REPORT *of the*

Hood River County Agricultural Economic Conference

HOOD RIVER, OREGON

December 4, 5 and 20

SUGGESTING

An Agricultural Program for Hood River County

Printed and Distributed Under Direction of the Experiment Station and Extension Service of the Oregon Agricultural College.

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FOREWORD

THIS bulletin is published in order to preserve a record of the recommendations and statements prepared by the various groups that made up the Hood River County Agricultural Economic conference. This conference was one of a series of fourteen similar events that have followed the State Agricultural Economic Conference held at Corvallis in January, 1924. At that time a state agricultural program was adopted, based on a careful study of production and marketing of agricultural products, and a decision was made to hold county conferences in order to adapt the state program to local conditions.

The Hood River county conference was organized along commodity lines and each major agricultural enterprise was represented; namely, horticulture, dairy, poultry, and potatoes. A special committee on boys' and girls' club work was also organized. Committees of local growers planned the conference, arranged for gathering needed information, and took a leading part in their respective commodity groups. These groups were assisted in preparing their reports by representatives of the Oregon Agricultural College, who made available the information developed at the state conference and other data in the fields of agricultural production and marketing, especially the trends in other counties in Oregon and other states of the nation with which Hood River county products are in competition.

Singly, these reports are a guide to the best practices in the production and marketing of the county's principal sources of agricultural income. Together, they constitute a program for Hood River county agriculture. They represent the best judgment of those who participated in the conference. It is not presumed, however, that the recommendations are final or that they are not subject to revision. On the contrary it is assumed that as conditions change and progress is made these reports should be adapted to new conditions.

About 150 local producers took part in this conference.

It is hoped that every one interested in the welfare of Hood River county will individually and through their organizations study these reports and use them as a guide for the best development of local agriculture. The conference was a beginning. Its real value depends upon the extent to which communities, organizations, and individuals make use of its findings.

SOME FACTS ABOUT HOOD RIVER COUNTY

Agricultural Growth

Hood River county was formed from Wasco county in 1900. Development of the county is indicated in the following figures taken from the United States census records.

	1910	1920
Population	8,016	8,315
Land area (acres)	347,520	345,600
Percent land area in farms	10.9	11.0
Acres in farms:		
Total	38,049	38,075
Improved	14,284	19,664
Number of farms	744	878
Acres per farm	51.1	43.4

Agricultural Income

The 1919 agricultural income in Hood River county was $3,132,000, according to the United States census. About 90 percent of that total was from fruits, as indicated below:

Product	Income	Percent of total
		%
Fruits and nuts	$2,800,000	89.4
Vegetables (including potatoes)	110,000	3.5
Dairy products	69,733	2.2
Hay and forage	50,000	1.6
Livestock and meats	42,000	1.3
Cereals	30,000	1.0
Poultry products	29,702	1.0
Total	$3,132,000	100.0

Report of the Horticultural Group

A. GENERAL

Supply and Demand.

Horticulture in the state of Oregon has had its ups and downs. It has passed through periods of unusual prosperity, and also through times of serious depression. These vicissitudes, in the main, have been occasioned by failure to interpret economic conditions correctly. During the early periods of the fruit industry, the law of supply and demand was almost entirely overlooked. Plantings were guided "more by fancy than by reason," and very little thought was given to the matter of disposing of the product after it was grown.

It has since been learned, however, that success and permanent prosperity cannot come to the fruit industry by this procedure. The producer of any commodity is, to a large extent, a servant of the consumer. He must produce only those things that the consumer desires and can be induced to buy.

Present Status of the Fruit Industry

Since the development of modern transportation facilities, fruit from all sections of the country now competes in the same markets. The country as a whole has become a unit so far as fruit production and consumption are concerned. No one section, therefore, can solve its problems without taking into account the national status of the fruit business.

Commercial fruit production in the United States has increased materially during recent years. For example, in 1917, the total car lot shipment of all fruit was 275,231, while in 1923 the total was 443,397 cars. This is an increase of more than 61 percent in seven years. Indications are that this tonnage will increase considerably beyond these figures during the next few years, when the present acreage of such fruits as the prune, the fig, the orange, and grapefruit is in full bearing.

National Fruit Requirements

In this connection, it is well to take into account the fruit requirements of the American people. How much more fruit can they be expected to consume? The indications are that the total consumption of fruit in the United States will not be materially increased, except when brought about by increases in population. According to the estimates of dietitians, an adequate fruit diet for the present American population would be about 340,740,000 bushels. Actual production in 1922 was 332,318,400 bushels or 97½ percent of an adequate diet. In most years, European countries also are consuming sufficient fruit for diet requirements.

B. HORTICULTURE IN HOOD RIVER VALLEY

Development of the Apple Industry.

Apple growing has been the major agricultural activity in the Valley since early development. Climatic and soil conditions are favorable for the growing of this crop. Unusually attractive prices received by pioneer growers and widespread dissemination of this information resulted in heavy plantings not only in Hood River but generally throughout the

Northwest. Main varieties chosen were Newtowns, Spitzenburgs, Arkansas Blacks, Ortleys, and Jonathans. Many growers, however, made the mistake of planting too many varieties, many of which were either unsuited to growing conditions or unsalable through commercial channels. During the period when apples enjoyed their greatest popularity profits were large. Land in the undeveloped state sold at prices out of line with possibilities for future return. An inevitable period of deflation has been going on for many years. This has occasioned much distress but has had the wholesome effect of placing the apple business upon a sounder economic basis.

