Report of the

Milton-Freewater District Agricultural Outlook Conference

MILTON-FREEWATER, OREGON

NOVEMBER 19, 20, 1936

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Oregon State College
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Wm. A. Schoenfeld, Director
Oregon State Agricultural College and United States Department of Agriculture, Cooperating
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FOREWORD

The second Milton-Freewater district agricultural outlook conference was held for the purpose of reappraising the agriculture of the district in order to more accurately develop a program for guidance of future progress. The conference was planned and conducted by a committee of local growers in cooperation with the Umatilla County Agent. It was organized along commodity lines representing the various enterprises and problems of interest to local agriculture. The committees were made up almost entirely of producers who met with specialists of the Oregon State College Extension Service, who served as committee secretaries.

The chairmen of the various committees were:

General conference chairman.....C. B. Miller, Milton
Small Fruits..... John Pitzer, Milton
Prunes.....O. K. Goodman, Freewater
Agricultural Economics and Marketing.....
.....George Hodgen, Freewater
Apples and Cherries.....Walter Herman, Milton
Vegetables and Canning Crops.....George Preas, Freewater
Dairying.....Elmer Chastain, Freewater
Soils and Irrigation.....George Bline, Freewater
Poultry.....John Hickman, Milton

The recommendations of the conference contained in this report, therefore, constitute the best opinions of local producers who devoted considerable time to study of factual data and drew upon their experiences in arriving at conclusions. Notwithstanding the careful work on the part of the committees, and the fact that the best available data were used, the recommendations contained in this report should not be regarded as final. Conditions are constantly changing and in accordance with these changes, the recommendations in this bulletin will need revision and adjustment.

In the aggregate, these reports constitute a program for the guidance of agriculture in the Milton-Freewater district. The value of the conference and its findings will depend upon the degree that the recommendations are carried into effect. Because of the general expression on the part of those participating in the conference that the recommendations should be printed and made available to all producers in the district, the Extension Service, through the office of the Umatilla County Agent, is printing and distributing this report.

Report of the

Milton-Freewater District Agricultural Outlook Conference

November 19, 20, 1936

APPLE PRODUCTION

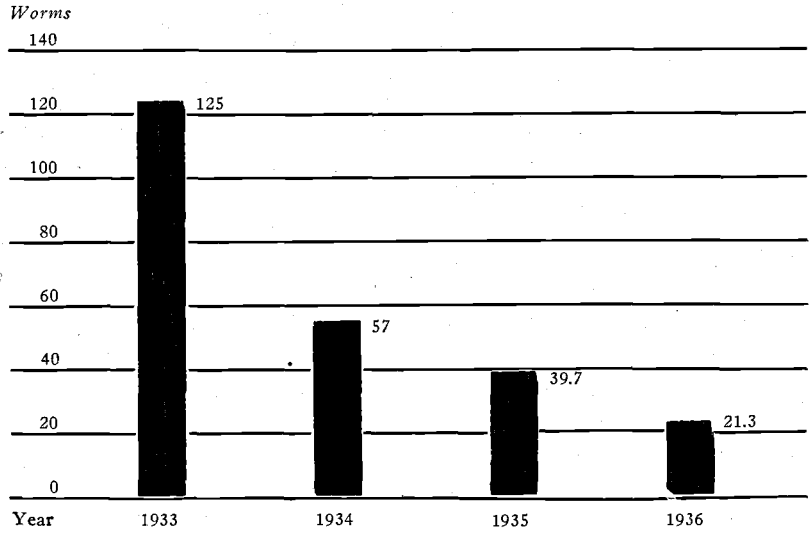
Will Tree Bands Help Control Codling Moths?

The record of codling moth worms trapped per tree during four seasons (1933-1936) in a Rome apple orchard owned by George Bline, at Freewater, shows that the catch of worms has steadily decreased per tree from 125 worms per tree in 1933 to 21.3 worms per tree in 1935. The following table graphically shows the results:

Effect of Tree Banding on Codling Moth Population

Worms Trapped per Tree
Years 1933, 1934, 1935, 1936

98 Trees Included in Demonstration



Report of the Committe on
APPLE PRODUCTION

Apple Production in Oregon. Apple production in Oregon decreased 46,920 acres from 1909 to 1933 according to census figures. Production has remained almost stationary, however, since 1929. Oregon produces about three per cent of the commercial apple crop of the United States.

Comparative production of Oregon, Washington, and the United States is indicated for the years 1933, 1934 and 1935 in Table 1.

TABLE 1. COMPARATIVE PRODUCTION OF APPLES IN OREGON, WASHINGTON, AND IN THE UNITED STATES

State	*1933* *bushels*	*1934* *bushels*	*1935* *bushels*
Oregon	3,500,000	4,780,000	3,900,000
Washington	29,240,000	33,000,000	31,390,000
United States	142,981,000	120,670,000	168,465,000

Bearing Acreage in Umatilla County. The bearing apple acreage in Umatilla County climbed from 928 acres in 1909 to 3270 acres in 1919. The acreage decreased to 2860 acres in 1924 and to 2454 acres in 1939 according to census figures. The acreage in bearing according to the recent special census is 1564 acres and the total is 1831 acres for 1934.

Apple Shipments from Milton-Freewater District. Apple shipments from the Milton-Freewater country were 493 car-lots in 1925 or 10.7 per cent of the state total. In 1930, 690 cars were shipped, or 13 per cent of the state total. Since this time shipments have been decreasing according to market reports until 237 cars or 12.4 per cent of the total were shipped in 1935.

Market for Apples. Foreign markets formerly absorbed about 16 per cent of the American apple crop. Much of this foreign market has been lost to the American crop, and indications are that there will be further loss.

Apple production in other countries, import taxes, trade barriers, and other restrictions hinder selling on foreign markets.

Domestic Markets. Domestic consumption has dropped approximately 20 per cent in the last 20 years. Consumption of other fruits has been gaining while that of apples has been losing.

Recent figures released in the East show that consumption of oranges and grapefruit increased 46 per cent in the last 15 years. The consumption of oranges alone increased 63 per cent.

Competing Fruits. With the gradual decrease in apple production there has come an even greater increase in production or importation of competing fruits. The following table shows the production of oranges and grapefruit and importation of bananas as compared with the total apple production. The commercial production shows a much greater difference:

TABLE 2. COMPETING FRUITS—UNITED STATES IN THOUSANDS

Average 1923-1932	*1933*	*1934*
Oranges, 44,024 bushels	47,289	58,351
Grape Fruit, 12,792 bushels	14,243	18,248
Bananas Imported, 58,657 bunches	45,114	43,096
As Against		
Apples, 162,433 bushels	142,981	119,855
Pears, 22,581 bushels	21,192	23,474

Table 3 gives the per capita consumption of the different fruits.

TABLE 3. PER CAPITA CONSUMPTION IN POUNDS

Fruit	*1919-23*	*1929-33*
	pounds	*pounds*
Citrus	29	42
Oranges	21	29
Grapefruit	5	9
Lemons	3	4
Apples	72	60
Grapes	32	33
Peaches	21	20
Pears	7	9
Bananas	24	26

During the last ten years the production of oranges, grapes, and grapefruit has been rapidly increasing. These products, including bananas, are distributed, merchandised, and advertised in an orderly manner. Bananas are owned and controlled almost 95 per cent by one company, while California grapefruit and oranges are controlled about 75 per cent by one concern, and a large part of the 35 per cent, representing the balance of the three fruits, is marketed and controlled by a very small number of shippers. They are so organized that they first, control distribution; second, stablize markets; and third, advertise and merchandise cooperatively and get results in the face of an enormously increased production.

1936 Apple Crop. About 50 per cent of the United States apple crop was produced in Pacific Coast and Rocky Mountain regions in 1936. The approximate apple crop this year was 66,452,000 bushels as compared with 93,866,000 bushels, representing the average for the last five years. This is the low record crop since 1921.

This has resulted in a greater demand for western apples because of the eastern apple crop shortage.

Outlook on Apple Situation in the Valley. This conference is of the opinion that there is a future in the apple industry for the producer of quality apples in this valley, and recommends that orchards of less than commercial size which are now poorly cared for be either destroyed or cleaned up.

Future Plantings. The committee recommends that plantings of apples in the Milton-Freewater country should be made only to complete farming units now in operation.

Varieties recommended are:

Winesaps, Delicious (red), and Rome Beauty (red).

Other than standard varieties should be planted only when a definite market has been established.

Cover Crops and Fertilizers. As apple orchards become older and more crowded, and the soils more nearly depleted, closer attention will need to be given practices such as cover crops and uses of commercial or barnyard fertilizers to maintain and build up soil fertility.

The committee recommends that more attention be given to maintaining cover crops of alfalfa, sweet clover, or other legumes, in orchards.

Cultivating should be such as to disturb the cover crop as little as possible.

Little Leaf, a nutritional trouble, exists to some extent in the apple orchards of the Milton-Freewater district. Experiments in apple orchards in the state of Washington show that when legume cover crops are grown in the orchard this difficulty tends to disappear but when the cover crop dies out the trouble reappears.

Zinc sulphate injections into the bases of trees have afforded protection against Little Leaf for periods of two and three years. There is some possibility that zinc sprays may be of benefit. The committee therefore recommends that the Extension Service conduct trials of this nature.

The committe further recommends that fertilizer trials be conducted to determine effects on color, yield, quality and resistance to disease.

The following report from the Prosser Experiment Station will be of interest to local growers:

> "The leaves of the alfalfa plant contain about three times as much nitrogen per pound of dry matter as do the stems. The weight of dry matter in the leaves of the plant at the half-bloom stage is about 45 per cent of the total weight of dry matter in the plant. The average per cent of nitrogen in good alfalfa hay is about 2.5 per cent. Thus, a ton of hay contains about 50 pounds of nitrogen, approximately 35 pounds being contained in the leaves and 15 pounds in the stems.
>
> "Since the leaves fall and are readily incorporated into the surface soil, they need receive no further consideration. Chemical analyses show that a considerable portion of the nitrogen in alfalfa stems is soluble and that the remaining stems contain only about one per cent of nitrogen by the middle of November. The value of this part of the plant for soil building purposes is therefore rather small and any damage to the alfalfa stand in working it into the soil will probably be greater than the benefit derived from the addition of plant food and organic matter.
>
> "Disking or cultivation of alfalfa may be necessary, but the basis of such necessity should be: elimination of fire hazard, control of weeds, control of orchard pests or better preparation for other orchard operations rather than the incorporating of the old alfalfa stems (which have little value) into the soil."

Pruning and Thinning. Pruning, fruit thinning, and moisture control will be necessary to help correct alternate bearing habits in older orchards. The committee realizes that adequate financing is not available to all who would follow this procedure at this time.

