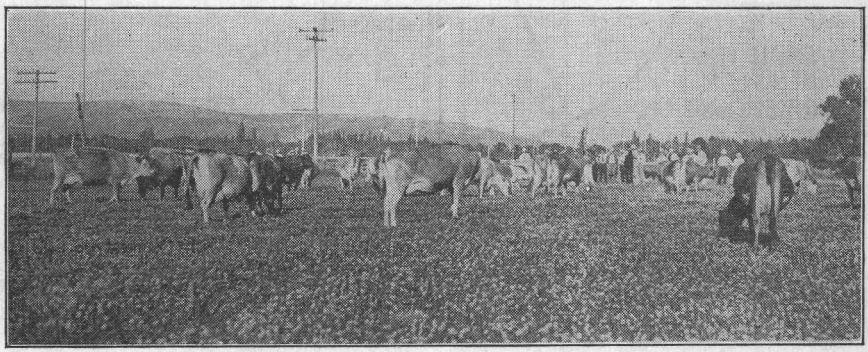
REPORTS OF THE

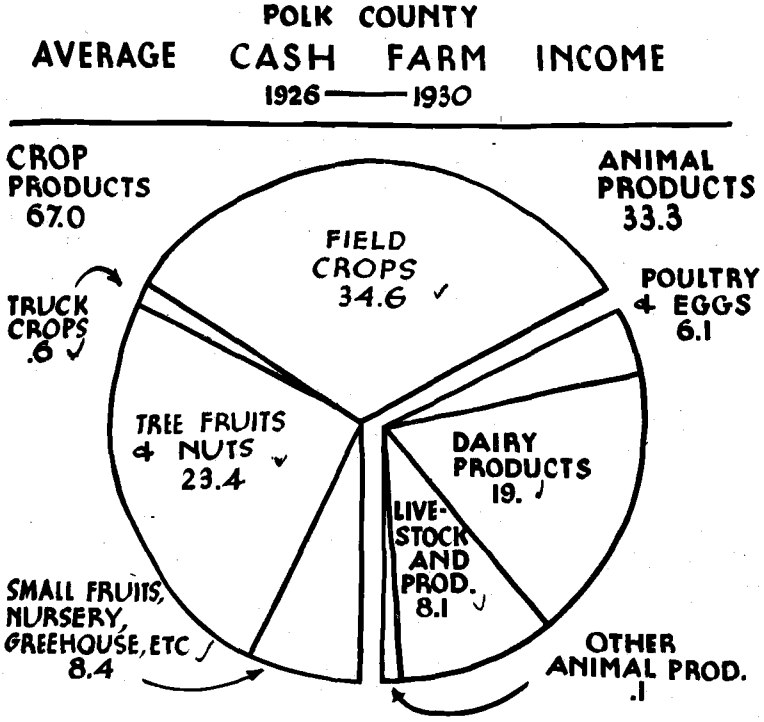
Polk County Agricultural Conference

DALLAS, OREGON, JANUARY 16-17, 1936



A herd of purebred Jerseys on irrigated Ladino clover pasture.

Conducted by Representative Farmers and the Extension Service Of the Oregon State College, cooperating



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Report of Farm Crops Committee

WHEAT

I. THE WHEAT SITUATION

High tariffs, drastic import restrictions, and domestic production in European countries stepped up by high guaranteed prices, has combined to reduce the amount of wheat required by import countries. European imports of a billion bushels of wheat in all have been reduced to about 500 million.

The United States 1934 wheat acreage planted was 60 million acres and that for 1935 is estimated at 66 million acres compared with an average of 66 million for the crops of 1930 to 1932. There is, therefore, no significant decrease in the United States wheat acreage. This country can again very easily supply 200 million to 300 million bushels for export alone.

No one on earth can predict wheat prices. So far as one can look into the future, the international price situation is not good unless some calamity occurs. Foreign nations will not take our wheat unless they have to. This is not apt to be changed unless we agree to import larger quantities of their manufactured goods.

The Oregon wheat acreage has remained stationary except in the Willamette Valley and in the irrigated sections where it is declining. The Willamette Valley used to export two million bushels and now it imports a half million bushels.

The acreage in Polk county has declined as shown by the following table:

1879	50,000 acres
1889	42,000
1899	49,000
1909	12,000
1919	32,000
1925	19,000
1929	17,000
1935	15,000

II. WHITE WINTER, WHITE HOLLAND AND ZIMMERMAN ARE LEADING POLK COUNTY VARIETIES.

A survey would indicate a varietal distribution as follows: White Holland, 35%; Zimmerman, 30%; White Winter, 15%; Jenkins Club, 8%; Miscellaneous, 12%.

1. Cost of Production.

The costs as given below on winter wheat do not represent the costs on any individual farm but are intended only to serve as a guide:

Item	Cost Per Acre
Interest on land at 4% (Valuation $80)	$3.20
Taxes	1.50
General farm overhead	2.00
Plowing	2.00
Harrowing twice	.50
Drilling	.50
Combining	2.50
Seed	1.35
Sacks	.90
Trucking	.55
Total	$15.00

If the wheat is bound, shocked

and threshed, the cost will be from 65 cents to $1.00 per acre higher. For spring grain, there will be an extra charge of $2.00 per acre for spring toothing, discing and harrowing.

2. Disposition of Wheat.

Polk county is the only Willamette Valley county now shipping wheat regularly from the county. Of the 300 thousand bushels grown in the county, more than 200 thousand bushels are used locally for feed and seed and that shipped goes mainly to other Willamette Valley points. Since the wheat is used so largely for feed, the matters of mixtures and quality are not so important as they used to be. Increasing turkey and chicken production in the county results in larger and larger amounts of local wheat being used for local feed.

III. RECOMMENDATIONS.

1. Winter Wheat is Highest Yielding Grain.

From the standpoint of pounds per acre, winter wheat is the highest yielding grain which farmers can grow with the possible exception of corn on some lands. Inasmuch as most of the wheat is used locally, we recommend no further reduction in the winter wheat acreage. Some further reductions may be desirable in the spring wheat acreage.

2. The average yield in the county is about 22 bushels. With an average selling price of 70 cents this just about pays the cost of production. The yield must be higher than this and there is no substantial profit under 30 bushels per acre with present price conditions.

3. Jenkins Club, Zimmerman, and White Holland fill the need in the county except for very late planted wheat in which case Marquis or Houston are more desirable.

4. We urge a few farmers in the county to grow certified seed of these varieties. These can then serve as sources of seed for all.

5. Ceresan is best for smut control. It is cheaper than copper carbonate, is more effective and safer than formaldehyde or blue-stone and it can be used with equal success on oats and barley.

6. We recommend the use of more alfalfa land for rotation purposes.

BARLEY

I. THE SITUATION.

The barley acreage in the county has been as follows:

1909	600 acres
1919	1,000
1924	1,000
1929	4,000
1934	4,600

Spring barley will out-yield spring oats on most soils 350 pounds per acre.

Barley equals corn in feed value. It could replace part of the spring planted oats and could replace much of the corn which is shipped into the Pacific Northwest.

The cost of growing barley is approximately the same as the cost given above for growing spring wheat.

Good winter barleys are now available at the experiment station.

There is now a malting plant at Vancouver which uses several hundred thousand bushels of barley yearly. They prefer Atlas and certain other varieties but none of these is as good as Hannchen for yields. They use Hannchen for their malt but most of the locally produc-

ed Hannchen is threshed too closely to be suitable for malt production. For that purpose, the threshing must be done so that kernels are not broken and so that the base of the beard is left on the kernel.

II. RECOMMENDATIONS.

1. Increase barley acreage. The 5,000 acres of barley are out of line as compared with the more than 20,000 acres of oats. Since barley yields more pounds per acre than oats and since both are largely used for local feed anyhow and since barley is worth more, pound for pound, as a feed than oats, we recommend that the barley acreage be doubled at the expense of spring oats.

2. Use more winter barley of winter hardy type.

3. Grow barley in legume rotations.

4. Treat seed with Ceresan.

OATS

I. THE SITUATION.

The oat acreage in the county has been as follows:

1909	31,000 acres
1919	25,000
1924	22,000
1929	17,000
1934	21,700

The county produces roughly one-half million bushels of oats which are largely used here but some of which go to Portland or to other Willamette Valley points. Probably about 100 thousand bushels are shipped from the county and the balance used for seed and feed locally.

In most years about one-half of the oat acreage is gray winter oats and one-half is divided between Victory, Kanota, Shadeland Climax and other miscellaneous varieties. Oats normally yield less poundage

Polk county farmer and representative of the State College Extension Service examining row plantings of seed oats for varietal improvement

per acre than either spring barley, winter barley or winter wheat. The price per ton for oats is usually about the same as for barley with the exception that choice milling or certified seed oats sometimes command a premium.

II. RECOMMENDATIONS.

1. We recommend that some of the oats give way to both fall and spring planted barley.

2. We recommend that a few growers concentrate on seed production and keep a supply of certified seed available of both Grey Winter and Victory.

3. Ceresan for seed treatment.

CORN

I. THE SITUATION.

The corn grown strictly for grain and not for silage has been as follows.