Apples are grown on a variety of soils ranging from those sandy in character to clays and clay loams. The major acreage is at an elevation of about five hundred to eight hundred feet. The range is from about three hundred to sixteen hundred feet. Normal rainfall averages about 37 inches and temperatures about 50 degrees. Occasionally winter temperatures fall to 10 degrees below zero. In 1919, 30 degrees below was recorded. This factor is one with which growers have to reckon and has an important bearing upon variety, adaptability, and hardiness. Future plantings must be directed with this problem in mind. Damaging frosts during blossoming season are rare occurrences.

Future Outlook

Present indications are that horticulture of an intensive character is destined to continue as the chief venture of the Hood River Valley. To make the best of its natural advantages and better to utilize its present investment, Hood River Valley should lend its efforts to the development of several phases of horticulture. Diversification within certain limits appears desirable for the Valley as a whole.

For the individual grower, however, too much diversification may be undesirable. No single grower should undertake too many ventures. Rather, he should confine his efforts to those phases that he can master well and that make up a workable, efficient economic unit. High yields and high quality can only be obtained in this way.

For the present at least, Hood River Valley should stay with the ventures that have been successful. It cannot afford to embark on new and untried enterprises on a large scale.

Extent and growth of commercial fruit production in this county are indicated in Table I.

TABLE I. CAR LOT FRUIT SHIPMENTS FROM HOOD RIVER 1915 TO 1924

Year	Pears	Packed apples	Cull apples	Cherries	Straw-berries	Total cars
1915	64	725	.....	6	104	899
1916	93	1678	.....	4	99	1874
1917	56	1204	.....	6	81	1347
1918	132	1641	128	18	71	1990
1919	113	2502	180	8	92	2895
1920	76	1693	103	16	84	1972
1921	121	2691	147	5	93	3057
1922	246	2274	253	7	114	2894
1923	314	2742	270	8	88	3422
1924*	140	2866	329	14	29	3378

*To November 29 only. About 1200 cars of the 1924 crop yet to move.

Absentee Ownership

Experience proves beyond a doubt that absentee ownership of orchards is undesirable. Fruit growing as practiced today is a highly specialized business which at best requires one's entire time and attention. It is especially desirable that the owners of Hood River orchards should be residents of Hood River, who take a personal interest in their venture and in Hood River as a whole.

C. THE APPLE INDUSTRY

I. THE APPLE INDUSTRY OF THE NATION

Present Status

It is generally agreed among those who are nearest to the situation, that an average production of the present apple acreage of the United States is sufficient to meet the demands of both the national and export trades. This is indicated rather clearly by the conditions that prevail in heavy crop years. During such years, it is only the grower with exceptional advantages who makes a profit. The farm value of the total apple crop is actually less than that in years of moderate production, and the whole industry, regardless of locality, is in anything but a flourishing condition. Dealers as well as growers are likely to sustain losses. Of course, as time goes on, planting to replace the declining acreage and to care for increases in population will be necessary. But for the present, planting of apple trees seems justifiable only to complete an economic unit already begun, or in cases where unusual advantages are enjoyed.

The better districts of the Pacific Northwest are seemingly destined to continue in the apple business. The advantages of soil and climate when fully utilized seem sufficient to neutralize the handicap of distance, and to insure fair profits over a period of years to the grower who has his orchard in a desirable location, who has the proper commercial varieties, who obtains large yields and good quality of fruit, and who is not too seriously handicapped by excessive production costs. On the other hand, apple orchards that are permanently injured by cold, drouth, or disease, that are planted in poor locations, or that are of the wrong varieties, will never be money makers.

While the tonnage of commercial apples has increased considerably in recent years, there is no immediate prospect of heavy increases in the near future. It is true that in some districts young trees are coming into bearing and older ones are being made more productive, but this will be neutralized to a large extent by the heavy mortality of apple trees in some localities.

Fundamental Problems

The apple industry as a whole is beset with certain rather fundamental problems, chief among which are:

(1) Fluctuation in Production

First among the problems of the apple industry is that occasioned by fluctuation in the size of the crop one year as against another. The total crop in 1913, for example, was 145,410,000 bushels, while one year later in 1914, it was 253,200,000 bushels. In 1921, the total was 99,002,000 bushels and for the two succeeding seasons, it was 203,628,000 and 212,000,000