Your committee recommends regular pruning and thinning of apples to eliminate culls and C grade before harvest time. Examination of apple orchards prior to harvest will often indicate the wood in the apple trees that needs removing.

The committee finds that demonstrations of thinning apples in the Milton-Freewater territory have given the same general results as long-time experiments in the Wenatchee district; namely, that early thinning of overloaded trees in the ratio of one fruit to 30 or 40 leaves has resulted in good crops the second year when unthinned trees in the same demonstration had light crops.

Insect Pests and Diseases. The committee recommends that growers use lead arsenate sprays for codling moth until such time as substitutes for lead arsenate are found to be safe, practical, and acceptable to the Food and Drugs Administration.

Your committee deplores the diversity of spray recommendations made in this district for codling moth control and recommends that more attention be paid to timeliness of spraying for codling moth and thorough-

ness of application, and that the recommendations of the Northwest Spray committee be more closely followed.

The committee further requests that thorough inspection and analysis by state agencies be made of all spray material offered for sale to our growers.

The apple growers at this conference urgently request that unkept or neglected orchards be cleaned up or destroyed under the provisions of the present State law pertaining to the control of insect pests and diseases in orchards.

Spray Residue. The committee believes there should be no further reduction in spray residue tolerances and that the stem and calyx be eliminated from apple samples given the test for lead.

Freight Rates. The committee recommends that western growers continue efforts to obtain lowered freight rates on fruit commodities, and to encourage water transportation as a means of cutting transportation costs in eastern and southern apple markets. The committee further recommends that a standing committee be appointed to cooperate with other communities in obtaining and holding freight-rate reductions.

Advertising. A study of domestic apple markets relative to advertising, indicates that the West should join in a unified effort to advertise apples in a national way.

The committee therefore recommends that support be given to meritorious and well-planned efforts to advertise and market northwestern apples as such. It is recommended that a committee be appointed to work with other apple producing sections to this end.

Codling Moth Tree Banding Demonstrations. As an aid to codling moth sprays for the control of codling moth, a five-year tree-banding demonstration was started in 1933 on 98 Rome trees on the George Bline farm.

These medicated bands trapped and killed 125 worms per band in 1933, 67 worms per tree in 1934, 29.7 worms per tree in 1935. This steady decrease in the number of worms overwintering in the bands indicated a lessened codling moth population, and that there is some benefit from the use of medicated tree bands as a supplement to the usual codling moth sprays. The committee recommends that growers cooperate in signing up with W. P. A. to have their trees scraped for banding, and that all scraped trees be banded.

Spray Materials. The committee calls attention to the service being rendered by the Twin City Gas and Oil Company of Milton-Freewater in servicing growers with standard spray materials and tree bands at a material saving in cost.

Fertilizers for Milton-Freewater Apple Orchards

By O. T. McWhorter, Extension Horticulturist

Commercial fertilizer demonstrations in apple orchards in the Milton-Freewater area do not indicate any single fertilizer formula as producing consistent results.

Generally when nitrogen has been used in amounts sufficient to increase foliage and terminal growth, color of fruit produced on these trees has been depressed. When phosphorus, or phoshorus and potash, have been used alone color has been better than on the unfertilized plots and on

nitrogen fertilized trees but the terminal growth and increased vigor necessary to restore devitalized trees have been lacking.

When apple orchards slow down in their growth and vigor, small crops often result. It is then that the grower becomes interested in applications of commercial fertilizer or of barnyard manures to obtain a return of favorable growing conditions. Cover crops of alfalfa, sweet clover, or other legume crops are considered the essential in keeping up apple orchard soil fertility. These cover crops must be allowed to remain and rot in the orchard to be of material value.

In addition to cover crops, nitrogen applications or mixed fertilizers are used to stimulate cover crop and tree growth. The amounts of nitrogen applied vary from three-fourths of a pound to two pounds of actual nitrogen per tree.

On account of the alkaline condition of most local soils, sulphate of ammonia is recommended.

The straight nitrogen applications may be varied from year to year by additions of phosphorus, and of potash. No one knows the exact amounts to recommend for apple orchards under the many varying local conditions.

Suggested formulas for local apple orchard fertilizers are:

No. 1 Barnyard manures or sheep manures, 5 to 10 tons per acre, to which is added 400 to 500 pounds of superphosphate per acre.

No. 2 Sulphate of ammonia, five to eight pounds per tree for one or two years on old devitalized orchards.
When phosphate is needed, suggestion No. 3 may be followed.

No. 3 Sulphate of ammonia, 5 to 8 pounds per tree.
Superphosphate, 7 to 10 pounds per tree.
If a complete fertilizer is needed, No. 4 is suggested.

No. 4 Sulphate of ammonia, 5 to 8 pounds per tree.
Superphosphate, 7 to 10 pounds per tree.
Sulphate of potash, 3 to 4 pounds per tree.
Apply the fertilizers in the early spring 4 to 6 weeks ahead of the bloom period in the bottom of irrigation rills.

An orchard planted 30x30 with 48 apple trees per acre would require fertilizers as follows when 6 pounds of sulphate of ammonia, 8 pounds of superphosphate and 3 pounds of potash are used per tree. This is 1.23 actual nitrogen, 1.2 actual phosphorus and 1.5 pounds of potash per tree.

TABLE 4. APPLICATIONS OF FERTILIZERS. 48 TREES PER ACRE

Ex. A—Complete fertilizer
288 pounds of Sulphate of Ammonia per acre
384 pounds of Superphosphate
192 pounds of Sulphate of Potash

Ex. B—Nitrogen and Phosphorus
288 pounds of Sulphate of Ammonia per acre
384 pounds of Superphosphate

Ex. C—Nitrogen
288 pounds of Sulphate of Ammonia

Does It Pay to Fertilize Prune Orchards in the Milton-Freewater District?

Extension Service trials in the district show a good profit from the use of commercial fertilizers. These trials ran three years.

TABLE 5. RESULTS FROM USE OF FERTILIZERS

Fertilizer used per tree annually	*pounds*	*Average yield of prunes per acre* *pounds*	*Profit above fertilizer cost*	*Remarks*
Sulphate of Ammonia	4	12,341	$33.70	
Unfertilized		9,055		No claims are made that these results would occur in other orchards, but they do indicate that many orchards in the district are in need of additional fertility if satisfactory yields are to be obtained. Similar trials will be conducted by the State College Extension Service to gather more information.
Sulphate of Ammonia	4			
Sulphate of Potash	2	11,800	10.75	
Sulphate of Ammonia	4			
Superphosphate	7	12,834	17.56	
Unfertilized		7,880		
Superphosphate	7			
Sulphate of Potash	2	10,161	8.57	
Sulphate of Ammonia	4			
Superphosphate	7			
Sulphate of Potash	2	14,420	40.27	

Report of the Committee on FRESH PRUNES

Prune Acreage Comparisons. The Oregon Italian prune acreage in 1909 was 21,925 acres. By 1919 it had increased to 43,311 acres and in 1924 to 56,777. In 1929 there were 56,241 acres and in 1933 census estimates placed the acreage at 54,825.

In comparison, the prune acreage in the Milton-Freewater district was 2,017 acres in 1919, 3,409 acres in 1924, 2,422 acres in 1929, and 2,374 acres in 1934, a decrease of 1,035 acres since 1924.

Carlot Shipments from Milton-Freewater Area. The Milton-Freewater prune crop is marketed almost entirely through fruit markets. Carlot shipments are listed as follows:

TABLE 6. CARLOT SHIPMENTS OF PRUNES

Year	*No. Cars Shipped*	*Per cent of State Totals* *Per cent*
1925	439	74.0
1929	993	85.4
1930	884	84.4
1931	580	77.5
1932	604	85.9
1933	840	82.9
1934	1043	94.6
1935	381	86.0
1936	762	-----

TABLE 7. CARLOT SHIPMENTS FROM COMPETING AREAS

State	*Cars Shipped* 1925	1930	1935	1936
California	2658	4969	2134	2782
Idaho	1014	1602	1458	845
Washington	505	866	596	736
OREGON	594	1003	443	762

A heavy loss of tonnage due to San Jose scale was suffered by growers in 1936. The committee recommends a vigorous clean-up program for all orchard pests. The small orchards or scattered trees should not be overlooked.

Prune Shipments Regulated. In 1935 and 1936 the Milton-Freewater Prune Deal operated under an agreement regulating prune shipments in order to prevent gluts in the consuming markets and the resulting extreme price fluctuations. We recommend that this regulation be continued and strengthened.

The prices to the grower in 1936 for the fresh fruit ranged from $14.00 to $35.00 per ton, with $25.00 to $30.00 per ton the prevailing price.

Marketing. Too large a number of selling agencies is considered detrimental, the competition tending to demoralize market conditions, and lower prices to the growers. In 1935 and 1936 regulation of this condition was attempted with considerable success, but the problem is not yet permanently solved. The committee recommends that efforts be continued until such time as a marketing organization can be effected which will be able to force compliance not only in the matter of regulating carlot shipments but in exercising more authority over time of harvesting, care of fruit after harvesting, and grading and packing.

The committee has been informed that as soon as prunes start rolling from the Milton-Freewater area, there appears to be a tendency of buyers to cease purchases, but later to buy at their own prices, because of instability of the market.

The committee suggests that eastern consumer cooperatives be contacted and attempts made to sell prunes direct to these cooperatives from the Milton-Freewater territory.

Packages and Grading. The committee recognizes that prunes could be more uniformily graded by shippers and that packages could generally be made more attractive to the consumer, factors that distinctly influence buyers. The committee recommends that growers and shippers continue their efforts at regulation of shipments of prunes from the Milton-Freewater area and extend these regulations more definitely to shipping out quality prunes in attractive packages. It recognizes the present trend toward the use of the half-bushel basket and the fact that the package must be well filled to satisfy the requirements of the buying trade, even though more than 28 pounds is required.

If the prune industry in the Milton-Freewater area is to survive, growers must receive prices which will make prune growing a means of livelihood to those engaged in the enterprise. Demoralized markets are detrimental, not only to the individual prune grower, but, ultimately, to everyone in the community, grower, business man, and laborer alike.

Dried and Canned Prunes. The committee finds that there is little likelihood that prunes will be dried extensively or canned in the Milton-Freewater area. There is some interest in canning, but the price would have to be around ten or eleven dollars per ton to compete with prunes canned in other sections. If and when prunes are canned in the Milton-Freewater area, the committee believes that these prunes must come from the heavier soil areas in order to insure even ripening of the fruit. Prunes on the gravel soils are reported ripening so unevenly as to cause loss to the grower by dropping. The canners have expressed willingness to can anything that they can sell to advantage. The committee reports that with improved drying facilities at Milton-Freewater, local prunes can be satisfactorily dried even though the skins are somewhat thick, but on account of the low prices for dried prunes and competition from other districts the prices to growers locally will be unattractive. Under these conditions the canning and drying outlet may have to be considered only as a salvage outlet.

