Report of the

LANE COUNTY AGRICULTURAL OUTLOOK CONFERENCE

Conducted In
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FOREWORD

This report is published as a result of a resolution unanimously adopted at the final session of the 1936 Lane County Agricultural Economic Conference. The resolution directed the publicity committee to devise ways and means and print the reports of the various committees, if possible. The publicity committee met a generous response to their request for assistance in publishing the reports.

Publication of this report has been made possible by the cooperation of The Eugene REGISTER-GUARD, which first published the complete committee reports and then saved and donated the type to the committee, and to the following business concerns and organizations that contributed cash: Lane Pomona Grange, Lane County Court, Lane County Fair Board, Lane County Bankers' Association, Swift and Company, Eugene Mill and Elevator Company, Eugene Farmers Creamery, Eugene Fruit Growers Association, Pacific Cooperative Poultry Producers, Chase Gardens, R. A. Babb Hardware Company, and Booth-Kelly Lumber Company.

The conference was planned and conducted by the Lane County Agricultural Council cooperating with the Extension Service of the Oregon State Agricultural College. The purposes of the conference were (1) to gather accurate and detailed information on the local and national phases of agriculture and horticulture, (2) to present this information in concise and definite form, and (3) to draw conclusions from and make recommendations based upon the assembled facts.

Recommendations of the conference constitute the best opinions of committees made up almost entirely of representative and practical producers, and constitute, in the aggregate, a program for the guidance of Lane County agriculture. The committee reports were presented and adopted at general sessions of the conference held in the Eugene Chamber of Commerce rooms on January 14 and 15. More than 250 farmers participated in the event.

The various committees put painstaking effort into the preparations for this conference. Notwithstanding this fact and the fact that the best available data was at hand, as indicated, to aid in the formulation of conclusions, the recommendations herein set forth should not be considered as final. It is not assumed that farmers will completely change their systems of farming each year to meet changing conditions. On the contrary, there should be greater stability, more gradual adjustment, and less violent fluctuation.

It is hoped that all persons interested in the agriculture of Lane County will individually and through their organizations study the group reports that make up this publication and use them as a guide for the best development of the agricultural resources of Lane County.

F. B. HARLOW, President,
F. D. PETZOLD, Secretary,
Lane County Agricultural Council.
O. S. FLETCHER,
County Agent and
General Conference Secretary.

REPORT OF THE COMMITTEE ON AGRICULTURAL ECONOMICS

The Agriculture Economics committee considered five topics which are believed pertinent to the economic betterment of Lane county agriculture. These topics are:

(1) Land Utilization and Use.

(2) Farm Organization and Practices.

(3) Agricultural Credit.

(4) The Demand and Supply Outlook.

(5) The Farm Home.

The observations and recommendations of the committee on these topics are as follows:

Land Utilization And Use

1. Lane county now owns in excess of 20,000 acres of tax title lands and there are prospects of additional acreages being acquired. It is recommended that prior to sale of this land to private individuals for agricultural purposes this land be classified by a public agency to determine its suitability for development into farm units and that this classification take into consideration the influence which settlement will have on costs for roads, schools, relief and other public services.

2. The number of farms in Lane county has multiplied approximately four times during the past 55 years. This has occasioned a decrease in the total acres per farm from 301 to 113 acres and in the improved acres per farm from 191 to 36 acres. It is believed that settlement during the next few years should be restricted largely to the better types of land or where irrigation may be developed. It appears likely that the size of farm will tend to become larger on the poorer types of land.

3. From 35 to 50 per cent of the present farms in Lane county appear to be part-time farms due to the fact that the farm income produced is insufficient to maintain a reasonable standard of living. This committee believed that part-time farms should largely be confined to the country home and garden type. Small tracts of land devoted to general crops do not justify the ownership of proper power and machinery for their operation and frequently cost more to operate than the value of the crops produced.

4. It is recommended that newcomers to Lane county rent or work for an established farmer for at least one year before purchasing a farm.

Owing to the varying soil conditions it is further suggested that prior to purchasing a farm the buyer consult with the county agent, co-operative farm organizations and leading established farmers as to the productive capacity and suitability of the soil for the type of farming contemplated.

5 Agriculture and lumber manufacturing are Lane county's principal industries. The relation of forestry to the agriculture of Lane county is realized when it is known that the timberlands of the county cover 88 per cent of its area and the improved agricultural lands 6 per cent. Of this 88 per cent the commercial forests occupy about 73 per cent and the protection forests and contiguous wastelands about 15 per cent.

The chief purpose of the protection forests should be to safeguard the water supply for municipal power and irrigation use and to provide for recreation. They include some of the best recreational areas of western Oregon and are a real asset.

The commercial forests are and will be the backbone of the forest industry of the county. If placed under sustained yield management, which simply means cutting as fast as grown, they will produce a cut of over 700,000,000 board feet of timber annually. This is about twice the present cut and normally would represent an income of $10,800,000 yearly of which labor would receive about $7,020,000, or 65 per cent. At an average annual wage of $1500 the forests would provide for employment for about 4680 people. This employment would be a real factor in increasing the home market for farm products.

We believe it is essential that forestry be understood and considered together with agriculture in charting the future courses of agricultural development. The placing of our forests under sustained yield management is of primary importance and we

recommend earnest consideration of the following adjustments so that this may be accomplished:

1. Tax adjustment on private timberland so it can be held for long periods of time.

2. Long time financing of private timberland at lower rates of interest.

3. Blocking out sustained yield units by purchase or agreement.

4. Better fire protection of cut-over land and immature timber.

5. Development of sustained markets.

It is further recommended that forestry and agricultural research agencies consider the problem of seeding cut-over lands to grass for grazing purposes in order to promote the livestock interests of Lane county.

Farm Organization, Practices

1. There is need in Lane county for improving the breeding of livestock and standardizing the varieties of crops in order that high yields which are conductive to good profits may be obtained. Cull livestock and low producing crop acres must be eliminated from production if farming is to be profitable.

2. Farmers should adapt their type of farming and crops to the soil types of their farm, and also to their aptitude for carrying on certain types of farming.

3. It is recommended that regardless of the type of farming engaged in farmers should bend every effort toward acquiring enough land to constitute an economic farm unit. Such a unit should:

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

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

(3). Provide a balance of crops which will permit a full use of machinery.

(4). Provide enough crop land to permit rotation.

4. It is recognized by the committee that farming as a long time business is heavily dependent upon the fertility of the soil. The committee recommends therefore, that regardless of the type of farming followed it should be so conducted that the soil fertility will be maintained or preferably increased.

5. It is believed that farmers must exert themselves toward producing and selling a better grade of product if they are to expect profitable returns. Quality is likely to be a deciding factor in determining the saleabilty of farm products durng the next few years.

Agricultural Credit

The following recommendations concerning agricultural credit are necessarily of a very general nature because of the great variety of circumstances and conditions of farmers which bring about the need or apparent need for borrowing money.

1. It is believed that the present upward trend in prices may induce some farmers to seek funds for expansion of their present farming operations. Unless such expansion will increase the efficiency of the farm operation as, for example, by providing a more balanced labor program it is believed that farmers should use extreme caution in such expansion, particularly if they are in debt at the present time. It would appear to be a desirable practice to attempt liquidation of present debts as rapidly as possible.

2. Many newcomers to Lane county are seeking farms to purchase. It is the opinion of this committee that in most instances a prospective land purchaser should have stock, equipment, cash for one year's operating expenses, and 50 per cent of the land purchase price before attempting to become a farm owner. Moreover, in purchasing a farm extreme care should be taken in analyzing the productive capacity of the land to ascertain if the farm is an economic farm unit which will return sufficient gross income to provide a reasonable standard of living and retire the farm debt in a reasonable period. A farmer whose income from his labor is larger than the average, that is for instance a truck farmer, can ordinarily carry or assume a larger debt proportionately than the average.

3. For long term loans forming a part of the farmers capital structure, a federal land bank loan is usually most desirable. For shorter term credit for the production or harvesting of crops, feeding of livestock and

other temporary requirements local bank credit is desirable If local bank credit is not available such short term loans may be obtained from the Willamette Production Credit association, with headquarters at Salem.

4. The rural rehabilitation division of the resettlement administration, a government agency, with local offices in Eugene, is at the present time lending money to established farmers who are in distress financially and cannot obtain commercial credit. Such loans are made for two to five years against chattel or crop security. or a combination of such security.

5. It is recommended that the financial interests of Lane county make available a fund at an attractive rate of interest to be loaned to boys and girls engaged in Four-H projects for the purchase of purebred livestock, poultry and certified seeds. This fund to be used for the encouragement of the Four-H club members and the general improvement of livestock and crops in Lane county.

Demand, Outlook Situation

1. Considering the outlook data on prices of farm products, as prepared by the Oregon State Extension service, the trend of farm prices since the 1910-1914 base period has been upward until a high peak was reached during the World war. Following the war the trend of prices was sharply downward for a few years. Then prices again swung upward, with some fluctation, until the peak of 1929.

Beginning in 1930, prices again dropped rapidly until 1933 but since that time have shown a slight upward trend.

In 1910-14 period the costs of farming, including land value, interest, and taxes, were on a level with farm returns. The present situation is that costs of farming, including land values, interest and taxes, are appreciably higher than the prices received for farm crops. Thus, while prices paid the farmer in 1935 are in many instances on a higher dollar level than those of 1910,14, his economic position is not so favorable.

The farmer now finds himself in a more favorable position than during the 1926-30 period, for while the 1926-30 period showed a more favorable relation between prices paid for commodities and prices received than is now the case, war-time interest and taxes still prevailed throughout that period, placing an excessive overhead load on all farm operations.

In our opinion the trend of factors determining farm profits for the next few years will be as follows:

Prices paid for commodities—upward.

Prices received for crops—slightly upward.

Taxes on land and personal property—decidedly upward.

Interest—stationary.

Farm wages—slightly upward.

In view of these trends we do not see in the future outlook for the next few years any assurance that the two curves representing costs of farming and prices received for farm products respectively will draw closer together.

2. Snce 1910, the following factors entering into farm production, namely: commodities purchased by farmers, farm wages, machinery and building costs, taxes and interest have roughly followed the general trend of business. These two trends have adhered closely together with the exception that interest and taxes failed to respond to the downward trend immediately following the war-time peak of 1920. Interest and taxes however, have participated in the general downward swing since the high peak of 1929. At the present time, with the exception of farm labor, all farm cost items are substantially above the 1910 level and also substantially above prices received by farmers. Your committee feels that the farmers' rate of interest on borrowed money may remain stabilized at its present level, but that other costs will advance rather sharply.

It is believed that one of the primary objectives of the farmer for the next few years should be to reduce his indebtedness to an amount which can be easily carried. Capital borrowings should be limited to an amount within the certain productive capacity of the farm. Production loans should be limited to such crops as have a reasonable certainty of liquidating the loans against them.

Crops Listed

4. In our opinion we may expect an increase in the following crops during the next few years, for the reasons

indicated in each case:

Seed crops, including vetch, field peas, rye grass, clover and other varieties. Such specializing is proving profitable with increasing demand.

Alfalfa and clover. Reasonably profitable and useful in dairying and land rotation.

Irrigated pastures. Proving of great value in maintaining milk production and fattening lambs.

Irrigated truck crops. Northwest canned vegetables are finding a growing market because of their high quality. The population of the Pacific coast is increasing.

Filberts. Favorable market outlook. Exclusively a northwest product.

Berries. A crop in which the northwest excels. Seems to be coming out of a low cycle.

Dairying. Better production practices and marketing methods. Increasing population.

Hogs. Will follow cows and alfalfa.

Peaches. Reasonably consistent returns. Better local markets.

Poultry, including turkeys Continued record for profit. A valuable and popular source of income.

Horses. An increase in production to meet replacement demands.

We wish to emphasize that the above opinions are not recommendations but do constitute the judgment of this committee as to probable trends.

The Farm Home

In no occupation is a man's business and home so closely related as on the farm and this report would not be complete if we did not emphasize the importance of making the home the objective goal and the inspiring motive for which success on the farm is really sought.

It is not our purpose to recommend that a farmer raise his living standards beyond what he is able to afford and thus endanger his business investment, but to lose sight of the family welfare because of concentration on farm production is equally bad and in many cases worse.

The abode of a wife and children should take precedent over the housing quarters for stock, feed and machinery. If culture and refinement are to be a part of the family training, convenience, neatness and beauty must be prevalent all over the farmstead. It should be the desire of every farmer to have his home contain as many of the comforts and conveniences of life as his income will justify and care should be taken to permit time for some pleasure to be mingled into the daily routine of farm duties.

Pride in the home and farmstead is an indication of culture, thrift, and efficiency, and is one of the greatest assets that a farmer can possess.

These recommendations are respectively submitted as representing the best judgment of the members of the Agricultrual Economics committee of the Lane County Outlook conference.

FARM CROPS COMMITTEE REPORT

More than 100,000 acres of the farm land of Lane county are devoted to field crops and the production of such crops continues to be the major source of farm income in Lane county. Several new projects offer promise. For the purposes of this report, the farm crops committee has divided its report into sections according to major crop classifications.

Grains and Corn

Wheat—Lane county has the largest wheat deficit of any county in the Willamette valley. Not only has the acreage declined significantly, but there has been an increased use of wheat for feed purposes due to an increase in poultry production in this area. In the Junction City section there has been a pronounced shift to vetch, peas, and other seed crops. Around Eugene, there has been a pronounced shift to fruits, nuts, and truck crops, to the extent that the wheat acreage has been much reduced.

The farm crops committee believes that on account of the strong local demand for wheat, Lane county farmers can well afford to grow wheat on land where good yields may be expected. However, it is doubtful if returns of 20 bushels or less will pay even on the lowest price lands of the county. For best results, farmers should grow varieties best adapted to their particular farm. The following varieties of wheat are recommended: For fall seeding, Jenkin White Winter, White Holland and Hood; for spring planting, Red Houston, Marquis and Zimmerman. White Winter and White Holland are winter hardy. Certified seed is needed for all these varieties.

Oats—The demand for feed and milling oats justifies a normal acreage of this crop. Gray winter is the only variety recommended for fall and winter seeding and is the variety having the highest feed value. Victory oats are recommended for spring planting. It is the highest yielding of any of the grains for heavy, cold soils, and is an outstanding white oats for feed. School Ma'am oats, which are rust resistant, are recommended for forage purposes for the coast section of the county.