1879	60 acres
1889	70
1899	370
1909	190
1919	1,287
1924	554
1929	740
1934	537

The average yield in the county is approximately 30 bushels per acre and in pounds per acre it exceeds the average of any other grain. It is probable, however, that corn is grown on better land and if grown on the same land as winter wheat it might average very little more than wheat.

The total cost of corn production is slighty greater than the cost of growing wheat. With the exception of taxes and interest, the corn cost is mainly labor cost whereas with grain production, machinery maintenance and threshing costs are cash costs.

The Pacific Northwest imports yearly about 100 thousand tons of corn. Part of this comes to Polk county.

Since corn is shipped from the middle-west, the price is normally the middle-west price, plus freight, plus handling charges. Corn is normally, in Oregon, from $5.00 to $8.00 per ton higher than either oats or barley.

Most of the corn now in use is of the Minnesota 13 variety.

Growing corn for grain to sell finds artificial drying necessary at a cost of from $3.00 to $4.00 per ton. Some use prune, walnut, or hop driers and at least one man in the Willamette Valley has a specially built corn dryer. It is cheaper to dry shelled corn rather than to dry it on the cob. It can be dried shelled in from an hour to an hour and a half whereas it takes from 12 to 24 hours when dried on the cob.

For use on the farm, artificial drying is not required and the corn can be stored in narrow cribs.

1. Objections to Corn.

Growers are pretty well agreed that they would raise more corn if it were not for the drying costs. There are some other objections, however, one of which is that corn planters and pickers are expensive because of the few hours per year which they are used on the average farm. Occasionally a fall comes when rains are almost continuous and in such years it is difficult to get into the field to haul out the corn.

2. Corn in Rotations.

Part of the value of growing corn lies in the fact that corn production tends to control weeds and to put the farm into better physical shape

for the production of succeeding crops. A combination of corn, clover and grain is almost ideal. Polk county badly needs cultivated crops and corn seems to be the only possibility.

II. RECOMMENDATIONS.

1. Arrange for more drying facilities. More walnut and prune driers as well as hop driers should be equipped for drying corn.

2. Use as a grain crop on small farms. On small farms where the use of the owner's own labor is important and where cash returns are small so that cash expenditures must be avoided, corn is a better grain crop than either wheat, oats or barley because the expensive cash costs of threshing can be avoided. This is particularly true if the grain is to be used at home so that there is no drying cost involved.

3. Use home-grown seed. Eastern seed should never be used, even for silage.

HAY

I. THE SITUATION.

Hay occupies more acres than any other single farm crop in Polk county. The acreage has been as follows:

1909	24,000 acres
1919	25,000
1924	27,000
1929	25,000
1934	25,810

Dairy cows have greatly increased in the county during the past few years. Horses have decreased and the outside demand for hay has decreased so that the acreage has remained about stationary. More of the crop is now being used within the county. At the time of the first conference in the county, 12 years ago, there were 124 acres of alfalfa. This has been increased to around 4,000 acres with a corresponding reduction in oat and vetch hay. Oats and vetch still lead in acreage followed by alfalfa and then clover.

An undetermined amount of the county's hay crop goes to Tillamook county. In 1934 perhaps 2,000 tons went to the drouth areas of the middle-west. Normally, no hay moves from the county except that which is trucked to Tillamook.

1. The Cost per Acre of Producing Hay Is as Follows:

Item	Vetch and Oats	Clover	Alfalfa
Int. on land, 4% (Val. $80)	$3.20	$3.20	$3.20
Taxes	1.50	1.50	1.50
General farm overhead	2.00	2.00	2.00
Plowing		1.00	.25
Harrowing or discing	1.00	2.00	.57
Annual working			1.50
Landplaster and spreading		.80	1.10
Lime			1.00
Haying	3.90	3.25	7.35
Seed	1.75	.85	.70
Seeding	.50	.50	.08
Total	$13.85	$15.10	$19.25

Vetch and oats averaged 2¼ tons in the county so the per-ton cost for that crop would be $6.10. Clover averages two tons, making a per-ton cost of $7.55 and alfalfa averages four tons making a cost of $4.81 per ton.

II. RECOMMENDATIONS.

1. Grow enough legume hay for all local livestock.

2. There is room for at least doubling the alfalfa acreage. Land once in alfalfa is worth about twice as much after the alfalfa is plowed up as it was before. The increase in value lasts for four or five years.

3. Follow proven practices with alfalfa. Every year we have a few farmers who think they can beat the game with alfalfa by following the same cheaper practices which are used in eastern Oregon, Idaho, or some other place. Failures or near failures are almost always the result. It pays to take the slower method of careful land preparation, use of Grimm seed, liming, inoculation, and killing of weeds before seeding.

PASTURE

I. THE SITUATION.

One of the greatest needs in the county is better pastures during July and August. As it is now, many dairymen and sheep owners are required to feed hay or grain.

II. RECOMMENDATIONS.

1. Develop irrigation for pasture.

2. Use sweet clover on non-irrigated lands where possible.

3. Sudan grass on heavier and later soils.

4. Alfalfa is one of the very best of the pasture crops. If it is pastured it should be rotated so that every part of the field is allowed to get into bloom once during the growing season.

5. Rape for sheep.

6. Spring-seeded true winter varieties such as White Winter, White Holland wheat and Winter Rye will furnish lots of pasture in the late summer.

SEED CROPS

I. THE SITUATION.

A. Clover Seed.

Since the last conference the United States has changed from a clover seed importing nation to one with domestic supplies large enough to care for domestic needs. This is due not so much to any increase in clover seed production in the United States as it is to diminished need for clover due to the use of other crops, particularly alfalfa in the north and Lespedeza in the south. The United States produces an average of about 70 million pounds of red clover and about 25 million pounds of Alsike clover. Imports are virtually nothing and normally the exports are small.

Cost of Production

The cost of production of clover seed is the lowest of any of the seed crops if a hay crop is taken from the land first. If a hay crop is not taken and the crop is used solely as a seed crop, then the costs are virtually the same as for grain, with the exception that the costs can be spread over a two-year period making a slightly lower cost per year.

Yields Have Decreased Markedly

Due to a combination of unknown factors, seed yields have decreased. Clover seed is no longer the large and paying industry which it was at one time. Some of the possible causes are: Land is lower in organic

matter so that it does not hold moisture as well; plant food is partially depleted in the soil; midges and clover borers and other insects are much more numerous than formerly; summer rains for the past 10 years may have not been as frequent as previously. Whatever the cause, Polk county is producing less clover seed both in acres and in pounds per acre than it did 15 years ago.

Agitation Against Oregon Seed

The agitation against Oregon seed carried on by middle-western states has calmed down somewhat following our promise to try to produce strains better suited to their needs. Where formerly Oregon growers received a premium in most years of from two to three cents over the prices paid middle-western growers, we now customarily receive a discount of one or two cents under middle-western prices.

Tennessee Anthracnose Resistant Clover Has a Market

Virginia, West Virginia, Pennsylvania, Maryland, Kentucky, Tennessee, southern Illinois, southern Indiana, southern Ohio and Missouri are still in the market for a good many carloads of Tennessee Anthracnose Resistant clover at a premium if we are able to supply them. The growing of this clover will require that foundation stock seed be introduced into the area every year from the middle-west and increased here so that none of our T.A.R. seed is more than five generations from the original stock.

II. RECOMMENDATIONS.

1. Clover or alfalfa should be grown in rotation upon every field.

2. T.A.R. clover recommended. For those people who intend to continue to grow seed, we recommend the T.A.R. clover. It is apt to command a higher price and gives just as good seed and hay yields as the other clover.

3. Experimental work recommended. We call to the attention of the Oregon Experiment Station the ruinously low yields obtained for the past several years and ask that a comprehensive clover seed experiment be undertaken to include:

a. Moisture tests in large number of fields in the county.

b. Fertilizer trials.

c. Midge control experiments.

d. Through the use of cages, the determination of the effect of bees in increasing seed yields—both honey bees and bumble bees.

e. Time of clipping and pasturing.

f. Irrigation, both by sprinkling and surface irrigation.

g. A survey of all of the clover in the county to be carried on for two or three years in which all of the factors which might possibly effect seed yields would be taken into consideration.

B. Vetch and Austrian Winter Peas.

I. THE SITUATION.

The southern states in 1935 used about 15 million pounds of Austrian winter peas and hairy vetch. Twelve million of this came from Oregon. The southern states say that they will continue to expand the use of these crops if cotton prices stay at a decent figure. Prices may occasionally decline sharply when the south has a dry fall or low cotton prices even in the face of a large and certain demand the following year.

Polk county has never grown many of the peas but has now a hairy vetch acreage, planted for production next year, of perhaps 7,000 acres. Production was stepped up materially for the 1936 crop all over the valley, the acreage being approximately doubled.

The southern people do not object to paying four or five cents a pound delivered in the south for the peas nor eight cents delivered for the hairy vetch. The freight cost of getting seed to the southern farmers is usually about one cent a pound. Dealers' profit, etc., makes up close to another cent.

Adaptability of Hairy Vetch

Hairy vetch will grow upon virtually any of the cultivated lands in Polk county. It volunteers very badly, however, and is one of the very worst of weeds in a wheat field.