The committee finds that in many locations the Milton-Freewater Italian prunes are sold as Oregon plums or Oregon Blue plums. In these markets the term "Italian Prune" appears to mean nothing to the consumer. It is recommended that a committee be appointed to look into the idea advanced in the committee that all such Italian prunes be sold as Oregon Blue plums with a notation underneath—"Italian Prunes."

Premature Harvesting. Premature harvesting and other factors contributing to low quality, interfere with orderly marketing. In recent years carlot inspection at shipping point has improved this condition. The committee commends the early work of the Oregon Experiment Station through Professor Hartman on quality of prunes in relation to time of harvesting, and recommends that studies started this season by the Oregon Experiment Station and the State Department of Agriculture be continued and carried to completion.

Production. Low yields of small-sized fruit contribute to the high cost of production on many farms in this area. There are certain fixed per-acre costs which cannot be avoided and must be distributed over the prune tonnage produced, whether of low or high yields.

Cost of Producing Prunes. A survey conducted in 1934 by the County Agent's office on nine farms placed the cost of producing prunes at $100.70 per acre. Yields of prunes per acre were 4.92 tons in 1931; 7.9 tons in 1932, and 6.10 tons in 1933. These yields are too low for profit.

The average cash returns per acre in those years were $60.89 in 1931, $19.69 in 1932, $98.99 in 1933. The cost of production figures included labor of the owner or operator.

Future Planting. The committee recommends that new plantings of Italian prunes be made in the Milton-Freewater district sufficient to maintain the present acreage. The committee is of the opinion that this area can continue to hold its markets only if the present volume of prune production is maintained. The committee expects increased acreages of Italian prunes in competing districts of Washington.

Use of Fertilizers and Cover Crops. The committee recommends that in Italian prune orchards where legume or other cover crops are being removed annually, such crops, or part of them, be left to decay, to furnish the necessary plant food for orchard maintenance. Where these cover crops are being entirely removed or pastured off, two crops instead of one are feeding on the soil and the orchard in time must suffer from lack of available plant food as well as moisture.

County agent demonstrations with a nitrogen and phosphorous combination gave an increased yield in aged prune orchards of 90.9 per cent and a total net value of $100.18 per acre over the cost of fertilizers. On another farm, and over a three-year period, a complete fertilizer consisting of nitrogen, phosphorus and potash, gave an increased yield of 85.3 per cent or a net cash return over cost of fertilizers, of $50.27 per acre. In both cases the prune price was figured at $20.00 per ton. The committee recommends that the County Agent's office reinstate these fertilizer demonstrations and continue them for a period of five or more years on the same location.

Pruning. County Agent demonstrations of pruning aged Italian prune trees over a period of two years showed an increased per acre yield of 4,957 pounds of prunes and a net value increase of $49.50 per acre due to pruning. Prunes were valued at $20.00 per ton. The committee recommends continuation of these pruning demonstrations by the County Agent's office

on old Italian prune trees where lack of vigor is noticeable and where growth has slowed down.

Root Borers. Demonstrations for the control of peach and prune root borer by the County Agent's office have showed effective control of this pest even in orchards in which 80 per cent or more of the trees were badly infested.

The committee recommends annual attention to the control of peach and prune root borer, that trees may be kept in the healthiest possible condition, a necessity for high quality prunes. Some growers have found 2-year old trees badly infested.

Prune Russet. Prune russet or russeting has been a concern of growers and shippers in the Milton-Freewater area. Investigations made by the State College Extension Service this season show that in some instances 73 per cent of the fruit on southwest or windward side of Italian prune trees was russeted as a result of mechanical injury caused by winds.

On the northeast or sheltered side of the same trees only 6.7 per cent of the prunes were russeted. The amount of russet on different farms varied apparently in proportion to the exposure to southwest winds. Orchards in sheltered areas protected from these southwest winds had less russet.

The committee points out that windbreaks may be necessary in some locations. The thinning out of the underhanging, small, devitalized wood in old trees may remove part of the mechanical hazard by lessening the amount of wood which causes injury when wind whips the prunes against parts of the tree, resulting in a russeting condition.

TABLE 8. RANGE OF PRICES RECEIVED BY GROWERS—NET

	Ton
1926	$13.75
1927	30.00
1928	10.80
1929	21.86
1930	15.50
1931	30.00
*1932	7.50
1933	20.00
1934	15.50
1935	31.00
1936	26.00

TABLE 9. COST OF HARVESTING PRUNES AND LOADING ON CARS

Suit Cases (16 lbs.)

Cost of case	$.045	
Cost of packing	.06	
Cost of warehousing	.02	
Other costs		Total pack.... $.125
Pick-hand	.04	
Total	$.165	

Baskets

Cost of case	$.1333	
Cost of packing	.0817	
Cost of warehousing	.04	
Other costs, caps, collars, liners	.0250	
		Total pack.... $.28
Pick-hand	.08	
Total	$.36	

*Approximately 400 cars not shipped because of unsatisfactory market.

Other Methods Faced Lugs

Cost of case	$.05	
Cost of packing	.08	
Cost of warehousing	.02	
Other costs, trimmings	.02	
		Total pack.... $.17
Pick-hand	.04	
Total	$.21	

Freight Rates. Cost of shipping to eastern markets: (These rates include refrigeration.)

New York

Size of car 26,000 Min. @ cost .628 per basket or .387 per lug.
Freight charges 30,000 Min. @ cost .56 per basket, or .345 per lug.

St. Louis

Size of car 26,000 Min. @ basket .558—Lug or s/c .344.
Freight charges

TABLE 10. COMPARISON OF FREIGHT CHARGES IN 1928 WITH 1936.

From Milton-Freewater District To	1928 rates 26,000 lbs. min. Rate per 100 lbs.	Per Std. Refr.	1936 rates 26,000 lbs. min. Rate per 100 lbs.	30,000 lbs min. Rate per 100 lbs.	Std. Refr.	Per Pkg. incl. Refr. 1623 Disp. Lugs	1000 Baskets
Boston, Mass	1.87½	110	1.73	1.55	94.50	.348	.564
Chicago, Ill.	1.87½	90	1.55	.....	81.00	.344	.558*
Cincinnati, Ohio	1.87½	100	1.73	1.55	90.00	.342	.555
Coffeeville, Kan.	1.69	85	1.51	.....	76.50	.334	.541*
Dallas, Tex.	1.87½	95	1.55	.....	81.00	.344	.558*
Denver, Colo.	1.58	75	1.40	.....	67.50	.307	.498*
DesMoines, Iowa	1.87½	85	1.55	.....	76.50	.341	.553*
Detroit, Mich.	1.87½	100	1.73	1.55	90.00	.342	.555
Dodge City, Kan.	1.69	80	1.51	.....	72.00	.330	.536*
Fargo, N. Dak.	1.69	80	1.45	.....	72.00	.319	.518*
Indianapolis, Ind.	1.87½	95	1.73	1.55	85.50	.339	.551
Philadelphia, Pa.	1.87½	105	1.73	1.55	94.50	.345	.560
St. Louis, Mo.	1.87½	90	1.55	.....	81.00	.344	.558*
Washington, D.C.	1.87½	105	1.73	1.55	94.50	.345	.560

TABLE 11. PACKING COSTS; WAREHOUSING, PACKING AND PLACING ON BOARD THE CAR BY THREE SHIPPERS OF THE MILTON-FREEWATER AREA, 1936

	Shipper A	*Shipper B*	*Shipper C*
Faced lugs	$.17	$.148055	$.14883
Faced baskets	.28	.247091	.28657
Suit Cases	.125	.....	.12971

Report of the Committee on
CANNERY CROPS

Fruit growers have encountered changing marketing conditions for their crops during the past few years. Fruit is now being produced in larger quantities in districts where our crops were formerly sold. As a result, along with transportation costs on long distance hauls, fruit growers in the Northwest are at a disadvantage when compared with growers having their markets close at hand. Foreign markets have decreased for apples, and domestic consumption is less. Apple acreages are decreasing. New replacement crops are needed.

*Applies to 26,000 pound minimum cars.

Canadian Vegetable Markets Lost

Vegetable growers have also been confronted with new marketing problems. Approximately 75 per cent of the early vegetable crops were marketed in Canadian territory. This market was lost several years ago when the Canadian government placed high duties on American products as a retaliation measure. Although some reductions in duties have recently been made, in the meantime large acreages in British Columbia and other provinces have been planted to vegetable crops. Hence the Canadian people now wait for the crops produced in their own country, and very little of the former business has been regained by American producers.

Onion Crop Has Competition

The onion crop in this district has been the largest single truck crop produced. In recent years, growers in the middle-west section, where most of our onions were marketed, have been growing the same type of onions and delivering them to the markets at the same time the early onions from this district are ready for shipment.

Canneries Offer Advantage

Canneries have recently been located in this territory. These canneries can take care of crops which can be produced on the acreages which formerly grew crops for which the markets have been lost. Canneries offer certain advantages over other ways of disposing of crops. Contracts can be made for all crops produced. Packing long distance transportation, and other costs are thus eliminated for local delivery. Many other advantages could be cited for marketing crops locally for canning purposes.

In addition to assured markets for growers, canneries employ much labor in the production and canning operations, a fact of great importance to this district. The foothill farmers already have a new crop through the raising of cannery peas in connection with wheat growing. Growers in the irrigated districts now have the opportunity of improving their conditions by raising new cannery crops to which their lands are well adapted. It is the purpose of this committee to present some of these opportunities.

Asparagus Acreage Increase Recommended

The cannery crops committee interviewed cannerymen at Milton and Walla Walla, and in the opinion of those interviewed, the acreage of asparagus for cannery purposes can be increased to 2,000 acres immediately, and ultimately a total expansion to 4,000 acres can be made without materially affecting markets or prices.

The United States canned asparagus pack increased from 1,793,419 cases in 1925 to 2,537,310 cases in 1935. In the latter year the California pack was 2,238,400 cases, and the Oregon and Washington pack was 44,683 cases. Three-fourths of the California pack is reported as white asparagus. California has approximately 70,000 acres of producing asparagus.

The committee has been informed that the quality of green asparagus from the Walla Walla Valley is superior, not excelled in fact by asparagus from any other section. An immediate and steady market for 100,000 cases is available for asparagus grown and canned in the Walla Walla Valley. Inquiries by the committee indicate that the price to the grower for asparagus should not fall below a base of 3½¢ per pound.