Barley—The barley acreage in Lane county has increased from 2,298 acres in 1924 to approximately 4,000 acres in 1935. Barley yields more pounds of feed per acre than oats or wheat on the richer and better drained soils, and is a first class feed for all sorts of farm livestock. The barley acreage could well be expanded in Lane county. At the present time the prospects for selling Lane county barley for malting purposes are not bright, although in some years there is a demand for Hannchen barley for malting purposes. The committee calls attention to the fact that maltsters demand that barley be not cracked nor threshed too closely and recommends that care be exercised in threshing this crop so that Hannchen barley may be sold for malting purposes in years when there is a demand for the crop.

Recommended varieties are Hannchen for spring planting and O. A. C. No. 7 and O. A. C. No. 6 for fall planting. O. A. C. No. 6 is more winter-hardy than O. A. C. No. 7. O. A. C. No. 1 is still more hardy than O. A. C. No. 6 but does not yield as well in normal years.

Corn—Good corn can be produced in Lane county and the total acreage devoted to this crop varies from about 3500 acres to approximately 5000 acres. The average yield of corn harvested for grain is about 32 bushels per acre. Improvement of seed, attention to securing better stand, shallower culture, and crop rotation will doubtless raise this yield by 10 to 15 bushels per acre. Lane county imports large quantities for feeding purposes.

The committee recommends the expansion of corn acreage, for a number of reasons. As well as being a good feed crop, it is a good weed control crop. One obstacle is the amount of moisture in locally grown corn. This can be overcome by storing the corn in a well-ventilated crib until the summer following harvest when it can be shelled and sacked. This method is probably cheapest, all things considered, and is perfectly safe if the corn is well matured when put in the crib.

Home made commercial dryers or adapted hop and prune dryers are

practical and are installed in some parts of the Willamette valley. Cost data assembled by the Oregon Agricultural College show that it costs approximately $3.46 to dry a ton of corn in a home made shelled corn dryer. Commercially manufactured dryers have not yet been introduced. It is believed that these would be very advantageous if attached to a warehouse or hop or prune dryer in an important corn growing section. Experiments have proved that drying shelled corn is more efficient than drying on the ear. Corn can be shelled when the moisture content is below 35 per cent and shells very readily at 30 per cent or less. The corn situation could be improved if there were an earlier, uniform maturing variety. The new crossed inbreds of corn show promise in that they increase the yield and make for uniform maturity. The committee calls attention to the fact that flint corn will grow where the season is too short or the ground too poor for the production of yellow dent corn. For the present, we recommended yellow dent varieties of acclimated strains like Minnesota 13 and Golden Glow. The committee calls attention to the value of work being done by 4-H corn clubs in providing a source of good seed corn and wishes to encourage the formation of more corn clubs.

In emergencies when growers are short of feed grains, proso or hog millet may be planted in May or even early June, with the expectation of harvesting fair yields of seed suited to poultry or hog feed.

Japanese buckwheat may also be used in the same way.

General — The committee recommends that individual farmers undertake to grow their own feed grains.

Forage Crops

The 1934 census showed hay being grown on 47,262 acres in Lane county and that there were 303,620 acres of pasture in farms. A great deal of grass and grain hay should be replaced with legumes.

Alfalfa — The alfalfa acreage in Lane county has increased from 188 acres in 1924 to 9,000 in 1935. There is still room for expansion of the alfalfa acreage in Lane county. The committee recommends that farmers plant none but certified Grimm seed and that they follow production plans that have proved suitable in Lane county, including the preparation of a clean, firm seed bed, planting the seed about the middle of May, inoculating seed, using land plaster at the rate of 75 pounds per acre before planting new seedings and 125 to 150 pounds per acre on stands that have been established one year or more. Alfalfa is adapted to land that is fertile, deep, well-drained, and not strongly acid. Ground limestone added to some of the slightly sour but deeper and well drained soils, is valuable in alfalfa production on such lands. The planting of alfalfa on land that does not meet these requirements will lead to failure.

Red and Alsike clover are excellent hay plants suited to soils that will grow alfalfa, and also some of the soils too thin or a little too sour for alfalfa. There is little difference in the hay value. Many soils that have become too sour for red clover will grow Alsike clover or some of the vetches successfully.

Vetch and Oats—Vetch and oats make excellent dairy hay and the planting of this mixture is recommended where farmers are not interested in growing alfalfa or clover, or where neither of these crops can be grown satisfactorily. We call attention to the fact that the application of two tons of lime per acre on many farms in the coast section of Lane county has made the production of vetch and oats and red clover possible where these crops could not be grown satisfactorily before the land was limed.

Common vetch is the most palatable of the vetches and is well suited to reasonably sweet and drained soils, like those of the Willamette and the better drained of the Amity series. Hungarian vetch is particularly useful on soils a little too sour or wet or heavy for common vetch. It produces a leafier type of hay, although not quite so palatable as common vetch. It is the most aphid resistant of any of the vetches.

Hairy vetch of the so-called smooth type is the best of the vetches for sour soils that cannot be limed. These vetches or winter field peas planted with oats make excellent hay, silage, or green feed.

Weather Bureau Reports — The United States Weather Bureau is rendering a wonderfully accurate and detailed service to commercial airways and to various horticultural groups in the matter of frost warnings and in other ways. We recommend that they extend their detailed service to include daily forecasts for the week during the hay making period from mid-May until early July. Such service would be of great assistance to hay growers in curing better hay and in reducing losses.

Pastures—A good pasture can be one of the most profitable crops grown on much Lane county land, including some of the best land in the county. The pasture crop should be selected according to the land and the nature of the farm. Ladino clover is recommended where irrigation is possible at moderate cost. Willamette sweet clover, the new stem-rot resistant strain developed by the Oregon Experiment Station, is an excellent biennial pasture crop that is a good soil builder and is adapted to land suitable for alfalfa. The acreage of this crop should be expanded. Seed is grown by several Junction City farmers. Alfalfa is also an excellent pasture crop, but in pasturing alfalfa care should be taken not to injure the stand by pasturing too close or when the land is too wet. Best results are obtained by pasturing after the first or second cutting of hay is removed. or by pasturing after the stand has become too grassy for the production of good hay.

For emergency summer pasture, we recommend Sudan grass planted in May at 25 to 30 pounds of seed per acre on a firm, well prepared seed bed. This is a particularly good pasture for cattle, sheep, and poultry.

Dwarf Essex rape planted alone or with clover is an excellent temporary summer pasture.

A new pasture plant offering a great deal of promise is crimson clover. This may be planted any time from April to July, and provides a great deal of summer and fall pasture, and an immense amount of early spring pasture if it is not desired to save it for seed. Fifteen to 20 pounds are sowed per acre.

Spring planted white Canadian field peas make valuable pasture for hogs or for finishing early lambs, providing they may be planted quite early in the spring, as in February or March. Aphids are somewhat of a hazard in connection with the peas.

We call attention to the value of pasture mixtures for hill land and for other land where a permanent pasture is desired. Seed for pasture mixtures should be carefully selected, both as to quality and as to suitability for the land on which the mixture is to be planted. In general, it is not safe to purchase ready-mixed pasture mixtures. In many cases these prepared mixtures are made up of low grade and otherwise unsalable seeds, and contain so little permanent pasture grass that it is a waste of money to prepare a seed bed for them.

Among the valuable grasses for reasonably well drained lands, the following should be mentioned: English rye-grass is fairly long-lived in both the Willamette valley and coast sections. Domestic rye-grass is one of the most productive and palatable of the short-lived grasses for both sections. Orchard grass is a valuable constituent of all well drained coast pastures and the well drained Willamette pastures where the soil is good. Tall Meadow Oat grass is particularly good in the dryer pastures and on many of the hills in the Willamette region. Seed is a little expensive for inclusion in the coast pastures. Timothy is a good pasture grass for coast areas. Chewings fescue is an excellent grass in both regions and should he included in all mixtures for well drained pastures when the price is low enough to justify its purchase.

The most important thing in a permanent pasture mixture, particularly for the hill lands. is a good sod former. Astoria bent and Highland bent are both excellent grasses for the coast region. Highland bent grass is also adapted to much of the wet land of Lane county where poor grasses are now being grown. and is also adapted to hill land. We do not recommend the planting of this crop on the better lands of Lane county that may later be used for general crop purposes, because it is hard to eradicate.

Common white clover, preferably Oregon produced, should be included

the threshing machine to avoid splitting or breaking the peas by improper adjustment and blowing them over with the straw. Peas that are left in the field represent a loss ranging from 10 to 35 per cent of the total crop and, aside from being serious financial loss, are the source of infestation for pea weevils the following year. As in the case of vetches, the acreage planted should be in keeping with the growers ability to harvest promptly. Immediately after harvest, each day's threshing should be fumigated to stop any further development of the weevils. To assure prompt and effective fumigation, the committee recommends that growers prepare tight bins for their own fumigation where possible.

Harvested fields may be burned over after securing a fire permit, and this will tend to destroy many of the weevils remaining in the seeds, if the fields are burned promptly. Close pasturing of the field immediately after harvest will reduce the weevil population in proportion to the thoroughness with which the stock or poultry clean up the shattered peas. Sheep and hogs are both good.

3. Clover—The committee calls attention to the fact that the production of red clover seed is an important source of farm income that has been more or less neglected in Lane county recently. While the price varies from year to year, the acreage devoted to clover seed production might well be expanded in Lane county. The committee recommends growing the Tennessee anthracnose—resistant strain for seed purposes and that good foundation stock of this strain be obtained and planted on ground free from volunteer common red clover. The production of alsike clover seed offers some promise, but should not be undertaken excepting where heavy yields can be expected, or where other conditions make low cost production possible. The committee recommends reconsideration of the alsike seed item in the Canadian trade agreement and urges the restoration of the tariff to eight cents per pound.

4. Grass Seed—(a) Rye-grass—Most of the English rye-grass seed used in this country is imported and the production of certified seed of this in many of these mixtures.

For some of the low, heavy lands, particularly with a very heavy subsoil and poor drainage, attention is called to tall fescue, a rather coarse and only fairly palatable grass, that is particularly productive under that situation.

Meadow foxtail is a new grass, very palatable and very early. It stands an amazing amount of close pasturing and should be used on wet soils when the seed is available at reasonable prices.

For very wet locations, above salt water, and for some wet heavy irrigated soils or swampy soils, either Meadow foxtail or Reed Canary grass is very productive of good pasture.

Seed Crops

Lane county has great possibilities in the production of seed of many field and vegetable crops. We recommend the serious consideration of a cooperative seed selling organization.

1. **Vetch Seed**—At the present time Hungarian vetch seed is in good demand, common vetch not so good. Particular attention should be paid to raising pure seed. The acreage of hairy vetch has expanded so rapidly in the last two years that there is a possibility of over-doing this crop. For its stabilizing effect on the trade and on prices, the committee believes growing hairy vetch on contract with a responsible firm has some advantage. Standardization on the smooth type of hairy vetch is recommended. No hairy vetch should be planted on land where it is expected to grow wheat, barley, or other vetch, as it will probably volunteer for 20 or 30 years after the harvest of the first seed crop.

2. Austrian Field Peas—Austrian or winter field peas are becoming of very great importance in Lane county, but are in danger of being over-planted. Excellent yields grossing up to $100 or more per acre were harvested in 1935. The particularly difficult problems are harvesting to save all the seed, and handling of the seed to prevent serious infestation of the pea weevils. Care must be taken to pick up and save all the peas and leave as few unthreshed vines in the field as possible. Serious losses of peas may be prevented by careful adjustment of

variety has good possibilities in Lane county. Farmers starting to grow rye-grass seed should obtain certified seed of the Northern New Zealand strain or some other recognized strain. Common rye-grass seed is a good crop to grow and Lane county farmers will continue to grow it. However, they can expect wide price fluctuation, as there is a need for market stabilization.

(b) Chewings Fescue — Chewings fescue seed is in demand both for turf and for pasture purposes. At the present time we are importing 1,000,000 pounds of Chewings fescue per year, mostly from New Zealand. This crop can be grown satisfactorily in the Willamette valley and farmers may produce this crop without fear of overdoing the market. We recommend growing this crop for seed purposes on good Willamette, well drained Amity, or other good upland soils. Chewings fescue seed can best be grown on land reasonably free from Rattail fescue. Since imported seed is frequently low in germination, it should always be tested prior to sowing. This crop appears to offer one of the real opportunities in grass seed production. This grass produces from 150 to 400 pounds of seed per acre, is long-lived, lasting from 10 to 20 years, and has a price range of from 17c to 60c per pound.

(c) Bent Grass—The acreage of Seaside bent grass harvested for seed purposes has increased so rapidly that seed is not selling satisfactorily. No increase in the acreage of this crop can be recommended. Highland bent grass seed is not well established in the market as a turf grass, but preliminary trials at the experiment station and other trials in the east, point toward a very promising future for turf purposes. It yields from 30 to 200 pounds of seed per acre. Cooperation is needed in the bent grass industry to avoid needless price cutting and resultant low prices.

(d) Orchard Grass—There is a good market for this grass seed and the committee recommends a reasonable increase in the acreage. Orchard grass thrives in Lane county. Orchard grass is a long-lived grass, producing 200 to 400 pounds of seed per acre. It is best grown on lands free from mesquite, or velvet grass. This grass is inclined to shatter slightly and must be harvested promptly.

(e) Tall Oat Grass—Tall oat grass thrives in Lane county, is an excellent pasture crop, and seed is in demand. The committee recommends that grass seed growers start growing this crop for seed purposes. Tall oat grass should be treated for smut prior to planting for seed purposes and must be harvested very promptly as it shatters easily. This limits its production to rather small acreages. It is a long-lived grass, producing from 100 to 300 pounds per acre; the seed is worth 15 cents to 30 cents per pound and is difficult to clean. Fires should not be run over tall oat grass stubble as it is quite injurious to the crowns.

(f) Tall Fescue—Tall fescue is a wet land crop with practically no seed supply. The market will be a local one. It is expected that yields from 100 to 300 pounds an acre will be secured, and a price of 15c to 30c a pound may be expected.

(g) Meadow Foxtail—Meadow foxtail is adapted to wet land. Seed of this crop is in good demand. Farmers who can grow meadow foxtail reasonably free from mixtures can expect to make a profit in this industry. Meadow foxtail shatters very easily. Successful seed production depends on getting a thick stand. This can best be accomplished by fertilizing good stands, which tends to make the grass head out evenly. With a thick stand evenly headed machine harvesting will replace the expensive hand harvesting and make a profitable crop. Great care must be used to avoid blowing the seed away. Its price range will vary from 30c to $1 per pound, and the yield from 150 to 300 pounds an acre.

(h) Crimson Clover—The newly introduced strain of crimson clover should be standardized upon because of its greater resistance to the stem-rot disease. Our annual imports are large enough to justify an acreage of approximately 2000 to 3000 acres annually. Seed of crimson clover is in demand for pasture and cover crop purposes. It is a good soil builder. Threshing should be done carefully so as to avoid seed injury and to remove the hull.