Austrian Winter Peas

The worst trouble with Austrian winter peas is weevil and if one is to continue to grow the peas, it is virtually necessary to burn the straw in the field immediately after harvesting. Many growers do not like to do this, wishing to conserve the straw for feed or for plowing under.

II. RECOMMENDATIONS.

1. We believe the acreage of hairy vetch has gone far enough for the time being and growers should make no further expansion until they have a chance to see what happens to cotton prices since the removal of the AAA acreage control.

2. We recommend, that those interested in Austrian winter peas plant 40 acres or more, or else do not plant the crop on account of the weevil problem.

C. Crimson Clover.

Crimson clover is another crop which is largely used in the south as a cover crop, an average of about two million pounds being imported yearly.

The common price to farmers is about five cents a pound.

The yield averages around 800 pounds to the acre.

In many years the rains come too late in the fall for fall planting and if one wishes to grow this crop it is safest to summerfallow the land and plant the crop in late August or early September. The income in this way occurs only once in two years but the land is cleared of weeds and yields are usually enough higher to make up the difference.

I. RECOMMENDATIONS.

1. We recommend trials of Crimson clover in every Polk county community.

2. An ordinary threshing machine does not work well with Crimson clover. A clover huller is much more satisfactory.

D. White Clover.

White clover is also an import crop, a million pounds or more coming in over the tariff yearly into the United States. Yields in Polk county are good and the acreage can be expanded providing it is planted on land summerfallowed well in order to get rid of sorrel, as sorrel seed is difficult to clean from white clover seed.

E. Chewing's Fescue.

Chewing's fescue is important in the United States to the extent of a million pounds a year and it is a high-priced seed. We recommend that it be tried only on good land and it should be seeded only after a good summerfallow so as to free the land of the native rat-tail fescue and sorrel. Yields run from 100 to 300 pounds to the acre and the price is usually 30 cents a pound or higher.

F. Rough-Stalked Meadow Grass.

This is also an import seed to the extent of 400 thousand pounds a year. The committee does not know how it will yield and recommends

that it be tried only in small plots of a fraction of an acre.

G. English Rye Grass.

This crop is imported to the extent of more than one-half million pounds a year and it has been grown successfully in Polk county. The pasture types from New Zealand should be used and only from seed officially sealed and certified.

The land should be summerfallowed to clear it of common or Oregon rye grass. It will only yield one-half as much as ordinary rye grass but the price is more than twice as high. It is an excellent pasture grass.

H. Tall-Oat Grass.

This is the highest yielding grass. It is not used much. Seed is comparatively high priced. It shatters badly and when growers first cut a seed crop they usually leave it too long before harvesting with the result that most of the seed is on the ground.

I. Garden Seeds.

The increasing cost of water in California is making garden seed growing in that state more and more precarious and some seed firms would like to gradually transfer their growing operations to this state if farmers were sufficiently interested. Most growers here have not had experience in producing garden seeds and they cannot be grown in quantity unless the crop is contracted from the start with a seed firm which will supply the seed. We recommend the establishment of some garden seed nurseries on a small scale on the farms of people who are particularly interested so that they can get some idea of the problems involved before inviting large seed concerns to come in.

FLAX

The state flax plant in Salem is the only large flax plant in the United States. During the past 10 years it has handled the produce from 20,770 acres and has paid an average price of $31.80 a ton, has paid growers a total of $1,153,000. The average yield has been one and three-quarters tons and the average gross returns per acre for the entire amount have been $55.52.

The price offered is $25.00 per ton outright this year.

I. RECOMMENDATIONS

1. We recommend that farmers accept this offer of the state fiber plant to the extent of 500 or 1,000 acres.

2. We recommend that flax be put only on the best land such as the better Willamette type of soils or the river bottom soils.

Cost of Production

Item	Cost Per Acre
Interest on land, 4% (Valuation $80)	$3.20
Taxes	1.50
Overhead	2.00
Plowing	2.00
Harrowing and Discing	2.00
Seeding	.50
Seed (1½ bu. @ $2.50)	3.75
Harvesting	8.00
Hauling	5.25
Shocking and tying	.80
Pulling weeds ahead of puller	1.00
Total	$30.00

One puller can handle only from 70 to 100 acres per season.

HOPS

1. Hop growers interviewed by the committee seem to think that the hop acreage in the west is now providing about twice as many hops as are needed and that the situation is more or less hopeless until some of the lower producing yards go out of production.

2. We believe that production per acre is decreasing due to pests and diseases, depletion of soils and perhaps a lower moisture supply brought about by depletion of organic matter in the soil and a combination of years with less spring moisture.

3. Many of the Willamette Valley yards are to a severe disadvantage as compared with river bottom lands, irrigated lands in the Yakima Valley and in California and higher yielding land in British Columbia.

I. RECOMMENDATIONS

No new yards should be put in under present price conditions and many of the low yielding yards should be taken out.

Committee—R. D. Pence, Chairman
E. R. Jackman, Secretary
Victor Utterback
Henry Dickinson
J. B. Lorence
James Riddell
Vern Osborn
Claude Larkin
Herman Van Well
Claude Hoisington

Report of Horticulture Committee

Soils for Tree Fruits and Nuts

The soil for tree fruits and nuts should be eight to 10 feet deep and well drained. Trees will grow and sometimes yield profitably in soils of less depth, but on shallow soils, especially those underlaid with rock, hard pan, and high water tables, the growers will be faced with production difficulties early in the life of the orchard. These troubles are more pronounced during dry seasons.

There are numerous instances of orchard development projects which have been entire losses to the owners because the soils were totally unsuited for orchard plantings.

Orchard Soil Maintenance

Orchard soils need annual additions to 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 keeping up the per acre production and for growing quality products.

Suggestions for soil maintenance are as follows:

1. Cover crop annually.

2. Stable manure, 10 or 12 tons per acre annually.

3. Clover straw, two and one half to three tons per acre annually, or alfalfa hay refuse.

4. Straw, two and a half to three tons annually, supplemented by addition of 100 to 150 nitrogen fertilizer.

5. Nitrogen fertilizers applied in cover crop yield.

The Cover Crop.

Winter barley and vetch lead as an orchard cover crop. Thirty to 60 pounds of vetch and 60 to 100 pounds of barley. Seed early in fall. Plow down early in spring. Vetch alone, 60 to 80 pounds to the acre. Winter grain alone, 100 to 150 pounds to the acre. Turnips, three pounds to the acre. Rye for thin soils, 75 to 100 pounds to the acre. Winter barley, 60 to 80 pounds. Mixed grains and vetches may be used, but avoid noxious weeds.

PRUNES

The prune acreage in Polk county was 8,531 acres in 1920 and estimated at 10,300 acres in 1935. Prunes and plums for the state of Oregon are given at 43,311 acres in 1919 and 54,825 acres in 1933.

The Present Situation.

In keeping with predictions at the agricultural conference in 1924, production of dried prunes in the three Pacific coast states has reached a total of 450,000,000 pounds produced in 1935. During the same year, production of dried Italian prunes reached an approximate total of 75,000,000 pounds. In addition it is

estimated that more than 1,000,000 cases of Italian prunes were canned.

European trade barriers have closed the outlet for about 50 percent of the Northwest output, causing an acute surplus which has been further increased by a heavy crop in California.

There is little indication of any material improvement in prices of dried prunes under existing conditions.

Acreage in Polk county has varied very little during the past decade. The volume of fresh prunes for canning has become a factor of supreme importance to Polk county growers.

World Dried Prune Production Since 1899, Giannini Foundation

Year	California	Northwest	U.S. Total	World Total
1899	57,114	1,500	58,614	113,614
1909	75,000	22,250	97,250	156,950
1919	135,000	16,600	151,600	
1920	97,500	16,950	114,450	181,350
1925	146,000	11,900	157,900	207,900
1930	261,000	21,250	282,250	310,714
1934	170,000	32,200	202,200	238,699

Dried Prune Exports from U. S.

U.S. Average, 1928-32, 116,797 tons.
U.S. Exports for 1934, 85,626 tons.

Western Canned Prune Pack Trend.

1927	459,591	1931	759,271
1928	715,749	1932	506,880
1929	960,392	1933	794,024
1930	719,960	1934	846,000

Conclusions and Recommendations.

1. Under existing market conditions, cultivation and care of prune orchards which are not capable of producing an average yield of around 2,000 pounds of dried prunes to the acre and sizes larger than 50 to the pound, is questionable. Owners of such orchards would do well to consider their removal.

2. New plantings are discouraged.

3. Size and quality should be improved. Removal of part of the trees in plantings may be desirable when such trees are less than 24 feet apart. Greater care should be exercised in harvesting. Fruit should be picked at the proper stage of maturity and every effort made to keep out rotten, ill-shaped, or damaged prunes. Proper handling in the drier is imperative before there can be any hope of expansion of domestic markets.

Careful grading by growers of prunes for canning and drying is equally essential. Continued indifference of Oregon packers and canners generally to the necessity for uniformity and standards of quality is largely responsible for the relatively poor position of Oregon prunes in domestic markets today. Any initiative to correct the situation will have to be taken by the growers themselves.