Probable Income From Asparagus. The committee was informed that two tons of asparagus per acre can be expected as an average yield, with possible production under favorable conditions reaching to four or more

tons per acre. The 3½¢ per pound for a 2 ton per acre yield would bring a gross income of $140.00 per acre.

Cost of Establishing Crop. Asparagus is planted mostly in rows 4½ feet apart, with hills 22 to 24 inches apart in the rows. The crown should be planted 8 inches deep and covered gradually as the plants grow to maturity. Since 6,000 plants are required per acre, at $2.00 per hundred the cost is about $12.00. Setting of the plants will vary from three to five or six dollars per acre, depending upon methods used. The first year, the cost of cultivation should not exceed $5.00 per acre. Fertilizer costs will be in addition to the above figures. During the second year, asparagus may be cut over a period of ten days or two weeks, but no longer. The third year, it may be cut through the entire season.

The committee finds that there are approximately 500 acres of asparagus now in the Walla Walla district, and that there will be a possible 800 acres in 1937. The committee recommends that this area be made an outstanding locality in asparagus production. Asparagus production appears to be a means of employing acreage formerly producing tree fruits. The crop will provide an income, not only to growers, but to others, since much labor will be required to handle the crop, thus affording a community pay roll.

The Mary Washington variety is recommended. Growers should produce their own planting stock from selected seed in order to procure vigorous, superior quality and yield. The best seed is that produced from four-year old stock.

Soils Adapted to Asparagus. The committee recommends that asparagus be grown on deep, well-drained soils, free from gravel, and with a minimum amount of alkali. Soils that produce other crops abundantly will also produce asparagus. Rocky or gravel soils are not so well adapted to asparagus because of the difficulty of cutting the crop. Farm manures used in building up asparagus soils should be free from Canada thistle, wild morning glory, or other noxious weeds.

Carrots

Possibilities are for a limited number of acres of the Improved Chantenay variety of carrots for cannery purposes to be used with peas. This project will carry itself. Prices to the growers for the carrots range around $15.00 per ton.

Beans

Most local processors are not interested in beans at present because this crop is a cheap product with plenty of competition, and returns to grower are not sufficient. The Oregon canned snap bean pack increased from 31,578 cases in 1919 to 477,355 cases in 1935.

Spinach Production

Demand for spinach has been fairly strong the last few years. This crop is produced in the fall, following other crops. The quality of the locally-grown spinach is very high. The acreage requirements to fill processing needs will vary from year to year, and for that reason the crop must be contracted on the annual basis.

Pea Production Limited to Foothills

The production of peas for cannery purposes is better adapted to the foothill regions of the country, at an elevation of at least 1500 feet. It is rec-

ommended that the growing of peas for the cannery in the immediate vicinity of Milton-Freewater be discouraged, and that growers be urged to produce other crops better suited to the nearby local farming regions.

Tomatoes Have Excellent Quality

The committee has been advised that, because of the superior quality of the tomatoes grown in the Walla Walla Valley, 1000 acres of this crop can be grown and marketed through processing channels, if and when the curly-top disease of tomatoes can be controlled. The committee recommends increased experimental work on the curly-top disease.

The canned tomato pack in Oregon in 1919 was 21,351 cases. The pack has varied from year to year, and in 1935 it increased to 78,068 cases. In 1919 the total western pack of tomatoes was 5,029,202 cases, and the total United States pack was 18,452,090 cases. The total western pack in 1935 was 4,161,290 cases, and the total United States pack was 24,289,542 cases. The tomato juice pack for Oregon increased from 875 cases in 1931 to 25,669 cases in 1935. Because of superior quality, Oregon should be able to secure more of the United States tomato pack.

The committee recommends that variety demonstration plots of tomatoes be established, that newer varieties of tomatoes may be grown and compared with those now considered standard in the Milton-Freewater district.

Fertilizer Demonstrations for Vegetable Crops

The committee recommends that fertilizer demonstrations be conducted by the County Agent on such crops as spinach, tomatoes, and asparagus and, if possible, extended to sweet corn and other crops. It is further recommended that cover crops for soil building be included in the fertilizer demonstration program.

Sugar Beets

The committee recommends that growers enter sugar beet production only after they have given that crop very careful consideration.

Cannery By-Products as Livestock Feed

The committee calls attention to the by-products of the canneries as furnishing feed for cattle. This is important to vegetable growers because it is a new source of farm manures for keeping up soil fertility.

Vegetable Seed Production

Other irrigated sections with a similar climate and soils are producing quantities of vegetable seeds such as onion, lettuce, cucumber, beets, and sweet corn. The committee recommends that contracting agencies for these crops be urged to make trials of vegetable seed production in this locality. A factor limiting the production of sweet corn, however, both for seed and for cannery purposes, is the damage done by ear worms, which attack and soil the tip of the ear. Preventive measures should be developed for this if possible.

Recommendations

Since curly-top disease of tomatoes is a principal limiting factor in the development of an important tomato-growing industry the cannery committee recommends that this assembly go on record commending the work of the Oregon Agricultural Experiment Station for progress made in the

control of curly-top disease on tomatoes at the Hermiston Experiment Station. The committee urges that this assembly request the Oregon Agricultural Experiment Station to seek additional funds, federal or otherwise, to carry on added experimental work for the control of the curly-top disease of tomatoes. The committee recommends also that efforts be extended to develop means for control of the ear worm attacking sweet corn.

Passed by the Milton-Freewater Outlook Conference assembled at the City Hall at Milton November 20, 1936.

Report of the Committee on CHERRY PRODUCTION

Six to ten per cent of the state income for fruit is from cherries. Oregon annually produces ten to fifteen thousand tons of cherries, of which about 40 per cent are Royal Annes. Table 12 indicates the Oregon, Washington, and United States production.

TABLE 12. CHERRY PRODUCTION 1933 TO 1936.
(FROM BUREAU OF AGRICULTURAL ECONOMICS, PORTLAND)

Year	*Oregon* tons	*Washington* tons	*United States* tons
1933	15,000	16,330	117,454
1934	11,000	12,500	113,886
1935	12,000	10,400	117,430
1936	.....	.....	.....

The 1934 special census figures show that Umatilla County produced 1,058 tons of cherries from 446 bearing acres. This census also indicated that there were 267 acres yet to come into bearing. In 1925 the Milton-Freewater district shipped 78 cars of cherries, which was 39.8 per cent of the state total. In 1930, 77 cars were shipped, or 18.1 per cent of the total. In 1934, 94 cars were shipped, or 39.5 per cent of the state total; and in 1935, 33 carloads, or 11.9 per cent of the state total. The total acres of cherries in the Milton-Freewater district increased from nearly 396 acres in 1919 to about 611 acres in 1934. This is somewhat the history of all Oregon cherry producing sections. As acreage has increased, marketing problems have been more acute.

Oregon Cherry Acreage. Cherry acreages in Oregon were estimated at approximately 5,000 acres in 1930, with an additional 2,500 acres to come into bearing. California had approximately 13,260 acres, and 5,647 acres to come into bearing. Washington had 5,000 acres bearing and 2,000 to come into bearing.

Imports and Exports. The imports of cherries in all forms decreased from 2,706,801 pounds in 1926-27, to 1,865,956 pounds in 1933-34.

Future Plantings. It is estimated that the cherry tonnage in leading cherry producing sections of Oregon will double during the next five years and probably treble in the next ten. There may be increases beyond that amount.

Reports from other western districts indicate cherry plantings to be only 65 per cent in bearing with a probable tonnage in five to ten years that will double the present production. This represents the principal production of sweet cherries in the United States for the commercial market.

With these figures in mind, plantings of cherries should be made only when it seems probable that market outlets will exist for the local crop.

Cherry Tariffs. Processed cherries produced in the West and protected by tariff, have been in strong demand. A tendency to increase plantings of varieties for brining is apparent. The favorable position of these cherries has developed new competition; it has been found that Black Republicans and Lamberts are usable, and eastern planters have found that Montmorency makes a satisfactory small maraschino and candied cherry. This opens an almost unlimited supply for competition in the cheaper grades of processed cherries.

The committee recommends that the present tariffs be maintained. Under the tariff enacted June 18, 1930, rates were raised from 2¢ a pound to 5½¢ for cherries, sulphured and in brine, unpitted; from 3¢ a pound to 9½¢ for cherries sulphured and in brine, stemmed and pitted; from 40 per cent ad valorem to 9½¢ per pound plus 40 per cent ad valorem for maraschino cherries; candied, crystallized, or glace cherries, or those prepared or preserved in any manner.

This revision has changed the imports from 23,263,267 pounds in 1930 to 1, 865,956 pounds in 1934.

Recommendations. The committee finds a tendency on the part of cherry growers to discontinue cherry production. Crop failure, unfavorable market connections, and winter injury to trees are given as reasons.

The committee recommends increased plantings of cherries only to complete farm units now in production and to supply special markets available to growers.

Varieties suggested for this district are:

Bing, with Black Republican pollenizer.

The committee recommends a study of the application of irrigation water to cherry orchards.

Cherry Fruit Fly. The Milton-Freewater district is free from the cherry fruit fly at this time, but the committee recommends that all possible effort be directed toward keeping the district free from this serious pest. Growers and shippers alike can continue their cooperation in this direction by following Experiment Station recommendations.

Report of the Committee on SMALL FRUITS

Commercial small fruit production in Umatilla County is negligible except for strawberries. The acreage of strawberries, according to the special census of 1934, is 70 acres, with an estimated production of 123,214 quarts for that year. Census figures show that Umatilla County had 210 acres of strawberries in 1909. By 1924, the acreage had decreased to 105, and in 1929 to less than 50. Growers are limited to local markets for outlets, and are subject to competition of the cheaper trucked-in fruit. The small fruit industry in this region is relatively unimportant, due to lack of steady market outlets.

Strawberries

Strawberry production in the Milton-Freewater area has possibilities for acreage increases, if and when dependable market outlets are developed. Yields of strawberries on well cared-for plantations are reported as

high as 5,500 pounds per acre, with average yield of about 3,600 pounds. The cost of production from figures available is about 5½¢ per pound. Harvesting labor is a problem in this locality.

Local Outlets for Small Fruits

For the present at least, it does not appear that small fruits such as strawberries, red raspberries, and blackberries will be in demand by local processors. Other crops seem better adapted for processing purposes here.

Small Fruit Variety Trials. The committee recommends that the Extension Service continue and expand small fruit variety trials in the Milton-Freewater area, and that suitable varieties of strawberries be tried out for adaptability to cold packing purposes.

Root Weevils a Strawberry Production Problem. The committee recommends that the strawberry root weevil problem in this area be investigated to determine the time of appearance of adults, and the proper time for applying baits to control them.