Vegetable Crop Seed

In the summer of 1935, six Lane county farmers each planted one acre of vegetable crops for the production of seed in 1936. Crops planted were beets, cabbage, and green broccoli. While these plantings are in the nature of trials, it appears that a vegetable crop seed industry can be developed in western Lane county and the committee recommends that the acreage be increased if the returns are satisfactory on crops now being grown. There are also possibilities in the production of the seed of turnips, rutabagas, mustard, and carrots, in the coast region.

The seed law of Oregon was passed more than 20 years ago, at a time when the seed industry was relatively unimportant. With this industry growing by leaps and bounds, and with the weed problem becoming more acute, it is recommended that there be a revision of the seed law.

Potatoes

Since Lane county is in difficult competition with some of the irrigated potato growing regions and since this competition in the winter time is likely to become more difficult with the completion of the Santiam highway, this committee recommends the growing of potatoes for local consumption only. However, if Lane county potato growers are to hold the local market, they must take greater care to produce smooth potatoes and must grade them carefully. The people of Lane county will not buy locally grown potatoes simply to support the local growers, but they will buy on a quality basis and Lane county growers must meet this situation. The low-top Burbank and Netted Gem varieties are recommended for main crop potatoes on average land. Katahdin potatoes are recommended for heavy soil, for home use. Lane county does not grow as much certified seed as is needed and there is a possibility of renewing this industry. The 4-H club members have made an excellent start in certified seed potato production in 1935, and the growing of certified seed potatoes by 4-H clubs is recommended and encouraged.

Flax

There are two kinds of flax that may be produced commercially in Lane county. Almost any land that will grow a good wheat crop will grow seed flax, but returns in many cases are not equal to those from other crops on the better soil types.

There is a large acreage of land in Lane county suitable for the production of fiber flax, and experience in former years shows that this crop can be grown satisfactorily. Fiber flax of excellent quality can be produced on the Chehalis, Willamette, and heavier Newberg soils. Fiber flax will be a profitable crop for many farmers to grow when the price is $25 or more per ton. More attention should be paid to the production of this crop for fiber if the present fairly good prices continue.

Hops

Lane county is well adapted to the production of hops, but at the present time production is greater than demand and no increase in acreage can be recommended.

Weed Control

Weed control is a serious problem in Lane county. One of the principal sources of weed seed is the cut-over land of the county. Complete eradication of weeds on cut-over land does not seem feasible, but control is feasible. The committee recommends that public and other agencies owning land in large quantities in Lane county sow sod-forming grass mixtures on cut-over land to control Canada thistles and other noxious weeds; and that these agencies rent or use such seeded land for pasture to off-set the cost of seeding. We particularly urge care in the choice of seed to avoid the introduction of new weeds, cooperation in the prevention of noxious weeds going to seed, and as far as possible, in their eradication.

The use of a cultivated crop, like corn, beans or potatoes, smother crops like vetch and oats, harvested early, followed by summer fallow, and the use of permanent crops like alfalfa, are good means of bringing some of the noxious weeds under control at moderate expense.

TREE FRUITS AND SMALL FRUITS COMMITTEE REPORT

Soils for Tree Fruits and Nuts

The ideal soil for tree fruits and nuts should be eight to ten feet deep. Trees will grow, and often are profitable, in soils of less depth, but on our shallow soils, especially those underlaid with rock, hard pan, and high water tables, and with dry summers, the growers will be faced with production difficulties early in the life of the orchard. The orchard soil should be deep, well drained, and of about the same texture for a depth of eight or more feet for best results.

There are instances almost without number, of orchard development projects in the Northwest which have been entire losses to the individual investors because the soils were totally unsuited for orchard plantings. Individual growers who have made the same errors are numerous. Select the orchard soil with care. Dig into the subsoil of proposed orchard tracts. Soils that produce annual surface crops with pro it may not be at all suited for profitable orchards.

Orchard Soil Maintenance

Orchard soils need annual attention to maintain the humus supply, to assist with the maintenance of soil fertility, and as an important aid to preventing soil erosion. Orchards grow older and soils poorer year by year. A cover crop is not a luxury, but a necessity in a well managed orchard.

Cover Crops—Ten tons of cover crop, per acre, annually, with its root system in addition, ranks first as an aid in the soil maintenance program. It appears to be quite generally accepted by soil physicists that the decaying cover crop, and action of the root systems of cover crops are beneficial to orchard soils to a degree not attained by other means of maintaining soil fertility and preventing orchard soil erosion and leaching.

Winter barley and vetch lead as an orchard cover crop. Amounts of seeding vary, 75 to 100 pounds of vetch per acre is a practice followed by many growers or 30 to 60 pounds of vetch, and 60 to 80 pounds of barley. Seed early in fall. Plow down early in spring.

Other Cover Crops—Vetch alone, 60 to 80 pounds per acre. Winter grain alone, 100 to 150 pounds per acre. Turnips 3 pounds per acre. Rye for thin soils, 75 to 100 pounds per acre. Winter barley, 60 to 80 pounds. Crimson clover, 10 to 15 pounds per acre shows promise as a cover crop on some upland soils. Mixed grains and vetches may be used, but avoid noxious weeds.

Further Soil Maintenance Suggestions—Suggestions for strengthening the soil maintenance and erosion prevention programs are given below. These suggestions may be used in addition to the cover crop and certainly should not be expected to take fully the place of a cover crop. The cover crop should be used in all cases where it is possible to grow one.

1. Stable manure, ten or twelve tons spread over the orchard annually.
2. Cover straw, 2.5 to 3 tons per acre annually. or alfalfa hay refuse.
3. Straw, 2.5 to 3 tons annually supplemented by addition of 100 to 150 calcium nitrate, calcium cyanamid, or ammonium phosphate per acre applied in the fall and disked in.
4. Commercial fertilizers applied in late winter often greatly increase the cover crop yield.

Control of Pests, Diseases

In this report no attempt has been made to give control measures for insects and diseases. See bulletins of the Oregon Agricultural College for spray programs for various fruits.

Prunes

Realizing that prune production is one of Lane county's leading horticulture industries, we believe the following figures will give a clearer insight into its future possibilities.

World Production Dried Prunes (Ts.)

	1928-32 average	1933
World	243,483	234,700
California	193,000	170,000
Northwest	27,600	32,000
Jugoslavia*	16,327	27,500
France**	6,200	5,000

* Export surplus.

** Garrome district only.

U. S. Dried Prune Exports (Tons)
U. S. average 1928-1932 116,797
U. S. 1934 85,626
Port of Portland, 1934 11,366

Canned Prunes—Oregon and Washington canned 846,000 cases of prunes in 1934. In 1933 the West packed 97.3% of the prunes canned in the United States and 82.2% of the plums.

Prune Acreage Trend—There were 3,000 acres of prune trees in Lane county in 1930 and 2,465 in 1935. The average yield is approximately one ton per acre, dry basis.

Prices Received for Prunes—Average prices paid Lane county growers for dried prunes in 1925, 1930, and 1935 were as follows: size 30-40, 1925, 10¼c; 1930, 6c; 1935, 5c. Size 40-50, 1925, 7½c; 1930, 5½; 1935, 3½c. Size 50-60, 1925, 6 1-3c; 1930, 5c; 1935, 2¾c.

Production Recommendations

1. No new acreage is recommended.

2. A slow increase in production through better production methods is possible and recommended through the following steps: (a) More scientific pruning practices and removal of trees where plantings are set less than 24 feet. The committee recommends that excessively heavy pruning be discontinued. (b) More attention to disease and insect control. (1) Treatment with paradichlorobenzine for peach root borers. (2) Dust or spray to control brown rot. (c) The use of irrigation where possible to stimulate late fall bud development.

3. A decrease in unit cost by an increase in unit production.

4. With the loss of much of our European markets more attention must be paid to home markets. Place only high quality fruit on the market. Advertise from a health and food standpoint. Growers are urged to sell only through well-organized sales agencies.

Plums for Canning

Varieties: Yellow Egg, Shiro, Green Gage, Bavay.

Bavay is the only variety recommended for cannery. Average yield for profits, eight tons per acre. Must be thinned while pits are soft. Must be nine to fourteen plums per pound to make a profit. Irrigation is a great aid to size and yield. Bavay's tendency to bearing every other year is helped by thinning.

Diseases: brown rot.

See cannery for outlet before planting.

Prices have dropped from $30.00 per ton for ten plums per pound size in 1930 to $20.00 per ton for same size in 1935.

Sweet Cherry Production

Royal Ann—1027 acres in Lane county, 1935. 594 acres 10 years or older. 433 acres under 10 years, mostly 5 or 6 years. Crop of 1935: 746¼ tons. 5-year average tonnage, Eugene Fruit Growers Association: 582 tons. Estimated 40% sold to outside buyers: 234 tons. Average yield: 1.37 tons per acre. Average 4 year price: No. 1, 3⅝c; No. 2, 2½c. 1931-1934 average: No. 1, 3c; No. 2, 2c. Markets are limited to valley processors.

Bings—118 acres in 1935. 104 acres 10 years or older. 14 acres under 10 years. Average 5-year crop 1931-1934, inclusive, Eugene Fruit Growers Association: 182,167 pounds. Estimated 40% sold to outside buyers: 72,864 pounds. Total 5-year average: 255,031 pounds. Crop of 1935: 280,000 pounds. Price: 5-year average, No. 1. 4⅛c; average of 4 depression years, No. 1, 3.6c; No. 2, 2.6c. Average yield per acre: 2,161 pounds. Cannery can use more Bings, if growers want to take a chance.

Lamberts—165 acres in 1935. 144 acres 10 years or older. 21 acres under 10 years. Average 4-year crop 1931-1934, inclusive, Eugene Fruit Growers Association: 282,264 pounds. Sold to outside buyers (estimated): 112,104 pounds. Total 4-year average crop: 394,368 pounds. Crop of 1935: 387,372 pounds. Average 5-year price for No. 1: 3¾c. 4-year average price, depression years: No. 1, 3 1-3c; No. 2, 2½c. Average yield per acre: 2,632.5 pounds.

Sweet Cherry Problems: Insects: cherry fruit fly, syneta beetle. Diseases: brown rot, gummosis, blossom blight, leaf spot. Culture: cover crop, clean cultivation, water if possible. Production: sweet cherries being self-sterile, mated stock is absolutely necessary. The Berntzen Waterhouse, the most practical pollenizer, is rec-

ommended. One-fifth to one-fourth of the total planting should be planted to pollenizers. Seedlings or Black Republicans are not recommended as pollenizers.

Montmorency (Sour) Cherries—267 acres in Lane county, 1935. 172 acres from 5 to 10 years old. 94 acres 10 years or older (full bearing). Five year average crop, 1930-1934, inclusive: 510,000 pounds. Crop of 1935: 1,267,490 pounds. Prices: 1928, 7⅛c; 1930, 5¼c; average 1931-1934, inclusive, 1⅞c. Market: The cannery market is the only outlet. Must grow five tons per acre to be profitable.

If all trees now planted in Lane county are taken care of, there will be an estimated crop of two million pounds five years from now. Sour cherries are over-planted in about the same ratio all over the United States.

Montmorency cherries are generally planted too close in Lane county. They should be well pruned during the profitable life of the orchard; then remove trees so that spacing will be 27 x 27 feet to 30 x 30 feet. Proper pruning and spacing will reduce expense of spraying for disease and fruit fly, and increase the crop. It will pay to irrigate and use cover crops, also manure and nitrogenous fertilizers.

Pears

During the past ten years there has been an average of about 455 acres of pears in Lane county, on which the average yield was 1.54 tons per acre. The average price for No. 1 canning Bartlett pears for the period 1926-1934, inclusive, was $31.15 per ton. The local cannery uses from 800 to 1,000 tons per year and we estimate that 100 tons per year are used for home consumption. We recommend that there be no additional plantings of pears unless new markets can be found.

Peaches

We find that there are 223 acres of peaches in Lane county, of which 101 acres are seven years old or older, 109 acres between two and seven years years old, and 13 acres which were planted in 1935.

The best estimate of the probable local consumption is about 160 acres which leaves about 63 acres more than necessary to supply the local demand. Added to this local surplus, outside peaches are shipped in every year. This estimate is more or less a guess as there is a very material difference in the production of individual plantings. Quite a large percentage of the plantings never come into full bearing because of the poor care they receive.

The United States census and state figures show from 1909 to 1929 a decrease of 510 acres in the state and in Lane county a 55-acre decrease.

For Lane county, however, this report shows 20 acres less than our 1935 survey. The largest decrease was in Umatilla, Jackson, and Morrow counties. All Willamette valley counties show a net increase of 517 acres from 1909 to 1929, the largest of which is shown in Washington, Marion and Yamhill counties which acreage would in all probabilities have large crops at the same time as local orchards and so must be considered a factor in the distribution of the fresh fruit.

Diseases: peach twig blight, peach leaf curl, and brown rot.

Insects: twig borers, and root borers.

In conclusion, the committee recommends that there be no further planting of peaches unless new markets are developed.

Apples

Lane county has approximately 310 acres of bearing apple trees. The greater percentage of them are twenty or more years of age, having been planted during an apple tree planting boom of 1910 to 1914. About a 50% reduction in acreage has been made since 1928, mainly because of abandonment by non-resident owners. The acreage is now almost all owned by resident people, who are attempting to get larger sizes and better quality to meet the market demand.

Every section of the United States has possibilities as a commercial apple region and plantings are being made all over the country for the purpose of supplying local markets.

Varieties for Lane County—At present the following varieties are grown successfully in Lane county: Spitzenberg (109 acres); Newton (86

acres); Gravenstien (10 acres); Jonathan (54 acres); Delicious (18 acres); Rome Beauty (12 acres); King (9 acres); Winter Banana (3 acres); Orenco (2 acres). Spitzenberg trees are subject to bark diseases. (Anthracnose), and will probably rapidly recede in acreage the next few years.

The average yield is approximately 150 bushels (orchard run) per acre. Most of the apples raised in Lane county are for local consumption. The small and the imperfect larger apples are used by processing plants for cider, vinegar, and in some seasons for canning. About three varieties, namely, Spitzenberg, Jonathan, and Newton, are being grown.

Apple prices the last few years have been very low along with other fresh fruits. At times high quality local apples must meet the competition of low grade fruit trucked in from outside points. This low grade, low priced fruit keeps down the prices on the better grades of local apples.

Future Plantings—Anyone contemplating the planting of apple trees, should give careful consideration to varieties, location, and price. He also should discuss his problems with the county agent, the field men of the processing plants, and growers of the locality in which he is interested.

Berries

No increase in berry acreage is recommended. Investigate local markets and cannery outlets before planting berries. All prices given in this report are a 5-year average. All prices by the crate are Eugene Public Market prices.

