplying water for family use.

In view of the above facts the committee recommends:

1. That an informational program be carried on in the county. This could be done through Extension Service, Veterans Vocational Agriculture Classes, Farmers Home administration, Grange, Farmers Union and clubs, to give help in the following:

a. Long-time farmstead planning.

b. House planning and remodeling (to include service yard and out-door recreation).

c. Landscaping using native plants.

2. That information be made available:

a. On cistern construction, location, size and installing water systems.

b. Plans and instructions for building adequate septic tanks.

c. Instruction on safe home wiring and correct lighting.

d. Construction of safe chimneys.

3. That information be available to the public on new household equipment such as stoves, hot water heaters, refrigeration and deep freeze units, heating units, new and improved lighting installations.

4. That information be made available on the availability of construction materials, types and desirability of each, and how to use them.

5. That help be available in family financial planning including sources and types of credit available to farm families.

6. That information be available on minor improvements which lighten farm loads such as flood lights for out-buildings.

Improving Farm Grounds

Inasmuch as little attention has been given to the improvement of appearance of the general farmstead for a number of years the committee suggests that the general appearance of the farmstead be given first consideration. This entails labor, but little cost. Many families have been postponing improving the farm's appearance in lieu of building a new home. As in most cases this cannot be done at once, the committee recommends that the appearance of the present dwelling be given immediate consideration and plans be considered for beautifying the new dwelling. In order to achieve the general recommendations already listed the committee would like to make the following definite recommendations:

1. We recommend that one day of each year be designated by the county extension service and the county agricultural planning committees as Clean Up Day for the farmers of Deschutes county, and that the following be maintained:

a. Putting away machinery when not in use.

b. Orderly wood piles.

c. Clearance of weeds from driveways and parking spaces.

d. Clean-up of boxes, cans, tools and all other articles out of place.

2. The committee further suggests that the second consideration be the painting of all paintable buildings and fences on the farm. The reason for this is that painting preserves the building material, increases its value and enhances its appearances as well.

3. For additional improvement we suggest that every home should have an enclosed lawn about the house with walks of some well drained material, and that wind breaks be planted wherever necessary.

4. In order to present these suggestions before the farmers of Deschutes county, we suggest that through the extension service of the college, moving pictures be made available illustrating these suggestions, and that these pictures be shown in each community.

5. We recommend that the instructional work in landscaping now started in Deschutes county be continued and enlarged.

6. That printed lists of trees, shrubs, vines and plants that are hardy in this country be made available for distribution among the farmers, and that demonstrations be given showing the proper planting and care of these shrubs.

WATER SUPPLY AND WATER PURIFICATION

One of the outstanding problems of Deschutes county is water for household use. Only 493 homes of the 1253 had running water, and in many cases this supply is seasonal. In order to meet these problems, certain standards are necessary. For example:

1. Filters for storage tanks: Water flows past the intake to the tank to prevent sediment getting into tank, with 4-inch pipe, 12-foot long from ditch to filter. Filter 4 feet square, 2 compartments, each 2 feet square, with by-pass at the bottom. This is rapid type filter.

Charcoal in first compartment, gravel in second, screen over intake pipe, also screen over intake at cistern. A 32x16x9 foot cistern can be filled with this type in half

a day, and will last family 6 months.

2. Cistern not smaller than 18x14x10 feet for water supply for a minimum of sixty days. For a family of six, modern home averages 60 gallons for 24 hours. Seven times as much water is used in modern home than when pumped or carried by hand.

3. Separate cistern for stock. A cistern or tank is much more desirable for stock watering than a pond. Pond, if used, should be large enough to hold at least five feet of water for sixty days. Fenced and piped to a trough. If too shallow pond will freeze dry. If pond won't hold water on account of soil structure, it may be puddled with clay.

4. Septic tanks: Minimum size 4x8x5 feet for average family of six. If baffle is used, place so that intake compartment is two thirds of total capacity. Overflow from tank runs through tile pipe, length depends on type of soil where it runs. Tank ten feet from house.

Tile should not be laid where ground will be irrigated over the pipe. Where soil is shallow or hard it may be necessary to drill a hole for overflow.

As a result of their findings, the committee on water supply and water purification makes the following recommendations:

1. That tri-county health department collect drinking water samples for analysis at the state laboratory to determine if the purification system is satisfactory.

2. That demonstrations by tri-county public health department and extension service engineers be given on:

- a. Water purification.
- b. Cistern filters.
- c. Septic tanks and other sewage disposal.
- d. Pressure tanks.

3. That the ditch banks running through barn yards be fenced to keep stock out of the ditches, and also fowl.

4. That the public be informed as to the formation of the soil. The reason being that water supplies are contaminated because sewage wastes are not purified as they seep through the ground

because of the lava formation of the soil.

HOME FOOD SUPPLY AND HEALTH

In 1940 928 families produced an average of \$213 of produce on their farm for the use of their family as in comparison to 1945 when 884 families produced an average of \$327. Although this area has a comparatively short growing season a larger quantity of food could be raised for family consumption.

Surveys from five rural counties of western and eastern Oregon show that half of the school children lack the minimum requirements of vitamin C. A definite lack of variety in vegetable consumption was noted as well as a low intake of milk among children in all counties.

In Deschutes county only one school has taken advantage of the federal lunch program. This program is well established and receives fine community support. In view of the above situations the committee recommends:

1. The continuation of home gardens of ample size be maintained to furnish fresh vegetables for the family and also as a means of financial saving and teaching youth the value of gardens.

2. That because of the changing population and the added number of families who are new to farm life and practices, demonstrations in the following be given:
 - a. Weed control by experienced farmers and county agent.
 - b. Vegetable varieties that do best in this area and new varieties to be introduced.
 - c. Pest control.
 - d. Cultivating and care as it applies to gardens.

3. That the cannery operated under the supervision of the Smith-Hughes department of the Redmond high school be continued and that another be started in Bend.

4. That demonstrations be given on freeze lockers, this to include:
 - a. The construction of home freeze lockers.

- a. Points to look for in buying commercial lockers for home installation.

- c. The preparation of food for the frozen food locker.

5. That emphasis be placed on the school lunch program and every school avail itself of the opportunity and make it an integral part of the school curriculum.

6. That encouragement be given toward a greater variety of food served on farms to improve the diet and increase appreciation of new foods and improved food habits.

COMMUNITY AND FAMILY LIFE

Roads

Because of weather conditions, increasing number of older cars, and wrecks, and for the convenience of the driving public the committee would like to make the following recommendations:

1. That lines be painted in the center of all surfaced county roads.

2. That a responsible group assume the maintenance and erection of road signs on all county roads as a special project. This would include owner-name signs as crossroads. This might be handled by the granges, F.F.A. or corresponding groups.

Recreation for Older Youth And Young Adults:

We recognize the fact that the age group, from 18 to 30, in its transitional adjustment from adolescence to maturity, presents a special recreation problem. Much delinquency in the normal development of a family can be prevented in its early years through a satisfactory recreation program. This is of great importance in rural areas. We therefore recommend:

1. To the service clubs and chambers of commerce of Deschutes county, that they investigate the possibility of sponsoring recreation centers for this age group, placing at strategic locations in the county, and patterned after the U.S.O. units which were successful in appealing to the same type of people as during the war.

2. That skilled recreational leadership be drafted from the ranks of teachers, YMCA, extension service workers, ministers,

and lay people to act as volunteer leaders and assist in staffing such recreational centers.

3. That the extension service provide leader training schools to assist such workers as might need it.

4. That ministers and leaders of every church in the county make use of denominational or independent material in sponsoring definite programs and societies for young adults, based on social, educational, and religious advancement. Statistics show that only 21 per cent of the population of the state are church members as compared to a national average of 56 per cent.

THE HOME AND FAMILY

The American home, following the general instability so greatly increased by the late war, is statistically degenerating. In 1945 there were 184 marriages in Deschutes county and 133 divorces. This means that every couple married in this county faced a less than even chance of success in home-making. We recognize that there are many uncontrollable factors that enter into such figures, but there are many others that can be helped. One reason for this dismal domestic disgrace is that the modern family tends too easily to become merely a group of mutual convenience rather than a unit of emotional and recreational intercontribution. We feel that families who engage in united recreational and constructive activities have built a strong safeguard against domestic failure. Therefore we recommend:

1. That each family in Deschutes county strive to have a family hobby, centering around a common improvement practice, such as lawns, gardening, landscaping, planning and redecoration of the home, etc.

2. We also recommend that each family engage freely in common play activities such as indoor games. Relative practices, such as music, are also suggested.

3. We recommend that every family obtain through your extension office or some other source a reference collection for

play activity which would include whole families.

4. That the extension service offer instruction in child care, family, and parent education in addition to unit activities.

5. That we encourage participation in a family life educational program to promote better homes and family relationships.

6. That the community and family assume more responsibility with 4-H club and older youth activities by:

- a. Furnishing leadership.
- b. Makeup prizes and materials available.
- c. Providing recognition for members and leaders.
- d. Encouraging completion of project begun.

HEALTH SERVICE

Deschutes county, along with Jefferson and Crook, has an excellent efficient tri-county health unit with seven full-time nurses. Information and aid in any health problems are immediately available from the office in the courthouse in Bend. In order to cooperate better with this program and build better family health this committee recommends:

1. That the people of the county take advantage of this service to gain information in the event of any health problem, also to secure guidance in maintaining health rules in the home, proper diet, pre- and post-natal care, and the free examination given every preschool child.