4. Oregon dried prunes from growers are placed in 11 or more classifications dependent upon size alone. The committee again recommends that dried prunes be classified for size in not to exceed four grades, such as small, medium, large and extra large, and that differences in value be governed primarily by quality rather than size; and further,

that satisfactory standards of quality be set up and measures taken to insure proper identification of quality by the ultimate consumer. Italian prunes smaller than 70's should be declared sub-standard. The committee recommends that the State Department of Agriculture be requested to set up grades and standards based on quality for Oregon prunes.

The committee recommends the adoption of a uniform Oregon brand for all prunes meeting specified high quality standards.

Growers, packers and canners should take concerted action before the I.C.C. in an endeavor to obtain revision of railroad tariffs so as to permit shipment of mixed cars of canned and dried fruits, also frozen and barreled at their respective carload rates, thereby opening markets of the midwest and south to Oregon products.

Merchandising Prunes Needs Attention

The present plight of the prune industry in Oregon can be in a large measure charged to failure on the part of existing sales agencies to maintain merchandising methods on a par with those of competing commodities.

Price-cutting, open-end contracts and consignment and warehousing evils, unfair dockage and kindred abuses can and should be curbed through affiliation of a substantial majority of the independent growers into a statewide collective bargaining association operating with an optional pooling arrangement under the Oregon cooperative law.

CHERRIES

With an estimated total of 7,800,000 cherry trees now bearing in the 12 principal cherry-growing states, surpluses produced have become so burdensome that in the case of sour cherries, prices have dropped below picking costs. Material increases in production from young orchards may be expected during the next five to 10 years.

The Five Western States.

The long-time production outlook for sweet cherries is much the same. In 1930 these states had about 3,368,000 trees, of which only 62% were of bearing age. There still remains around 30% of this acreage which consists of trees from five to 10 years old.

The relatively short crops of 1934-1935 have apparently been adequate to supply existing requirements for both canning and maraschino purposes particularly in the face of the rapidly increasing competition from eastern producing centers.

The cherry acreage in Polk county is about 1,700 of which about 25% is non-bearing. The average production per acre is around 2,000 pounds. The per acre cost of establishing an orchard under present conditions is about $450.00.

Recommendations.

1. No increased planting of cherries, either sweet or sour, is recommended at present.

2. Improvement of quality of all varieties through better production and harvesting methods is urged. Off-grade cherries delivered to processing plants are a serious handicap to the industry.

3. No cherries should be permit-

ted to be shipped out of the state from infested areas unless adequately sprayed for the cherry maggot and state inspected before shipping. State laws prohibiting transportation of insect-infested fruit should be rigidly enforced.

4. Syneta beetle causes much damage to unsprayed cherry orchards and renders fruit unsalable, or lowers the grade to the point where it must compete with other low-grade cherries of the country. Growers have demonstrated that a 30-70 lead arsenate-lime dust will effectively control this destructive insect.

5. Maintenance of the present cherry tariffs are essential to the welfare of the cherry industry.

SMALL FRUITS AND VEGETABLES FOR COMMERCIAL CANNING IN POLK COUNTY

Six hundred and thirty two acres of small fruits are reported in bearing in Polk county as follows:

Strawberries	287 acres
Red Raspberries	51
Black Raspberries	44
Blackberries	30
Loganberries	154
Gooseberries	48
Youngberries	15

Conclusions and Recommendations.

1. Where large per acre yields can be had a moderate increase in all the small fruits except Loganberries is suggested. Growers making new plantings of small fruits should do so with full knowledge that competition in selling is keen. Market outlets should be established for oncoming crops. Avoid dumping small fruits on the market at harvest time.

2. New plantings should be a part of an existing farm unit. Devoting an entire farm unit to the production of a single berry crop or variety is not advisable. Planting of each variety should be large enough to insure personal interest and efficient and economical production and harvesting. Particular thought should be given the distance to packing plants and the cost of delivery of small lots and the availability of help for picking.

Vegetables for Commercial Canning.

The production of beans and sweet corn for canning is past the experimental stage. Beans are particularly adapted to irrigated river bottom land. Sweet corn offers a late midsummer cash crop with the stalks available for summer green feed for dairy stock or ensilage.

Recommendations.

Beans, peas, beets, carrots and sweet corn for canning should be planted only pursuant to a contract with a reliable packer, or other dependable outlets, and acreage expanded gradually as experience justifies.

ENGLISH WALNUT PRODUCTION

California-Oregon Walnut Acreage.

	Bearing	Non-Bearing	Total
California, 1922	67,869	19,141	87,010
Oregon, 1922	4,000	4,000	8,000
California, 1934	117,500	21,500	139,000
Oregon, 1934	15,000	12,000	27,000

Early estimates placed the 1935 U.S. walnut production at 52,600 tons, while the commercial European crop is estimated at 75,000 tons.

Trends of Oregon-California Walnut Production

Five-Year Period	Average
1916-1920	20,100 tons
1921-1925	27,200 tons
1926-1930	33,000 tons
1931-1935	41,800 tons

In 1922 the world production of commercial walnuts was placed at 140,000 tons.

Imports of all nuts fell from 174,780,000 pounds in 1926-1927 to 52,148,000 pounds in 1933-1934.

Shelled walnut imports dropped from 20,979,000 pounds in 1926-1927 to 5,547,000 in 1933-1934. Imports of walnuts not shelled were 25,706,000 pounds in 1926-1927 and 321,000 pounds in 1933-1934.

The tariff act of 1930 placed the tariff on shelled walnut imports at 15 cents a pound and unshelled at five cents.

CASHEW NUTS

Cashew nut consumption increased rapidly from 1929 to 1934-1935 and was exceeded only by the consumption of walnuts and pecans.

Cashew nut importations increased from 3,534,000 pounds in 1926-1927 to 14,069,000 pounds in 1933-1934 and consumption is still increasing.

Pecans Compete with Walnuts.

Pecan production in the United States shows a growth rate as follows:

Year	Production
1909	4,764 tons
1919	15,390 tons
1930-34	28,400 tons

On the basis of a 1929 survey of the pecan tree numbers it is estimated that there will be 20 to 25 per cent more trees of bearing age in 1940 than in 1929.

Consumption of all nuts in 1920-1924 was three pounds per capita and in 1935 only two pounds. This may increase with better times.

Walnut Recommendations.

1. No increased plantings recommended.

2. Low producing plantings may have to be removed.

3. Any planting ventured must be only on best adapted soils.

4. Recommend wider spread between prices of unshelled and shelled nuts—present market trend is driving consumer to the shelled article.

5. Recommend simplification of grades.

6. Recommend most careful supervision of harvesting and drying to insure superior Oregon quality.

7. Any future market control program should protect natural advantages which Oregon walnuts possess.

8. In order to receive the market benefits from the quality of Oregon grown nuts it is essential that their identity be maintained through Oregon controlled agencies having this objective in mind.

FILBERTS

The filbert acreage in the United States is practically limited to the Willamette valley in Oregon with adjacent territory in the state of Washington.

A recent estimate (February 5,

1935) places the filbert acreage in Oregon and Washington as follows:

	Oregon	Washington
Bearing	4,000 acres	400 acres
Non-bearing ..	3,500	800
Plantings, '35	1,000	250
Totals	8,500	1,450

4,400 acres of bearing trees at investment per acres of $666.00.

Trend of Filbert Acreage and Yield.

Year	Acreage	Yield Estimate
1929	4,802	200 tons
1932	6,915	450 tons
1935	9,950	

Importations of Filberts.

	1926-1927	1933-1934
Shelled	4,950,000 lbs.	2,026,000 lbs.
Unshelled	9,822,000	2,551,000

Present tariffs, five cents in the shell, 10 cents shelled.

Price range, 1930-1935, seven to 17 cents, average 10 to 12 cents.

Recommendations.

1. Very limited planting, if any, and only on very best adapted soils.
2. Rigid maintenance of superior Oregon quality.
3. Present tariffs on filberts should be maintained.

PEARS

The Polk county pear acreage in commercial orchards is approximately 300 acres. Pear growers of Polk county have outlets to canneries and roadside markets with very heavy competition in the cannery market.

Recommendations.

1. Pear planting in Polk county is not to be encouraged for canning or shipping.

2. There is some opportunity for sales at roadside markets where the farms are advantageously located. Plantings for this purpose should be only where soils are suited to pear production and the grower is in position to give the detailed care that is required to produce marketable pears.

APPLES

Recommendations.

1. Orchards should produce at least 150 boxes per acre. Polk county's 1,600 acres of apples produce about 95,000 bushels annually, an average production of only 60 bushels per acre. Orchards which cannot be economically made to produce an average of 150 boxes per acre should be removed.

2. New plantings are not advisable. No new plantings should be made, except to fill out an economic unit.

3. Yellow Newtowns, Gravensteins, Spitzenburgs, Ortleys, Rome Beauties and Kings are suitable varieties for this county. In addition to any of the above varieties. Grimes Golden and Delicious for home orchards. The growers should pay more attention to growing apples suitable for export.

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Report of the Dairy Committee

I. THE SITUATION.

The situation as to cow numbers in the United States, the 11 western states, Oregon and Polk county are shown in Table I.