Black Raspberries—Present acreage, 3 commercial. Average price per pound: No. 1, 5.3c. Average yield: 1 ton per acre. Certain pests of black raspberries make profitable production questionable. Recommended varieties: Plum Farmer, Cumberland. Average price per crate: $1.40.

Red Raspberries—Present acreage: 58 commercial, canning and table. Average price per pound: No. 1, 4c; No. 2, 2.8c. Average yield: 1½ tons per acre. Recommended varieties: Cuthbert for canning; Marlboro and Newberg, table berry. Certain pests reduce the yields of Cuthberts and must be considered. Average price per crate: $1.40.

Loganberries—Present acreage: 27 commercial. Average price per pound: No. 1, 2.3c. Average yield: 3 tons per acre. Average price per crate: $1.00.

Youngberries—Present acreage: 10 commercial. Average price per pound: No. 1, 4.6c. Average yield: 2½ tons per acre. Loganberries and Youngberries are subject to leaf spot and these should be considered. Varieties recommended: Acme Thornless Youngberry is the most satisfactory. Apparently yield better on heavy land than on river bottom land. Probably a possibility of increasing acreage for canning.

Boysen Berries—A new berry with a good prospect.

Evergreen and Hymalaya Blackberries—Present acreage: 3 commercial. Average price per pound: No. 1, 2.6c. These blackberries are subject to the red berry disease, caused by a berry mite. Average price per crate: $1.00.

Gooseberries—Present acreage: 9 commercial. Average price per pound: No. 1, 3.1 c. Average yield: 2 tons per acre. Varieties: Oregon Champion and Poorman.

Strawberries — Present acreage: Canning, 34 acres; table, 224 acres. Average price per pound: No. 1, 5.2c; No. 2, 4c. Average yield: 1 ton per acre. Varieties: Corvallis for canning, Gold Dollar and Narcissa for early table use, Marshall and New Oregon for main table use, and Rockhill, an everbearer. Average price per crate: $1.50.

Grapes

The commercial acreage of grapes in Lane county now oversupplies the local markets. It is the opinion of the committee that further planting of grapes in Lane county should be limited to requirements for individual home use.

Varieties—For Lane county those American varieties of grapes which have hardy vines and early ripening qualities are to be recommended. The Concord is the leading variety; Campbells Early, and Worden are other suitable dark colored varieties. The Niagara is a recommended light colored grape. New varieties of promise are Golden Muscat, a light green, large grape of pleasing quality; Kenka, a red, rich, juicy grape ripening about the same time as the Concord.

NUTS COMMITTEE REPORT

Soil for Nuts

(See the report of the committee on "Tree Fruits and Small Fruits".)

Consumption, Importations

The consumption of nuts in 1934 and 1935 was 258,000,000 pounds. Of this the U. S. produced 46 per cent. Percentages of different kinds of nuts consumed were as follows: Walnuts, 34 per cent; filberts, 3.5 per cent; chestnuts, 5.7 per cent; cashews, 13.9 per cent; Brazil nuts, 12.8 per cent; pecans, 16 per cent; almonds, 12.3 per cent; and all other nuts, 1.8 per cent.

Importations of walnuts have decreased from 51,762,000 pounds in 1925 to 5,868,000 pounds in 1934. Filberts decreased from 14,575,000 pounds in 1925 to 2,371,000 pounds in 1934. Imports of all nuts have declined from an average of 117,000 tons in 1920-1925 to 65,300 tons in 1930-1935.

The committee finds the import duty on walnuts and filberts in the shell at the present time, to be 5c per pound. We recommend that this import tariff be maintained.

Acreage and Production

Ninety-eight per cent of United States filbert trees are in Oregon and Washington, according to the 1930 census. Oregon had 83 per cent of the filbert trees listed in the 1930 census. The value of Oregon filbert plantings is estimated at $5,580,400.

The 1930 census reports 1,000 filbert trees in the east, 600 of which were reported in nurseries in Illinois. There are a few on trial in New York state. There was nothing further in the reports to indicate that the filbert acreage is being increased in the east and southern United States.

The following statistics show filbert acreage and production trends in Lane county: 1925, 300 acres, 6¼ tons; 1930, 457 acres, 46 tons; 1935, 1110 acres, 142 tons. For Oregon: 1930, 5,072 acres, 250 tons; 1935, 8,500 acres. Washington had 1,450 acres of filberts in 1935 and California 80 acres.

Lane County walnut acreage and production statistics are as follows: 1925, 1,016 acres, 75 tons; 1930, 1,366 acres, 185 tons; and 1935, 2,140 acres, 286 tons.

Cost of Producing Filberts—Studies conducted by the Oregon Experiment Station on 36 Oregon farms in 1932 showed that it cost 13.7c per pound to produce filberts that year, and that on four Lane County farms the cost was 10.7c per pound. That was a low-yield year. It cost 25.4c per pound to produce filberts on the 10 high cost farms and 7.7c on the low cost farms.

Cost of Producing Walnuts—Surveys conducted in 1929 and 1931 by the experiment station showed that in 1929 it cost 17.4c per pound in Oregon and 12.9c in Lane County to produce a pound of walnuts; while in 1931 the cost was 9.3c in Oregon and 6.4c in Lane county. Cost per pound of walnuts in Oregon on the 10 high cost farms was 78.5c in 1929 and 18.7c in 1931; on the 10 low cost farms, 9.4c in 1929, and 4.4c in 1931. The great difference in 1929 and 1931 costs is due to poor yield in 1929 and good yield in 1931.

Marketing Nuts

The price trend on both walnuts and filberts from 1925 to 1935, seems to be on a decline; due no doubt, to the increase in production and a decrease in consumption.

We find that the prices paid by both independent dealers and cooperative associations seems to be on a par during this period of time; but we recommend marketing be done through cooperative associations as much as possible.

Production Recommendations

Sufficient plantings of walnuts are now available to supply demand when in full bearing, but the trend is toward lower prices.

Filbert acreage in bearing is not now adequate but present plantings will be sufficient when in full bearing.

Any one planting either walnuts or filberts should use only the best lands and be prepared for lower prices at times.

Use grafted Franquette walnuts with proved cross pollenizers. Use Barcelona filberts with proved pollenizers.

Pecans, almonds, and chestnuts cannot be grown commercially in Lane county.

TRUCK CROPS COMMITTEE REPORT

The production of truck crops is one of the principal sources of agricultural income in Lane county. Approximately 2,300 acres were devoted to such crops in 1935.

Soils Suitable for Truck Crops

The sandier soils are the more desirable, but good vegetables can be grown on any of the soils commonly known as sandy loam, second river loam, as well as considerably heavier soils. On the soil map the Newberg, Chehalis, and the lighter Willamette series all have value for truck crops. However, the heavier soils should be avoided in planting root crops such as carrots and parsnips.

Soil Management

Work soil only when it contains the proper amount of moisture, whenever possible. Rotate crops, and cultivate thoroughly. Weeds are expensive cover crops for the gardener. They should be completely eradicated.

Soil Improvement

Keep the soil well supplied with plant food and humus, and in friable condition. In this, cover crops are the first essential. Whenever the land is idle for sufficient time to produce reasonable root and top growth, plant vetch or field peas for nitrogen and humus; or plant vetch mixed with oats, wheat, or barley; rye or turnips are also desirable.

Barnyard manures or straw in quantities up to twenty tons to the acre are not extravagant.

Commercial Fertilizers

The amounts and kinds of commercial fertilizers to use are an individual problem for each grower to solve for different soils and crops. In conducting fertilizer trials, the grower should endeavor to find the basic fertilizer elements to which the particular crop will respond and should use adequate check plots. With cover crops and barnyard manure used whenever possible, commercial fertilizers may not be necessary.

Irrigation

Irrigate. From all available information irrigation is profitable on all vegetables. Besides increasing production, the quality is often greatly improved. Mainly, three methods are used in applying the water: revolving sprinklers, Skinner type overhead lines and nozzles, and the gravity system of flooding or ditching.

CANNERY VEGETABLES

The cannery pack varies from year to year. Prospective growers should consult cannery officials regarding contracts before planting crops, as most crops are grown on contract. In the following statements in regard to various cannery crops, the acres grown, average yields, and average prices are five-year averages. Unless otherwise indicated, marketing is through contracts.

Asparagus

1. Production: 30 acres; Martha Washington variety; yield, 1.75 tons.
2. Price per pound: No. 1, 3c; No. 2, 2c.
3. Pests: asparagus beetle.
4. Recommendations: (a) Some outlook for canning asparagus. (b) The asparagus beetle is a serious pest.

Green Beans

1. Production: 145 acres; Blue Lake variety; yield, 7.5 tons.
2. Price per pound, 2.7c.
3. Recommendations: (a) Present acreage sufficient to supply demand. (b) Minimum yield for profit, 7 tons per acre. (c) Irrigation is required.

Kidney Beans

1. Production: 25 acres (2-year average); yield, 800 pounds.
2. Price per pound: 6c (2-year average).
3. Recommendations: (a) Limited demand. (b) Irrigation helps but is not economical.

Beets

1. Production: 270 acres: Detroit Dark Red variety; yield, 4 tons.
2. Price per ton: $17.75.
3. Pests: Curly top and downy mildew.
4. Recommendations: (a) Present acreage sufficient to supply demand. (b) Irrigation increases profits. (c) Manure and commercial fertilizers recommended.

Green Broccoli

1. Production: 3 acres; Calabrese variety; yield, 3 tons.
2. Price per pound: 2.5c (3-year average).
3. Recommendations: (a) Very limited out-put. (b) Must be irrigated.

Cauliflower

1. Production: 4 acres; Catskill variety; 3 tons.
2. Price per pound: 2c (7-year average).
3. Recommendations and remarks: (a) Entire crop froze in 1935. (b) Should be irrigated for profit. (c) Should be fertilized well with commercial and organic fertilizers. (d) Possibility of expansion.

Carrots

1. Production: 230 acres; Chantenay variety; yield, 20 tons.
2. Price per ton: $7.50.
3. Recommendations: (a) Best grown on Newberg soil. (b) Best irrigated and fertilized. (c) Pack varies from year to year so no increase can be recommended.

Cabbage

1. Production: 4 acres for canning and 4 acres for kraut; varieties. Danish Ballhead for canning and Kruse for kraut; yield. 6 tons for canning and 8 tons for kraut.
2. Price per ton: kraut cabbage. $13.90; canning cabbage. $19.35.
3. Recommendations: (a) Should be irrigated. (b) Limited amount packed and contracts should be given to growers.

Cucumbers

1. Production: 1.5 acres. 3 tons; varieties. Chicago or Boston Pickling, P. Burrell.
2. Price per ton: $50.00.
3. Recommendations and remarks: (a) Should be irrigated. (b) Very few are grown for local cannery and only a limited acreage is grown on contract.

Sweet Corn

1. Production: 140 acres; varieties. Golden Bantam and Golden Cross; yield. Golden Bantam. 1.5 tons. and Golden Cross. 3.5 tons.
2. Price per ton: $20.00.
3. Recommendations and remarks: (a) Fertilizing and irrigating increase yield. (b) Irrigating corn with an expensive set-up will not be economical. (c) Favorable conditions and set-up will allow irrigating Golden Cross at a profit. (d) Room for expansion.

Squash

1. Production: 40 acres; yield. 8 tons; Golden Delicious variety.
2. Price per ton: $9.08.
3. Recommendations: (a) Require very good soil. (b) Pack varies so contracts vary accordingly.

Parsnips

1. Production: 17 acres; yield. 12 tons; Hollow Crown variety.
2. Price per ton: $15.90.
3. Recommendations: (a) Should irrigate. (b) Limited amount used.

Rhubarb

1. Production: 4 acres (4-year average); yield. 10 tons; Crimson variety.
2. Price per ton: $14.00. No contracts given.
3. Recommendations: (a) Small amount used. No extra large planting needed.

Spinach

1. Production: 10 acres; yield. 4 tons; Improved Giant Leaf variety.
2. Recommendations and remarks: (a) No recommendation can be made as very little has been raised for canning and that was shipped out of the county. (b) Needs well fertilized land and especially needs nitrogen fertilizers. (c) No definite canning activity at present.

Tomatoes

1. Production: 115 acres; 10 tons; Pritchard and Bonnie Best varieties.
2. Price per ton: $14.00. No contracts given in the past.
3. Recommendations: (a) Irrigation helps. (b) Possibilities of expansion. (c) Favor the growing of a standard variety and cooperate with the cannery in growing a standard variety and planting at recommended times of the year.

Turnips

1. Production: 2.2 acres; yield. 4 tons; Purple Top Globe variety.
2. Price per ton: $18.00. No contracts given.
3. Recommendations: Very limited quantities used.

FRESH MARKET VEGETABLES

The following information applies specifically to fresh vegetables. Average acres and yield are for five years. Prices vary so much from year to year and during the seasons of the year that no prices are given.

Asparagus

1. About 20 acres grown.
2. Present acreage not sufficient for local demand.
3. Varieties: Martha Washington and Giant Washington. They are most rust resistant.
4. Asparagus beetle cause of pres-

ent shortage.

5. Soil recommended: sandy loam.

6. Fertilize with fairly heavy application of manure.

Beets

1. About 40 acres grown.
2. Present acreage sufficient.
3. Variety recommended: Detroit Dark Red.
4. Disease causing most damage locally is black scab. Prevention aided by crop rotation.
5. Irrigation, where possible, to increase yield and improve quality.
6. Soil recommended: sandy loam.
7. Recommend use of cover crops on beet land, and complete commercial fertilizers low in nitrogen.
8. Yield from 2.5 to 4 tons.

Beans (Pole and Bush)

1. About 20 acres grown.
2. Present acreage sufficient.
3. Culture: irrigation is necessary to insure yield and quality.
4. Soil: sandy loam.
5. Fertilization: heavy application of manure or use of cover crop and application of commercial fertilizer is recommended.
6. Varieties: (pole bean) Oregon Giant, Kentucky Wonder, Blue Lake; Oregon Lima Bean. (Bush bean) Burpee's Stringless.

Carrots

1. About 60 acres grown.
2. Present acreage sufficient.
3. Varieties recommended: Chantenay and Nantes Coreless, Danvers half-long for early variety.
4. Culture: irrigation is recommended where possible.
5. Soil recommended: sandy loam.
6. Use of cover crops on carrot land is recommended.
7. Yield: 15 to 30 tons per acre.