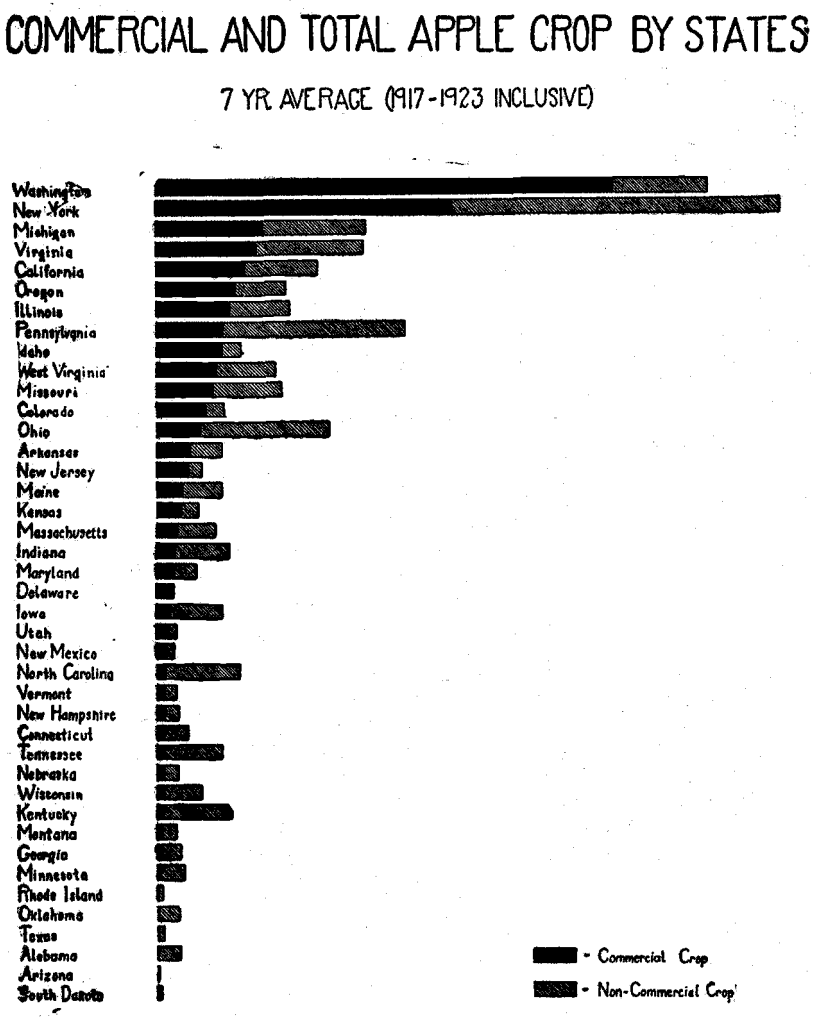

Fig. 1. Based on apple report in U. S. Department of Agriculture Yearbook for 1923.

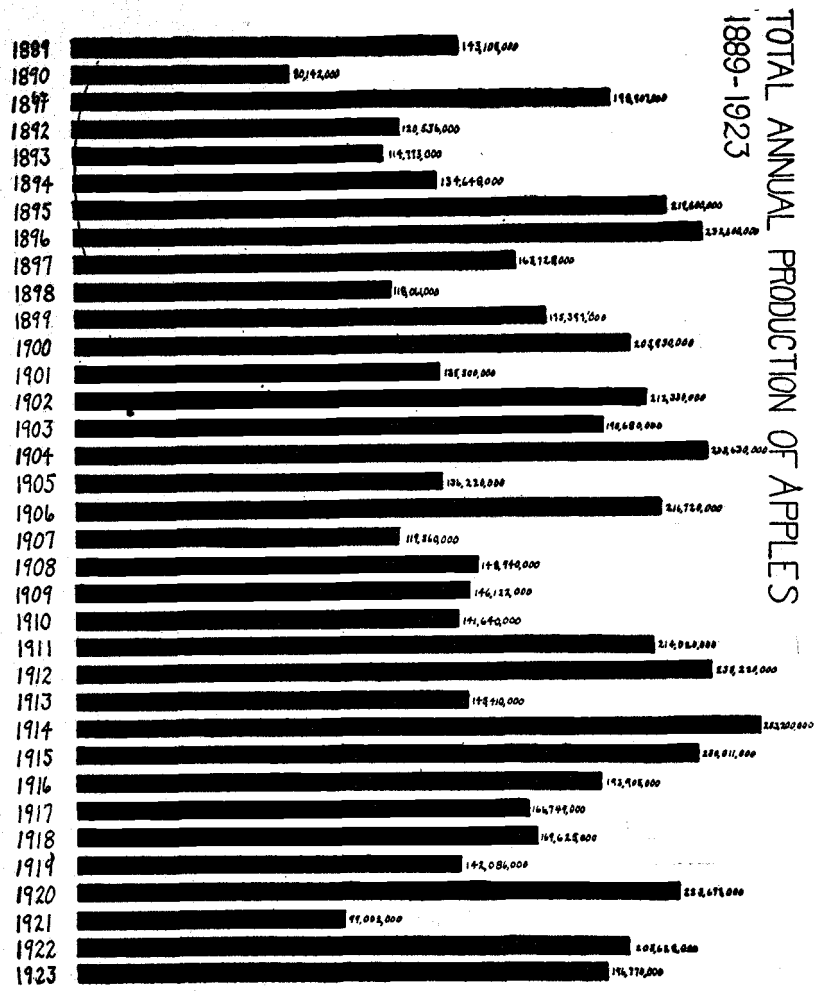

Fig. 2. Based on apple report in U. S. Department of Agriculture Yearbook for 1923.