2. We further recommend that every family be urged to take the opportunity of the free services offered in the form of special examination, such as chest x-rays.

3. We recommend that each parent take advantage of the immunization program for preschool and school children.

Committee Members

General chairman: Mrs. L. R. Halligan. Report made by Mrs. Sid Conklin. Mrs. Dora Cooper, secretary.

Housing: Mrs. Flora Drain, chairman; Mrs. Herbert Eby.

Landscaping: Mrs. Clarence Elder, chairman; Mrs. Sid Conklin.

Water Supply and Purification:

Mrs. John Franks, chairman; Mrs. L. R. Halligan, A. W. Westfall, Aubrey Perry, Stanley Green, E. E. Heese, Mrs. E. E. Heese.

Home Food Supply and Health: Mrs. R. I. Hamby, chairman; Mrs. John Susac, Mrs. O. M. Olausen, Mrs. Harry Van Arsdale.

Community and Family Life: Rev. Wesley Baker, chairman; Victor Livingston, Kathleen Skelton, Mrs. John Henderson, Mrs. Dean Weaver, Vern Lantz.

Statistics: James W. Bushong, chairman; Miss Elinor Brown.

DAIRY COMMITTEE REPORT

General Situation

Dairying is one of the most important farming enterprises in Deschutes County. The number of dairy cows of milking age increased from 1889 in 1920 to 4500 in 1940 and reached a peak of 4800 in 1942 and 1943, but steadily dropped to approximately 4000 cows milked in 1945. The following table shows the milk cows, over two years old, in the county from 1920 to 1945.

Dairy Cattle Numbers Two Years Old and Over

Year	Number
1920	1889
1925	3664
1930	4522
1939	4600
1940	4500
1941	4600
1942	4800
1943	4800
1944	4400
1945	4000

Advantages of Dairying in Deschutes County

The county is well suited to dairying due to the following conditions that exist:

1. Dry climate.
2. Sunshine most of the year.
3. Production of relatively cheap, high grade feed.
4. Irrigated pasture.
5. Cooperative marketing of dairy products.
6. Inexpensive housing of dairy animals.

The return of manure to the soil is another important factor in favor of the dairy industry that should not be overlooked. The na-

ture of the soils of the county make the addition of organic matter imperative. Each dairy animal kept on the farm will produce approximately 12 tons of manure annually. This manure, when returned to the soil, increases the organic content and adds fertility thus increasing the productivity of the land. In order to give the best results, this manure must be properly handled. The manure should be hauled out of the feed lot often and spread on the land. This prevents the loss of plant food due to leaching.

Feed Supply

I. Hay.

1. Under good management, an average yield of at least three tons of good alfalfa hay can be produced per acre annually.

2. The first cutting of alfalfa hay should be made at the time the second crop is just coming through the ground. This is often prior to the bloom stage and should govern the time of cutting rather than waiting for the bloom.

3. The average 1000 pound cow will consume approximately 30 pounds of alfalfa hay per day during the feeding season if no pasture is available. The feeding season in Deschutes county is about seven months; however, it is a sound practice to feed hay all during the year. The cow requires less hay when on pasture but needs the roughage to maintain high milk production. It will require 3 to 4 tons of hay to carry the average cow for one year, if good pasture is available during the pasture season.

4. Barns or sheds are desirable for hay storage. Hay should be chopped before it is stored in the barn or shed. Chopped hay requires less storage space, and saves time in feeding. There is also less waste in feeding chopped hay.

Recommendation:

Available figures on the cost of producing alfalfa hay in Deschutes county are out of date. In view of this fact, the committee recommends that a study of the cost of producing alfalfa hay in the county be made as soon as possible by a representative of Oregon State college.

II. Grain.

1. The following amounts of grain suitable for dairy feed were produced in Deschutes county in 1945.

Grain	Acres	Bushels
Oats	2361	107,698
Barley	2208	87,475
Spring Wheat	679	21,406
Winter Wheat	424	10,770
Mixed Grains	164	5,078
Corn	20	310

2. The practice of feeding grain to dairy cows in the county is recommended. Grain should be fed according to individual cow production.

3. As much of the grain, necessary for feeding dairy cattle, as possible should be produced on the farm by using grain as nurse crops for legumes in the rotation.

4. Due to the high protein content of the alfalfa hay and pasture grown in the county, a dairy concentrate as low as 10 per cent digestible protein and with a higher fat content may be fed.

III. Pasture

Many acres of rocky, unplowable land in the county may be used to produce excellent pasture when irrigated. This land represents almost a total loss if not used by dairy cattle or some other form of livestock, but will yield good returns to the operator in dairy products sold and manure produced when utilized as an irrigated pasture.

1. Value of good pasture:

a. On lush irrigated grass and clover pasture, that can readily be grown in the county, the aver-

age cow will consume from 100-125 pounds of forage daily. A cow consuming 100 pounds daily of grass and clover pasture will receive 3.1 pounds of digestible protein and 15.2 pounds of total digestible nutrients.

This amount of feed will maintain a 1000 pound cow and enable her to produce about 18 pounds of five per cent milk daily. Supplemental feed must be supplied to maintain maximum production of cows on pasture. On short overgrazed pasture, a cow might be limited to 50 pounds or less of forage daily.

b. A good improved, irrigated pasture in the county will have a carrying capacity of two cows per acre during the pasture season. This pasture season is about five months in length.

c. Based on the facts stated in 2 and 3 above, approximately 270 pounds of butter fat can be produced on one acre of pasture annually.

2. Pasture Management.

a. Pasture should be up to where it shades the ground before cows are turned on in the spring.

b. A freshly cut alfalfa field should not be pastured because the cows may bloat on this succulent feed.

c. Pastures should receive the same attention as cash crops in the irrigation schedule.

d. Pasture rotation is a recommended practice in the county.

e. Planting of approved pasture mixtures and a good fertilizing program is recommended.

IV. Cull Potatoes as Feed for Dairy Cattle.

1. Cull potatoes are a satisfactory feed for dairy cattle in limited amounts. They may be fed at the rate of 24 to 40 pounds per head per day.

2. Potatoes should be chopped before they are fed to dairy cattle. Chopping makes them more palatable and will prevent choking.

3. Potatoes should not be considered as a substitute for concentrates but are a satisfactory substitute for corn silage. They are very low in protein; therefore,

care should be taken to include plenty of protein-rich feeds in the ration.

4. Potatoes should be fed after the cows are milked in order to prevent undesirable flavors in the milk.

Dairy Cattle Disease Control

The county is now being served by two veterinarians. Each veterinarian serves a definite area outlined by the county court.

The committee commends the Deschutes county court for their support of the disease control program. Financial assistance and personal guidance of the court has played a large part in making Deschutes county an accredited Bangs and tuberculosis free range.

I. Bangs Disease

Deschutes county is an accredited Bangs disease free area at the present time. A total of 4696 dairy animals in the county were tested for Bangs disease in 1945, and only 36 of these reacted to the disease.

The dairyman should cooperate with the veterinarian on the Bangs control program by having his herd in the barn at the time designated by the veterinarian and by having help available to aid in testing.

II. Mastitis

1. Mastitis is the major disease problem in the county at this time. Financial losses are greater from mastitis than those caused by Bangs disease. A sound program of control must be based on early detection of disease, sanitary measures, and treatment of infected animals. There is no 100 per cent cure at the present time.

More cows develop mastitis during cold weather than any other time due to chilling of the udder. This can be prevented if the cows are kept in a protected place during cold weather. This type of mastitis is not infectious, but can easily develop into infec-

tious mastitis if not properly treated.

2. An education program on mastitis and its control is recommended by the committee.

III. Tuberculosis

Deschutes county is an accredited tuberculosis free area. According to the reports of the county veterinarians, there have been no tuberculosis reactors in the county in the past several years.

IV. Recommended Disease Control Measures

1. Dairy animals sold at public sales. The committee recommends:

a. That all dairy animals sold at public sales continue to be tested for Bangs disease, and tuberculosis, and that all cows sold for milk production be tested for mastitis.

b. That the veterinarian issue a certificate stating that the animal sold is free of the above mentioned diseases. In the case of Bangs disease this certificate should also state whether the animal is from a Bangs free or infected herd. This certificate should be made a matter of public record at the time of the sale.

2. The committee recommends that the dairymen purchase animals from known disease free herds only.

3. Testing of Beef Cattle.

It is recommended by the dairymen that the present program of testing for control of Bangs disease and tuberculosis be continued and expanded to include beef cattle herds where these herds are adjacent to or mingled with dairy herds.

4. Livestock Disease Committee.

The dairy committee recommends that the general conference chairman appoint a county livestock disease control committee to advise with county, state, and federal officials on livestock disease control matters.

Dairy Herd Improvement

1. There is a great need for dairy herd improvement in the county. At the present time, there

are 545 cows on Central Oregon Dairy Herd Improvement association test. The committee suggest that each farm operator would benefit by placing his herd in the DHIA testing program.

2. It is also recognized that there is a great need for better dairy herd replacements in the county. Heifers raised for replacements should be from the best cows in the herd and should be sired by proven bulls.