Cabbage

1. About 60 acres grown.
2. Present acreage sufficient.
3. Varieties recommended: Spring—early Jersey Wakefield; mid-season—Golden acre; Copenhagen Market; main crop—Danish Ballhead, Penn State; Reed Bros.
4. Irrigation recommended in season.
5. Soil: any soil with proper drainage and good fertility.
6. Pests: aphis, slugs, root maggots, and black spots.
7. Average yield: spring, 3 tons; mid-season, 5 tons; main crop, 7 tons.

Cauliflower

1. About 5 acres grown.
2. Present acreage not sufficient for local demand, especially in certain seasons.
3. Varieties: Catskill.
4. Culture same as cabbage.

Cucumbers

1. About 12 acres grown.
2. Present acreage sufficient.
3. Varieties: Burrell's Pickling, Clark Special; and Deltus for hot house type.
4. Irrigation recommended.
5. Heavy application of manure recommended.
6. Any soil of proper drainage and fertility.
7. Pests: cucumber beetle.

Celery

1. About 5 acres raised.
2. Present acreage not sufficient for local market.
3. Varieties: Golden Plume, Golden Phenomenal, and Golden Self-Blanching.
4. Irrigation necessary.
5. Soils: Beaver dam or sandy loam.
6. Soils should be treated with a heavy application of manure and use of commercial fertilizer of high nitrogen content recommended.

Cantaloup and Muskmelon

1. About 65 acres raised.
2. Present acreage sufficient for local demand.
3. Varieties: Burrell's Gem cantaloup, Oregon Delicious muskmelon, Hale's Best Original strain cantaloup, Hearts of Gold cantaloup.
4. Irrigation not necessary.
5. Soil: any good loam soil, well fertilized.
6. Use of commercial fertilizer, low in nitrogen and high in phosphorous recommended.

Green Broccoli

1. About 2 acres grown.
2. Present acreage not sufficient for local demand, but could easily be over done.
3. Varieties: Calabrese.
4. Culture same as cabbage and cauliflower.

Lettuce

1. About 25 acres grown.
2. Present acreage sufficient in season.
3. Varieties: New York and New York No. 12.

4. Irrigation recommended for second early and later crops.
5. Soil, any good loam soil or Beaver dam.
6. Fertilize with heavy application of manure. Over-fertilization has tendency to cause loose, unsalable heads.

Dry Onions

1. About 5 acres grown.
2. Acreage not sufficient for local market.
3. Varieties: Yellow Danvers, Sweet Spanish.
4. Irrigation recommended but not necessary.
5. Soils: sandy loam or Beaver dam preferred, but any well drained fertile soil will grow onions.
6. Fertilize with manure or proper commercial fertilizer.

Green Onions

1. About 5 acres grown.
2. Acreage sufficient for local demand.
3. Varieties: Ebenezer, Sweet Spanish, Bermuda, White Portugal.
4. Culture same as dry onions.
5. Disease: Pink Root; treatment, crop rotation.

Peas

1. About 50 acres raised.
2. Acreage sufficient in season.
3. Varieties: Blue Bantam, Pacific Market.
4. Irrigation not necessary for early crop.
5. Ordinary care and cultivation on any soil of proper drainage and good fertility will produce.
6. Pests: Aphis, weevil.

Parsnips

1. About 15 acres grown.
2. Varieties: Hollow Crown, Tender Heart.
3. Irrigation increases yield and quality.
4. Soil: sandy loam with fertility maintained by use of cover crop.
5. Present acreage sufficient.

Peppers

1. About 15 acres grown.
2. Present acreage sufficient.
3. Variety: California Wonder.
4. Irrigation necessary to insure yield and quality.
5. Soil: sandy loam.
6. Fertilize soil well with manure.
7. Diseases: Mosaic and curly top.

Radishes

1. About 20 acres grown.
2. Present acreage sufficient.
3. Varieties: Sparkler White Tip, Crimson Giant, White Icicle, Cincinnati Market.
4. Culture: Sow broadcast on sandy loam soil of good fertility.
5. Pest: Root maggot.

Rhubarb

1. About 5 acres raised.
2. Present acreage might be increased slightly.
3. Variety: Crimson.
4. Soil: sandy loam well fertilized with manure.

Rutabagas

1. About 2 acres grown.
2. Present acreage might be increased slightly.
3. Variety: American Purple Top.
4. Irrigation recommended.
5. Soil: sandy loam of good fertility, but not over-fertilized.
6. Pest: root maggots.

Spinach

1. About 50 acres grown.
2. Present acreage sufficient; might be increased in certain seasons.
3. Variety: Giant Thick Leaf.
4. Irrigation recommended in season.
5. Soil: any sweet soil with proper drainage and high fertility.
6. Commercial fertilizer of high nitrogen content can be used to advantage in season.

Danish, or Table Queen, Squash

1. About 15 acres raised.
2. Present acreage sufficient.
3. Irrigation not necessary, but can be used to advantage.
4. Soil: sandy loam well fertilized.
5. Use lime, about 200 pounds per acre, if soil has tendency to be sour.

Other Squash

1. About 15 acres grown.
2. Present acreage sufficient.
3. Varieties: Green Hubbard, Winter Banana, Golden Delicious, Marble Head, Summer Straight Neck, Zucchini Italian, Hubbard.
4. Culture: same as for Danish squash.
5. Pest: squash beetle.

Sweet Corn

1. About 100 acres grown.
2. Present acreage sufficient for local market.
3. Varieties: Golden Cross, Golden Bantam, Stowell's Evergreen, Gill's Golden Early Market.
4. Irrigation recommended but not required.

5. Soil: any good soil with proper drainage and fertility.
6. Pest: corn worms.

Turnips

1. About 40 acres grown.
2. Present acreage sufficient.
3. Variety: Purple Top White Globe.
4. Culture: broadcast on loam soil of good fertility.
5. Irrigation is necessary to germinate seed in summer.

Tomatoes

1. About 75 acres grown.
2. Present acreage sufficient.
3. Varieties: Bonnie Best, Pritchard.
4. Irrigation recommended to increase yield and maintain quality.
5. Soil: any good soil with proper drainage and good fertility.
6. Diseases: Blossom end rot, curly top.

Water Melons

1. About 10 acres grown.
2. Present acreage sufficient. Might stand slight increase.
3. Varieties: Klondike, Ice Cream.
4. Soil: sandy loam, well fertilized.
5. Irrigation not necessary.

Control of Pests and Diseases

For information on the control of pests and diseases of truck crops, see U. S. D. A. Farmers Bulletin No. 1371 and publications of the Oregon Agricultural college.

Standardization

It has been proven in the past that in marketing of vegetables from a community where there is a large number of rather small growers they must standardize their products. A variety should be selected that produces a quality article in that particular community and one that is preferred by the market and all growers should grow this standard variety. This is absolutely necessary if we expect to ship and sell to outside markets. For example, we can point to the Blue Lake beans grown in our own community. We have practically standardized on this bean and we have worked up a large market for it.

Grading and Packing

After we have grown our vegetables, the grading and packing of them is our most important step in marketing them. If the laws that we have at the present time were strictly adhered to, we think that this would do more to stabilize the market, increase consumption, and cut down the surplus than anything else. We have a practice here of using used crates and dirty or discolored containers which should be stopped. This condition starts the prices downward, and reduces consumption. We recommend that fresh vegetable growers in Lane county standardize their products and work toward adopting standardized brands and labels for their products.

Quality Improvement

Quality improvement is probably one of the most vital things to the marketing and expansion of truck crops of Lane county, and at the present there are certain items that certainly could be improved upon. There are so many varieties and strains of vegetables grown and marketed that are of such poor quality that when they are sold it reduces the consumer's appetite for more regardless of the quality. New varieties and strains must be tried, but grown in a small way until they prove better than old varieties.

Possibilities of Expansion

There is always a possibility of expansion providing it is possible to produce a little better article, better standardized or give better service. Our fresh vegetable producers here are not cooperative enough to promote expansion to any extent at the present, so far as outside markets are concerned.

We have a very good example in expansion in the Eugene Fruit Grower's Association in the canned goods. We believe it would be possible to ship our fresh vegetables in similar manner if we were properly organized. There are thousands of cars of vegetables shipped from Oregon communities each year that are no better located geographically than we are and it is our contention that our possibilities of expansion will be exactly in proportion to our ability to grow high quality vegetables of desired varieties, grade and pack them properly, and market cooperatively. We recommend that the marketing of sweet corn, cauliflower and tomatoes in outside markets be investigated, and promoted if possible.

Un-Orthodox Methods Practiced

Some growers seem to think they have a right and should sell under every one else. For example, we

know of one man who started around town in the morning selling certain vegetables for $1.75 a crate, and as the stores were all loaded up on the article this man made four trips around town in a day. Each trip around he cut his price from 25c to 50c until he was down to 50c per crate, and finally that evening he was seen to unload most of his load at a small store on consignment and heard to instruct the man to sell them for whatever he could, and to give them away if he could not sell them. Such practices as this have more of a tendency to decrease consumption rather than to increase it. It causes the larger markets to carry a smaller display, as they do not have any confidence as to when the price may drop out from under them.

Local Produce Defined

There is considerable confusion regarding the defining of local and outside grown vegetables and fruits. Local products are those that are produced within the trading radius of any town or city, while outside grown products are those that are shipped in from distant trading areas.

SOILS COMMITTEE REPORT

Introduction

This committee feels that the full utilization and conservation of the soil resources of Lane county is fundamental to any long time agricultural program. The tendency toward smaller farms emphasizes the need of proper soil management in order that the return per acre will be great enough to support the farm family on the smaller acreage. Since little new land is available any influx of additional farmers will mean further sub-division of farms already in existence. Thus need for increasing the profitable production per acre is further emphasized in order to maintain a satisfactory standard of living for all.

The soil is our greatest natural resource, the conservation of which is necessary to the public good. If farming practices are followed on any particular farm that leads to the depletion of the fertility of that farm, it means not only ruin to the individual farmer but also additional burdens on other farmers and other industries in this county, state, and nation in the form of additional taxation to take care of the taxation load previously carried by that farm, not to mention the fact that public funds might be required to care for the farmer who has failed and his family. Soil once lost through depletion of fertility and erosion can never be replaced.

All branches of agriculture in Lane county, whether livestock or crops, are dependent on the soil and any branch of agriculture can last no longer than the soil on which it is founded.

Soil utilization and conservation logically divides itself into four separate divisions: Irrigation, soil fertility, drainage, and erosion. The committee has considered the report under these headings.

Irrigation

Irrigation is recommended as a sound practice wherever water may be obtained economically. Because of the lack of summer rainfall in this section, the production of any crop expected to grow throughout the summer months is severely handicapped. The average rainfall for the months of May, June, July, and August, is approximatey four and one-half inches at Eugene. In only seven out of the past forty-five years has more than six inches of rain fallen during this period and, contrary to popular opinion, the records show little indication that the summers are drier now than they have been during the past 45 years. This indicates that if past weather records are any indication of what to expect in the future, that we can continue to expect dry summers, and that if irrigation is a desirable practice now, it will continue to be desirable in the future.

At the present time there is something less than 2000 acres under irrigation in Lane county. Most of this irrigation has taken place since 1925 and nearly 50 per cent of the acreage has been added during the past three years. That irrigation is sound from the practical standpoint is indicated

by the fact that all of the persons who have started irrigation on a practical basis are continuing to irrigate. F. B. Chase has been irrigating since 1904 and states that the practice has been profitable to him since that time.

Providing a water supply were available, there is an area of 232,960 acres of land susceptible of irrigation in the area covered by the soil survey of the Eugene area, of which 118,656 acres are soils of the Willamette, Chehalis, Newberg, and similar series, upon which horticultural and vegetable crops as well as alfalfa, clovers, and pastures may be grown under irrigation. The remaining area of 114,304 acres, soils of the Amity, Dayton, Wapato, and similar series, is adapted only to pasture and field crops under irrigation. An undetermined area could be added to this in the coast section of the county not covered by the soil survey.

There is not an adequate water supply to irrigate the available acreage at the present time either from streams or underground water, and since the committee feels that the irrigation of a good percentage of this area is a sound development we commend the program as outlined by the U. S. army engineers toward providing storage in the upper reaches of our streams to supplement the summer flow. We also commend the construction of the storage reservoirs from the standpoint of flood control, since the control of floods will prevent the now annual loss of valuable farm land through inundation and washing during flood stages of our streams.

Stream Output Limited

Because of the fact that the supply of water from streams is limited, the committee feels that any data obtained on the possibility of securing ground water should be made available to the public, and that any further studies necessary to determine the possible extent of the utilization of ground water should be undertaken by the proper public agency.

There are many streams in Lane county that could provide water for irrigation by gravity. On many of them, particularly the smaller streams, individuals could install their own gravity irrigation systems. Such possibilities are particularly plentiful in our higher valleys and in our coast section. In other places community organization might be necessary to secure gravity water at a reasonable cost. In either event such development, where economically sound, would be of distinct benefit to the agricultural industry of the county.

Because of the fact that many of our streams in Lane county can furnish water for only a limited acreage without storage we feel that the state engineer's office or some other public agency should undertake a project to determine just how much irrigation would be possible from them. This would help prevent inevitable future controversies over water rights.

It is the feeling of this committee that any crop that would normally grow during the four summer months would be benefited by additional moisture from irrigation. The extent to which one could go in order to provide irrigation for a particular crop could only be told after a careful comparison of the cost of irrigation against the expected increase in returns from irrigation. The irrigation of vegetable crops has proven profitable with growers for a number of years. The following information is submitted by the Eugene Fruit Growers' association as an approximate average of growers' experiences on yields and profits per acre: Irrigated beets, 9-ton yield, $60 profit; non-irrigated beets, 3-ton yield, $12 profit; irrigated carrots, 30-ton yield, $150 profit; non-irrigated carrots, 15-ton yield, $60 profit; irrigated sweet corn, profit; non-irrigated sweet corn, no profit.

There is not as much irrigated Ladino clover pasture in Lane county as there is in other Willamette valley counties, but enough plantings have been established to prove the value of this crop on farms where any livestock is produced. The carrying capacity of these irrigated pastures scattered widely throughout the county has varied from one to four cows per acre for six or seven months out of the year. Where pastures can be maintained with such a carrying capacity the return per acre will be greater than any other crop that can be planted and fed to livestock. Experience has shown that previous to seeding Ladino clover the land should be carefully levelled. This levelling should

be done in the fall or early spring in order to permit early seeding.

Several trials with irrigated alfalfa have indicated that the yield of hay can be more than doubled with irrigation and growers who have irrigated alfalfa claim that the extra hay it has produced in the second and third cuttings is of much better quality than the first cutting.

One trial with irrigated red clover for seed in 1935 resulted in a yield of seed over four times as great as that secured on the same land without irrigation.