Strawberry Varieties for Home Gardens. Of the new varieties, the Narcissa has generally produced an early crop of high quality berries. It is recommended for further trial in the Milton-Freewater area. The Gold Dollar has been a leading early sort but the quality does not compare with that of the Narcissa. The Marshall or Oregon is well suited to the home garden. The Corvallis and Redheart and improved Clark are recommended for trial as canning berries. They may be used as fresh fruit.

In frosty locations where the single crop or June bearing varieties of strawberries do not bear, the everbearing strawberries have a place. The Rockhill is the leader in this field for quality and productiveness. The Rockhill is sometimes sold under the name "Wyzata." The Mastodon is second to the Rockhill in quality of fruit produced.

Red Raspberries. Red raspberry production is rather negligible in the Milton-Freewater area. The Cuthbert, the leading commercial variety, has promise for sheltered locations. In the County Agent variety trial demonstrations at Freewater the Cuthbert, Newberg and Chief are promising varieties. The Latham is grown to some extent but much of the stock is subject to a destructive virus disease known as mosaic.

Blackberries. The Brainard blackberry is recommended for trial and for home garden use.

Youngberry and Boysenberry are recommended only where they can be protected during the winter months. The Boysenberry is a highly advertised new sort and is still on trial.

Gooseberries. Oregon Champion and Poorman are recommended varieties of gooseberries.

Currants. Among the currant varieties are White Imperial, Cherry, and Perfection.

Strawberries

Report of Outlook Committee to Obtain Cost of Producing Strawberries at Milton-Freewater, November 19, 1936

TABLE 13. STRAWBERRIES—PLANTING AND GROWING COSTS

First Year

Per Acre Costs		*Walla Walla River*
1. Rent or value of use of land	$ 25.00	
2. Preparing land for planting	8.00	
3. Plants (7,000 to 14,000 per acre @ $3.00 per 1000)	22.50	
4. Planting	8.00	$15.00 + 7
5. Cultivation (12 times)	9.00	
6. Hoeing (6 times)	35.00	50.00 + 15
7. Setting runners	6.00	20.00 + 14
8. Irrigation (Electricity and man to irrigate)	24.00	
9. Fertilizer	00.00	
10. Weeding	10.00	20.00 + 10
(Plus misc. items such as horse, implements, etc.)	$147.50	+ 46 = $193.50

Based on five acre average. Costs are slightly higher on less acreage.

Each Remaining Year

1. Rent	$ 25.00	
2. Cultivation	6.00	$20.00 + 14
3. Hoeing	6.00	15.00 + 9
4. Irrigation	24.00	
5. Fertilizer	8.00	
6. Topping and burning (sometimes not necessary)	00.00	
7. Weeding	10.00	20.00 + 10
	$ 79.00	= $112.00 + 33

Report of the Committee on DAIRYING

The General Dairy Situation. The number of the dairy cows in the United States of milking age as shown by the census has increased steadily since 1890, but there have been many changes between the last few census periods. From 1928 until 1934 the number of cows of milking age on farms in the United States increased about 3 per cent per year, reaching an all-time peak of an estimated 27,059,000 early in 1934. During that period pastures and feeding conditions were below normal in all or parts of the major dairy states of the nation, so that production only increased 1 per cent per year. The 1934 drought started a decline in the number of cattle which brought them down to an estimated 25,622,000 on January 1, 1936.

Table 14 shows the number of dairy cows by census period in the United States, in the eleven western states, the State of Oregon, and Umatilla County:

TABLE 14. NUMBER OF MILK COWS ON HAND

Year	*United States* Thousands	*Eleven Western States* Thousands	*Oregon* Thousands	*Umatilla County*
1890	16,512[1]	721[1]	114[1]	5,711[3]
1900	17,136[1]	867[1]	109[1]	4,668[3]
1910	20,625[2]	1,341[2]	152[2]	4,651[3]
1920	21,455[3,4]	1,541[3]	200[3]	5,687[2]
1925	22,575[3,4]	1,625[3]	217[3]	7,476[3]
1930	23,106[3,4]	1,814[2]	222[3]	8,456[3]
1935	26,236[3,4]	2,264[3,4]	250[3]	10,030[3]

[1] June 1. [2] April 15. [3] January 1. [4] Estimated by B.A.E.
Source: U.S. 11 Western—U.S. Census Report.

The eleven western states have for a number of years had about the same percentage of human population as they have had number of dairy cattle, and there has been little net movement of dairy products between the Pacific Slope and the East. The State of Oregon produces a surplus of cheese and butter, which is largely marketed in California.

During the past sixteen years for which records are available there has been a very close relationship between the price of manufactured dairy products and the industrial pay rolls of the nation. If consumers' buying power should increase, as indicated by industrial pay rolls, the demand for dairy products should make further improvement, while if industrial pay rolls decrease, the demand for dairy products would probably fall off and prices decline.

The following table from the 1937 outlook report of the United States Department of Agriculture shows changes in cattle numbers during the past ten years as compared to the 1925-1929 average and the depression years 1930-1932. The table also shows the number of cows of milking age for each 100 people in the United States, and the number of yearling heifers and heifer calves.

TABLE 15. NUMBERS OF MILK COWS AND HEIFERS, AND HEIFER CALVES BEING KEPT FOR MILK COWS, ON FARMS IN THE UNITED STATES, JANUARY 1

	Cows and heifers 2 years old and over kept for milk, January 1		Heifers 1 to 2 years old being kept for milk cows January 1	Heifer calves under 1 year being kept for milk cows January 1
	Thousands	*No. per hundred people*	*Thousands*	*Thousands*
1925-1929 Average	22,418	19.1	4,209	4,551
1930-1932 Average	23,991	19.4	4,943	5,278
1933	26,030	20.8	5,249	5,672
1934	27,059	21.4	5,381	5,674
1935	26,236	20.0	4,834	5,496

The number of milk cows per hundred of population is now smaller than in any year since 1931, but is about the same as the average during the period 1900-1925. During the next several years the rate of population growth seems likely to exceed the rate at which the number of milk cows will increase.

Local Dairy Situation. Oregon has approximately one per cent of the dairy cows of the nation, and according to the census the six precincts in the Milton-Freewater district have 2,627 cows and heifers that were milked during all or part of 1934, which is just a little over one per cent of the cows of this state. Any change made locally in cow numbers would have little effect upon the supply of dairy products.

Oregon produces a surplus of dairy products which have to be marketed outside the state. Most of the exports are in the form of butter and cheese. The normal market for this surplus is in California, and during the past few years about 6,000,000 pounds of butter and 9,000,000 pounds of cheese have been marketed from this state in the San Francisco and Los Angeles districts. The market for cheese is fairly well taken care of, and any increase of production from the state at the present time should be in the form of high grade butter rather than cheese.

Some of the milk produced in this district is marketed as whole milk in the city of Walla Walla, most of the rest of it being sold for manufacturing milk and cream to the cooperative and other creameries in the city of

Walla Walla. A smaller quantity is sold to centralizers and shipped to outside creameries.

The market for butter from this district is Seattle. During the past two years this market has changed from a surplus to a short market. It now appears that there is a shortage of butter existing in Seattle and that there will have to be shipments from outside into the state to take care of consumption on the main market. This should insure a relatively favorable price for manufacturing cream in this district.

Detailed figures on the number of cows milked in the district are not available except that the 1935 census showed 2,627 cows milked during 1934. There is some evidence that there has been a decrease in numbers of old cows during the past three years, but that there are probably more young animals than was the case three years ago. It is also believed by members of the committee that production per cow has been increased since 1933 as a result of better feeding methods.

According to statistics collected in connection with the Bang's disease testing that has been done in the district, the average sized herd is 9.2 cows. This is calculated by taking the total number of herds tested, and is not an accurate measure of the commercial herds of the district as it undoubtedly includes many family cows that are counted as a herd. It is believed that the farms on which dairying is a major enterprise have an average herd considerably in excess of this figure.

According to the 1935 census, there were 954 farms in this district (Umatilla County Precincts 1 to 6 inclusive) on January 1, 1935 and a total of 122,319 acres of land in farms. Of this land 4,525 acres were plowable pasture, 4,712 woodland pasture and 50,879 acres listed as other pasture. During 1934 a total of 4,808 acres of alfalfa was grown, yielding 12,575 tons of hay. In addition, 2,801 acres of small grains were cut for hay, producing 3,469 tons, and 30 acres of annual legumes producing 120 tons of hay.

These precincts take in considerable wheat and foothill land, and farms in the irrigated section of the district are much smaller than these figures show.

Recommendations

1. The committee believes that dairying is a sound enterprise in this district when adequate feed and pasture are available. The average cost of producing butterfat is relatively low in comparison with other dairy sections. There is no exception, however, to the necessity of observing sound principles of dairy management if the enterprise is to be successful on the individual farm. The profitableness of dairying depends upon a low cost of production, which must be based on good management, healthy herds, high production per cow, cheap feed and good pasture.

2. The greatest single factor in lowering the cost of producing milk is by increasing the production per cow. The best method of doing this is by continued testing and record keeping, and use of dairy herd sires that transmit high production to their daughters.

The possibility of bettering conditions through a recognized dairy-herd-improvement association in this district should be thoroughly investigated. When testing is reestablished in the community, one of the major objectives should be the proving of dairy sires, keeping the good ones in service during their lifetime and increasing their breeding life by better management. Consideration should be given to forming a cooperative bull association among dairymen who are testing under such an arrangement.

3. We realize that the number of cows any dairyman should keep depends upon the condition of his own farm; but we wish to call attention to the fact that production costs are lower in larger herds and that a sufficient number of cows should be kept to utilize to the best advantage the labor and feed resources of the farm.

4. The cheapest and most profitable production of the year is on good pasture. In general, pastures in the district are not given the care and attention they deserve as a producing unit of the farm. The committee recommends that better land be planted to permanent pasture and used for cows in actual production, pasturing dry and young stock on lower producing lands suitable only for pasture.

A number of demonstrations of irrigated pastures, seeded to Ladino clover and Meadow Fescue mixtures have been conducted in the district. Those that are located on good soil with an adequate water supply are giving exceptional yields of grass, as shown by numbers of dairy stock they are carrying. We recommend that more of these demonstrations be established in cooperation with the County Agricultural Agent, and that an annual pasture and dairy management tour be held at the proper season. These demonstrations should include various desirable grass mixtures, according to the type of soil and available irrigation water.

Experience in this and other areas indicates that carrying capacity can be increased by the use of rotation grazing and pasture fertilizer, especially by using applications of barnyard manure.

5. It is estimated by the committee that during 1935 approximately 30,000 tons of pea-vine silage were fed in the Walla Walla Valley. This was not all fed in the Milton-Freewater district. It is the opinion of the committee that the small vine varieties such as the Alaska make the better silage. Experience has shown also that best results are obtained when at least half as many pounds of hay are fed as pounds of silage.