NUMBER OF MILK COWS ON HAND

Year	United States	11 Western States	Oregon	Polk County
1890	16,512	721	114	2,929
1900	17,136	867	109	2,766
1910	20,625	1,341	152	5,931
1920	19,675	1,541	200	5,875
1925	17,645	1,623	217	7,234
1930	22,910	1,814	228	7,331
1935	25,100	2,177	270	*8,000

(* Est.)

There appears to be no immediate prospect of any marked increase in the number of dairy cows in the United States. There are now fewer heifers on farms than will be needed for replacements in the present national herd. Dairy correspondents of the Bureau of Agricultural Economics state that they intend to increase their herds to some extent but this should not appear in increased cow numbers for a couple of years. Total milk production is expected to be about four to five per cent greater in 1936 than in 1935. A definite correlation exists between the price of dairy products and industrial payrolls. If business and industry continue to improve, the average yearly butter price will probably rise.

Oregon has more cows per thousand population than either the 11 western states or the United States, and exports approximately six million pounds of butter annually to California markets. For a number of years, the 11 western states have been about on a balance regarding milk production and consumption so that Pacific coast prices have tended to be the Chicago prices, plus the freight. If production in the west should increase to the point that it exceeds consumption, the price will be the Chicago price, less the freight.

II. POSSIBILITIES FOR EXPANSION.

There is room for a moderate increase in dairying in Polk county on farms where adequate feed and labor resources are available and production costs can be kept low. There is also a place for an increased production per cow and the resulting lowering of the cost of production by testing, culling, better breeding, feeding and management. Dairying is a major factor in conserving soil fertility and is a sound

farm enterprise in Polk county.

III. RECOMMENDATIONS.

One of the major problems of Polk county dairymen is a supply of feed during the summer season. The following suggestions are made by the committee as a means of improving this situation:

1. Pasture. There is opportunity for the development of more irrigated pasture in the county. Trials of irrigated Ladino clover show that from two to three cows can be pastured per acre on this type of pasture.

Sudan grass on well-drained, warm soil gives excellent results, both as a soiling crop and a late pasture.

Alfalfa can be used either for soiling or as a pasture crop after the first or second cutting is removed. Some fields of alfalfa where the stands have become thin and grassy can be used for pasture for a year or two before plowing up.

Willamette sweet clover, a new root-rot resistant variety, has shown good results as a pasture crop on soils suitable for the growing of alfalfa.

There is some danger of bloat with Ladino clover, alfalfa and sweet clover. Care should be used and animals observed closely. Fall seeded rye and vetch have proven a valuable early spring soiling crop.

2. Succulent Feed. It is recommended that enough succulent feed be provided so that every cow in milk can be given a minimum of 25 pounds a day, either in the form of pasture, soiling, root crops or silage.

For fall and early winter feeding, kale is the most valuable of any succulent feed for dairy cows. Occasional losses by freezing should not discourage dairymen from planting enough of this crop to last them until January 1. Root crops are a valuable fall and winter succulent feed on many Polk county farms.

The use of silage is increasing in the county, both in the form of summer silage and as a winter feed, particularly after the kale and root crops are gone. Corn and vetch and oats are the standard silage crops with some farmers using first cutting alfalfa for this purpose.

3. Hay. There is an adequate supply of hay grown in the county at the present time with some being shipped each year to the coast counties. There should be more legume hay grown and less grain hay. There is room for increased acreage of alfalfa. It requires less labor in plowing and cultivation than annual hay crops. Clover is preferred by some farmers as it fits more readily into a rotation. Oats and vetch are widely used and are excellent.

4. Increased Production Per Cow. High production per cow is necessary to insure low cost of production. There is a need for more care being used in sire selection and we recommend the use of only purebred sires from high producing herds. We recommend that the possibilities of organizing a dairy herd improvement association be investigated and if not possible to get a complete association in this county that arrangements be made to combine into a joint association with adjoining counties. We also recommend that purebred breeders either join dairy herd improvement associations or take up the herd test under the breed associations so that the buyer of breeding stock, particularly bulls, will be able to select them with more care and have more confidence in using purebred sires.

5. Surplus Cow Sales. The cost of producing heifers to freshening age

is usually above the sale value of these heifers, according to figures collected by the state experiment station. It is not believed profitable for a dairyman to raise more heifers than his replacement needs, with a view of selling these heifers to out-of-state buyers. The present California market will probably decline soon after the present tuberculosis eradication campaign is completed. However, on farms where a surplus of cheap pasture and other feed is available so that heifers can be raised at below average cost, this may be a profitable side-line if high quality stock is produced.

6. Disease Control. Polk county has made exceptional progress in eliminating Bang's disease under the federal plan. Continued support for this program is recommended and that the Oregon state Bang's disease control law be made effective in Polk county, January 1, 1937, and followed up until this disease is eliminated.

7. Oregon Dairy Council. Dairy products have many natural advertising advantages which have been little used in promoting the use of these products. It is recommended that the Polk county dairy industry, both its producers and manufacturers, support and contribute to the work of the Oregon dairy council. Efforts should be made to cooperate with adjoining counties in getting a permanent dairy council worker assigned to these counties.

8. Quality. Increased consumption of dairy products can be brought about by raising the quality of our products. We therefore recommend that all dairymen pay more attention to sanitary conditions in the dairy barns and care of milk. We recommend the use of lime in the barn, washing powders and chlorine for the cleansing of milk utensils and other sanitary measures designed to better the quality of our products.

9. Marketing. The dairy committee believes that the future development and success of the dairy industry depends to a great extent upon efficient production and marketing of dairy products. We recommend continued support of the successful cooperative marketing organizations operating in this county.

Committee—J. J. Sechrist, chairman

Roger Morse, secretary
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Report of the Livestock Committee

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 30 years. From 1928 to the beginning of 1934 the trend in number of meat animals was upward. That increase amounted to 12%. 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 20%.

The number of hogs on farms at the beginning of 1935 was the smallest in 50 years. This was due to the drought and the production control program. The number of pigs produced in 1934 was 35% smaller than in 1935.

Sheep numbers increased steadily from 1923 to 1932. From 1932 to 1934 the number of sheep in the United States declined slightly.

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 of hogs.

In Polk county the number of sheep increased from 12,731 in 1920 to 26,241 in 1935. Hogs decreased in numbers from 10,185 in 1920 to 5,038 in 1935. Horses decreased from 6,027 in 1920 to 3,161 in 1935.

In view of the information available, the livestock committee has considered each class of livestock as follows:

SHEEP

Polk county farmers should continue to raise sheep year after year as a part of a well-balanced farm enterprise. Enough sheep should be carried to utilize the feed to the best advantage without overstocking. Regardless of the state and national figures it will be desirable to carry sheep on Polk county farms. The committee believes that sheep are a necessary part of a well-balanced farm program in Polk county where the production of sheep on the individual farm is limited to the use of available feed.

It is recommended by the livestock committee that everyone should use the best possible purebred or registered sires to mate with their ewe flock. The purebred breeders are confronted with costs that make it necessary for them to receive a price for their rams materially higher than the market price on slaughtered animals.

Figures obtained at the Oregon State college show that the cost of a ram has very little effect on the ultimate cost of the market lamb. Each additional $25.00 investment in a ram increases the cost of the lamb 17 cents a head. It is not at all uncommon, however, for a good ram to produce lambs that will weigh from five to 10 pounds more than lambs sired by a ram of poor quality.

A problem of lamb production for market is to keep lambs growing from the time they are dropped until they are ready for market. Every

farmer must determine the time of lambing according to his farm. Some can lamb early, others must lamb late. It is advisable to provide supplemental pastures or other feeds to keep the ewes from dropping off in milk production. For early pastures fall sown grains are suggested. Clover is usually available during April and May. For the late summer such crops as Sudan grass and rape are recommended.

In view of the fact that Polk county is recognized as the source of good breeding sheep of various kinds the committee suggests that the farmers in the purebred business use every possible advantage in advertising their breed. It is suggested that road signs be used, either collectively or individually to show the prospective buyers where sheep may be available. It is likewise suggested that the breeders list their sale stock on hand each week with banks and county agent's office, in order to be of service to prospective buyers.

The margin between the price on feeder lambs and fat lambs should be two cents a pound. This should be a guide to farmers having feeder or fat stock for sale.

The medium or coarse wool breeds are best suited to Polk county conditions for the production of market lambs. Polk county is well suited to the production of breeding stock for eastern Oregon range conditions. The breed selected will depend on the farmers' personal preference.

In view of the losses that result from sheep-killing dogs in the county, we recommend that the proper county officials be requested to strictly enforce the provision of the present dog law.

GOATS

The statistical information available would indicate that the supply of mohair in the United States and on the world market is comparatively low at this time and that there is an increasing demand for mohair in manufacturing. In view of this situation it is felt that the goat business at this time is on a fairly substantial basis as compared with the last few years.

High-priced mohair tends to materially reduce consumption and in order to keep the goat business on a more substantial basis it would be better to maintain a reasonably steady price, not too high, on mohair.

Most all farms in Polk county would be benefited by a few goats. Goats not only produce a return from mohair, but can be used for the purpose of clearing the pastures of brush and thereby improving the feed for other classes of livestock. A few goats on the farm will assist the farmer materially in paying taxes.