Recommendation:

In view of the fact that there are not enough good sires in the county and the fact that the cost of maintaining a bull is about equal to the cost of keeping two more cows in the herd, the committee recommends the formation of an artificial breeding association.

There are four grade A milk processing and distributing plants, and two producer-distributors in the county. The distributing plants buy their milk from various grade A producers. The Central Oregon Cooperative Creamery provides a market for churning cream, at the present time, and is enlarging its plant in order to handle whole milk for manufacture.

I. Grade A Milk.

1. The supply of grade A milk being produced in the county at the present time is believed adequate for the local market.

2. Outside market outlets for grade A milk are not feasible in this area due to the long hauling distance and mountainous roads between this area and other markets.

3. The dairymen should look ahead to the time when there will be a surplus of grade A milk produced in the county and provide other market outlets.

II. Cream for Churning.

The present markets for churning cream is adequate for present production, and no large increase in the production of cream for churning is anticipated.

III. Whole Milk for Manufacture.

1. The Central Oregon Cooperative Creamery plant is being enlarged in order to handle approximately 25,000 pounds of whole milk daily. This milk will be manufactured into cheese.

2. Farm operators producing milk for manufacture receive considerably higher returns from their skimmed milk as feed. The labor and expense involved in separating and handling skimmed milk is also eliminated.

3. The production of milk for manufacture will necessitate the establishment of milk collection routes over the county. The present condition of some roads make milk hauling difficult.

4. Milk produced for manufacture must be properly handled and cooled during the summer months to prevent spoiling and enable the production of high quality cheese.

5. Much of the expensive facilities required in the production of grade A milk are not necessary in the production of milk for manufacture.

In view of the present market outlook and the amount of feed being produced in the county, the committee believes that a substantial increase in dairy cattle numbers is justified.

Many tons of alfalfa hay are being shipped out of the county that could be utilized in feeding additional dairy cattle and in the improved feeding of those already on hand.

This report has been prepared and is approved by the following members of the Dairy Committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on January 29, 1947:

E. W. Putnam, D. B. McKenzie, R. W. Hamby, Kenneth Sabin, Jimmy Frakes, H. G. Rainey, Ruby Steiwer, Kenneth Blake, Herbert Lawson, M. A. Coleman, Ted Harry, Fred Klann, Del Davis, Gerald Eby, L. A. Gregg, H. A. Peden, N. J. Meyer, J. L. Jones.

POULTRY

COMMITTEE REPORT

Poultry and poultry products sold accounts for approximately 25 per cent of the cash farm income in Deschutes County at the present time. Better than \$738,000 worth of poultry and poultry products were marketed in 1944, and approximately 71 per cent of this total was from market turkeys sold.

THE TURKEY INDUSTRY

I. Growth and Development of the Industry

The raising of market turkeys has developed in the past few years into an important farm enterprise in Deschutes County. Turkeys are one of the five principal farm products marketed in the county today.

The turkey industry in the county has grown from 19,487 birds raised in 1929 to an average annual production of more than 100,000 birds during the period 1939 to 1946.

The following table shows available figures on turkey production from 1929 to the present time:

Year	Turkeys raised
1929	19,487
1939	115,000
1940	115,000
1941	105,000
1942	95,000
1943	110,000
1944	94,000
1945	175,000
1946 (estimated)	125,000

According to the census, 111 farm operators raised turkeys in 1940 while 116 farms reported turkeys in 1945. These figures indicate that the number of farm operators raising turkeys is fairly stable. Many producers now in the business depend on turkeys for a major portion of their income and are mostly established turkeymen, operating economical units with good equipment.

II. Future Turkey Production

The committee recommends that turkey production in the county be maintained at approxi-

mately 125,000 market birds annually.

It is believed that the following conditions favorable to turkey production in the county justify this recommendation.

1. Dry climate and well drained soil.
2. Pullorum clean area.
3. Good irrigated pasture.
4. Availability of feed supplies.
5. Available marketing facilities.

III. Size of Turkey Unit

1. The average producer depending on turkeys as the major source of income should plan on raising at least 3000 market birds. One man can care for a flock of 3500 market birds.

2. The turkey enterprise is a good one to combine with other types of diversified farming; and, in this case, 250 to 500 birds is recommended. This flock should be kept isolated from every other livestock enterprise on the farm.

The committee recommends that the inexperienced operators start with a flock of this size and that only the most experienced operators have turkeys as the sole farming enterprise.

IV. Land and Equipment Necessary for Commercial Turkey Unit

1. It requires a good sized farm to operate a commercial turkey unit. Established growers that expect to stay in the business should figure on at least two acres of range for every 100 turkeys. One acre will care for about 100 turkeys per year; however, sufficient range should be available to provide at least a two-year rotation. Turkeys should be raised on good ground in order to take advantage of the fertilizer value of the droppings.

2. Brooding equipment necessary for successful operation:

a. Brooder houses—The brooder house need not be elaborate but must be clean, well insulated, with no north ventilation, and well lighted. At least one square foot

of floor space per bird should be provided.

b. 200 to 250 should be the maximum number of poults brooded in one group. Many types of brooders are successfully used, and it is suggested that the inexperienced operator acquaint himself with these and use the type most suitable to his needs.

c. Adequate feeders, watering devices and roosts also need to be provided.

3. Range Equipment:

a. Adequate roosts, feeders, and watering devices should be provided. All of this equipment should be portable and should be moved frequently for best results in preventing disease.

b. Portable watering troughs built on skids with the water piped or hauled to them should be used. These troughs should be provided with some means of flushing, in order to keep them clean, and covered to keep the turkeys from standing in the trough. Turkeys should not be watered from the open ditch because this practice provides an excellent source of disease organisms.

V. Capital Necessary

1. Growers should roughly provide finances to the extent of the cost of one sack of feed for each market bird raised. This figure does not include initial cost of equipment such as brooder houses, brooding equipment, roosts, feeders, watering devices, nor cost of poults.

2. The general credit policy of extending credit only to growers who can finance their own poults to eight weeks of age should be maintained. Credit when extended to the point of furnishing brooder houses, brooders, fuel, poults, feed, and supplies to new beginners is a poor credit policy.

VI. Feed Requirements

1. It will take approximately five pounds of feed to produce one pound of turkey.

2. The cost of producing turkeys can be materially reduced by providing succulent greed feed during the growing period. The use of pasture will decrease the feed bill by 10 to 20 per cent. Rape, alfalfa,

and clover provide very good feed, and in addition, such row crops as sunflowers should be provided for both green feed and shade on farms where shade is not available.

VII. What Should Be the Trend in Size and Type of Market Birds?

1. It is believed that the large Broad Breasted Bronze are the most economical type of turkeys for production in the county. These birds grow fast, make rapid gains, and are heavy at marketing time.

2. There will be times when hens and smaller type turkeys will sell for a premium over the large Broad Breasted toms, but the toms and large turkeys in general make more economical gains. The premium will have to be more than five cents per pound for the small type birds to compete.

VIII. Turkey Disease Control Program

1. Producers should investigate the source of poults before buying and make sure that they are from a disease free flock.

2. Brooder houses and brooding equipment should be thoroughly cleaned and disinfected before the poults are obtained.

3. The litter in the brooder house should be kept clean and dry. Wet litter is a very good source of infection.

4. Feeders and watering equipment in the brooder house should be cleaned daily to avoid disease hazards.

5. Turkeys on the range should be moved at least once per week. Turkey range should be rotated so that the same ground is not used more than once every two years. Proper rotation of the turkey flock will assist in eliminating worms.

6. Sufficient pasture should be provided so that birds can be rotated to avoid contact with the soil during or immediately following irrigation. Wet soil provides an ideal place for many disease organisms and parasites to multiply, especially during warm weather.

7. The most common turkey diseases are fowl-pox, pullorum, mycospis, coccidiosis, catarrhal enter-

itis, and paratyphoid. Growers are urged to protect their investment by having an authentic diagnosis made of disease outbreaks as soon as possible.

8. Turkeys should not be reared or ranged with chickens or on ground recently used as chicken range.

Recommendation—The committee recommends that a poultry pathologist be hired by the Oregon State College Extension Service to devote full time to turkey and other poultry diseases.

IX. Selection and Management of The Breeding Flock

1. The committee believes that sufficient breeding stock should be kept to supply local demands only.

2. Breeding stock should be selected early in the fall and kept separate from the market flock during the fattening period.

3. The breeding stock should be given a breeders' mash four weeks before hatching eggs are saved.

4. The average size of the Broad Breasted Bronze turkey hens and toms has increased from 14 to over 18 pounds during the past fifteen years. As the average size has increased, there has been a decline in fertility and hatchability. To improve these factors or avoid further decline, it may be necessary to select slightly smaller toms that have better symmetry, action and balance.

5. Range equipment for breeding stock should be portable and the breeders should be kept on good sod by frequent moving. Cleaner eggs will be obtained if the birds are handled in this manner.

6. In a long-time breeding program, there are many factors that should be taken into consideration. Some of these factors are fertility, hatchability, rate of growth, rate of gain, rate of feathering, body confirmation, symmetry, action, early maturity, free from broodiness, egg production, egg quality, and livability.