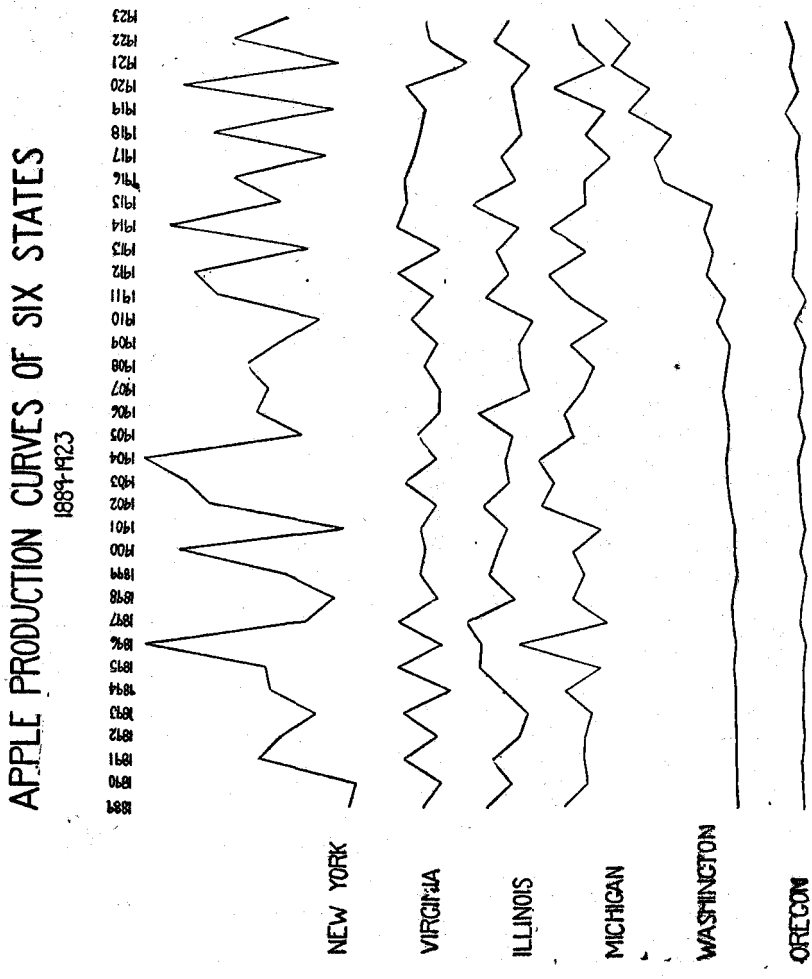

Fig. 3. Fluctuation in production is less in Oregon and Washington than in eastern and middle west apple growing areas.

bushels. There is but little doubt that these violent fluctuations in production militate against the orderly and systematic marketing of apples. Since the size of the national apple crop is determined primarily by climatic and other factors over which man has practically no control, this problem seems to be inherent to the apple business.

(2) Inflexibility of the Retail Trade

A study of the handling of apples in the retail trade shows that the retail price of apples varies but little from year to year in spite of wide differences in production. The consumer, in other words, pays about the same prices for apples whether the crop is large or small. This is especially true of the better grades of apples, the grades in which the Northwest grower is interested. This condition, obviously, tends to interfere with the working of the law of supply and demand; demand does not fluctuate with the supply. The remedy here is doubtless one of education.

(3) Wrong Varieties

The apple industry suffers considerably because growers have used poor judgment in the selection of varieties. By far the major portion of the apple acreage of the United States is of fall or early winter sorts. This means that most of the nation's crop has to be thrown upon the markets during the early months of the apple season, with the result that the trade is demoralized at the start. Many of these early apples are not sold in due season and the markets are glutted with apples that are past their prime. It is not uncommon to find Delicious and Jonathan apples on the fruit stands in May and June. Though the problem of undesirable varieties is more acute in the eastern apple districts, the Pacific Northwest, nevertheless, suffers from varieties that ripen at the wrong time, that are low producers, that have poor appearance, and that are but little known to the trade.

(4) Competition from Other Fruits

The matter of successfully marketing the apple crop has been intensified during recent years by increased production of other fruits and competing products. Prior to 1910, the apple was practically the only fruit found in quantity on the markets during the winter months. Now, however, such fruit as the orange, the grapefruit, the pear, and the grape, and canned and dried products are offered for sale during most of the year, and no doubt reduce the demand for apples. In 1917, the car lot shipment of all fruits other than the apple was 218,183 cars, while in 1923 the total was 322,397 cars, an increase of 47 percent in seven years. Producers of other fruits, moreover, have resorted to advertising, which in some cases has materially increased the consumption of their product. The apple man, on the other hand, has done but little to increase the popularity of the apple.

II. NEEDS OF THE NORTHWEST APPLE INDUSTRY

(1) There is need for a Northwest organization that can bring about more cooperation in the distribution and advertising of Northwest apples, and that can exert influence in such matters as transportation rates, etc.

(2) There is need of better understanding between the various districts regarding grades and packs.

(3) More attention needs to be paid to annual production so that the Northwest can shape its marketing policies in accordance with existing conditions.

(4) There is need of better handling practices so that a better product can be delivered to the consumer.

(5) The public and the trade need more knowledge regarding the proper utilization of apples.

(6) There is need for education of the retail trade so that apples will flow into consumption more in accordance with supply and demand.

(7) The export trade needs to be developed and expanded.

(8) There is need for more standardization of varieties.

(9) There is need for a more equitable adjustment of transportation rates.

(10) There is need of a Federal licensing system for distributing concerns.

III. THE APPLE INDUSTRY OF HOOD RIVER

The apple industry of Hood River Valley has passed the experimental stage, and from past experience Hood River growers have gained much information that should be of value in placing the industry on a more secure foundation. Indications are that radical departures from present methods and practices will not take place in the apple industry of the Valley. Certain rather definite recommendations, however, seem feasible at this time.

Varieties Recommended

Success or failure in the apple business of Hood River is to a large extent a matter of varieties. Experience shows quite clearly that certain varieties have been much more efficient than others.

Because of past performances and general popularity, the Newtown necessarily must take first place as an apple to be recommended for future planting in this district. The well known keeping quality of this variety, extended as it can be by proper storage, permits its usage very late in the spring, and, as a result, is of particular value during years of heavy production when the early markets are glutted. This variety, through proper handling, can be made to produce relatively high yields.

Spitzenburgs have a limited place in future plantings locally. This variety should be planted only on those locations where air and soil drainage is above suspicion. Lack of hardiness is one of its definite limitations. This variety may be top-worked upon stocks of well known hardiness to overcome the effects of winter injury, particularly on the trunks.

Arkansas Blacks, on account of their hardiness, relatively high production and average returns, are also worthy of future planting.

The Delicious is adapted locally and is capable of very high yields. Its widespread popularity, which appears to be increasing, demands that we consider it in our planting scheme.