Other Crops Listed

While no exact data are available on the results of irrigation of tree fruits, walnuts, filberts and berries, results in other similar sections indicate that very profitable results may be secured from irrigating these crops. Irrigation has resulted in bringing back the high quality of walnuts in older orchards where the quality had dropped down materially because of the lack of moisture during the late summer months.

More experimental work and more demonstration trials need be conducted in this section to determine more crops that may be profitably grown under irrigation.

Experience has shown that one should have his irrigation system ready for use by the first to the fifteenth of May. In many years it will not be necessary to use the system this early, but it is certainly well to have it ready since considerable time is required for installing equipment, pipe lines, cleaning out ditches, and so forth. Throughout the season irrigation water should be applied as indicated by the needs of the crop. The crop should never be allowed to slow down its growth because of lack of moisture.

The type of irrigation to use will depend entirely upon each individual farm. The source and amount of water, soil type, topography and crop being grown are factors to be considered in determining what system to use. For field crops and pastures some type of flood system of irrigation should be used: and where at all possible a strip-border system should be used because of the ease with which land may be irrigated under this system and because it permits fullest utilization of the water.

On the rougher river bottom land, particularly for vegetable crops, some type of sprinkler system of irrigation has proven to be the most desirable. Two different types are in general use, one commonly known as the "Skinner" type and the other the revolving sprinkler type. Regardless of which system is used, the plan should be very carefully worked out beforehand in order that the system of piping will be of adequate size and that stand-pipes are spaced to permit efficient coverage of the soil. During the past year the revolving sprinkler has grown in popularity, yet at the present time it does not appear desirable for people already having "Skinner" systems installed to discard these systems and go to the extra expense of purchasing the revolving sprinkler equipment.

Where the sprinkler system of irrigation is used there is a tendency to stop each irrigation before enough water is applied. The amount to apply will vary with the crop and the soil type but in every instance enough water should be applied to wet the soil as deep as the roots of the crop penetrate. This same thing applies to surface irrigation. The penetration of the irrigation water can only be determined by investigation with an augur or a shovel.

Where it is necessary to irrigate by pumping, the pumping plant should be carefully picked out to fit the individual requirements. In most cases the centrifugal type of pump seems to be the most economical type of pump to purchase. Every centrifugal pump is constructed to fill a certain requirement and if placed under conditions other than those for which it was designed it will not be an efficient piece of machinery. For this reason the pump should be purchased on the basis of the water required, the total pumping head against which the pump must operate, the water available, and the type of power available. The beginner in irrigation is urged to determine these conditions, turn the information over to a reliable pump dealer and let the dealer select the pump best suited to the job. Pumps offered by dealers may be compared on the basis of the amount of water delivered with

a given horse power. Pump purchasers are entitled to a guarantee of performance from the dealer. After every pump is installed it should be checked to determine whether it lives up to its guarantee. Because of the variation in construction of centrifugal pumps and because to outward appearances they may all look the same, yet have entirely different performance, second-hand pumps should be avoided, unless one has absolute assurance that the pump is fitted to his individual requirements.

Regardless of whether the system is to be a sprinkler system or a flood system, all pipe used should be of adequate size to carry the water without excessive loss from friction. For sprinkler systems in particular it may be well for the beginner to get some reliable person to install the entire system and insist that this person guarantee the performance of the system. It is also well to have some experienced person check all plans for irrigation in order that expensive mistakes be avoided.

Because of the prospective increase in the number of persons who will start irrigating during the next few years, it is the recommendation of the committee that additional specialist help be furnished by the Oregon State college extension in order to furnish adequate assistance to those persons installing irrigation projects.

Soil Fertility

The first step in the proper utilization of our soil is to grow the variety of crop on the soil best suited to its growth. The soil survey report is available for the eastern portion of Lane county. This report should be used by every farmer in order to determine the soil types on his particular farm. By consulting this report it is possible to avoid the expensive mistake of putting crops on soils to which they are not adapted. This is particularly important in considering the planting of long-time crops, such as orchards. Newcomers are urged to consult this soil survey report and from it pick out the soil type which would be adapted to the type of farming they wish to follow.

In order that farming may be continued on a permanent basis it is absolutely necessary that every precaution be taken to conserve the fertility in the soil. From the farming standpoint the best way of accomplishing this conservation is to follow the practice of keeping up the organic matter supply in the soil. This organic matter supply is of importance since it is necessary to make plant foods available to our crops, prevents the loss of plant food and assists in preventing the actual loss of soil. On the general farm the organic matter supply may be maintained by following a system of crop rotation including the growing of some legume crop. The legume crop not only builds up a supply of organic matter, but also adds a valuable supply of nitrogen to the soil. The variety of legumes to grow will be determined largely by the soil type. On many of our soils in Lane county it may be necessary to apply lime in order to grow legumes. Whether lime is necessary may be determined by a simple soil test. This testing service is available free of charge in the office of the county agricultural agent. Farmers contemplating sowing legumes are urged to have their soil tested as to lime requirements before spending money for seed and seed bed preparation.

The proper conservation of soil fertility requires that all crop residue be returned to the soil. In this connection the practice of burning straw stacks, combine rows, and stubble is a wasteful practice because of the fact that large quantities of plant food are destroyed that might otherwise be returned to the soil. Not only is plant food wasted, but also valuable organic matter is lost. In this connection, further study is needed on methods of spreading straw and adaptable tillage implements that will permit straw being plowed under without too much additional labor. Further investigation is also needed on the possibility of adding nitrogenous fertilizer to straw in order to hasten its decomposition and make better use of the organic matter in the straw. Present knowledge indicates that the addition of 20 pounds of nitrogen (100 pounds of 20 per cent nitrogen fertilizer) will greatly increase the value of straw added to the soil. On farms with livestock, a loafing shed is recommended as a means of making the best possible use of this straw. An adequate supply of straw is placed in this shed at har-

vest time and during the winter months the livestock are permitted to spend most of their time in this shed. The result is that in combination with the manure from the livestock the straw makes a very valuable fertilizer.

Other Points Listed

In order to prevent the loss of valuable plant food it is desirable that all barnyard manure be conserved in such manner as to prevent the waste of nitrates and that the manure be returned to the soil in such a manner that best possible use may be made of the plant food it contains. Under the loafing shed the manure is not subjected to leaching by winter rains and the continual tramping by the livestock prevents loss from heating.

On dairy farms the liquid tank method of handling manure should be more widely adopted. This method of handling manure prevents any possible waste of plant food and also permits the handling of manure with a minimum of labor. When used in combination with a loafing shed, the result will be of saving of all possible manure produced in the farm.

Best use may be made of manure by applying it to the soil at a time when growing crops will utilize the available plant food. This means that ordinarily the proper time is early in the spring previous to seeding crops. On most farms great benefit could be secured from manure by spreading it on the land in comparatively small amounts, if possible not over eight to ten tons per acre. More increase yield per ton of manure will be secured in this manner than where heavier applications are used.

Where there is any amount of livestock on a farm the use of a permanent pasture in a regular rotation is recommended as being an economical method of rebuilding the organic matter supply in the soil. A rotation should be worked out so that every field in the farm would be in a permanent pasture once every 15 or 20 years.

Cover crops are recommended for all orchards, cane fruits, and other permanent cultivated crops and for land continuously devoted to annual cultivated crops, such as vegetables. The cover crop should be sown early enough in the fall so that adequate cover remains on the soil during the winter months to prevent washing from the winter rains. This cover crop is absolutely necessary to avoid loss of soil by washing and erosion and loss of plant food through leaching. For non-irrigated crops, the cover crop must be plowed under early in the spring. For land under irrigation better use of cover crops could be secured if the land were given one irrigation in the early fall in order to assure a good early growth.

On some general farms where the land has been permitted to run down it may be necessary and desirable to plant a green manure crop in the fall and plow it under late the following spring in order to incorporate a good supply of organic matter. This should be used only where necessary to build up the soil to a point where a good crop rotation may be followed.

In order that the productivity of the soil may be maintained, the time will eventually come when more general use of commercial fertilizers will be necessary. At the present time results from the use of commercial fertilizers have not been consistent enough to warrant a general recommendation as to what fertilizer to use. Particularly under irrigation, applications of commercial fertilizer have proven very profitable. Individual needs may best be determined by trials of different fertilizers on the farm. Further work is recommended on well organized trials to work out general recommendations. Purchasers of commercial fertilizers are urged to purchase them only on the basis of the plant food contained.

Soil Erosion

Soil erosion is a greater problem from the farmer's standpoint than most people realize. Losses by erosion that occure in this area are so gradual that they are not generally noticed. Nevertheless there are some farms in Lane county where the loss of soil from erosion has been so serious that these farms can no longer be farmed profitably. It is extremely important that losses from erosion be prevented as much as possible since soils once washed away can never be replaced. Under average conditions ordinary good farming practices which maintain a good organic matter supply in the soil and provide a good cover for the soil during the winter

months will largely prevent erosion losses. On any sloping soil, farming practices should be followed that will not leave the soil unprotected during the winter months. Where spring seeding is to be done, some system of farming should be worked out, if possible, that will make it unnecessary to plow the land in the fall or winter, so as to avoid washing.

Many of our steeper hill soils might best be seeded to permanent pasture rather than farmed continuously, both from the standpoint of returns and maintaining the land.

Drainage

The full utilization of the soil resources of Lane county requires that a great amount of drainage work be accomplished. According to the soil survey report there are approximately 120,000 acres of land needing drainage in the area covered by this survey. There is an additional area needing drainage in the coast section of the county.

Tile drainage is the most satisfactory drainage where possible. Tile drainage systems should be carefully installed in order to secure best possible use of the tile. The depth to place the tile and the distance btween the laterals should be determined by some experienced person after a careful consideration of the soil type. The proper sizes of tile should also be carefully worked out in order to permit the efficient operation of the drainage system. Before any tile is installed a tentative drainage system should be designed for the entire farm, even though it is only possible to install a very small portion of this system at any one time. With this plan for the entire farm in mind, the tile as they are installed may be so located that they become parts of the complete system, making it unnecessary to dig up and re-lay any lines of tile.

Where tile drainage is not possible, either for lack of necessary finances, no available outlet, or a soil type that will not permit the use of tile, greater use of open ditches to remove the surface water is recommended.

In many sections of the county, community organization may be necessary in order to secure the construction of adequite drainage outlets. It is recommended that these organizations be completed before any drainage work is started in the particular area, since a permanent organization is necessary to assure the maintenance of the drainage outlet.

LIVESTOCK COMMITTEE REPORT

The numbers of livestock in the United States at the present time in terms of total live weight is probably the smallest it has been in more than thirty years. From 1928 to the beginning of 1934, the trend in number of meat animals was upward. During the period the increase amounted to twelve per cent. Most of this increase was eliminated in 1934, largely as a result of the severe drought. The number of cattle on farms increased steadily from 1928 to early 1934 by about twenty per cent.

The number of hogs on farms at the beginning of 1935 was the smallest in fifty years. This was due to the drought and, of course, the production control program. The number of pigs produced in 1934 was thirty-five per cent smaller than in 1933.

Sheep numbers increased steadily from 1923 to 1932. The increase amounted to seventeen thousand head, or forty-five per cent. From 1932 to 1934, the number of sheep in the United States declined slightly but the number on January 1935 was about five per cent smaller than a year earlier and was the smallest since 1929.

During the next three or four years, the United States Department of Agriculture predicts that there will be a considerable expansion in livestock numbers, particularly true in the case of hogs.

For Lane county, the number of beef cattle including calves, was reduced from 10,541 in 1920 to 6,000 at the beginning of 1930. The number of all sheep, including lambs, increased from 24,939 in 1920 to 58,513 in 1930 and declined to 39,000 in 1935. The number of hogs on Lane county farms,

according to the 1920 census, was 16,703 and the number dropped to 5,856 at the beginning of 1930, but increased to 7,493 in 1935.

Horses, including colts, decreased from 8,683 in 1920 to 5,674 in 1930. At the beginning of 1935 there were 5,198 horses in Lane county.

The livestock committee of the Lane County Economic Conference feels that the balance between the numbers of livestock and other farm enterprises is on the proper basis at this time. We feel that the feed conditions justify keeping about the same number of livestock at all times. If there is an increase in sheep, there must necessarily be a reduction in other classes of livestock or vice versa. The committee recommends that, in connection with all livestock production in the county, the farmers should carefully appraise the carrying capacity of their farms and keep only such numbers of livestock as can be properly fed and prepared for market. The committee strongly cautions against over-stocking. The livestock committee has considered the various classes of livestock separately as follows:

Horses

The number of horses on Lane county farms has been reduced to the point where there is a shortage so far as farm needs are concerned. It is estimated that the average age of all work horses on the farm at this time is around 15 years. The livestock committee feels that more good work horses are needed at this time. The Stallion Registration Board reports six licensed stallions standing for public service in the county—two of which are over ten years of age. This is not a sufficient number to take care of the needs of the county.

It is recommended that Lane county farmers, as a general rule, would be justified in using more horses for farm labor and fewer tractors. It is pointed out that the average size farm has been greatly reduced. At the present time, the average farm is about 112 acres. Many farms are much smaller than average. In view of the fact that horses consume a large amount of feed produced on the farm, thereby reducing the surplus and are also a source of building up soil fertility, the committee feels justified in making this recommendation.

In view of the fact that there is a shortage of good draft stallions in the county, it is recommended that an effort be made to induce the government to furnish draft stallions under the same general plan as is now being carried on under the government remount service in supplying stallions of saddle type.

The committee recommends that Lane county farmers should produce at least enough horses for their own use.

Hogs

During the last few years, the number of hogs in Lane county has been greatly reduced. Farmers have not found hog raising profitable. The committee recommends, however, that hogs in Lane county should be produced in sufficient numbers so as to use the available farm waste or by-products such as skim milk, cull fruits and vegetables. It is not considered profitable in Lane county, under existing conditions, to raise hogs on purchased grains, but home grown grains should be used entirely for this purpose. Some pasture is suggested as a means of lowering the cost of production. The committee realizes that it is not possible to produce hogs as cheaply in Lane county as in the corn belt.

The cost of marketing hogs from Eugene to Portland is about 1c a pound, or 1½c from the farm to Portland. It is therefore recommended by the committee that when hogs are quoted to buyers on the farm, they should be priced at 1½c per pound below Portland. It is considered that this 1½c a pound will take care of the cost of marketing and shrinkage. It is further recommended that farmers of Lane county be encouraged to sell their hogs on a per pound basis in relation to the Portland price.

The market demands a hog weighing from 170 pounds to 210 pounds. The hog should be finished, but should not carry an excess amount of lard.

It is recommended that the hog raisers of the county use pure bred boars of good quality as it is realized that this is a means of producing a

better quality of meat as well as reducing costs.