X. Predatory Animal Control

A considerable number of turkeys are killed annually by coyotes, owls and hawks. An electric fence is fairly good protection against coyotes. Hawks and owls can be trapped fairly successfully.

Recommendation—The committee recommends that more coyote eradication be carried on by government trappers, adjacent to the farming areas in addition to the trapping being done on the remote range lands on the county at the present time.

CHICKENS

I. General Situation

The chicken industry in Deschutes county is mostly limited to the side-line and small flocks. There are very few large egg producers in the county at the present time.

The number of chickens kept on the farm increased from 20,876 in 1920 to approximately 60,000 in 1940, reached a peak of 66,000 in 1943 and 1944, then dropped sharply to 50,000 in 1945. The estimated chicken numbers in 1946 indicates another drop to approximately 40,000 birds kept. The following table shows the number of chickens raised in the county for egg production during the period 1920-1946.

Chickens over 3 months	
1920	20,876
1925	37,335
1930	47,613
1935	40,545
1939	58,000
1940	60,000
1941	60,000
1942	65,000
1943	66,000
1944	66,000
1945	50,000
1946(estimated)	40,000

The 1940 census shows that 806 of the 1047 farms in the county at that time raised chickens, and the 1945 census shows 803 of the 1002 farms in the county at the present time raised chickens. These figures indicate that the chicken industry is fairly stable in the county.

II. What Should be the Trend in Future Production?

The committee recommends that the chicken industry in Deschutes county be limited to the number of chickens that will supply local markets. It is our opinion that the distance from outside markets and competition with other areas more favorably located make the production of commercial eggs, hatching eggs, or fryers in excess of the local market demands unprofitable.

At the present time there are not enough eggs produced during the fall and winter months to supply local market and eggs from outside districts must be shipped in during this period.

In view of this fact, it is believed that some producers would profit by earlier hatching and brooding in order to obtain full production by the first of September. This practice is recommended for those producers having good housing and brooding facilities to handle early hatched birds.

III. Size of Flocks

Farm families will profit by keeping a sufficient number of chickens to supply poultry, meat and eggs for their own consumption. Approximately 25 laying hens is recommended for the family flock.

For the farm that plans a sideline cash income from chickens, the unit should consist of at least 300 to 500 laying hens. A flock of this size will produce enough eggs to make proper storage and marketing of eggs once or twice a week profitable.

Relying on poultry as a major source of income in this county is considered hazardous and unprofitable due to the limited local markets, and is not recommended by the committee. An enterprise of this type requires at least 2,000 laying hens and creates a marketing problem for the operator.

Flocks of 50 to 200 hens should be discouraged. These flocks are too large for home consumption and too small to justify frequent

gathering, proper farm storage facilities, frequent marketing, and other factors necessary to the production of quality eggs. Eggs marketed from flocks of this size are often stale and are a detriment to the industry.

IV. Selecting, Brooding and Rearing Chicks

1. Chicks should come from a pulorum free flock that has been bred for high production and long life.

2. There is some correlation between the type of egg the chick comes from and the type of egg the chicken will lay when it is mature, therefore chicks should come from grade A large eggs.

3. The brooder house should be isolated from the laying house to prevent spread of diseases from old birds to the young stock.

4. No more than 400 chicks should be brooded in one group and at least 50 square feet of floor space per 100 birds is required.

5. Pullets should be provided with green feed throughout the growing period.

6. All range equipment should be portable and moved often to prevent disease. Two acres of range land will care for about 500 pullets during the growing or range period. An additional two acres should be provided so that a two year rotation system can be followed.

V. Care and Management of the Market Laying Flock and Breeding Flock

1. The practice of replacing the laying flock with pullets every year is recommended.

2. Pullets and older birds should never be placed in the same pen because the older birds are often carriers of diseases that may be transmitted to the pullets.

3. Eggs should be gathered at least twice daily. They should be cooled immediately and held at a temperature from 40 to 60 degrees with a relative humidity of 90 per cent to maintain quality.

4. A breeder's ration should be fed to the breeding flock from two to four weeks before hatching eggs are saved.

VI. Selection of Breed

The heavier dual purpose type birds are best suited for the family flock and are recommended for many of the farm flocks.

This report has been prepared and is approved by the following members of the Poultry Committee to be submitted to the Des-

chutes County Agricultural Program Planning and Outlook Conference on January 29, 1947.

Adrian Ruth, Gordon Wilcox, James Elder, Mrs. Ernest Elrod, Lloyd Baker, N. W. Van Tassel, Allen Mills, Herb Owens, W. M. Loy, George Hostetler, Dave Frost, Don Hood, Mr. and Mrs. Carl Ericksen, Bob Hutchins.

**RURAL YOUTH
COMMITTEE REPORT**

According to accurate statistics obtained from the county school superintendent, there are 3282 boys and girls in the county between the ages of 9 and 19 inclusive, at the present time.

The following figures were taken from the recent school census of Deschutes county:

Number of boys and girls in Deschutes county between the ages of 9 and 19 inclusive:

Boys	1714		
Girls	1568		
			3282
Rural Districts		City of Bend	
Boys.....	719	Boys.....	995
Girls.....	640	Girls.....	928
<hr/>		<hr/>	
Total.....	1359	Total.....	1923

It is a known fact that youth must be busy to be happy. The home and community must be a healthy, happy place to live and must provide opportunities to meet work and play together in order to hold the interest of young people.

The committee believes that one of the best ways to guide youth's energies into constructive channels and keep them interested in the community and home is through organizations designed to meet the needs and interests of young people. Several of these organizations are active in the county at the present time.

4-H Clubs

Four-H Club work in Deschutes county is carried on under the direction of the County 4-H Local

Leaders Association and the County 4-H Club Agent. It is a junior extension activity of Oregon State college and is a publicly supported educational enterprise of the United States department of agriculture, state land grant college, state department of education, and the county cooperating.

All boys and girls who have passed their 9th birthday and have not passed their 21st birthday on the first day of November of the current year are eligible for club work. Those taking part are taught, through doing, better practices in agriculture and home economics.

Five hundred boys and girls in the county were enrolled in one or more projects in agriculture or home economics during 1946. This number is less than one-sixth of the boys and girls eligible for club work in the county.

It is the belief of this committee that the 4-H club program should be improved and expanded to include more boys and girls of club age. With these ideas in mind, we make the following recommendations:

1. Leadership

That more adult leaders be secured that are willing to devote some of their time and effort to the leading of a 4-H club. Older 4-H members should be encouraged to assume the responsibilities of assistant club leaders.

There is also a need for more leaders' training meetings to fully

acquaint the leaders with their duties.

2. Obtain Parents' Cooperation and Interest

Many parents do not understand the 4-H club program and therefore do not realize its value to their children. Parents and others can be shown the value of club work by demonstrations given by club members and exhibits of their projects at public meetings. Parents should be invited to club meetings and asked to participate in such club activities as judging tours, project tours, and field days.

3. Acquaint the public with 4-H club work and give recognition to outstanding club members and leaders by:

a. Presenting carefully planned 4-H club programs at grange, service club and community meetings.

b. Radio programs given by club members and leaders.

c. Newspaper articles on achievements and activities of 4-H club members and leaders.

d. More and better public exhibits of club work.

4. Recruit new members by:

a. Leaders and members personally contacting prospective members at school or in the home.

b. Letters explaining the club program and extending an invitation to take part.

5. Improve the County Fair.

The committee wishes to commend the members of the Deschutes County Fair association for their fine cooperation with the 4-H clubs and Future Farmers of America. It is hoped that more adequate buildings and facilities for junior exhibits can be provided at the fairgrounds as soon as materials become available.

The committee recommends that the general conference chairman appoint a committee composed of persons interested in junior activities to work with the members of the county fair association on matters concerning junior exhibits and activities at the Deschutes County Fair.

Future Homemakers of America and Future Farmers of America

The Future Homemakers of

America and the Future Farmers of America organizations are carried on under direction of paid faculty members of the public schools. Although these organizations are a part of the school program, the project work is carried on outside of the schools.

The committee indorses both of these programs and recommends that all eligible boys and girls be encouraged to take part. A brief history follows:

Future Homemakers of America

The Future Homemakers of America is the national organization for girls studying homemaking in junior and senior high schools of the United States and Territories. As an integral part of the program of home economics in the schools of America it offers opportunity for the future development of pupil initiative in planning and carrying out activities related to homemaking.

This is a cooperative, non-profit youth organization that brings together state groups interested in and working toward better home and family living, provides opportunities to share in solving problems important to home life, and sponsors group projects—local, state, and national in scope. It increases opportunities for the development of leadership and intelligent participation so much needed in a democratic society.

A national program of work is developed annually at the national convention. State associations and local chapters may adapt or adopt its suggestions to suit their needs. Activities are planned in order that the goals of the organization may be attained, as well as those of homemaking education.

The Future Homemakers of America have eight purposes, namely:

1. To promote a growing appreciation of the joys and satisfactions of homemaking.

2. To emphasize the importance of worthy home membership.

3. To encourage democracy in home and community life.

4. To work for good home and family life for all.

5. To promote international good will.

6. To foster the development of creative leadership in home and community life.

7. To provide wholesome individual and group recreation.

8. To further interest in Home Economics.

Chapters of the Future Homemakers of America are active in the Bend and Redmond High schools, at the present time, with a total enrollment of approximately 140 girls.