The committee suggests that a possible saving in quality and quantity of silage produced might be made by ensiling these vines on the dairy farm not only in silos of standard construction, but in temporary silos, or trench silos. A number of very successful trench silos are in operation in the Hermiston section; detailed plans of these may be obtained from the County Agent.

There is some question as to the feeding value of pea-vine silage.

Morrison's "Feeds and Feeding" makes the following statement on pea-vine silage and pea-cannery waste:

> "Pea-cannery waste consists of the pea vines and empty pods, left after the green peas are removed at the pea-canning factories. It is usually put in large stacks, where the decaying outside layer preserves the mass of silage within, or else it is put in silos.
>
> "The pea-vine silage has a strong odor, but it is relished by stock and is an excellent feed for dairy cows, beef cattle, and sheep. It contains considerably more digestible protein than corn silage, but it supplies only 86 per cent as much total digestible nutrients as well-eared corn silage. Where advantage can be taken of its richness in protein by saving on protein supplements that would otherwise be needed to balance the ration, pea-vine silage is worth fully 90 per cent as much as well-earned corn silage per ton. If fed in a ration that contains more protein than is needed, pea-vine silage is probably worth only about 85 per cent as much as well-earned corn silage, but

it is worth fully as much per ton as silage from corn cut when in the milk stage or earlier.

"Though pea-vine silage has a strong odor, it does not injure the flavor of milk, if fed after milking in a well-ventilated barn and if spoiled portions are discarded.

"If cannery waste is spread out thinly on a field where the grass is short, it may be cured into hay about equal to clover or alfalfa hay in feeding value, but this involves much more labor than placing it in the silo."

6. Alfalfa hay and irrigated pasture are the basis of successful dairy feeding in the county. High producing cows require grain supplement for most profitable production. Home grown feed should be utilized as far as possible, purchasing high protein concentrates to balance the ration when necessary.

7. When crops are taken from the soil, fertility can be maintained only by returning the equivalent in the form of manure or organic matter. The dairy cow on the diversified farm is probably the cheapest way of maintaining soil fertility. When a crop is fed to the dairy cow there is an income from the product and also in the return of the manure to the land in maintaining soil fertility. The average composition of fresh cow manure follows:

Nitrogen.....12 pounds per ton
Phosphate.....3 pounds per ton
Potash.....9 pounds per ton
Value per ton.....$2.23
(Value based on cost of purchasing above fertilizer)
This value totals approximately $30.00 per cow per year.

Losses in plant foods from manure as ordinarily handled run as high as 80 per cent. Proper handling can reduce this loss to as low as 20 per cent. These losses may be cut down by protecting it from leaching, keeping moist during the dry season, and adding superphosphate to prevent the escape of ammonia.

8. Disease control measures should be vigorously maintained. Umatilla County and the State of Oregon are modified accredited tuberculosis-free areas. Testing for this disease in Umatilla County should be continued to keep this rating. Approximately 90 per cent of the dairy herds in the Milton-Freewater district are cooperating with the Federal Bang's disease program. Progress in cleaning up this disease has been rapid, and testing should be continued until it is eliminated. The county should take advantage of the State Compulsory Bang's Disease Testing Act, and we recommend that under this act testing for this disease be combined with testing for tuberculosis.

There has been a marked improvement in the quality of dairy products produced in the district during the past few years. Markets to which the dairy products of this section are sold demand high quality milk and butter. Other areas are also rapidly improving their quality and it is necessary that a product of the highest possible quality be put on the market if we continue to receive the best prices and high consumption is to be maintained. We call attention to the possibility of further improvement of quality by better cooling, more careful sterilization of utensils and equipment, holding at low temperatures, and elimination of off odors and flavors whether caused from feed or by handling of milk.

Local plants are grading cream and paying a differential between the different grades. We believe that further improvements in quality would be made if this differential were increased. We also recommend that only those dairy plants paying for products on a basis of grade receive our continued support.

Report of the Committee on POULTRY

The Poultry Outlook. The entire State of Oregon produces only about 1 per cent of the poultry products of the United States. Hence Oregon producers have little voice in setting or regulating prices. Producers therefore must operate on the margin between New York prices and the cost of delivering eggs of specified grades to markets outside the state. Present production or anticipated increase in poultry production in the Milton-Freewater district will have little effect on the state or national industry as a whole.

The expansion of the poultry industry in this district should be governed by the effort to produce eggs of a volume and quality that will fit in with present surplus-export conditions. An expansion of the industry along lines of small flocks for local markets is not a sound district agricultural development.

Oregon, Washington, California, Idaho and Utah each produce surplus eggs which are exported to distant markets. The poultry business, as a planned enterprise on the smaller acreage farms of this district, is sound business. Each farm that engages in the business to the point where its products enter the channels of trade, should establish flocks of sufficient size to justify necessary equipment, frequent gathering of eggs, proper farm storage of eggs prior to delivery, and other factors necessary for a daily farm production which must meet competition in export trade channels.

The outlook for the poultry industry on the farms of this district, which need additional cash income to supplement that of some other specialized crop, depends upon the effort made to adjust farm poultry units in relation to the demands which prevail from established marketing agencies of this and adjoining states.

Recommendations

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

2. Farms which plan poultry flocks as a side line cash crop to supplement other farm income are urged to establish flocks of from 400 to 500 laying hens. This is the minimum number of hens from which case lots of eggs can be delivered twice weekly, a necessary factor in preservation of quality.

3. A farm that expects to derive its major source of income from poultry should develop a business unit of approximately 2000 hens as soon as experience justifies.

4. It is recommended that from 50 to 60 per cent of the laying flock be replaced each year by pullets.

5. For a well-rounded specialized poultry farm program, operated under conditions of ranging young stock, a tract of 10 to 20 acres is recommended. Where some artificial confinement throughout is practiced, less acreage is needed.

6. Chicks under average conditions and equipment should be purchased early and all at one time, where only one brooder equipment is available. February, March, and April are the three months most suitable for hatching or purchasing chicks for commercial egg purposes.

7. In purchasing day-old chicks, caution should be observed. They should be from pullorum-free parent stock, when possible; or from accurately blood-tested parent stock with all reactors removed. Chick mortality from all causes should not exceed five per cent during an eight weeks brooding period.

8. Two types of brooder houses are in general use by those in the industry, each designed to overcome losses from soil contamination; they are:

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

The portable brooder house, equipped with skids for moving to clean soil. (Extension Bulletin 451.)

9. Shelter houses closed on three sides are recommended for young stock on the range, from the time the pullets leave the brooder house until they are housed in their winter quarters.

10. Green feed should be provided throughout the growing period and fed liberally until the pullets are in full production. It may then be reduced in the interest of avoiding too dark yolk color. Carrots and kale are the main green feed crops supplying winter succulence, with alfalfa, clover, and rape supplying green feed for the summer range. Tracts of growing oat and vetch hay and small grains also furnish good feed during the early growing stage in the spring.

11. The greatest economic loss to the poultry grower is deterioration in the quality of the eggs on the farm after they are laid and before they reach the grader's candle. Use should be made of basements, fruit and vegetable cellars, or other storage rooms where proper conditions of temperature and humidity may be maintained. Directions on "How to Construct an Insulated Egg Room" are found in Extension Bulletin 445.

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 farm poultry enterprise than the amateur anticipates. Exclusive of land and home and, in cases where the laying house is constructed first and used for a brooder and range house, a first year investment of from $2.50 to $3.00 per pullet will be required before production begins. Of this amount about $1.50 to $2.00 is required for housing and from 75 cents to $1.00 for cost of chick, brooding, mortality and feed. The investment in brooder and range houses may be deferred for a year or two by following the above method.

14. 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. Because of lack of adequate support, efforts to remedy the foreign egg import situation through enactment of an excise tax law, failed.

From July 1, 1935 to July 1, 1936, the imports were:

Shell eggs	313,823 dozen
Dried Whole Eggs	437,306 pounds
Dried Egg Whites	2,012,672 pounds
Frozen Yolks	665,630 pounds

Your committee asks this Conference to support the effort being made to secure an excise tax to protect the American poultry producer.

15. Poultry growers are asked to consider a plan started recently to combat thievery by the following means:

Make chicken or turkey stealing a felony

Encourage a wider use of tattoo registered branding

Publish each year a booklet listing names of owners of all brands and place a copy with every peace officer

Require all produce buyers to display a list of all registered poultry brands. The present law requires all dealers to record the number of birds of any brand purchased

Require a turkey grower who sells turkeys bearing other brands than his own to obtain a bill of sale for such birds from the owner of the brand.

Report of the Committee on SOILS

The Situation

The agriculture of the Milton-Freewater section is dependent upon the use of irrigation water. The average annual precipitation at Milton is approximately 14 inches. The average precipitation for the summer months of June, July and August is only 1½ inches.

According to the testimonies submitted before the Supreme Court of the United States in October, 1935, there are 10,722 acres of land under irrigation in this district. This is divided into 1,044 farms making the average irrigated acreage per farm only 10.32 acres. It is therefore extremely important that those irrigation, soil management and drainage practices be followed that permit a maximum rate of production per acre in order that the farmers of this area be able to maintain a satisfactory standard of living. The work of the soils committee should be centered around the development of a program, which, if followed, would result in maintaining maximum yields. The work of the committee may be divided into the following divisions: irrigation, soil management, and drainage.

Irrigation. Because of the climate and the nature of the soil in this section, crop production is dependent upon an adequate supply of irrigation water. The water supply of this district is obtained chiefly from gravity diversion from the Walla Walla River and various spring branches of this river. From the standpoint of the individual farmer, the dependability of this water supply rests upon the seasonal flow of the river and the date of the individual water rights. Priority on certain areas of land has been established each year since 1862. During the season of spring run-off there is generally water enough for all farms in the district. As the peak of the flood season passes, however, the farmers having water rights of later priority are cut off to the point that but a small percentage is receiving an adequate water supply in the latter part of the irrigation season. The period of adequate water supply will vary greatly with the season, although usually extending through April, May and the first part of June.

In order to supplement the gravity water supply, individual farmers in the Milton-Freewater section have constructed approximately 278 wells from which water is pumped for irrigation.

In the case of the State of Washington against the State of Oregon, tried before the Supreme Court of the United States in October, 1935, it

was established that the duty of water for the land of this section was between 6 and 8 acre feet. This appears to be an exceptionally high duty of water, but because of the extremely porous and gravelly nature of the soil, it is doubtful if this duty could be cut down to any material extent.

Previous investigation has shown that there is little or no possibility of creating by storage a water supply that would be adequate for all throughout the season. Apparently there are no satisfactory reservoir sites available on the streams of this watershed.