The committee endorses the boys' and girls' pig club work as a means of interesting the young people on the far min this enterprise.

It is recommended that Lane county farmers consider the feasibility of reorganizing the Livestock Shipping Association as a means of stabilizing the price for hogs and other classes of livestock.

Sheep

Marketing—1. We recommend that the best weight and type of lambs for market should be lambs which weigh from 75 to 90 pounds, closely and compactly built.

2. The cost of marketing lambs is about $1 per hundredweight to Portland and $2 per hundredweight to San Francisco. Fifty cents per hundredweight should be added if buyer takes lambs at the farm.

3. We recommend that the grower of lambs follow the market closely through the daily newspapers and/or the radio; and that no grower sell lambs below the market price or lambs not properly finished.

4. We recommend that lambs be sold early while grass is good and ewe is giving plenty of milk, and while the lambs are milk fat.

Supplemental Pastures—1. We recommend the use of supplemental pastures as a means of increasing the percentage of fat lambs for market early in the season. Such crops as rape, sweet clover or other suitable crops are suggested for this purpose.

Parasites and Diseases—1. Naval illness and stiff lambs are common and cause heavy losses. We recommend lambing in clean, sanitary quarters or pastures and treating navals of newly born lambs with tincture of iodine or other disinfectant. Hemorrhagic septicemia is serious in some flocks. We recommend vaccinating affected flocks with the vaccine prepared by the department of bacteriology of Oregon Agricultural college.

2. We are of the opinion that parasites in sheep take a larger toll than perhaps any other thing, and cause a cash loss to the producer which runs into a large figure.

3. One of the worst causes of loss to the sheep man is worm infestation of his flock. This can be prevented—first, by frequent change of pasture and second, by treating the flock with a proper worm remedy. Among these are tetrachlorethylene capsules and a remedy used by some sheep men and recommended by the U. S. bureau of animal husbandry and known as the Cu-Nic mixture. This mixture is for the treatment of sheep infested with the true stomach worm and also the broad tapeworm.

4. Another parasite that causes great losses among the sheep of Lane county is "Liver Fluke." The fact that in Lane county we have vast areas of low and undrained bottom lands in which these parasites breed and thrive, is the reason for this loss.

The federal government having recognized the damage done to Lane county flocks by these parasites, has as part of a state-wide campaign, appropriated funds for the drainage of some of these low and swampy areas.

Much could be done by the individual farmer along this line, by ploughing out ditches and doing some hand work, and we recommend that the sheepman who has low or swampy land, give more attention to proper drainage. Another method is to treat the infested areas with copper sulphate. This has proven a valuable means of ridding wet and swampy areas of the snails which are the hosts of the intermediate stages of the fluke, and this is the most important step in controlling fluke.

This chemical will kill snails overnight in a dilution of one part to 1,500,000 parts of water.

To rid sheep of mature flukes in the bile ducts, capsules containing 1 c. c. doses of carbon tetrachloride are administered.

It is advisable to give a second dose in from three to four weeks.

A third successive dose is given to complete the destruction of the maturing flukes.

Sheep Ticks

This is another source of loss to the sheepman and can easily be prevented by dipping the sheep and lambs at shearing time and oftener if necessary.

Predatory Animals

Coyotes, bob cats and cougar are the most destructive of the predatory animals. We recommend that the sheepmen of Lane county keep and

use good "varmint hounds." Traps ar also effective if properly used.

We deplore the promiscuous use of poison by government hunters or others because of its wanton destruction of dogs and harmless game animals.

4-H Clubs

We recommend that 4-H club members be encouraged to purchase purebred sheep. The return will be greater to the club member, he will find greater satisfaction in handling them and his sheep will be more uniform when exhibited in competition with those of other 4-H club members.

We recommend that the boys and girls of Lane county be encouraged to form 4-H sheep clubs.

Fat Lamb Show

In view of the fact that fat lambs marketed by July 1 enjoy a higher market price, the committee recommends that the Junction City 4-H fat lamb show receive full suppport and cooperation; that 4-H sheep club members be encouraged to exhibit; and that adult breeders accept the invitation to exhibit in accordance with the plans of the show to make it a market day for fat lambs in Lane county.

Flock Improvement

We recommend that all sheepmen should use purebred rams and purebred foundation stock of good conformation, and heavy fleece of good quality. The saving of cross-bred lambs for breeding stock is to be discouraged.

We recommend that sheep be kept on Lane county farms only in such numbers as pasture and feed will permit, and we discourage the carrying of more sheep than those which can be maintained in the best of condition. Sheep not properly fed or cared for cannot show a profit.

Angora Goats

Recommended that purebred foundation stock of good conformation and good fleece be used. Improvement in animals and fleece should be through the use of purebred billies.

Goats should only be kept where they can be worked with a land clearing program.

Diseases and control is the same as for sheep.

Beef Cattle

Beef cattle production is comparatively small in Lane county and probably all of the available range is now in use.

We recommend that beef cattlemen avail themselves of the opportunity now being offered through the Bangs disease program to clean up their herds of this disease. It is further recommended that beef cattlemen continue the testing for tuberculosis.

It is recommended that only purebred bulls be used in beef herds.

The livestock committee feels that there is a field for fattening of cattle on a small scale under Lane county conditions. This is due to the fact that there is an increase of alfalfa grown and enough home grown grains are available to fatten a few cattle in the county. The return from cattle feeding depends to a considerable degree on careful buying of feed. It is usually considered that a two-cent spread is necessary between feeders and fat cattle. Such rations as alfalfa and barley or mill run or wheat make a satisfactory feed combination. It is recommended by the livestock committee where feeding is contemplated that only beef type cattle be considered for this purpose.

The return from cattle feeding is not only the spread in price between feeders and fat cattle, but each animal fattened will produce from three to five tons of manure which will be helpful in building up soil fertility.

Under western Oregon conditions, it is advisable to feed under sheds. Long yearling feeders are considered best suited for the feed lots.

DAIRYING COMMITTEE REPORT

With the national demand and consumption of dairy products increasing as industry and the buying power of the public improves and with the price of dairy products still relatively low as compared to beef, pork, and veal prices, there appears to be no particular indication that production will get out of line with consumption during the immediate future. There seems to be no marked change in the total number of milk cows in the United States in prospect for the next couple of years. Total milk production during 1936 with average weather and feed conditions may be expected to be about 4 per cent to 5 per cent greater than in 1935. With further business improvement the yearly average butter price will probably rise in relation to other commodities.

Production Statistics

A summary prepared by the Extension Service of the Oregon State Agricultural College shows that the cow population in Lane county, the state of Oregon, the 11 western states, and the United States has increased steadily since 1890. There were 8,742 cows in Lane county in 1890 and best available estimates indicate that there are 13,000 cows in the county at this time. In 1890 there were 114,000 cows in Oregon and in 1935 there were 270,000. In the 11 western states there were 721,000 in 1890 and 2,177,000 in 1935. Census figures show that there were 16,512,000 cows in the United States in 1890 and 25,100,000 in 1935. A complete table showing numbers by years can be seen in the office of the county agent.

Marketing Statistics

There are six creameries and two cheese factories in the county serving the different areas of the county and manufacturing facilities are more than adequate to take care of the present or immediate prospective production of dairy products in the county. Prices paid in Lane county for butterfat are in line with Portland, San Francisco, and Los Angeles prices of butter. (A table showing the relative 92-score bulk price of butter in Portland, San Francisco, and Chicago for the past five years was included in the dairy report and can be seen in the office of the county agent.)

Production Recommendations

Feed Supply—1. An adequate supply of high quality legume hay is necessary for the most economical milk production. Lane county dairymen should grow as much of their hay as possible and should adapt the crop grown to the land that is available. We recommend the production of alfalfa where land suitable for this crop is available, and either clover or vetch and oats on other land. In this connection we call attention to the fact that there is still room for expansion of alfalfa in this county and also to the fact that acreage of vetch and oats can be materially increased in western Lane when the land is limed.

2. Many experiments and the experience of dairymen have proved milk can be produced more economically when there is an abundance of good pasture. There are many small streams going to waste in Lane county that could be utilized to excellent advantage in the growing of irrigated pasture, such as Ladino clover. (See Oregon Experiment Station Bulletin No. 264, "Irrigated Pastures for Dairy Cattle.")

Willamette sweet clover is highly recommended for pasture on land that is suitable for the production of alfalfa. This is the stem-rot resistant type of sweet clover that is especially adapted to Willamette valley conditions and has proved its worth on many farms in Lane county, especially in the Junction City area. Seed can be purchased from Junction City farmers. Sudan grass is an annual crop that is recommended where no permanent pasture is available. This crop should be planted May 25 to June 1, at the rate of 30 to 40 pounds per acre. Rape is also recommended as an annual pasture crop.

The committee wishes to call to the attention of Lane county dairymen the value of alfalfa as a pasture crop. On land on which alfalfa grows throughout the summer it is probable that the dairy farmer can make more money per acre of alfalfa by pasturing the crop after the second cutting is removed than in any other way of

handling the alfalfa. There are many fields that have become so grassy that they are no longer useful for hay production. Dairymen might well allow such fields to stand for a year or two for pasture. There is some danger of bloat in pasturing alfalfa and rape and care should be used, especially when cows are first turned on this type of pasture.

3. While succulents are not absolutely essential in the production of milk, they are a valuable part of the dairy ration and we recommend that some succulents be provided on every dairy farm. Corn or vetch and oats are recommended for silage and such crops as kale, turnips, and mangels are recommended for feeding from the field.

4. The committee recommends the feeding of concentrates where possible and calls attention to the fact that the feeding of concentrates is absolutely necessary for the highest production of milk. Dairymen should raise as much of their grain feeds as feasible for their farm and buy necessary supplements to make a balanced grain feed. In this connection, we call attention to the fact that a balanced dairy ration should be fed, considering the entire ration of the herd.

5. It appears that the feeding of minerals is necessary on most Lane county farms. For information on this subject see Oregon Experiment Station Bulletin No. 309, "Mineral Feeds."

Improved Breeding Practices

1. We call attention to the fact that there appears to be a deterioration in the quality of bulls used on Lane county dairy farms. The continued use of other than the best bulls available will result in lowering the average production in the county. Every dairyman should use a good purebred bull and proven bulls should be kept in service just as long as they are active and potent. Where the individual dairyman can not afford to purchase a good bull, he should give consideration to going into partnership with one or more neighbors. The expense of maintaining good bulls can be reduced by exchanging after they have served their time with one lot of cows.

Economical Size of Herd

1. The committee realizes that no one can tell a dairyman what is the most economical size of herd for his farm. However, the committee recommends that the dairyman handle an economical unit and preferably handle a sufficient number of cows to make the use of the best types of milking and milk handling equipment feasible.

Disease Control

1. Reports received in the office of the county agent show that between December 17, 1934, and January 6, 1936, the laboratory of the Oregon Experiment Station tested blood samples from 14,320 Lane county cows in the federal program for the eradication of Bang's disease. Of these cattle, 652 head, or 4.53 per cent were reactors. Most of the herds in which reactors were found on the first test were re-tested and this number is included in the total previously given. By the close of January 5 cattle had been tested in 1557 herds. The test showed approximately 5 per cent of reactors when re-tests were not considered. The committee recommends that this project be carried on as rapidly as possible and that every Lane county cattle owner cooperate in the campaign and have his cattle tested for Bang's disease to the end that Lane county may become a Bang's disease-free area. This will result in more economical milk production and will lead to a better market for surplus dairy stock.

We recommend also that the Oregon State Bang's Disease Control Law be made effective in Lane county January 1, 1937, and that every effort be made to continue an active campaign on this disease until it is eliminated from the county under this act.

2. While Lane county is designated as a tuberculosis-free area by the United States department of agriculture, we still have a small amount of this disease in Lane county cattle. Dairymen should watch their herds carefully and have them tested if suspicious that the disease is present. County area testing should be resumed in Lane county on January 2, 1937, and all cattle in the county should be tested during 1937.

3. At the present time one of the serious diseases affecting dairy herds in Lane county is sterility, or shy

breeding. We wish to call attention to the lack of information on this disease and request that the Oregon State College Experiment Station institute adequate experimental work to remedy this condition and eliminate the large losses caused by it every year.

Herd Improvement

1. Boys' and girls' 4-H clubs can render a service by providing a source of purebred dairy stock in communities where they are organized. The committee recommends that loans be made available to 4-H club members at a low rate of interest for the purchase of purebred dairy animals, and recommends the organization of more dairy clubs.

2. Herd improvement association testing has proved to be the most economical and most efficient method of testing a large number of cows so that low-producing animals may be removed from dairy herds and so that better and more economical feeding and management may be adopted. The committee recommends that dairy herd improvement associations be organized in Lane county and that dairymen join these associations and support them. Such associations will lead to more economical production of milk in herds tested and also will help in the sale of surplus dairy stock.

Handling Surplus Cattle

1. The production of surplus dairy calves and dairy cows is at present a source of income on many Lane county farms and is recommended for expansion where plenty of pasture is available and where such stock can be produced at low cost.

2. Most of the surplus cows of Lane county are now sold for shipment to California for re-placement purposes. It appears to the committee that there is too great a difference between the price received by Lane county farmers for surplus cows and the price that California dairymen pay for these same cows. The committee recommends that Lane county dairymen conduct a survey to determine the feasibility of organizing a cooperative shipping association to handle Lane county surplus cows and calves. We recommend that any dairy committee working on this activity cooperate with Lane Pomona grange, which is now investigating the livestock marketing problem.

Quality Improvement

1. Dairy products sold to consumers must be of uniformly high quality if best prices and high consumption are to be obtained and if dairymen are to receive the highest possible prices for milk and cream. The production of quality dairy products starts on the farm and we urge dairymen to use all possible means to produce the highest quality product and to insist that manufacturers grade and pay for products on grade.

Marketing Recommendations

1. We believe that there is room in Lane county for a reasonable increase in dairying on farms where feed and labor resources are adequate and production costs can be held to the minimum. There is also room for more total production without increasing the number of cows by increasing the production per cow which is a major factor in lowering the cost of production and making the dairy business more profitable.

2. The present operation of the Oregon Milk Control Act has been of great service to the fluid milk producers in Lane county in stabilizing the marketing and distribution of fluid milk. There is now an adequate supply of fluid milk and no new production is needed at the present time.

3. We believe that butter substitutes do not bear a fair share of the tax burden in comparison to dairy products and recommend support of proposed 5c per pound federal excise tax on all oleomargarine.

4. There is much competition by highly advertised manufacturers of foods of all kinds for a place in the consumer's stomach. Dairy products have many advantages which have been little advertised in promoting the use of more of these products. We recommend that the dairy industry, both producers and manufacturers, of Lane county support and contribute to the work of the Oregon Dairy Council. We also recommend that a committee of dairymen, manufacturers, and distributors be appointed to work out methods for obtaining this support and arrange, if possible, to have a permanent worker of the Dairy Council assigned to this territory.