The committee recommends that parents and others take an interest in this organization and develop an understanding of the girls and their problems.

Future Farmers of America

Vocational agriculture was made possible in local high schools by the passage in Congress of the Smith-Hughes Act which was approved in February, 1917. It established a cooperative enterprise between the States and the Federal government. It provides specifically "that such education shall be . . . designed to meet the needs of persons . . . who have entered upon the work of the farm or who are preparing to enter upon the work of the farm or of the farm home."

The local department of vocational agriculture at Redmond Union High school was established in 1919 or 1920. It is on a cooperative agreement between the local school district, the State Division of Vocational education and the Federal department of education. The day school program is set up to provide training in agriculture for all four years a boy is in high school. The training is based upon his supervised farming problems, the problems becoming established in farming, farm shop training, and the various activities, leadership training, parliamentary law practice, public speaking, the annual banquet and many others.

The Future Farmers of America is the boys' organization which took the place of the Ag. Clubs in 1928. It is now a national organization with some 250,000 members. Fifteen thousand gathered at Kansas City this fall for their national convention. A program of

work is in operation for the national association and it is adapted to the conditions of each state and chapter.

The Redmond department of vocational agriculture is serving 65 of the 90 farm boys attending the Union High school. The vocational agriculture instructor works with the young men becoming established in farming and with farmers in adult education work such as farm machinery repair classes and farm night school besides the all day classes of high school students. The last three years it has been his responsibility to supervise the community cannery which has served over 600 families during this period. On a national basis it is recommended that a vocational agriculture instructor's load shall be 40 all-day students, a young farmer class, and a farmer night school or their equivalent.

In view of the circumstances and facts the committee wishes to recommend:

1. That harmony continue between the youth organizations that work with the same individuals. Projects should supplement each other and should not overlap. A farm boy if he wishes can have good project programs in several organizations. It is realized that he may accomplish more in an organization if he isn't working in several others but that is up to the individual.

2. That ample publicity be given vocational agriculture so that every student upon entering high school will already be informed about the program it offers high school boys. This can best be done by (a) contacting the eighth grade boys before school is out in the spring to familiarize them with what it offers. (b) The F.F.A. members talking with these prospective boys during the summer. (c) The new boys be invited to a summer F.F.A. meeting at which time projects and classwork be discussed. (d) Parents being informed about vocational agriculture and the F.F.A. through a circular letter, news stories, radio programs, and programs before all farm organizations.

3. Other vocational agriculture departments be set up in Central Oregon. The Redmond department is over 100 miles from any other department. Bend and Sisters high schools do not draw enough farm boys to make departments practical in those schools. Prineville and Madras are well situated for departments in their high schools and the establishment of these departments would make much stronger vocational agriculture groups in central Oregon. This would add immensely to the general Future Farmer interest to have contacts with other chapters close at hand.

4. That further community support be encouraged. Adult leadership and material aid are very important and more of it is always welcome. It strengthens and increases the interest of the Future Farmers in their program.

5. That the vocational agriculture instructor maintain close contact with former F.F.A. students and other young men to assist them in their problems of becoming established in farming.

6. That a second vocational agriculture instructor be added to the department at Redmond Union high school to assist in improving the quality of the program. A part-time instructor would be of great assistance and would improve the work done here.

Community support of vocational agriculture and the Future Farmers has been good and is greatly appreciated. It would be impossible to do a good job in handling the program without the support of the farmers, the business and professional men of the community.

Boy Scouts and Camp Fire Girls

The Boy Scout and Camp Fire Girl programs are both active in the urban areas of the county. Both of these programs are well adapted to the recreation and social needs of young people living in the more thickly populated areas.

At the present time, there are approximately 400 Scouts and Cub Scouts in eight active troops in the county. Five of these scout troops are located in the city of Bend, while Redmond, sisters, and Lapine each have one troop. Boys over nine years of age are eligible for scout work.

There are between 270 and 290 active Camp Fire Girls in the county at the present time. These girls are organized into 19 different groups in various populated areas of the county. This number could be greatly increased if more leaders were available.

Girls between the ages of 7 and 10 are enrolled into junior Camp Fire organizations called "Blue Birds" and are eligible for regular Camp Fire work upon reaching 10 years of age.

The committee believes that the Boy Scout and Camp Fire Girl programs should be expanded to include more of the eligible youth in the populated section of the county.

Parents are urged to take part in these programs by:

1. Encouraging their children of eligible age to take part.
2. Assuming the leadership of a scout troop or camp fire group.

It is recommended that various community and civic organizations support these programs by:

1. Actively sponsoring a boy scout troop or camp fire group.
2. Supplying leaders for these organizations.

As funds to support the administration of the Boy Scout and Camp Fire Girl programs are obtained through the Community Chest the committee recommends that the public contribute generously to this drive.

The Church and Rural Youth

Dr. Paul L. Vogt, of the United States Department of Agriculture, has said, "The Church is potentially the most powerful agency in rural life today." This statement could be continued to say that the Church is potentially the most influential agency in the life of

rural youth. Although there are many historical examples of the effectiveness of active youth education in country churches, much more will be demonstrated in the next decade, as all churches march abreast with renewed vigor into the rural field.

There is a pressing need for more comprehensive church activity and organization among the youth of this county. Only the church seeks to improve the standard of mutual good will and helpfulness, reaching into the home to give a purity of motive, which in the long run is basic task of all youth work. Deschutes county has a uniquely fortunate situation. Outside the city of Bend, there is practically no denomination competition or overlapping. Each rural district has its community church, which may or may not be affiliated denominationally. Five major kinds of churches have refused to compete in the city of Redmond, and have supported a Community Church. This is unequalled opportunity. This fact, however, must also be stated: a maximum number of youth reached by all churches excepting Bend does not exceed 200.

The youth program, as has been suggested by the International Council of Religious Education and the United Christian Youth Movement, is worked out along the finest principles of education. Based on voluntary expression of interest, and appealing to the natural desire to create, it centers around four major fields in religion: doctrine, stewardship, missionary concern and brotherhood.

Under proper leadership, in organized groups, projects are carried on that are of assistance not only to the church but also the community in a strata of life. This gives strong foundation for developing proper attitudes and making major decisions, that no other type of activity can equal.

We therefore recommend:

(1) To the denominations represented in the county, that they study and take consequent action

in the matter of providing considerable extension to the youth organizations now functioning, and that new programs be started wherever possible.

(2) That proper leadership be supplied by the various churches, whether voluntary or professional. By "proper" we understand to mean that type of leadership which would equal or better that found in larger city churches. We realize that every denomination has a board of Christian education which has funds available.

(3) To the local congregations; that they consider seriously their responsibility to youth, each church holding at least an annual conference on enlargement or improvement of the local youth work.

(4) To the ministerial associations of Deschutes county; and to the ministers or priests not in such organizations; that they consider the statistics in this report and set achievement goals annually.

Other Conclusions and Recommendations

We realize that previously mentioned organizations will not satisfy all youth social and recreation needs. Many young people lose interest in the various youth programs when they reach the age of 14 to 15 years. Statistics obtained from the county judge's office show that moral and delinquency problems are most common with youth between 13 and 18 years of age.

In view of these facts, the Rural Youth Committee endorses that section of the Farm Home and Rural Life Report pertaining to the home and family life.

We also recommend that the local Granges, Farm Bureau and Farmers Union give more attention to recreation programs for farm youth. To do this, the young people must be given a responsibility and a chance to express themselves in order to maintain their interest.

This report has been prepared and is approved by the following members of the Rural Youth Committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on January 29, 1947:

Mrs. Gordon Wilcox, J. L. Jones, Mrs. Walter Prichard, Mrs. Hubert Bartlett, Mrs. H. P. Eby,

Charles Park, Owen Brown, Mrs. John Hansen, Mrs. George Roole, Harold Sasser, Mrs. C. L. Allen, Vern Maggill, Mr. and Mrs. Glen Davis, Stanley Green, Art Foss, Harold Klann, E. E. Varco, Lloyd Baker, Arthur Horsell, R. D. Moore, Mrs. C. J. Dunlap, Mr. and Mrs. Joe Hince, P. M. Houk, Rev. Wesley Baker.

FARM LABOR

COMMITTEE REPORT

A serious farm labor shortage during the potato harvest season in 1946 and to a somewhat lesser degree in 1945 and 1944 that affected 400 farmers of the county has made consideration of this problem by a separate committee necessary. In the opinion of the committee the supply of harvest labor will probably be adequate for the immediate future if housing for the labor is provided.

The extension farm labor office which was set up to handle farm labor recruitment and placement starting in 1944 made 1183 placements during that year, 1938 in 1945 and 3216 in 1946. Nearly three-fourths of all these placements were for potato harvest. During this three year period a total of 218 workers was placed on year around type of farm jobs.

This committee believes that local labor will be adequate to handle the farm work of year-around and seasonal nature in Deschutes county except potato harvest.

Housing

Experience of potato growers the past few years indicates the need for a central labor camp in the area. This committee recommends the action proposed by the Central Oregon Potato Growers association to establish a central camp at the Redmond air base. It is hoped this camp will be used as a receiving station for the transient labor where the labor can be adequately housed while locating on-the-farm housing. In addition to the central camp this

committee recommends smaller camps in communities where the distance is too great for travel to and from the central camp to work.