The market for Oregon mohair would be materially improved if all of the products could be concentrated at one point for sale. Such concentration would make a sufficient volume to attract buyers, which would naturally affect the price that would be paid for the product.

Purebred bucks are recommended as a means of improving the quality and quantity of mohair. Quality is likewise affected by care. It is the opinion of the committee that bucks should bring at least $25.00 a head to insure a satisfactory return to the breeder.

Diseases of Sheep and Goats.

All sheep under close pasturing in Oregon are affected by parasites. It is recommended, therefore, that parasites in both sheep and goats be controlled through the best possible treatment based on recent investigations.

HOGS

It is recommended by the committee that enough hogs be kept in Polk county to utilize the farm wastes, and where it is necessary to purchase grain, that such additional crops as pasture or alfalfa be used in order to provide the cost of production.

Members of the committee reporting on the cost of hog production in the county, state that the average sow will raise two litters of six pigs each per year and that these 12 pigs will produce an average of 2,500 pounds of pork. To produce this 2,500 pounds of pork will require 12,500 pounds of grain. At present prices the production of this amount of pork would give a margin above the cost of feed of $45.25 per pig for labor and other incidentals.

During winter, alfalfa hay, a good leafy growth, will improve the ration. Skim milk and other waste products can be utilized during the winter months to advantage. It is felt by the committee that not enough hogs are raised in Polk county at the present time to fully utilize the farm wastes.

Successful hog producers recommend the use of minerals to keep the animals in a healthy, thrifty condition. The mineral recommended is two parts of limestone, one part bone meal and one part salt and in some cases five pounds of fish meal for every 100 pounds of the mixture.

BEEF CATTLE

There is very little available range in Polk county suitable for the production of beef cattle, and what little is available is now fully utilized. No further expansion in this phase of livestock production can be recommended at this time. There is some possibility for fattening cattle under Polk county conditions. It would be necessary to buy the feeders, possibly on the Portland stockyards and fatten them on such feeds as alfalfa hay or other legumes together with barley, millrun or wheat. It is recommended that yearlings or long yearlings be purchased for this purpose and that they be fed entirely under shed. As a rule a two cent spread should prevail between feeder cattle prices and fat cattle prices when finished. Such a spread is considered necessary together with the manure that will accumulate to make a profit from the feeding enterprise.

HORSES

There is a shortage of horses now prevailing throughout the country. The average age of all work horses now on farms is extremely high. It has been estimated from 15 to 18 years. There are only a few satisfactory stallions standing for public service in the county, which further adds to the problem.

Many small farms in Polk county

would find horse labor much more economical than any other type of farm power. The present price of work animals is sufficiently high to justify the raising of some good colts. It is recommended, therefore, that farmers should breed their available brood mares and raise as many colts as possible as it is evident that the market for work horses will be good for several years to come.

Committee—Jack Stump, Chairman
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Fred Auer

Report of Poultry Committee

I. THE OREGON POULTRY SITUATION.

Oregon produces a surplus of eggs above the needs of the state. This surplus must be exported to distant markets. These surplus eggs must be of high quality in order to meet competition from other districts and to justify transportation costs.

The industry is expanding in Oregon and elsewhere as well. Oregon eggs are meeting keen competition from sections near its eastern market centers.

II. THE POLK COUNTY POULTRY SITUATION.

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

Polk county in 1930 had 1882 farms. Of that number of farms 1,492, or 79 per cent, reported poultry. Nine hundred and seventy-five farms kept flocks of less than 50 hens. Two hundred and ninety-four farms kept between 50 and 100. One hundred and thirty-three farms reported more than 100 hens but less than 200. This shows that 1,402 farms, or 94% of the farms that kept poultry had less than 200 hens. This is not a sound condition for an industry confronted with quality requirements of distant markets. Poultry provides about seven per cent of the total agricultural cash income of the county.

The county in 1930, according to the census report, produced chickens valued at $177,471.00 and chicken eggs valued at $282,102.00 or a total value of $459,573.00.

1. Market Outlets.

Producers of eggs in Polk county

have the choice of selling either through established independent dealers or through the Pacific Co-operative Poultry Producers' association. The cooperatives of the coast states maintain their own sales headquarters in eastern cities.

2. Breeds and Additional Market Outlets.

The export demand is for white-shelled eggs. This demand naturally results in the Leghorn and other 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 Polk county farms.

The demand for eggs from well-managed flocks of both classes to supply hatcheries should be considered as additional market outlets.

III. THE POULTRY OUTLOOK.

Oregon produces only one per-cent of the nation's poultry products. Producers here operate on a margin between New York prices minus the overhead of delivering their eggs.

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 likely show the highest per cent of hatching increase. The national increase of pullets next fall will likely have a depressing price effect but may be partially offset by an increasing consumer's demand.

Egg consumption has declined since 1932. Higher prevailing meat prices are tending 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. The imports for 1935 were in excess of 15,000,000 dozen shell-egg equivalents.

The poultry industry as a planned industry in Oregon, is sound business. Many new farms, rehabilitation, resettlement and subsistence farms will keep poultry. If Oregon's expansion is to be toward barnyard flocks rather than toward flocks large enough to justify commercial care, it cannot economically long meet export market requirements. Ninety-four per cent of the farmers who keep chickens in Polk county have less than 200 hens. These flocks are too small to encourage frequent egg gathering; proper 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 meet the demands from established markets.

IV. RECOMMENDATIONS.

1. For home table flocks, from which eggs do not enter trade channels, only flocks of two dozen hens or less should be kept.

2. For a sideline cash income, a flock of not less than 400 to 500 hens is recommended to be the ultimate objective.

3. A farm which expects to derive its major source of income from poultry should develop a business unit of approximately 2,000 hens as soon as experience and capital warrant.

4. For a well-rounded specialized poultry farm operated under natural conditions of ranging young

stock an acreage of 20 acres is needed. 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. From 50% to 60% of the laying flocks should be replaced each year with pullets.

6. Day-old chicks should be from pullorum-free parent stock, or from accurately blood tested parent stock with all reactors removed.

7. Chicks, if possible, should be purchased all at one time. February, March and April are the 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:

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.)

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 to avoid 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 is loss of quality of the eggs on the farm after they are laid and before they reach the grader's candle. "How to Construct an Insulated Egg Room" is found in Extension Bulletin 445.

12. Laying fowls do better in partially insulated houses. Plans for this type of house will be found in Extension Bulletin 480.

13. Capital is required to develop a safe poultry enterprise. Exclusive of land and the home, it will require a first-year investment, without brooder and range houses, of approximately $2.50 to $3.00 for each pullet before she starts production.

THE TURKEY SITUATION

Oregon produces approximately 700,000 turkeys, of which more than half must be exported to markets outside the state. Polk county produces 20,000 of these.

Turkey growers have adopted modern methods of incubation, brooding and rearing in semi-confinement. Turkeys from hatching to market age are fed balanced growth-promoting and finishing feeds. These practices have made mass production a common practice. The trend is toward large commericial flocks with a decline in number of range-reared birds.

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

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

Turkey houses, artificial lights, selecting breeders for early maturity, northern and eastern hatcher-

ies contracting southern winter-hatching eggs for early poults, are factors which result in an increasing number of early turkeys being marketed each 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 profits per pound of meat.

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

Oregon turkey growers have the advantage of experience, reasonably priced feeds, climate and green feed, foundation breeding flocks and both independent and cooperative 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 district) will ultimately adjust the industry.

During the past few years the turkey industry of Polk county has expanded. In addition to market turkeys, it has established hatcheries and breeding farms which supply poults and breeding stock to many parts of the nation.

The depression, aided by the great drouth in the midwest, reduced the number of chickens and turkeys. The same causes, aided by agricultural adjustment, resulted in reduced supplies of other meats. In 1936 turkeys will have to compete against an increased supply of chickens and other meats. Only an improved consumers' demand can prevent a somewhat depressing effect on prices.

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

1. Market and Supplies.

Growers have a choice of marketing their turkeys through established produce firms or through an established cooperative marketing association, the Oregon Turkey Growers' association, a member of the Northwest Turkey Growers' association.

The existence of both methods of marketing and purchasing of supplies is a great factor in stabilizing the industry in the county and affording protection to the investments of the producers.

2. Nature of the Industry.

The turkey business is a short term business. The cycle of both high and low prices is short. The business adjusts itself more quickly than many long-term agricultural enterprises.

3. 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 chicken range.

3. The cost of producing turkeys can be materially reduced by providing succulent green feed during the growing period. Rape, alfalfa, clover, sudan grass, etc., and row crops such as corn or sun-flowers should

be provided for both green feed and shade on farms where natural shade is not available.

4. Turkey prices are depressed each year by poorly finished birds. No turkeys should be killed out for market until they are properly finished in both flesh and feathering.

5. Ample credit is necessary to properly grow out a band of quality turkeys. Growers should, roughly, provide finances to the extent of the cost of one sack of feed for each market turkey to be raised.

6. Unwise credit extensions result 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 finance their own turkeys to eight weeks of age.