The Gravenstein is another variety of merit and should be planted in a rather limited way in this district.

Returns to growers from various varieties over the period 1919-1923 are indicated in Table II.

TABLE II. TOTAL BOXES OF APPLES AND AVERAGE PRICES RECEIVED BY GROWERS

1919 - 1923 — Hood River Apple Growers' Association

Variety	1919 Boxes	1919 Price per box	1920 Boxes	1920 Price per box	1921 Boxes	1921 Price per box	1922 Boxes	1922 Price per box	1923 Boxes	1923 Price per box	Five-year average price
Newtown	543,829	$1.85	499,084	$1.33	645,662	$1.51	693,227	$ .98	764,037	$ .80	$1.29
Spitzenburg	463,122	1.67	178,111	1.47	321,041	1.33	323,210	.85	354,317	.81	1.22
Ortley	70,747	1.80	75,743	1.44	69,771	1.33	84,295	.90	74,271	.76	1.16
Arkansas Black	27,195	2.21	32,306	1.77	34,903	1.57	43,622	1.06	37,778	.77	1.47
Delicious	11,827	2.35	12,461	1.77	17,598	1.83	30,396	1.19	27,384	1.12	1.65
Gravenstein	10,547	2.14	7,949	1.61	10,338	1.94	11,364	.69	13,918	.96	1.47
Jonathan	44,331	1.71	25,364	1.05	25,317	1.24	30,685	.59	39,410	.74	1.06

Notes—Newtown: In 1923 there were 52,102 boxes of "special" grade in addition to total here shown.
Spitzenburg: In 1923 there were 34,708 boxes of "special" grade in addition to total here shown.

Top-working.

The top-working of undesirable varieties is not to be recommended, except in special instances. In cases where the trees are young and vigorous, and where the grower can give his trees special attention, this practice may be expedient, but top-working of older trees, or trees that have been devitalized by cold, drouth or disease, is unsatisfactory. Such varieties as Spitzenburg, Winesap, and Arkansas Black do not succeed when top-worked upon other varieties. Newtown and Delicious do fairly well. Jonathan and Wagener make poor stocks upon which to graft other sorts.

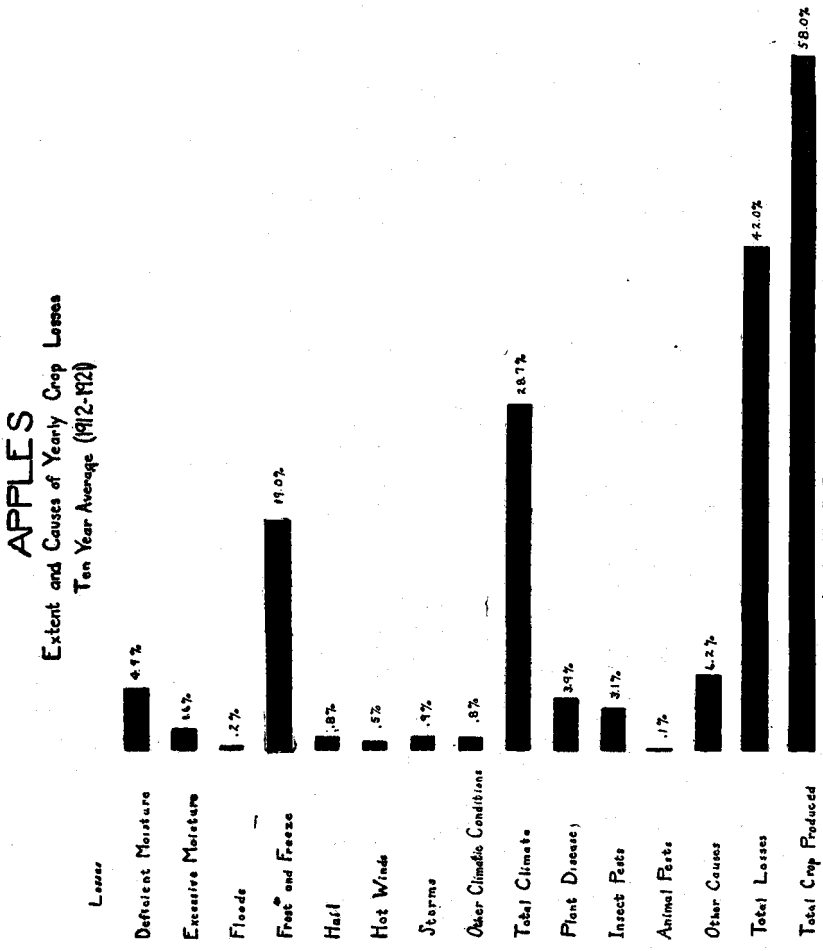

Fig. 4. Based on apple report in the U. S. Department of Agriculture Yearbook for 1923.

IV. COST OF PRODUCING APPLES AND ORCHARD ECONOMICS

Experience shows that there is a striking relation between costs of production and yields. Yields have a greater influence in this regard than is true of grades. In taking stock of Hood River's present status in apple costs, average yields for the past five years are taken as a basis. In arriving at orchard averages cognizance should be taken of the fact that a large acreage of apples has been destroyed and subsequently removed since 1919. According to Childs and Brown there are approximately 10,000 acres of bearing apple trees in the Valley at the present time (1924). This acreage has prevailed since the freeze of 1919. The average production for the Valley for the five-year period from 1920-1924 has been approximately 255 packed boxes per acre. Statistics gathered by Hood River Experiment Station show a wide variation in production per acre in the period 1913-1918. They indicate that 25 percent of resident growers included in this survey, are credited with an annual average of 386 packed boxes per acre as compared with only 186 packed boxes, representing 37 percent of the growers. A six-year average production in the case of all growers included in this study was 264 packed boxes per acre. In the last three years of this period, average yields increased from 215 packed boxes per acre (1913-1915) to 314 packed boxes per acre (1916-1918) due largely to better methods of orchard management. These figures are presented to show why the average production of the Valley is low. This points directly to the absentee owner and the grower who does not practice up-to-date methods.