This committee does not recommend a labor camp as a substitute for on-the-farm housing but as a supplement to it. The committee wishes to point out that in many cases labor has been adequate, even during the past three years, on farms where housing has been provided. We recommend housing on the farm for any grower who intends to grow 20 acres or more of potatoes or other crops having similar labor requirements for harvesting.

Many farmers in the county whose operation requires year-around farm help do not have suitable living quarters for this help. This committee recommends better farm housing for this type farm help and recognizes that housing of the past will not be suitable for the future. Frequently, the better the housing available the better labor attracted.

Uniform Wages

This committee believes now that labor stabilization laws are no longer in effect, for the best interests of both labor and the farmers, that an effort should be made to establish uniform wages for seasonal work for this and competing areas. This will be particularly true for potato harvest and this committee recommends the Central Oregon Potato Growers association continue to establish a recommended potato har-

vest wage rate prior to each harvest season.

School Cooperation

Cooperation from school authorities was excellent during the potato harvest seasons during the war and this committee believes they will again be willing to cooperate if the need arises. Hundreds of acres of potatoes were harvested during the war as a result of this cooperation that would likely have been lost if school youth had not helped. This committee believes if large numbers of students are needed in the future for farm labor for more than a week that school should not be closed longer than this and that only the schools that have a substantial predominance of farm students should close at all. In place of closing school for more than a week this committee recommends only those who are willing to work and who have a job be excused from school.

The following table gives the number of youth who performed seasonal farm work during the past three years:

Year	No.	Pct. 16 or younger
1946	1278	68
1945	315	82
1944	365	37

Social Security

It is recommended by this committee that all farmers and farm labor become acquainted with the Federal Social Security law and its benefits. The committee believes more information should be

provided regarding this law to the farmers and farm laborers in the county.

Labor Saving Equipment

Labor saving equipment has been instrumental in reducing labor requirements to some extent. The committee believes that many farms could reduce haying labor needs by eliminating hand labor in this crop harvest.

Potato digger-sacker equipment used quite extensively during the war years are not recommended when an adequate supply of labor is available. Injury, losses of marketable potatoes through the machine, rocks, clods, and weeds make these machines impractical in most instances.

Where the size of operation would justify purchase of a two row potato digger this equipment results in providing better conditions for pickers. Pickers' efficiency is increased by this method, and, therefore, cost of harvesting should normally be reduced. More of this type equipment is recommended for the larger growers of the county.

This report has been prepared and is approved by the following members of the Farm Labor committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on January 29, 1947:

Lee Allen, E. H. Young, Fred Hodecker, Pete Hohnstein, M. K. Baessler, Fay Young, Ben Davidson, Lloyd Parker, Franklin Nolan, Frank Meeker.

GENERAL LIVESTOCK

COMMITTEE REPORT

Since 1935 the income from marketings of sheep, hogs and beef cattle has accounted for about 20% of the agricultural income of the county and has been about equal to income from dairying. During that time beef cattle numbers have increased but sheep numbers have decreased to at least partly balance the livestock

numbers. In 1944 these livestock accounted for \$735,880, or 21.9% of the county agricultural income.

Large quantities of alfalfa hay have been exported from the county the past three years. The livestock committee believes this is partly due to a decrease in feeding of beef cattle and lambs

and this has been due to unfavorable feeder cattle and lamb and feed price ratios.

The following is a table of live-

Livestock Numbers, Deschutes County, 1920—1945						
Livestock	1920	1930	1935	1940	1942	1945
Beef Cattle	3292	1203	1250	1489	1800	3738
Sheep	13192	27353	32605	12794	15000	6109
Brood Sows	286	208	286	630	900	429
Hogs	1774	1766	2331	3350	4700	3110
Dairy Cattle	1889	4522	4500	4254	4800	3848
All Cattle	11616	10563	9801	10243	14000	14441
Horses	3481	3070	2944	2723	2850	2094

BEEF

The numbers of beef cattle have increased rapidly in the past five years in Deschutes County from 1489 in 1940 to 3738 in 1945. This increase has been due to beef cattle replacing sheep on the range areas of the county and to beef cattle being raised on many farms in place of dairy cattle.

We believe there should be no further expansion of beef cattle numbers in the county except as feeder cattle. Expansion of cattle numbers is at present resulting in overgrazing practices on much of the Taylor Grazing lands. This overgrazing is due to cattle grazing year-round or too early in the spring and too late in the fall. All stock should be kept off the range until the grasses have had a good start in the spring.

Feeding

This committee recommends the feeding of beef cattle as a profitable enterprise for this county and points out some of the advantages of livestock feeding in the county.

1. At present a large surplus of excellent quality alfalfa hay.
2. Dry and relatively mild winter weather.
3. Close proximity to supply of feeding cattle—saving in cost of transportation.
4. Close to market at Portland with advantage of having diversion privilege to other markets.
5. Small amount of equipment and facilities necessary for feeding operation.
6. Feeding can be done during winter months and therefore permits better labor income or labor distribution.

stock numbers for Deschutes County for 1920 to 1945 which indicates changes that have occurred:

7. Retains the fertility of the farm land by returning valuable fertilizers in manure to the soil.

In addition to winter feeding we recommend the practice of buying cows with calves or yearlings in the spring to pasture on irrigated pasture until fall. It would not be profitable to keep these cattle beyond the good pasture season, except as feeder cattle. An acre of ladino clover-grass pasture will produce about 450 pounds of beef per acre. A beef animal can be expected to gain one and one quarter to one and one third pounds daily on pasture alone. With 3 to 4 pounds of grain daily the gain can be expected to reach one and three-fourths pounds daily. In addition to the gain the original weight can be expected to increase in value through feeding at about 2c or more per pound.

Management

Due to high costs of land, hay and grain on irrigated farms in this county this committee is of the opinion that the raising of beef cattle breeding stock on small farms will not be in a favorable competitive position with large breeders in the future.

The beef committee wishes to commend the practice of livestock associations requiring that only registered bulls be permitted on the ranges of these associations.

In view of the low percentage of all cattle that are reactors to Bangs disease in the county, we recommend the beef operators cooperate with the dairymen in making this county a Bangs disease accredited free area.

Marketing

A cooperative livestock shipping association should be given the consideration of any small livestock producer in the county. In view of the large number of operators who do have only a few head of stock to market at a time, this committee believes such an association would benefit the livestock producers.

SWINE

We believe, inasmuch as Deschutes county is a concentrate feed importing area, that hog numbers should be maintained at a level which is based on utilization of farm wastes. In this connection the committee points out one hog can be kept on the garbage from the average family and where skim milk is available one hog can be kept for every cow milked.

Due to the minor importance of the swine enterprise on most farms the committee believes too little attention is given to good breeding stock. To be an economical enterprise consideration must be given to proper management and good breeding.

Feeding and Brooding

The feeding of cull potatoes offers a satisfactory substitute for grain. Four hundred to four hundred twenty-five pounds of cooked potatoes will replace 100 pounds of grain. One pound of grain should be fed with each 3 to 4 pounds of potatoes.

More economical gains are quite often obtained by feeding a good, mineral mixture. The committee recommends this practice of feeding minerals to all hogs raised. Equal parts of limestone, sterilized steam bonemeal and salt has been a recommended mixture that has been effective in supplying requirements. A good legume pasture will reduce the amount of grain required to produce a pound of pork by one-fourth to one-third. Cost of production figures indicate that it will require 950 pounds of grain or its equivalent to carry a sow and litter from the time she is bred until the litter is weaned.

Also it requires 710 pounds of grain or its equivalent to carry a 30 pound weaner pig to the weight of a 200 pound market hog.

This committee cannot emphasize too much the importance of providing good buildings and equipment for brooding since the success of the hog enterprise depends so much on obtaining and saving good sized litters. The use of electric pig brooders is important in this connection and is recommended. Supplemental creep feeding of the pigs will make a more profitable feeder pig and is endorsed by the committee.

Losses from internal parasites and diseases have been important and can be reduced by most growers by following strict hog-lot sanitation, pasture rotation and treatment of hogs carrying internal parasites.

SHEEP

We are of the opinion that income from the sheep enterprise compares favorably with other livestock enterprises in this county.

Sheep numbers have declined sharply from a peak of over 32,000 in 1935 to present numbers of 6100. This reduction has been due primarily to nearly all range sheep operators having either changed to other livestock or having gone out of livestock business.

In addition to income from sheep raising being comparable to other livestock, the committee believes that sheep utilize pastures that other types of livestock would not be profitable on. The committee does not recommend sheep be run with other livestock in the same pasture at the same time, except in cases of only a few head.

Wherever possible, operators are advised that pasturing on a dryland pasture is beneficial if only for a short period of time. The sheep will do better on irrigated pasture or in the feed lot after having been run on dryland pasture regardless of the quality of the pasture.

The committee believes the minimum number of sheep kept

is determined by the number of ewes that can be bred by one ram. This should be about 40 head. With this number the operator can afford to buy a good ram.

As with other types of livestock the committee wishes to emphasize rotation grazing of irrigated pastures as essential to the success of the enterprise. Five head of ewes and their lambs are equivalent to one cow for pasture requirements. In addition to obtaining better yields from proper pasture rotation the palatability seems to be improved.