7. The most common disease hazards are fowl-pox, roup, pullorum, mycosis and coccidiosis. Each of these hazards can be controlled with a minimum of loss to the grower. Have an authentic diagnosis made of disease outbreaks as early as possible.

8. Loss of young turkeys when they are transferred to open roosting equipment on the range is due to piling up caused by unexpected storms. Prevent this loss through the use of shelter sheds on the range until they are older.

JOINT TURKEY AND CHICKEN GROUP ENDORSEMENTS

1. Poultry stealing is a growing hazard. The following movement is now under way by both poultry and turkey growers and is supported by these joint committees of Polk county:

a. Make turkey or chicken stealing a felony.

b. Require all dealers to display a record of registered poultry brands.

c. Publish each year a booklet of all registered brands for every peace officer in the state.

d. Require dealers to record the number of each brand of turkeys or chickens purchased.

e. Growers purchasing branded birds for breeders would get from that breeder a bill of sale in order that he could present it when selling birds having a different brand number than his own.

2. Poultry and turkey growers suffer losses from killer dogs and have no regulations whereby they can claim indemnity. They are seeking an amendment to existing legislation whereby they may, upon due evidence, claim indemnity from the dog license fund for such losses.

3. Anyone being damaged by misleading advertising or unethical business practices within the industry has recourse. Complaints may be made through the president of the Oregon branch of the International Baby Chick association; or to the Fair Trade Practice Commission of the International Baby Chick associaton, Kansas City, Missouri.

Committee—Morris Christensen, Ch.
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Report of Soils, Irrigation, and Drainage Committee

Introduction.

Soil is Polk county's most valuable resource. All phases of agriculture are directly dependent on the soil and agriculture can last no longer than the soil upon which it is founded. Any program for a permanent agriculture must include a program that will provide for the fullest utilization and conservation of the soil.

The conservation of the soil and its fertility is of far greater importance than merely the welfare of the individual farmer. The farmer who manages his farm in such a manner that the soil is destroyed to a point where it may never be rebuilt has helped destroy a portion of a natural resource, the loss of production from which is a distinct loss to the county, state and nation forever.

Since 1880, the average size of farms in Polk county has been reduced from 300 acres to 120 acres. This emphasizes the need of following management practices permitting full utilization of the soil resources in order to maintain large enough per-acre yields to permit farm families to maintain a satisfactory standard of living from the smaller acreage.

Soil Fertility.

Crops should be grown only on soils adapted to their growth. A soil survey report of Polk county is available. Orchards should never be set out without first checking the soil as to drainage, depth and fertility. Newcomers are urged to consult this soil survey report in order to pick out a farm having a soil type adapted to the type of farming which they are particularly anxious to follow.

The best possible way of conserving the soil is to follow a crop rotation including some legume crop. This legume crop not only builds up the supply of organic matter but also adds a valuable supply of nitrogen to the soil.

It may be necessary to add lime in order to grow legumes. Whether lime is necessary or not may be determined by a simple soil test. This testing service is available in the office of the county agricultural agent.

With fruit or hops the best method is to follow the practice of growing cover crops every winter. The variety of cover crop, preferably a legume, depends on the soil type. This cover crop is absolutely essential in order to avoid loss of plant food by leaching and the actual loss of soil by washing or erosion. The cover crop should be plowed under early enough in the spring so as to not interfere with the summer moisture supply.

Soil fertility requires that all crop residue be returned to the soil. The practice of burning straw stacks, combine rows and stubble is a wasteful practice. Plant food is wasted and a valuable source of organic matter is lost. Further study is needed on methods of spreading straw and tillage implements that will permit straw being plowed under without too much additional labor. Further investigation is also

needed on the possiblity of adding nitrogenous fertilizer to straw in order to hasten its decomposition and make better use of the organic matter in the straw. The addition of 100 pounds of 20% nitrogen fertilizer per acre 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. In combinaton with the manure from the livestock, the straw makes a very valuable fertilizer.

All barnyard manure should be conserved in such a manner as to prevent the waste of plant foods and returned to the soil. The loafing shed is one of the most economical methods of conserving the plant food in manure.

On dairy farms the liquid tank method of handling manure should be more widely adopted. When used in combination with a loafing shed, the result will be a saving of all possible manure produced on the farm. Ordinarily the proper time to apply manure is early in the spring, previous to seeding crops. Greater benefit could be secured from manure by spreading it on the land in comparatively small amounts, if possible, not over eight to 10 tons per acre.

When lime is brought in contact with barnyard manure, it causes a loss of a portion of the nitrogen supply. It is the recommendation of this committee that superphosphate be used as a deodorant and disinfectant around the dairy barn rather than lime. Superphosphate assists in holding the nitrogen in the manure. Manure is very low in phosphorus as compared to other plant foods and the addition of this phosphorus would result in securing better results from the use of manure.

A permanent pasture in a regular rotation is an economical method of rebuilding the organic matter of the soil. Every field in the farm should be in a permanent pasture once every 10 or 20 years.

Where the land has been permitted to run down, plant a green manure crop in the fall and plow it under the following spring. This should be used only where necessary to build up the soil to a point where a good crop rotation would maintain the organic matter supply. Eventually more general use of commercial fertilizers will be necessary. Results secured in Polk county so far have not been consistent enough to make any general recommendations. Landplaster on legume crops is generally considered a profitable practice. In the future, it may be desirable to further try out the use of superphosphate on these legumes instead of landplaster since the Polk county soils generally have a lower supply of phosphorus than other plant foods. It is the recommendation of the committee that fertilizer trials be continued and, if possible, expanded in order to determine which fertilizers may be needed first.

In many sections of the county profitable increases in yield have been secured from the use of commercial fertilizers. Their general use is not recommended at the present time. Commercial fertilizers should only be purchased on the basis of

the quantity of plant foods they contain. Different forms of commercial fertilizers vary greatly in their plant food content.

Drainage.

There are 83,000 acres in Polk county that need drainage. Tile drainage is the most satisfactory drainage where possible and should be carefully installed. The size of tile, depth to place the tile and the distance between the laterals should be determined by some experienced person after a careful consideration of the soil type. 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. Tile, as they are installed, may be so located that they become parts of the complete system.

Nothing smaller than a four-inch tile should be used. If the situation will not permit placing the tile at a depth of over two feet, the installation of drain tile will probably not be an economical investment.

Where tile drainage is not possible, use of open ditches to remove the surface water is recommended.

In the Ash Swale (just organized) Salt Creek, Basket Slough, Soap Creek and Spring Valley districts, community organizations may be necessary in order to secure the construction of adequate drainage outlets. It is recommended that these organizations be completed.

EROSION

Soil erosion is a greater problem than most people realize. Losses that occur in this area are so gradual that they are not generally noticed. Nevertheless there are some farms in Polk county where the loss from erosion has been so serious that the farms can no longer be farmed profitably. 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. Soil should not be left unprotected during the winter months. Some system of farming should be worked out that will make it unnecessary to plow the land in the fall or winter leaving it exposed to washing previous to spring seeding. Many of our steeper hill soils could better be seeded down to permanent pasture rather than farmed continuously.

The loss by erosion is particularly serious in orchards. It is absolutely necessary that the soil be protected with a cover crop during the rainy winter months.

IRRIGATION

Lack of summer rainfall handicaps the growth of summer crops. The average rainfall in the county is only slightly over four inches for the months of May, June, July and August combined. The following table indicates the need for irrigation in Polk county:

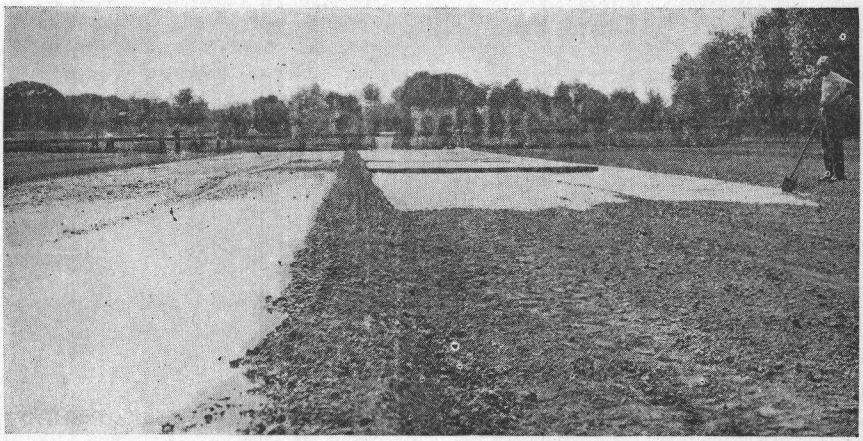
Crops	Yield	Depth Roots	Water required, inches depth	Supplied by moisture stored in soil first of May	Additional to be supplied by rain or irrigation	No. yrs., rainfall has supplied enough extra moisture during past — up to 45 years—four stations
Potatoes	200 bu.	2 ft.	9.4	3.5	5.9	5
Carrots	25 ton	2 ft.	10.5	3.5	7.0	2
Wheat	30 bu.	3 ft.	15.3	5.2	10.1	1
Alfalfa	5 ton	4 ft.	35.4	7.0	28.4	0
Clover	3 ton	4 ft.	25.0	7.0	15.0	0

Moisture studies in typical orchards indicate that there is not an adequate supply of moisture to carry the older orchards through the summer. Where water is available, irrigation offers a possible solution.