As suggested, the matter of yields has a direct bearing upon costs. The average acre production for the Hood River Valley during the past five years (255 packed boxes per acre) has been at a cost to the grower of $1.28 per box. Orchards producing 300 packed boxes per acre show cost to the grower of $1.16; at 500 packed boxes the cost is $0.91. Growers producing 150 boxes do so at a cost of $1.82 per box. Even with a yield of 200 boxes per acre, which includes entirely too many of our orchards, the cost is $1.49 per box. The average price received by a majority of the growers for the two leading varieties, Newtowns and Spitzenburgs, during the past five years, 1919-1924 has been $1.29 and $1.22 per box respectively.

Conclusions Are Drawn

From these figures we are able to draw the following conclusions: first, Hood River production must be materially increased if a profit is to be derived; second, the small residential grower who can diversify to some extent and perform all labor involved, has a distinct advantage over the grower hiring a large portion of his labor and can probably show a profit on lower acre averages than is true of the strictly commercial grower; third, there appears to be no place for the non-resident apple grower.

V. APPLE SUMMARY FOR HOOD RIVER COUNTY

(1) Statistics indicate that the present supply of apples meets the present demand. Plantings in a general way can not be recommended at the present time except as a unit in a diversified planting scheme or for the completion of an economic unit.

(2) Total shipments of all fruits have increased tremendously during recent years. Present production is practically equal to dietary requirements. In the light of present competition with other fruits, apples should at least be advertised to the extent of other fruits.

(3) Hood River horticulture should be more diversified. Where adapted, strawberries, raspberries, cherries, pears, should supplement the apple.

(4) Large, annual yields are necessary to obtain a profit. An annual yield of at least 250 boxes per acre is necessary.

(5) Variety standardization is desirable.

(6) Top-working to standard varieties is not recommended as a general practice.

(7) There is need for a Northwest organization that can bring about more cooperation in the distribution and advertising of Northwest apples, and that can exert influence in such matters as transportation rates, etc.

(8) There is need of better understanding between the various districts regarding matters of grades and packs.

(9) There is need of better handling practices so that a better product can be delivered to the consumer.

(10) There is need for education of the retail trade so that apples will flow into consumption more in accordance with supply and demand.

(11) The export trade needs to be developed and expanded.

(12) There is need of a Federal licensing system for distributing concerns.

D. THE PEAR INDUSTRY

Present Status

Figures show that during the past few years the pear has been extensively planted in the Pacific Coast states and that commercial production has increased materially. While there has been a decrease of 28 percent in the total number of bearing pear trees in the United States since 1909, there has been an increase in the commercial crop of nearly

TABLE III. UNITED STATES PEAR PRODUCTION
1909 - 1923 — (1923 Yearbook of United States Department of Agriculture)

Crop year	Total production	Commercial production
	(Bushels)	(Car lots)
1909	8,841,000	.....
1910	10,431,000	.....
1911	11,450,000	.....
1912	11,843,000	.....
1913	10,108,000	.....
1914	12,086,000	.....
1915	11,216,000	.....
1916	11,874,000	.....
1917	13,281,000	11,614
1918	13,362,000	10,170
1919	15,006,000	10,154
1920	16,805,000	15,037
1921	11,297,000	12,737
1922	20,705,000	20,331
1923	17,390,000	.....

60 percent. Owing to the ravages of fire blight in the eastern states, the recent increases in production of pears have occurred in the Pacific Coast states. California now has approximately 77,000 acres devoted to the culture of this fruit. Oregon has about 12,000 acres, while Washington has about 15,000 acres. By far the greater portion of the pear acreage in the Pacific Coast states is of the Bartlett variety. Of late, however, there has been a tendency to plant such winter sorts as Anjou, Bosc, Comice, and Winter Nelis.

Future Outlook in Oregon

Certain sections of Oregon are especially adapted to the culture of the pear, and the pear industry seems destined to continue as one of the important enterprises of the state. It must be borne in mind, however, that pear growing is largely a business for the specialist. In all probability, the commercial culture of the pear will continue to be centered largely in certain definite localities that enjoy special advantages and that make pear growing a major enterprise. General pear planting throughout the state does not seem advisable, though a moderate increase in plantings, especially of the winter sorts, may be expedient in certain districts.

Possibilities in Hood River

Experience of the past thirty years shows that certain varieties of pears do well in Hood River Valley. Fire blight thus far has not been a factor here. Fairly high yields of quality fruit can be produced under certain conditions. A moderate increase in pear plantings seems feasible in Hood River at this time. Where land is available for new plantings, serious consideration should be given this crop.

The practice of planting pears on soils not suited for growing apples is discouraged.

Pear growing is especially recommended for the grower who has overspecialized in apples.

Recommended Varieties

Bartlett pears of exceptional quality are produced in the Hood River Valley. This variety has been widely planted elsewhere, however, and it is questionable whether the market can stand a very great increase in the tonnage of this variety. In cases where a decidedly late Bartlett can be produced, there are possiblities for late shipment.

Anjou appears especially promising for Hood River Valley. This variety is not being planted to a great extent in other sections. It is only a moderate producer, but its fine dessert and keeping qualities counteract this to a large extent.