5. Cooperative marketing of dairy products during the past decade has been done very successfully in Oregon and in Lane county. We recommend continued support for this method of marketing and that every effort be made to improve and expand present dairy cooperative marketing facilities.

POULTRY COMMITTEE REPORT

I

The Oregon Poultry Situation

Oregon produces a surplus of eggs above the needs of state consumption. This surplus must be exported to distant markets, principally on the Atlantic seaboard, and California. The major part of the commercial egg industry lies in the counties west of the Cascades. The surplus eggs of Oregon must be of high quality in order to meet competition from other districts and to justify transportation costs.

The state is well adapted to commercial egg farming. The extent to which the industry will increase, and the extent of its export volume will depend upon the progress Oregon farmers make in guiding their production toward the existing requirements of outside markets.

The industry has weathered the storm of depression in a most creditable manner. The industry is expanding in Oregon and elsewhere as well. Oregon eggs are meeting keen competition from sections near its eastern market outlets. If Oregon preserves its present market outlets; or if Oregon develops a real industry for which western Oregon is particularly well adapted, it must change many small farm flocks into business units.

II

The Lane County Poultry Situation

The poultry industry of Lane county or of any farm in Lane county cannot be considered a unit in itself. It must be considered in relation to the status of the entire industry.

Lane county in 1930 had 4,069 farms. In 1935 there was an increase of 580 farms with a total number of 4,649. According to the 1930 census, 3,123 farms or 77 per cent of them kept poultry. 1851 of these farms had less than 50 hens; 568 reported flocks above 50 but less than 100 hens; 321 farms kept flocks varying in size from 100 to 200 hens; while 383 farms kept from 200 up to large commercial units. The number of flocks that were too large for home use and too small to justify the care needed for export market requirements was too great.

In 1930 the value of chickens produced was $402,815. The value of chicken eggs produced was $852,658 or a total farm production value for the year of $1,255,473. The sale of poultry and eggs comprised 21.6 per cent of the average cash farm income of the county for the years 1926-1930.

Lane county produces a surplus of eggs which as a contribution to a state surplus must be marketed outside the county and state.

III

Market Outlets

Producers of eggs in Lane county have the choice of selling either through established independent dealers or through the Pacific Cooperative Poultry Producers' Association which maintains one of its four branch stations in Eugene, the county seat of Lane county. The cooperatives of the coast states maintain their own sales headquarters in eastern cities. The grower's choice of market outlets has been brought almost to his door.

Feeds and Supplies

Growers have the choice of purchasing their feeds and supplies from independent dealers or through cooperative channels.

Breeds and Additional Market Outlets

The export demand is for white shelled eggs. This demand naturally results in the Leghorn and other white egg breeds dominating the situation. This does not mean the exclusion of the heavy breeds such as Reds, Rocks, and other brown shelled egg breeds from Lane county farms.

The demand for eggs from well managed flocks of both classes to supply hatcheries, both within and out of the state, should be considered

by many farmers as additional market outlets. The flock owner engaged in the production of hatching eggs should receive a more liberal premium above top market quotations than prevails generally throughout the industry.

IV

The Poultry Outlook

Oregon produces only one per cent of the nation's poultry products. With this volume, it has little voice in setting prices. Producers here operate on a margin between New York prices minus the overhead of delivering eggs of certain grades to the markets.

The industry here and throughout the nation will expand in all phases throughout 1936 as a result of favorable prices in 1935. The Pacific coast states in 1936 (as in 1935) will probably show the highest per cent of hatching increase. This increased number of pullets next fall will likely have a slightly depressing price effect which will be partially offset by an expected increased consumer buying power.

Egg consumption has declined since 1932. Higher meat prices will tend to place eggs in a more favorable position.

As a result of better egg prices in the United States and a favorable foreign rate of exchange, the imports of dried, frozen and shell eggs increased rapidly during 1935. The tariff on foreign eggs was sufficient during the years of low prices and normal exchange conditions. Efforts to remedy the foreign egg import situation, by trying to get through Congress an excise tax law, failed because of lack of support by the industry. The imports for 1935 were in excess of 15,000,000 dozen shell eggs equivalents.

The poultry industry as a planned industry in Oregon is sound business. A number of the new farms; rehabilitation; resettlement, and subsistence farms will keep poultry. If Oregon's expansion is toward barnyard flocks rather than toward flocks large enough to justify commercial care it cannot economically hope to meet export market requirements.

Eighty-eight per cent of the farmers who keep chickens in Lane county have less than 200 hens. These flocks are too small to justify frequent gathering, proper farm storage facilities, frequent deliveries in case lots, and other factors necessary to an industry on an export basis.

The outlook of the industry depends largely upon whether or not the farmers who keep poultry make a reasonable effort to adjust their poultry units in relation to the demands which prevail from established markets and in the carrying on of a basicly sound breeding program for the production of the kind of stock needed.

V

Recommendations

(1). On farms desiring small home table flocks, from which eggs do not enter trade channels, it is recommended that only flocks of two dozen hens or less be kept.

(2). For the farm which plans a sideline cash income from poultry, from which eggs will go into trade channels, it is recommended that a flock of not less than 400 hens be the objective.

(3). A farm which expects to derive its major source of income from poultry should develop a business unit of approximately 2000 hens.

(4). For a well rounded specialized poultry farm program operated under natural conditions of ranging young stock, an acreage of 20 acres is recommended. Where artificial confinement is practiced less acreage is needed. Rearing under artificial confinement is successful for the few; but is not given general endorsement for all.

(5). It is recommended that from 50 to 60 per cent of the laying flock be replaced each year with pullets.

(6). In purchasing day old chicks caution should be observed. They should be from pullorum-free parent stock, or from accurately blood tested parent stock with all reactors removed, provided no eggs are set from flocks showing in excess of 10 per cent reactors without one or more tests being made.

(7). Chicks under average conditions and equipment should all be purchased at one time. February, March and April are the three months in which the big majority of Oregon chicks are purchased.

(8). There are two types of brooder houses in general use by those in the industry, each designed to

overcome losses from soil contamination.

(A). The permanent brooder house, equipped with artificial yards such as wire, concrete or board floor. (See County Agent for Extension Bulletin 451).

(B). The portable brooder house equipped with skids for moving to clean soil. (Extension Bulletin 446). The permanent brooder house is, because of less labor overhead, in general use throughout commercial regions.

(9). Shelter houses closed on three sides are recommended for young stock on the range. (Extension Bulletin 442).

(10). Green feed should be provided throughout the growing period and fed liberally until the pullets are in production. It may then be reduced in the interests of avoiding too dark yolk color. Kale or alfalfa are the main green feed crops with carrots supplying winter succulence in case of a freeze.

(11). The greatest economic loss to the poultry grower is loss of quality of the eggs on the farm after they are laid and before they reach the graders candle. "How to construct an Insulated Egg Room" is found in Extension Bulletin 445. This may be adapted in many ways in accordance with the needs and means of the individual farm.

(12). Extremes of temperature have shown that laying fowls do better in partially insulated houses. Plans for this type of house and others as well will be found in Extension Bulletin 480.

(13). More capital is required to develop a safe poultry enterprise than the amateur anticipates. Exclusive of land and the home, it will require a first year investment of approximately $2.50 to $3.00 per pullet before she starts production. This expenditure will include costs of brooder, fuel, feed, litter, cost of chicks, mortality losses, houses, and equipment. A well defined plan should be followed in order to give the best protection to the investment involved.

(14). It is urged that poultry growers give consideration to the present movement by turkey and poultry growers to combat thievery by: 1. Making poultry and turkey stealing a felony. 2. Encouraging a wider use of tattoo, registered branding. 3. Requiring all dealers to display a list of registered brands. 4. Publishing each year a booklet of all registered brands and place a copy with every peace officer in the state. 5. Eventually working toward requiring dealers to record all branded stock purchased in order that stolen property may be traced and claimed. 6. Having any grower purchasing branded birds for breeders get from the breeder a bill of sale in order that he could later present it when selling poultry having a different brand than his own.

(15). We favor the development of lower distribution of costs of cooperative feeds and supplies to members of various cooperative organizations and recommend a completed study of the feasibility of a state wide cooperative feed set-up as the medium to accomplish it.

TURKEY COMMITTEE REPORT

Oregon Situation

Oregon produces approximately 700,000 turkeys, of which more than half must be exported to markets outside the state.

Turkey growers have adopted modern methods of incubation, brooding, and rearing in semi-confinement. The turkeys from hatching to market age are fed balanced, growth promoting, and finishing feeds. The adoption of these practices has made mass production a common farm practice. The priced feeds, climate and green feed, foundation breeding flocks, and both independent and cooperative marketing outlets for their product. During this period of general expansion Oregon growers are engaged in a highly competitive business in which a survival of the fittest by individuals and by districts will ultimately adjust the industry.

Lane County Situation

During the past few years the tur-

key industry of Lane county has extrend is toward large commercial flocks in the hands of fewer operators and a decline in number of range reared birds.

The ready sale of day-old poults has stimulated the expansion of commercial hatcheries. The demand for hatching eggs has resulted in many farms maintaining mated flocks for the production of them.

Disease factors drove the turkey industry westward in search of new and cleaner range land. Oregon, along with other western states, under natural methods of rearing, held for years a distinct advantage. As other states adopt artificial methods of mass production, Oregon's turkey industry will face increased competition.

Turkey breeding shelter houses, artificial lights, selecting breeders for early maturity, and northern and eastern hatcheries contracting winter hatching eggs for early poults, are factors which result in an increasing number of early turkeys being marketed in late summer and fall.

This occurs before the market price has been established and before the cold storage holdings have been consumed. The industry is rapidly losing its speculative possibilities and is becoming a marginal business of narrower profit per pound of meat.

The turkey crop of 1935 had a more favorable ratio between feed cost and turkey meat prices than often exists. As a result of this favorable year, the general trend toward expansion indicates a strong possibility that the number raised may soon exceed that which the per capita rate of consumption will absorb at fair prices.

Oregon turkey growers have the advantages of experience, reasonably panded rapidly. In addition to the production of market turkeys, it has established hatcheries and breeding farms which supply poults and breeding stock to many parts of the nation. It produces a surplus of approximately 35,000 market turkeys which must be marketed outside of the state as a part of the export crop of the state as a whole.

The depression, aided by the great drought in the midwest, reduced the numbers of chickens and turkeys. The same causes, aided by agricultural adjustment, resulted in reduced supplies of pork and other meats. Turkey growers who plan great expansion for 1936 must recognize the fact that their product will have to compete against an increased supply of chickens, turkeys and other meats. Only an improved consumers demand can prevent a somewhat depressing effect on prices.

Turkey production is an agricultural enterprise for which Lane county is well adapted and in keeping with general economic conditions should be encouraged, but not exploited.

Market, Supplies Situation

Growers have a choice of marketing their turkeys through established produce firms or through an established cooperative marketing association; the Western Oregon Turkey Growers' association; a member unit of the Northwestern Turkey Growers' association.

Producers may purchase their feeds and supplies either from established feed companies or through cooperative channels, as they choose.

The existence of both methods of marketing and of purchasing supplies is a great factor in stabilizing the industry in the county and protecting the investments of the growers.

Nature of the Industry

The turkey business is a short term business. During periods of good prices many rush into it. During periods of low prices there is a general exodus of marginal and loser operators. The cycle of both high and low prices is short.

The business adjusts itself more quickly than many long term agricultural enterprises.

In addition to a thorough study of economic conditions affecting the turkey industry, the successful grower is one who fortifies his business with proven management practices, knowledge of disease control, overcoming known hazards, studying his cost of

producing a pound of turkey meat, and establishing ample credit.

Recommendations

1. Breeding stock should be selected early in the fall and kept separated from the market flock during the fattening periods. The breeding stock should be given a breeders' mash from early January throughout the breeding season.

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

3. The cost of producing turkeys can be materially reduced by providing succulent green feed during the growing period. Turkeys are great consumers of roughage in this form. In addition to rape, alfalfa, clover, Sudan grass, and similar crops, row crops such as corn or sunflowers should be provided for both green feed and shade on farms where natural shade is not available.

4. Turkey prices are depressed each year through the arrival on the market of poorly finished birds. No turkeys should be killed for market until they are properly finished in both flesh and feathering.

5. Ample credit is necessary to grow out, properly, a band of quality turkeys. Beginners too often think in terms of profit rather than costs. Growers should, roughly, provide finances to the extent of the cost of one sack of feed for each market turkey.

6. Credit when extended to the extent of furnishing brooder houses, brooders, fuel, poults, feed and groceries to new beginners is unfair competition against established growers. It results in exploiting an industry to the detriment of all. It is urged that a general credit policy be established of extending credit only to growers who can finance their turkeys to eight weeks of age.

7. There are disease and parasite hazards which growers must consider. The most common ones are fowl-pox, roup, pullorum, mycosis, worms, and coccidiosis. Each of these hazards can be controlled with a minimum of loss to the growers. Growers are urged to protect their investments by having an authentic diagnosis made of disease outbreaks as early as possible.

8. Turkey stealing is a growing hazard against which producers must protect themselves. (See Recommendation No. 14 in poultry report).

9. The use of individual farm semi-scalding equipment is to be discouraged. Dressing turkeys by this method except for immediate consumption or when proper cold storage facilities are available is not recommended.

10. Along with the NRA, the breeder and hatchery code was thrown out and is no longer effective. It incorporated many provisions for fair trade practices within the industry. The provisions covering false, fradulent, and misleading advertising were taken from a poultry trade agreement made with the federal trade commission prior to the formation of the hatchery code. This was not repealed. Anyone being damaged by misleading advertising has recourse through the federal trade commission. Complaints may be made through the president of Oregon Branch of International Baby Chick association or through the fair trade practice commission of International Baby Chick association, Kansas City, Mo.

Supplement to Turkey Report

Oregon has established a reputation for quality turkeys second to none. The adoption of the government written grades has provided a definite knowledge of what constitutes a uniformly good turkey. The grading being done by a disinterested, licensed third party, has creating confidence on the part of both the producer and the buyer.

Since this definite method of grading was adopted in 1931 the per cent of prime birds in the total volume shipped from four separate districts of Oregon has increased as follows:

Oregon turkey growers (for the western Oregon section): From 78.26 per cent to 88.75 per cent.

Eastern Oregon turkey growers: From 79.93 per cent to 92.78 per cent.

Southern Oregon turkey growers: From 85.1 per cent to 86.38 per cent.

Central Oregon turkey growers: From 76.4 per cent to 93.07 per cent.

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