Marketing of lambs has been a serious problem to the farm flock sheep raiser in the past. Recognizing this problem, the sheep raisers organized the Central Oregon Shipping Association and the past two years have pooled lamb and sheep shipments to central market. This shipping association has practically solved this problem and this committee, recommends this method of marketing to all small shippers in Deschutes county.

The committee believes that standardization on a few breeds raised would result in more uniformity of marketable sheep, lambs, and wool and result in a marketing advantage. It is recommended that more attention be given to the selection of good

Range operators in the past have indicated a preference for rams grown in this area and we believe there is some opportunity for the raising of rams. The preference of the buyers should be considered before establishing this type of sheep raising enterprise.

rams for use in the farm flocks. Rams raised in this area have produced better lamb crops the first year used than rams imported from west of the Cascades. This has been attributed to the imported rams not being accustomed to this climate.

Lamb feeding has been profitable to the experienced feeder in years past in this county and the committee believes there is opportunity for this type feeding again because of same advantages

listed in the beef section of this report.

The amount of hay required to properly winter sheep in this county is 300 pounds per head. One-fourth pound of grain per head per day should be fed for 30 days following lambing. Screenings from clover seed cleaning plants, properly hammered to prevent germination, with molasses added, makes a good supplemental feed for ewes.

The livestock committee recommends formation of sheep growers association in central Oregon to assist in handling problems relative to marketing, shearing, breeding stock selection, predatory animal control and breed standardization.

General Recommendations

1. In view of the fact that cattle from Deschutes county are pastured in areas where cattle from several other counties are pastured, this committee recommends a uniform, statewide Bangs disease control program be enacted.
2. To further disease control work in Deschutes county and to coordinate the activities of various agencies and persons working with this program this committee recommends the general chairman of the conference appoint a permanent county livestock disease control committee.
3. This committee recognizes the value of record-of-performance breeding and recommends this program to the breeders of purebred livestock in Deschutes county.

This report has been prepared and is approved by the following members of the General Livestock Committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on January 29, 1947:

Ellis Edgington, Friday Holmes, B. C. Allen, Harry Windom, C. C. Barnum, Vernon Peck, John Manning, John Snyder, John Bradetich, Joe Howard, Jim Newbill, Ray Knowles, Earle Hallock, Wm. Horsell.

LAND USE

COMMITTEE REPORT

For more than 15 years prior to 1944 the income from farm marketings was divided in Deschutes County at about 70% from animal products and 30 per cent from farm products. In 1944 the total farm income for the county was \$3,356,540. For the years 1944-46 the income from crops increased 10 to 12% and animal products income decreased a like amount. The committee believes the crop-livestock programs in the county have been out of balance during those years and that a sound program of livestock and crops will return the county income from livestock and crops to the balance that existed prior to 1944.

Land Resources

Of the total land area of the county of 1,961,600 acres only 22.7 per cent is privately owned. Of the privately owned lands only 7.3 per cent is in farms and only slightly more than one-third of this is improved cropland.

Of the public lands national forest and other federal lands make up 70 per cent of the county total, county-owned 5.6 per cent, and state-owned 1.5 per cent.

Until 1946 the total area of improved land had remained approximately the same for about 25 years. In 1946 many acres were being improved due to a water rights survey scheduled for 1947. The number of farms in the county has remained at about 1000 for several years with an average size in 1945 of 262 acres total land per farm and an average of about 60 acres cropland per farm.

Types of Farming

Farming in Deschutes county is of diversified nature. Commodities accounting for seventy-five per cent of the average value of farm marketings (cash income) in Deschutes county in order of importance during period of 1936-1940 are as follows: milk production, turkeys, potatoes, alsike clover seed, cattle and calves. During the war-time period there were some shifts in the order of

importance due to price differentials and war-time demands. However, the above six commodities will include the major part of farm income for Deschutes county farmers. Other products produced in Deschutes County accounting for approximately 25 percent of the total income and listed in approximate order of average value of farm labor are as follows: hogs, chickens, eggs, sheep, lambs, wool, hay, Austrian winter pea seed, farm forest products, wheat, oats, barley, red clover seed, rye, hairy vetch, strawberries, ladino clover, fur and game, apiary products, truck crops, apples, gladiolus bulbs, red raspberries, peppermint, crested wheat grass, Grimm alfalfa seed, cut flowers and nursery crops.

The chart of page 39 shows Deschutes county farm marketings from 1926 to 1942. The diversified nature of farm production in the county assisted in maintaining agricultural income during 1936-1940.

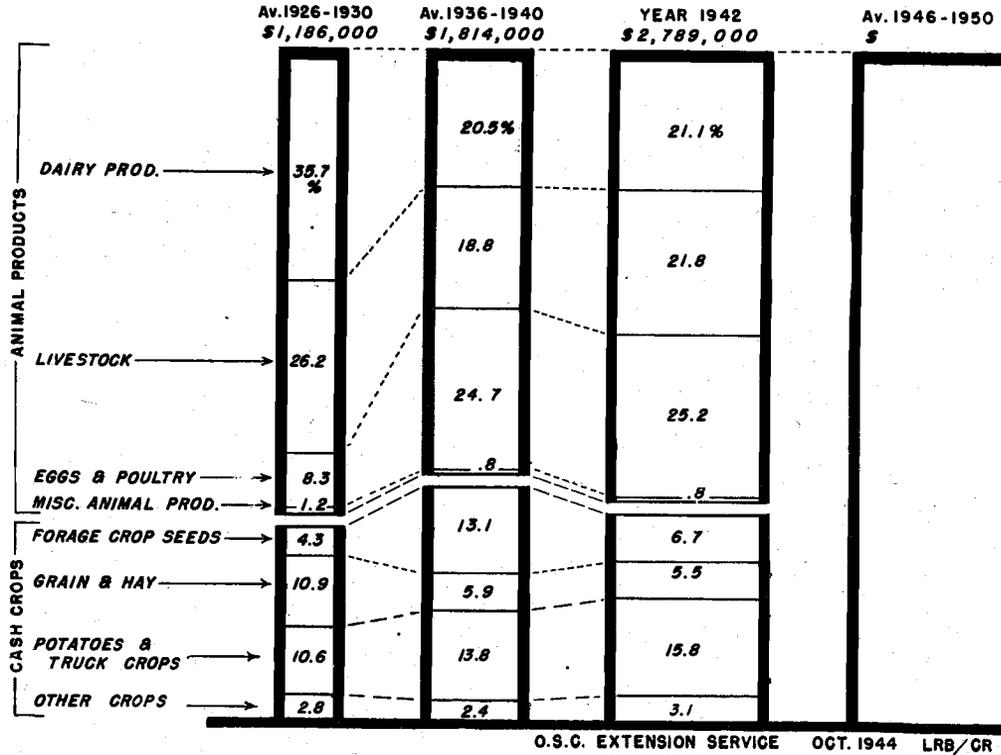
Size of Farming Unit

Recommendations are made on the basis that prices for farm produce remain in the same relative position as they now occupy in relation to prices paid for manufactured goods. Prospective farm purchasers should analyze the productive capacity of the land to ascertain if the farm is an economic unit and capable of providing sufficient net income to furnish an average standard of living and at the same time retire the farm debt in a reasonable period.

Diversified Farming Unit.

This type of farm requires a minimum size farm of sixty acres, fifty acres irrigated and under cultivation. Enterprises would include dairy, poultry, or turkeys, hogs, as well as field crops, including clover seed, alfalfa hay, grain, potatoes, and irrigated pasture. The livestock and crop enterprises should be balanced so as to provide for efficient use of operator's labor and the land.

DESCHUTES COUNTY FARM MARKETINGS



LAND USE—(Continued)

Potatoes, hay, grain, and field seed farming units.

The minimum requirements for this type of farm should be 120 acres, ninety irrigated and under cultivation. Less than this acreage cannot be operated economically because of the need for power machinery for planting and harvesting.

Dairy Farm.

A minimum of sixty acres irrigated crop land is necessary to maintain a dairy herd of from fifteen to twenty cows. Part of this acreage will be devoted to hay and grain and the balance to pasture. The use of alfalfa hay and irrigated Ladino clover pasture will be essential to the success of the enterprise.

Turkey Production.

The turkey enterprise is a good one to combine with other enterprises. This is particularly true for the inexperienced operator. The committee believes that only the most experienced operator should have turkeys as the sole enterprise. One man can care for a flock of 3500 market birds.

Small Fruit.

The production of everbearing strawberries and raspberries both for fruit and plants has been a profitable enterprise on many farms in Deschutes county. This project is particularly well adapted to small farms where intensive production is necessary. The quality of the fruit produced from the everbearing varieties is excellent and there are possibilities of developing outside markets which at present are limited.

Stock Ranch.

The minimum requirements should be:

(1) **Beef Cattle.** 200 head of stock. A herd of 100 breeding cows is recommended. The farm should have enough acreage to produce 200 tons of alfalfa hay per year and have 8,000 to 10,000 acres of range land. The range land can either be owned, leased, or consist of grazing rights.