It is apparent then that if there is any improvement from the standpoint of a continuous water supply, it must come from the development of irrigation wells, or the improvement of the present use of water, or a combination of both.

Your committee believes that there is considerable wastage of water in the early season. This wastage is damaging chiefly to the individual irrigator, since at this season there is ample water and since the water supply, not being influenced by storage, could not be saved for future use.

According to studies made by Mr. A. M. Piper of the U. S. Geological Survey in connection with the Supreme Court case mentioned above, there is opportunity for a substantial increase in irrigation water supply through pumping from wells. Apparently there is a good underlying stratum of gravel below this area which is filled up each season from the spring run-off of streams and from the waste water from early irrigation.

In 1932 the state engineer's office measured the discharge of 84 pumping plants in this area. This discharge varied from 0.1 to 1.25 cu. ft. per second. Most of these pumping plants were not started until after the spring run-off had reached a point where gravity water was not available. The usual pumping season varies from the first to the middle of June until the middle of September.

In 1933 Mr. T. W. Robinson tested 11 representative pumping plants in the area. The overall efficiency of these pumping plants varied from 16 per cent up to 46 per cent, with an average of only 30 per cent. This is very low efficiency and would indicate that nearly twice as much power is consumed as should be if the pumping plants were properly designed and operated.

The cost of pumping irrigation water in this section varies from $6 to $12 or more per acre where electric power is used. This high cost is undoubtedly caused through the operation of pumping plants of generally low efficiency and the fact that because of the porous nature of some of the soil, it is necessary to pump a large quantity of water per acre per season.

In view of the foregoing condition the soils committee makes the following recommendations with reference to irrigation:

1. Pumping plants having an overall efficiency of less than 40 per cent should be replaced with new pumping plants designed to fit the job. In many cases the cost of this new pumping plant would be saved in less than two seasons of operation.

2. Because of the porous, gravelly nature of much of the soil in this section, it is practically impossible adequately to irrigate a piece of land without excessive loss through percolation. Apparently, this loss may total as much as one-half to two-thirds of the water applied. The soils committee feels that in many instances where water is pumped a real saving would be made by using some type of sprinkler system. Recent developments in irrigation equipment have made it possible to purchase satisfactory sprinkler equipment for $25 to $50 per acre. The use of such equipment would mean that only water enough need be pumped to saturate the root

zone of the soil. The saving in actual amount of water pumped would more than compensate for pumping against the necessary head to operate the sprinkler system. Your committee recommends that the County Agent's office arrange with equipment dealers for a public demonstration of different types of sprinkler equipment before the next irrigation season.

3. When pumping plants are obtained they should be purchased from a reliable dealer on the basis of the amount of water to be pumped, total pumping head, and power available. Allowances should be made when purchasing the pump for the fact that the water table is apt to have a seasonal fluctuation of 30 to 40 feet. Centrifugal pumps with non-overloading impellers should be used. This would eliminate overloading the power plants when pumping against low heads in the early season.

4. When pumping plants are obtained for newly dug wells, they should not be purchased until after the well is carefully tested to determine the total pumping head, capacity and draw-down.

5. The further expansion of irrigation by wells is justified where the individual is in a position to irrigate an economical area of land and purchase the proper equipment.

6. When water is pumped, the more general use of concrete pipe, concrete-lined ditches, portable metal pipe, metal or wooden flumes, is recommended to eliminate seepage losses in the distribution system.

7. Low efficiency in many pumping plants is caused by the use of improperly designed pipe and valves. A common fault of pumping plants is that the foot valve is so small that the pump is not able to obtain an adequate supply of water to operate efficiently. Foot valves should be large enough so that when opened the intake is as large as the suction pipe. In the early season when the water level in the wells is high many farmers pump the water to a greater height than necessary, causing waste of power. This could be prevented by arranging the discharge pipe in such a manner that the water need be pumped no higher than the high point of the distribution system, regardless of where the pump is situated. In order to take advantage of this low lift in the early season it is absolutely necessary that the pump used be of the non-overloading type, otherwise the power plant will be overloaded when pumping against the low head.

8. It is the belief of this committee that many orchards in this section suffer because of improper irrigation management. There is a tendency to stop irrigation after the crop is harvested. Orchard production would be greatly improved if irrigation were carried on throughout the season, or at least until the trees become dormant naturally. This problem is aggravated by the fact that most of the orchards have a permanent cover crop of alfalfa, which draws from the supply of stored moisture in the soil, thus competing with the trees. By allowing the trees an adequate supply of water throughout the season the set of fruit buds for the ensuing year will be increased; furthermore, the trees will go into the winter in a more thrifty condition and be more resistant to winterkill.

Soil Management. It is extremely important that those soil management practices be followed in the Milton-Freewater sections that maintain a high state of fertility within the soil. As pointed out previously, the average area per farm is small, and it is necessary for the farmer to maintain a large gross income per acre in order to stay in the farming business. Much of the soil in this section is of such a nature that, if not properly managed, production soon drops to an unprofitable basis. Your committee makes the following recommendations with regard to soil management.

1. The practice of overirrigation with early season water should be discontinued. The application of excess water after the root zone of the soil is filled, results in the leaching away of valuable plant food.

2. In orchards the use of permanent cover crops, preferably alfalfa, is recommended. A growth of alfalfa, however, should be neither pastured nor hauled off for hay. The crop residue should be allowed to accumulate on the soil during the growing season, then it should be disked in early in the spring. This practice results in keeping up the organic matter supply in the soil and assists in maintaining the supply of nitrogen. A good supply of organic matter is necessary in all soils of this section, from the standpoint not only of soil fertility but also of improving the water-holding capacity of the soil.

We suggest that Ladino clover be given a trial as a permanent cover crop in orchards.

3. Where annual cultivated crops are grown, the organic matter supply should be maintained either by rotating these crops with alfalfa, growing a green manure crop each year, or by applying barnyard manure, alfalfa hay, pea straw or grain straw which has been supplemented with a little nitrogen fertilizer (15 pounds actual nitrogen per ton of dry straw).

4. On the general farm, it is desirable to rotate the fields on which pasture, alfalfa and annual crops are grown. We should like to point out that pasture, such as Ladino clover grown on good soil with proper management, will return a greater return per acre than will alfalfa hay on the same soil. The use of pasture is important from the soil fertility standpoint in that the supply of organic matter is recuperated during the period that the land is in pasture.

5. It is the feeling of the committee that a considerable amount of valuable plant food is lost in this area because of improper handling of barnyard manure. In order to prevent the loss of plant food from manure it should be handled so that exposure to the weather be cut to a minimum. Mineral plant foods are lost through exposure to snow and rain, and nitrogen is lost through exposure to warmth and sunlight. Best results will be obtained if the manure is kept in large, compact piles until the time for spreading on the soil.

To get the best out of the application of manure this should be made to the soil in the early spring at the time the plants begin to grow. Generally greater crop returns per ton of manure will be received if fairly light applications are made. On the general farm applications of 10 to 15 tons per acre reinforced with 300 pounds per acre of superphosphate are recommended. Heavier applications may be desirable where intensively cultivated crops are grown. In order to make effective light applications of manure, it is necessary to use a manure spreader. Since manure is low in phosphorus, light applications may be made more effective where reinforced with superphosphate.

6. Your committee wishes to point out that no permanent program of agricultural production is possible without making provision at some time for the return to the soil of mineral plant food removed from the farm in products sold. This means that sometime in the future it will be necessary to make regular application of commercial fertilizer to the soils in this section in order to maintain crop yields.

There are indications at the present time that the natural fertility has been depleted to a point where applications of commercial fertilizer are returning profitable increases in yields. Trials carried on by the County Agent's office with various fertilizers in orchards have indicated that prof-

itable increases in yield may be obtained. This work is referred to in detail in the horticultural report.

Vegetable growers should expect profitable returns from complete fertilizers. An application of a fertilizer with a formula that would result in applying 60 pounds of nitrogen, 120 pounds of phosphoric acid and 40 pounds of potash per acre, is suggested as a logical trial. This rate might be varied either up or down. It should be emphasized that fertilizer cannot take the place of organic matter, and that a good supply of organic matter must be maintained in the soil in order to obtain results from the use of commercial fertilizers.

It is suggested that profitable increase in yield of irrigated pasture could be obtained through the use of commercial fertilizer. In other sections production of Ladino clover has been greatly increased by the use of superphosphate applied as a top dressing early in the spring. We recommend that the use of this fertilizer on irrigated pasture be given a thorough trial in this section.

In other sections of Eastern Oregon and in parts of Umatilla County profitable increase in the yield of alfalfa has been obtained through the use of sulphur. We recommend that this fertilizer be given a thorough trial in the Milton-Freewater section. The cheapest form of sulphur to use is what is known commonly as soil sulphur or sand sulphur. This should be applied at the rate of 100 pounds per acre in the early spring.

In order that the farmers of the Milton-Freewater section may know what fertilizers to use in the future, the soils committee recommends that the County Agent's office establish a number of complete fertilizer trials on crops.

7. From the soil standpoint, apple growers who are undecided as to whether or not they should pull out the orchards, should realize that the continued growth of apples may have a permanent ill effect on the soil because of the accumulation of arsenic compound. In some sections of the Pacific Northwest, the accumulation of arsenic residues has created a toxic condition making it impossible to grow crops on the soil even after the trees were pulled out. There is every possibility that this condition might occur in the soil under the apple orchards in this section.

8. In some localities in the Milton-Freewater section, alkali has created a serious soil problem. Experiments have indicated that this alkali land can be reclaimed through the use of heavy applications of sulphur and barnyard manure. At the present time it does not appear that the expense of this method of reclamation is justified.

Drainage. There is a considerable area of land in the Umapine section that is badly in need of drainage. Apparently this is a community or district problem. The committee recommends that a study be made of this drainage problem in the near future to determine the economic feasibility of reclaiming this land.

Report of the Committee on ECONOMICS AND MARKETING

Resume of Principal Products. Apples: No new plantings being made and none recommended. Popular varieties should not be pulled.

Cherries: The future of the cherry business is not encouraging.

Grapes: Increased production may be profitable for local and Northwest market.

Melons: Not promising, owing largely to competition by the Kennewick section.

Raspberries: Worthy of investigation.

Strawberries: Have a place if outside markets are developed but weevil must be controlled.

Tomatoes: Future contingent upon curly-top control. Present research on curly-top control on tomatoes by the Oregon Experiment Station should be studied.

Sweet Corn: Ear worm bad but acreage probably will increase. Late varieties offer reasonable promise on the foothill districts.

Canning Peas: This industry is in a state of such rapid change that its future can be forecast with no assurance.

Cucumbers: A possibility worthy of consideration.

Dairying: Should increase substantially up to possible 3,000 additional cows when hay and pasture are available.