Bosc does fairly well in most parts of the Valley, but this sort is being widely planted in many districts and presents some rather serious problems of harvesting and storage.

Winter Nelis is a desirable pear in many ways but does not do as well under Hood River conditions as in other places.

Flemish Beauty appears to have possibilities provided it is not too widely planted.

Easter does well and also has possibilities. Indications are that this variety has possibilities as a pollenizer.

Returns to growers for certain varieties over the period 1919 to 1923 are given in Table IV.

TABLE IV. TOTAL BOXES OF PEARS AND AVERAGE NET PRICE TO GROWERS

1919 to 1923 — Hood River Apple Growers' Association

Variety	1919		1920		1921		1922		1923		Five-year average price
	Boxes	Price per box	Boxes	Price per box	Boxes	Price per box	Boxes	Price per box	Boxes	Price per box	
Bartlett	14,824	$2.15	4,990	$1.71	14,066	$2.26	17,627	$1.36	20,525	$1.64	$1.82
D'Anjou	34,471	2.95	19,247	3.31	27,528	2.50	68,979	1.71	76,073	1.92	2.48
Bosc	1,199	3.62	887	3.71	926	3.85	2,085	1.85	2,948	2.29	3.06
Flemish Beauty	769	2.16	966	2.15	1,023	2.06	1,434	1.13	1,327	.96	1.69
Easter	533	1.94	949	1.79	755	1.60	1,735	1.00	1,592	1.84	1.63
Winter Nelis	3,454	2.29	308	2.23	1,749	1.43	6,251	.34	2,780	1.30	1.52
Howell	20	2.52	.....	.....	.....	.....	13	.31	105	1.57	1.46
Comice	475	2.52	272	2.13	344	2.41	695	.71	1,221	1.14	1.78

Needs of the Pear Industry

The pear industry as a whole faces certain rather definite needs.

(1) The American public must be educated to the uses of winter pears.

(2) The trade must be taught proper methods of handling the pear.

(3) Better methods of handling pears must be evolved by growers.

(4) Cultural practices need to be improved so that higher yields and better quality may be produced.

(5) Further study of pear pollenization under local conditions is necessary.

(6) A study of pear marketing is necessary so that a more economic distribution of the tonnage can be made.

(7) There is need for greater diversity of varieties so that the supply of pears will be more uniform and so that it will be extended over a longer period.

(8) There is need for more standardization of grades and packs.

Hardiness

The serious winter injury that occasionally occurs in young pear orchards warrants a thorough study of the problem of suitable root stocks and varieties for top-working. The influence of cover crops and cultural practices in the development of young orchards, particularly with reference to hardiness, should receive careful study.

Since fire-blight is of less consequence in Hood River than elsewhere, the matter of immune root stocks is of less importance than elsewhere. French stocks appear to be satisfactory in most cases.

E. REPORT AND RECOMMENDATIONS ON STRAWBERRIES

I. STATUS OF THE INDUSTRY IN THE NATION

Strawberry growing in North America first gained commercial standing with the introduction of the Wilson variety in 1854. At that time there were less than 1500 acres under commercial culture. In 1919 there were approximately 119,395 acres as compared with 143,045 in 1909. That this is a major horticultural crop is apparent.

The development of strawberry growing has been remarkable, not only as regards acreage and total production, but also from the standpoint of methods of handling, selling, and the utilization of many new varieties. The strawberry season has been extended from a few weeks to several months. According to Professor S. W. Fletcher,* the number of varieties has increased from 80 to 1800. More than fifty of these are important commercially.

The rise of this fruit has been very rapid. Table V shows car lot shipments of strawberries for the years 1917-1923. Tennessee led during the past two seasons with a maximum tonnage of 3,607 cars. The 1920 census credits that state with 10,876 acres. Other leading states in point of acreage are Missouri with 8,645; Arkansas 8,324; Michigan 8,048; Maryland 7,096. California is credited with 4,974 acres, Washington 3,087, and Oregon 2,812.

*Strawberry Growing by S. W. Fletcher.

TABLE V. CAR LOT SHIPMENTS OF STRAWBERRIES, BY STATES, 1917-1923
(1923 Yearbook of United States Department of Agriculture)

State	1917	1918	1919	1920	1921	1922	1923
New York	210	242	112	362	244	328	290
New Jersey	829	445	326	559	425	274	187
Delaware	2,340	822	430	540	856	940	924
Maryland	2,193	838	611	787	1,069	1,646	1,916
Virginia	1,352	342	208	349	697	1,670	1,193
North Carolina	696	585	484	446	479	1,101	1,667
Florida	193	79	21	153	108	322	1,035
Illinois	347	125	80	98	74	260	249
Michigan	475	272	391	439	455	640	408
Missouri	673	620	1,081	318	466	1,963	872
Kentucky	676	410	132	239	387	772	826
Tennessee	1,781	1,234	1,099	1,182	1,693	3,607	3,289
Alabama	196	279	229	147	285	460	693
Louisiana	1,100	556	682	858	1,531	1,576	1,678
Arkansas	1,096	651	1,034	896	1,094	2,165	1,342
California	245	509	703	569	291	201	193
All other	663	443	482	448	541	791	1,134
Total	15,065	8,452	8,105	8,490	10,695	18,716	17,896

Average yields are placed at 206 crates per acre. The greater proportion of the eastern crop is grown near centers of population with ready available transportation. This factor eliminates many of the problems with which the western grower has to contend. Most of the fruit finds a ready market at fair prices in the fresh state. That the strawberry has wide adaptation is indicated by the number of varieties grown and the large tonnage produced in sections of widely different climatic and soil conditions.