(2) **Sheep.** To go into the range sheep enterprise, the operator should have 1,000 breeding ewes, sufficient land to produce 100 tons of hay, and access to ap-

proximately 8,000 acres of range land or more or less depending on carrying capacity. The range land may be leased land owned or available for use by grazing rights.

Economic Farm Unit

In the committee's opinion, an economic farm unit should meet the following requirements:

(a) Provide for a balanced labor program which would permit full time employment in productive farm work.

(b) Provide sufficient income for a reasonable standard of living.

(c) Provide a balance of crops which will permit efficient use of machinery.

(d) Provide enough crop land to permit rotation.

Operator's Labor Income

The committee believes that Deschutes county full-time farmers should receive a minimum operator's labor income of \$1,600.00. Included in the operator's labor income would be the value of farm products used at home.

Part-Time Farmers

The committee believes that small tracts of land devoted to crops do not justify the ownership of proper power equipment for efficient operation and frequently the equipment costs more to operate than the value of crops grown. Therefore, the committee believes that the part-time farm should be confined to the country home and garden type.

Additional Farmers

Retirement of present farmers following the war should permit one hundred new operators as replacements. Another one hundred new farm workers can readily be absorbed by present farm operators. Subdivision of large farms and the clearing and irrigation of undeveloped lands should provide family size farms for twenty new farmers.

Farm Financing for Newcomers

It is recommended that the newcomers to Deschutes county rent or work for an established farmer for at least one year before purchasing a farm. Owing to varying farming conditions encountered in Deschutes county, it

is further suggested that prior to purchasing a farm the buyer should consult with the County agricultural agent, farm organizations, and leading established farmers, as to productive capacity for suitability of the farm for the type of farm contemplated. Returning veterans interested in agriculture should contact the Agricultural Veteran's Advisory committee (the county agent is secretary of this committee).

To newcomers desiring to purchase a farm and having no previous experience in this area, it is recommended by the committee that the prospective purchaser have sufficient **cash on hand** to purchase stock and equipment, and to cover one year's operating expense, plus fifty per cent of the land purchase price. For prospective purchasers who have worked on a farm in Deschutes county for one year, or rented a farm for one year the committee recommends that the purchaser have sufficient cash on hand to cover twenty per cent of the cost of the land and fifty per cent of the cost of the machinery, equipment and cover operating expenses for one year.

This recommendation is made on the basis that prices for farm produce remain at the same relative position as they now occupy in relation to prices paid for manufactured goods.

The land use committee believes purchasers of farms should consider real value rather than present value when considering buying a farm.

Irrigation

It is the belief of this committee that irrigation farming in Deschutes county is a proven success, in view of the fact that production has gradually increased up to the present time, and income from farm products are sufficient to support good farm home and sustain agriculture on a permanent basis, that many more farm homes can be added by the application of additional water to what is now raw land, and that not all the existing farms have sufficient water to produce maximum crops during period of maximum use.

We find that enormous losses of water occur at the source of supply and after diversion into the canal systems. These losses we find occur as follows: Reservoir losses 40,000 acre-feet annually; river losses in a ten year period 582,000 acre-feet and during an irrigation season of seven months 45,000 acre-feet, and that during the five month non-irrigation period 120,000 acre-feet is lost annually in the unused water that flows past Bend and the Irrigation canal diversions. Canal system losses vary 33 to 40 per cent of the amount diverted.

In view of the above facts and the fact that water resources are considered by the highest authorities of the land to be the most valuable remaining natural resource of the west, we insist that these losses and wastes are inexcusable and should not continue, but should be reduced by an amount consistent with cost and applied to beneficial use on irrigable lands.

We accordingly make the following recommendations:

1. Action with all speed should be taken to stop the reservoir losses, providing this can be done economically, and if not, another location be sought for storage.

2. Some practical plan should be evolved to coordinate the operation of the reservoirs so savings may be made by withdrawing the water from the reservoirs first, that have the greatest losses.

3. Investigation should be made of the possibility and cost of saving losses in the Deschutes river, and if this saving can be made within reason, the water saved revert to the river, and be distributed in accordance with adjudicated priorities.

4. In view of the fact that there is a large flow of water in the river running by the canal diversions and being wasted, we believe that a reservoir should be constructed if a suitable location can be found to capture this water now wasted, and to serve as a control for handling storage water from the other reservoirs on the upper river. We recommend that the Reclamation Bureau proceed

with all haste with investigations of feasibility of new reservoir sites, and if found feasible positive action be taken toward their construction.

The lack of storage for the Squaw Creek irrigation district is a serious threat to crop production some years. This committee recommends further studies be made relative to possible storage sites for that district.

As to the canal system losses, systematic action should be taken to determine the amount and isolate the places of greatest loss, and a program initiated to effect a substantial saving.

Losses on the farm we find are from two causes: Loss in transmission and in application. These are caused by improper layout of ditches as to gradient and size, improper structures and lack of uniformity of land being irrigated. To improve this situation we recommend that irrigation ditches, flumes and control structures on the farm be laid out, constructed, and maintained on proper hydraulic principles, and the land leveled to facilitate economic application of the water.

The services of the Soil Conservation Service should be utilized for this purpose by the organization of Soil Conservation Districts wherever the benefits justify.

We are unable to state any amount of water that can be saved by these improvements in the canal systems and on the farms, but we are convinced beyond any question that great values and benefits may be realized in return for any intelligent effort toward making these improvements.

Soil Conservation

In view of the shallow depth of much of the farmland in Deschutes county the problem of water erosion should be given careful consideration where lands being irrigated are sloping. Many of the sloping areas could best be kept in permanent pasture and the committee recommends this practice before serious soil losses occur on the upper portions of such areas. This committee recommends that demonstrations be

established in several communities on contour planting of cultivated crops.

The land use committee recognizes the value and benefits of the Deschutes county agricultural conservation program in past years in encouraging soil and water conservation in the county. The committee recommends all farms except the country home and garden type cooperate in the program. The committee is of the opinion that more cooperators in this program should practice weed control and eradication and reorganization of irrigation system practices on their farms.

In consideration of the benefits in soil and water conservation from the county conservation program the land use committee recommends that this type of program be continued indefinitely in the county.

This committee recommends that the intensive soil survey for this county which has been completed be published as soon as possible.

Soil Conservation Districts

After careful consideration of the Oregon soil conservation districts law and a visit to the South Wasco Soil Conservation district, this committee recommends eventual formation of soil conservation districts in the Alfalfa and Redmond areas and in the area west of the Deschutes river including the Tumalo and Squaw Creek irrigation districts.

In the opinion of the committee the formation of these districts would assist in solving common problems in these areas relative to the following:

- (1) Furnish technical assistance in land leveling and drainage.
- (2) Water losses in canals and on farms.
- (3) Soil losses on sloping lands.
- (4) Reorganization of irrigation systems.
- (5) Application of soils information from the soil survey including a classification of soils according to their best use.

Forest Cut-Over Land

Cut-over lands in Deschutes county are more valuable for production of timber and water

shed protection than for any other purpose.

Light selective logging of ponderosa pine stands leaves lands at highest state of productivity when only from 40 to 60 per cent of the original stand is removed. There are approximately 110,000 acres of light selectively logged land in Deschutes county. Under this system of cutting, timber is harvested in successive cuts at 40-year intervals. Only the mature and over-mature timber is removed in each cut.

Clear cut lands, of which there are approximately 245,000 acres in Deschutes county, cannot be cut to yield another crop of timber until approximately 150 years have elapsed since the original logging, and a percentage of these clear cut lands will never produce another crop of timber unless a planting is made. Tree planting of ponderosa pine is expensive, and has not been practiced by private timber land owners.

Under the light selective logging system of timber harvesting, the grazing values of the timber land are maintained. Timber lands, including both virgin timber and cut-over lands in this county, are leased for grazing at rates from two to three and a half cents per acre for the grazing season. National forest grazing fees produce even a lower revenue. Taxes, including the fire patrol tax, (even when the land is under the State Reforestation Act) are far in excess of grazing revenue. Cases can be cited where stockmen have found it not profitable to hold cut-over lands for grazing in this county.

The land use committee recom-

mends the sustained yield basis of logging and that every reasonable effort be made to reestablish timber stands on the large area of clear cut timber lands in the county.

Taxation

In view of the fact that 77.3% of all lands in the county are public lands this committee recommends that all income producing federal lands in the county be required to contribute a part of this income to the county. This committee also wishes to point out a hardship is often worked on the county tax and budgeting bodies due to extremely variable income from federal forest service lands.

This committee recommends there be no real estate tax for state purposes.

Farm Home and Rural Life

The land use committee recognizes the importance of a good farm home and a happy and wholesome rural life to successful agriculture and wishes to endorse the reports of the Farm Home and Rural Life and Rural Youth committees.

This report has been prepared and is approved by the following members of the Land Use Committee to be submitted to the Deschutes County Agricultural Program Planning and Outlook Conference on January 29, 1947:

H. P. Eby, Fred Shepard, James Underwood, W. Boyd Simmons, John Hohnstein, George Elliott, C. L. Allen, W. W. King, J. W. Schrunk, Joe Henry, Don Ferguson, R. R. Mitchell, Albert L. Shults, Ralph Crawford, A. Christianson, Stanley Green, K. E. Sawyer, Aubrey E. Perry, Olaf Anderson, Ashton Foerst.