Prunes: Total acreage about stabilized with no increase advisable.

Agricultural Credit and Its Use. Reports to the committee indicate that granting of loans by both the Federal Land Bank and the Production Credit Association has been featured by slow action. It is our understanding, however, that loans are recently coming through much more promptly.

Interest rates charged by the governmental and governmentally sponsored credit agencies are regarded by your committee as acceptable and reasonable. Such rates merely cover the necessary overhead of conducting the credit agencies, the inevitable losses associated with credit extension, and certain necessary reserves. The rates paid by borrowers from the Federal Land Banks, from the Production Credit Associations, and from the Bank for cooperators rest primarily upon the rate of the bonds and debentures offered by these institutions to the investing public. It is our belief, however, that since rates paid by borrowers represent the costs of operating these lending agencies, the rates may well be reduced as the risks in making loans are reduced.

The committee is mindful of the fact that credit agencies must conduct credit operations on such a sound basis that the integrity of the debentures and bonds sold by them to the public are maintained at all times. Otherwise it will be difficult, if not impossible, to obtain the funds to loan to farmers. Any practices that would make less attractive the securities offered the public cannot but result in a lessened service by these agencies to their agricultural borrowers.

It should be understood by all borrowers and prospective borrowers that collateral pledged or posted to secure a loan is of less interest to credit agencies nowadays than the anticipated earnings from which a loan is to be liquidated. Collateral is called for solely to assure that the loan will or may be paid in case the regular plans for liquidation fail. Insofar as agricultural loans are concerned, in no case does the lending agency expect or desire to take possession of the collateral. On the contrary, it desires to depend wholly upon the earnings of the enterprise for servicing the loan as to interest and principal.

Anticipated earnings can best be computed by relating them to the experience of the past. It goes without saying that one is not in a position either to obtain or to use borrowed funds to advantage unless he is able to compute the expected earnings which may result from the use of the funds. Since earnings are nothing more nor less than the total income from a business less the expenses of operation, it is necessary for any borrower to be able to report on the total income and on the total and actual ex-

penses, in order to arrive at his net earnings. It is the belief of your committee that most operators in the Milton-Freewater area can put themselves into a better credit position by maintaining much more complete records than they are doing at the present time.

Marketing. This section of the report dealing with marketing concerns itself largely with the merchandising of fresh prunes. Since this commodity accounts for a greater total income than any other single commodity in the area, and since the revenue from fresh prunes has been exceedingly unreliable in recent years, a rather detailed statement of the fresh prune situation, as it has developed over a considerable period, is presented.

Your committee, after some study of the dried prune situation as it obtains in western Oregon, western Washington and northern California, and observing the almost hopeless position of that branch of the prune producing industry, is disposed to dismiss the drying of Milton-Freewater prunes as a solution of marketing difficulties that have beset fresh fruit in this area.

The development of prune by-products in the dried prune districts of the three states mentioned has been given consideration. While a study of by-products is a project that should be continued, your committee looks upon this line of investigation as not sufficiently promising to depend upon.

California plums and Pacific Northwest fresh prunes in a broad sense are a part of the same seasonal marketing deal. The marketings of California plums and northwest prunes overlap to a sufficient extent to make this statement true. This overlapping is of importance, however, for only about two weeks at the beginning of the Pacific Northwest shipping season; hence the California competition is given no further consideration.

TABLE 16. PACIFIC NORTHWEST PRODUCTION OF FRESH PRUNES

Year	*Tons*
1924	24,500
1925	27,500
1926	39,900
1927	41,300
1928	55,400
1929	61,650
1930	54,775
1931	39,150
1932	74,600
1933	40,640
1934	53,850
1935	59,465
1936	.....

General Considerations

Total Volume of Shipments. It is clear to your committee, as a result not only of its first-hand observations in the producing and shipping area but of a study of the industry as a whole, that there is a close connection between the total shipments of fresh prunes from the three major producing areas of the Pacific Northwest and the net returns obtained by the producers in any one of these three sections.

Plugging Markets. It is unfortunate that the industry is so organized, or so unorganized that almost every year shipments from the Yakima Valley and from the Milton-Freewater-Walla Walla sections are rushed to the markets so hurriedly that the markets are jammed with fresh prunes for which there is no ready sale. Statistical evidence of this tendency on the part of the growers and shippers to wreck the market during its open-

ing days is carried in tabular form on page 35. The results of these excessive shipments are so well known to all producers and shippers in this district that further comment by the committee seems unnecessary. The receipt at terminal markets of an occasional car of underripe prunes is related to this tendency to crowd the early part of the shipping season.

Grades. Fresh prunes from this district are moved out in carlots only under State and Federal inspection. Such grading has helped this commodity to hold its position in the markets.

Packing. While packing generally is good, grower returns would be helped by more uniform packing of the crop. The poorer packs have a detrimental effect on the entire fresh prune enterprise.

Number of Dealers. It seems clear to any impartial observer that in the Milton-Freewater-Walla Walla area dealers are operating in greater numbers than can be maintained with any proper profit to themselves by reason of the limited tonnage that moves each year. While it is true that there may never be too many buyers for a commodity, it is equally true that the volume of a crop may be split up into units so small that uneconomic marketing results. Though local packing services are probably not injured by this situation, it appears that the many dealers find it difficult to obtain competent and aggressive brokerage representation in the many markets of the nation to which our prunes go.

Dealer Finance. One of the problems of the district is the close relation between dealers marketing fresh prunes and advances made by these dealers to growers for production and harvesting. While wishing to avoid condemning any legitimate service rendered by anyone, and many of these advances are strictly legitimate, your committee takes the position that in principle it is bad for a producer to be financed by any private trade agency through which he must necessarily merchandise his products. Such two-way business practices in many instances are unsatisfactory to dealers also; since the grower-borrower tends to be critical of the sales services rendered by his banker-shipper.

Marginal Acreage. Studies extending over a period of years convince your committee that a substantial part of the prune acreage in the Milton-Freewater-Walla Walla area is marginal, in the sense that never under any circumstances, over a considerable period, can it be expected to make any net return whatever to the grower. Your committee, in calling attention to this situation, has in mind the welfare not only of prune producers as a group but of the owners of these marginal orchards. With few exceptions the individuals with such acreages and with orchards of lower production will be benefited directly and immediately by devoting the lands to other uses.

Are There Too Many Prunes? Your committee is of the belief that with any one of the three following conditions prevailing there would be no great difficulty in selling the prune production of this district at such figures as would return appreciably more than production costs.

1. Marginal acreage grubbed out.
2. Markets properly developed.
3. Shipments of such fruit only as is acceptable to the consuming trade and geared to the market demand from day to day.

SEASONALITY OF PRUNE SHIPMENTS BY WEEKS

Oregon, Washington, Idaho

Week Ending	Oregon	Washington	Idaho	Total
July 6, 1935	....	....	....	....
7, 1934	....	16	1	17
8, 1933	....	....	....	....
July 13, 1935	....	....	....	....
14, 1934	....	16	....	16
15, 1933	....	....	....	....
July 20, 1935	....	4	....	4
21, 1934	2	10	....	12
22, 1933	....	1	....	1
July 27, 1935	....	1	....	1
28, 1934	16	20	4	40
29, 1933	....	....	....	....
August 3, 1935	....	2	....	2
4, 1934	408	175	1	584
5, 1933	....	1	....	1
August 10, 1935	....	....	....	....
11, 1934	355	218	....	573
12, 1933	....	....	....	....
August 17, 1935	1	15	....	16
18, 1934	250	160	72	482
19, 1933	....	1	....	1
August 24, 1935	252	122	....	374
25, 1934	27	102	290	419
26, 1933	126	45	....	171
August 31, 1935	145	212	....	357
Sept. 1, 1934	2	68	339	409
2, 1933	343	95	....	438
Sept. 7, 1935	4	143	80	227
8, 1934	27	13	69	109
9, 1933	274	170	....	444
Sept. 14, 1935	1	39	451	491
15, 1934	12	3	1	16
16, 1933	104	183	75	362
Sept. 21, 1935	2	15	547	564
22, 1934	....	2	....	2
23, 1933	19	115	184	318
Sept. 28, 1935	8	5	299	312
29, 1934	....	....	....	....
30, 1933	65	88	78	231
Oct. 5, 1935	18	5	59	82
7, 1933	11	27	3	41
Oct. 12, 1935	4	12	3	19
Oct. 19, 1935	....	4	....	4
Oct. 26, 1935	....	....	....	....

Recommendations for Action

Federal Marketing Agreement. The attention of growers and dealers of the area is called to the possible benefits that might be derived by bringing the three producing sections of the Pacific Northwest together on a federal marketing agreement. Our comments relative to such an agreement presuppose that the U. S. Supreme Court will approve the federal statutes which have provisions for these agreements. While a number of means are used in several commodities for improving the returns to growers incidental to the use of federal marketing agreements, if nothing were done other than the prorating of shipments by the three principal producing districts and by days, there is no doubt that the price situation would be stabilized materially to the advantage of producers. It is just possible that receiving markets might be prorated also. Further, in case of excessive supplies in the entire Pacific Northwest it would be possible to restrict the total shipments of undergrades, if that would meet the approval of the producers themselves, in order to preserve the market for the higher qualities.

Present Trade Agreement

During the last two shipping seasons the area has made considerable saving by operating under a virtual trade agreement among growers and shippers through the facilities of the Blue Mountain Prune Growers Association. This agreement relates chiefly to interpretations of the strength of the market and to a limitation of the total number of cars that may be moved any one day. In the absence of any better facility for safeguarding the returns to growers your committee urges full support of this organization and more active participation in it.

Better Understanding Needed. Merchandising of fresh prunes is an exceedingly intricate operation. Few people in or out of the shipping trades understand fully the lines of distribution followed by fresh prunes from the tree to the consumer's table. Your committee is of the conviction that the producing area cannot take steps safely and fully to protect its interests in marketing without understanding just what marketing is and does. It is vital that producers themselves understand just exactly through what channels prunes move and by whose hands the various services are rendered incidental to the marketing processes, and the costs of such services, including the risks of handling any "perishable." Further, there are many competitors for fresh prune offerings. The shipping season in this district follows the California fresh plum season and even overlaps it somewhat. At the same time there are fresh peaches, Bartlett pears and many other attractive foods and food products offered on the markets. Growers should be in a position to understand the strength of the competition of these other commodities and to analyze that strength from season to season, if they are to price their crops intelligently. While your committee has not thought through the details of how to bring about this better understanding, the need is called to your attention in the hope that the Blue Mountain Prune Growers Association may name a special committee to outline plans for making a continuous study of market conditions of interest and concern to Milton-Freewater-Walla Walla fresh prune producers.