There are 122,178 acres that would be susceptible to irrigation of which 46,658 acres are soils of the Willamette, Chehalis, Newberg and similar freeworking series upon which horticultural and vegetable crops, hops, potatoes, alfalfa as well as clover and pastures may be grown under irrigation. The remaining area of 75,520 acres, including soils of the Amity, Dayton, Wapato and similar heavier series, is adapted only to pasture and field crops under irrigation. At the present time water is available for only a small percentage of this area.

Since the available water supply is so limited we commend the work of the United States army engineers in studying feasible storage sites on the Big Luckiamute, Little Luckiamute, Rickreall Creek, Mill Creek and Yamhill River. The construction of these reservoirs would be of a distinct value to the county in providing irrigation water during the summer months and in controlling destructive floods during the winter. Further study should be made of the possibility of securing ground water for irrigation.

The area of land devoted to irrigation in Polk county is approximately 1,000 acres. It has been demonstrated that it is a sound practice and should be expanded to the fullest extent of our water resources. The greatest portion of the irrigated area is made up of hops. Many of these hop growers have been irrigating for the past 15 to 20 years. Only in the past six years has any particular attention been given to irrigation on general farms. The chief interest has centered around the irrigation of Ladino clover pasture although enough demonstrations have been conducted on other field crops to indicate that they may be profitably irrigated.



A properly prepared field of Ladino clover for strip border irrigation.

Irrigated Ladino clover pasture is one of the most profitable crops that may be grown on a farm producing livestock. In Polk county this crop has shown that with dairy cows it has a carrying capacity of two or three cows an acre for six or seven months out of the year. During the season of 1934, S. H. Robison, J. A. Campbell and C. W. Brandstetter, estimated the return per acre for the season from the Ladino clover devoted exclusively to pasture was $89.00.

Trials with irrigated alfalfa have indicated that the yield may be increased 50 to 100 per cent and with clover seed 50 per cent or more increase may be secured and in addition, one is able to take off a full crop of hay. A. E. Bouffleur, Ira Ray and N. L. Guy have secured profitable increases in yield and in addition an improvement in quality from irrigating berries.

Any crop that would normally grow during the four summer months would be benefitted by additional moisture. The expense to which one could go in order to provide irrigation for a particular crop could be told only after a careful comparison of the cost of irrigation against the expected increase in returns.

Any person starting an irrigation project should file an application for a water-right with the State Engineer's office. This water-right is for the individual's own protection.

Some type of surface irrigation is generally recommended although there are many places where rough land, soil type, water supply or nature of the crop might mean some form of sprinkler system would be more desirable. Where flood irrigation is contemplated, the importance of properly leveling the land before irrigation cannot be too strongly emphasized. For field crops the strip border system of surface irrigation is recommended.

The pumping plant should be carefully picked out to fit the individ-

ual requirements. In most cases, the centrifugal type of pump is the most economical. Every centrifugal pump is constructed to fill certain requirements and if placed under different conditions than those for which it was designated it will not be an efficient piece of machinery. 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 alike, 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 should be of adequate size to carry the water without excessive loss from friction.

In order to achieve the best results from irrigation, crops should be irrigated as soon as they show signs of needing water. The first irrigation is often delayed too long. Have the irrigation equipment ready for use by the first to the 15th of May. Many people allow too long a time to elapse between irrigations allowing the crops to stop their growth from lack of moisture. Best results will be received from irrigation if the crops are never allowed to slow down their growth because of lack of moisture. The committee recommends that further work be done by the Oregon State college experiment station as to the actual amount of water to apply on different soil types and for different crops. Further experimental work is also needed as to the best methods of applying water in order to achieve the most economical use. Further investigational work is also needed to find additional crops and best varieties of crops to be grown under irrigation.

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Report of Marketing Committee

Polk county farm operators have had long experience with cooperative marketing. The development of this form of marketing has grown greatly since the world war. Among the older marketing cooperatives in the county for example are the Dallas Warehouse, organized in 1915 and the Monmouth Creamery, set up in 1916.

Despite the outstanding records of these and other institutions in the county, experience with cooperative marketing in this county has not been uniformly successful. Failures have been quite as impressive as successes. The wide experience in cooperative marketing since the close of the world war is now being capitalized in the operation of a considerable number of highly useful and successful cooperative organizations. This experience leads your committee to the following conclusions and recommendations:

1. Organize on a local basis with any needed local facilities owned locally and actively operated by the membership. Should the movement cover several counties, federations of local cooperatives may be formed. The control of local facilities must be left with the local group.

2. Build from the ground up, and as slowly as necessary for the formation of a sound organization.

3. Maintain control of any cooperative by the active members and make ample provision for picking up of the stock of former members who don't patronize the organization. Bar control by any salaried interest, either within or without the organization.

4. Keep out of debt. Properties may be acquired gradually by deductions from the volume of business.

5. Set up and maintain adequate reserves.

6. Select the manager from within the actual producing membership. The salary of a manager in principle should not exceed the average income of the membership.

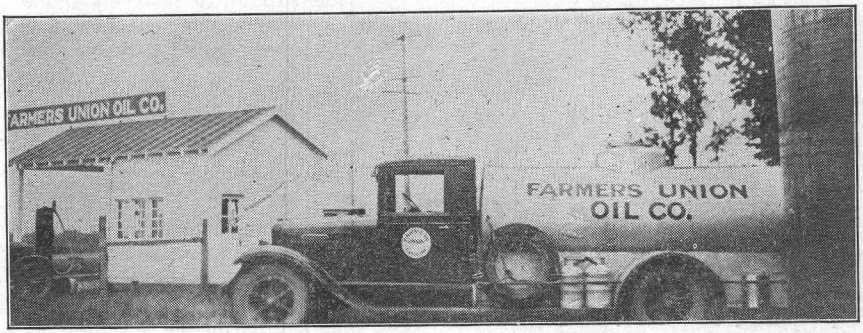
7. Maintain such records as are necessary for the guidance of the management and the board of directors, and to keep the membership informed as to the operations of the business.

8. Establish standards for produce and maintain that quality.

9. Eliminate competition among cooperatives by division of territory or by such other means as may be appropriate.

COOPERATIVE PURCHASING

This system of obtaining farm supplies has reached such magnitude that its permanence may not be questioned. Farm supply cooperatives are operating as separate units and also as supply departments of cooperative marketing associations. Both are to be encouraged. Organization and management of farm supply operations should follow closely the recommendations of your committee in connection with cooperative marketing.



Cooperative purchasing of petroleum products for farm use is one of the recent farmer owned ventures.

RELATIONS WITH COOPERATIVES OF NON-AGRICULTURAL CONSUMERS

Cooperative societies have been set up in the eastern states by labor, professional workers and others for the purpose of purchasing their household supplies.

A major object of cooperative marketing is to reduce the spread between producer and consumer in the distribution of farm products. The organization of these non-agricultural cooperatives is looked upon with favor. Every opportunity should be taken to effect direct marketing connections between agricultural marketing cooperatives and these organized groups of non-producers in cities. Caution should be exercised to maintain relations between the two types of organizations as those of seller and buyer.

MERCHANDISING DAIRY CATTLE

Polk and adjoining counties are producers of surplus dairy cattle of quality. California is an importer of milk cattle and probably will continue to ship in from other states for an indefinite period. In 1935, 30,000 dairy cattle were shipped into Los Angeles county.

For the conditions in southern California the dairymen demand cattle of size, constitution and vigor. Holsteins and Guernseys apparently have a slight lead in preference, but well-grown Jerseys of the rugged type so common in western Oregon, are not discriminated against.

Dairy cattle now largely are taken into California by dealers who buy at the lowest figures possible and sell at the highest possible. These dealers may patronize the auctions or they may make private sales. These auctions are open to any consignors. Some cattle are taken in by order buyers. The order buyer operates much as does the dealer.

Cattle must be tested for tuberculosis but so far the test for Bang's disease is not required. However, so many cattle brought in from other states have reacted to the Bang's test, California dairymen are becom-

ing shy of untested stock.

The San Francisco area will take heifers but the demand at Los Angeles is only for close-up springers or cows just fresh.

I. RECOMMENDATIONS.

Within five years one or more Oregon cooperative associations should be making regular shipments of surplus dairy animals to the California markets. Pioneering this market by direct shipments involves risk. Hence, we recommend that a cooperative association of dairymen be set up in this county for the immediate purpose of listing dairy animals for sale. Listings should be accepted subject to inspection by a committee so only high quality cattle become identified with the name of the organization.

Listings would be made available to any interested buyer. Members of the association should be kept fully informed at all times of the character of cattle wanted and the figure at which stuff might be moving. The association could be financed by a small fee either at the time of listing or at the time of sale, or both.

It is our belief that such an organization in the course of one to two years would develop into a shipping operation directly to the markets and with the interests of the members fully protected right to the time the sale is made to the California dairyman.

In regard to the walnut marketing agreement: We urge the unanimous support and loyalty of all members to their contracts and cooperative associations.

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