II. STRAWBERRY GROWING IN THE NORTHWEST

Strawberry growing in the Pacific Northwest has experienced a moderate development consistent with available outlets. In Oregon the principal tonnage is produced in Hood River and Willamette Valleys. Western Washington and British Columbia specialize largely in this fruit. The districts mentioned have certain points in common which are worthy of consideration. Owing to the relatively great distance to the larger centers of consumption and high transportation costs, fruit is grown largely for cannery and local consumption. Hood River is a notable exception in this respect. The Willamette Valley specializes in such varieties as Magoon, Gold Dollar, Oregon, Marshall, and Ettersburg No. 121. These varieties are sent mostly to canneries or in small quantities to neighboring fresh fruit markets. At Hood River Clark Seedling is produced almost exclusively commercially.

Root Weevil

Although strawberry growing has several insect pests with which to deal, none are of more serious menace than the strawberry root weevil. Authorities agree that there is danger of the industry sustaining very heavy losses in case this insect is not controlled in a practical manner. Present acreage undoubtedly is much reduced owing to failure of growers to make new plantings and to destruction of comparatively new patches. There is urgent need of practical control measures now. There seems little prospect of relief at present owing to the need of research studies which require time, money, and technical ability of high order. Leading entomologists confess inability to cope with this pest and at

present little experimental work is in progress. The use of the "barrier" method of control has found only limited application owing to the expense.

Production

One of the principal problems connected with strawberry growing is the so-called "running out" of varieties. Pioneer growers maintain that certain varieties tend to decrease in yield over that of former years. Experience in many sections of the Pacific states tends to substantiate this point of view. The subject is little understood and obviously must receive thorough study from the standpoint of breeding, selection, soils, fertilizers, rotations and other cultural factors. The need of creating new and better varieties and the improvement of present ones is very important. Experiment stations in some of the larger strawberry producing sections are specializing on these problems. There is need of similar work here.

III. STRAWBERRY GROWING IN HOOD RIVER VALLEY

Strawberry growing has been an important industry in Hood River for many years. Practically, it has occupied a major position as a horticultural side-line. It has met with wide favor owing to the fact that it has "fitted in" well with the development of young orchards from which there was little or no income and afforded a substantial cash return. Where family labor was readily available the growing of this crop between young trees has been especially profitable where good methods were employed. Many of the better apple and pear orchards of the Valley were intercropped with strawberries during a limited period in their earlier development. The practice is advisable where soils are well supplied with plant food and sufficient irrigation water is available. Such intercropping has certain disadvantages, in that growers often fail to maintain suitable growing conditions for the tree.

In recent years the major portion of strawberry acreage locally has centered in the Upper Hood River Valley on the so-called "red-shot" soils. There it found ready adaptation and has featured in the development of new apple and pear acreage. Following the removal of a large apple and pear acreage in the Lower Valley since 1920, strawberries have again been resorted to where previously the presence of older orchards did not permit such practice.

The strawberry root weevil has been present in Hood River Valley for many years. Until three years ago, certain areas were known as either "infested" or "weevil free." Location of newer plantings was largely guided by these facts. Recently, however, the insect has been found in all important areas. The problems surrounding this insect are similar to those found in other infested districts. Growers should plant only where areas are free of this insect or have been made so by proper cultural practices.

Yields, Prices and Costs of Production

Hood River has specialized in the growing of the Clark Seedling. This variety finds perfect adaptation locally where soil and air conditions are favorable. Attempts on the part of many other strawberry sections to grow the Clark Seedling have been unsuccessful. On account

of its attractiveness and firmness the berry meets with wide favor both from canners and fresh fruit markets as far eastward as Chicago and other middle western points. When picked at the proper stage of ripeness and promptly placed under suitable refrigeration the variety arrives in perfect condition.

There are certain advantages in growing strawberries in Hood River, for both canning and fresh fruit shipment, and both markets should be preserved and developed. Cannerymen are offering contracts at 8 cents per pound and have paid as high as 16 cents during exceptional years. Marketing of the crop in this manner is attractive, in that greater tonnage is secured than where picked in a less mature condition for fresh fruit shipment; picking is less expensive and the need for furnishing crates is eliminated as is also true of packing and grading. A large percentage of Parkdale growers have availed themselves of this outlet and appear well satisfied with the arrangement. Owing to the fact that berries grown on the higher elevations do not arrive on the fresh fruit market until after the earlier season prices have greatly declined, it is likely that in the future canneries will continue to absorb the bulk of this output. On the other hand, prices for berries shipped before mid-season have been so attractive as to warrant further development of the fresh fruit market. Fruit thus sold is now handled in a manner fairly well standardized.

TABLE VI. CHERRY PRICES, NET TO GROWER, 1921-1924

Hood River Apple Growers' Association

Variety	Price per 16 pound box			
	1921	1922	1923	1924
Royal Ann	$1.09	.....	.....	$1.44
Bing	2.16	$2.05	$1.77	2.49
Lambert	3.01	2.21	2.47	3.11
Black Republican	1.65	1.32	1.56	2.03

Note: Average for all black varieties, per 16 lb. box: 1919, $2.34; 1920, $2.83.
Royal Ann cannery prices per pound: 1919, 7⅞c; 1920, 14⅝c; 1921, 3¾c; 1922, 9c; 1923, 9½c; 1924, 4⅜c.

Hood River strawberry acreage has declined during 1923 and 1924. During 1920 there were approximately 842 acres as compared with 617 for 1919 and 648 for 1924. It is likely that the acreage will still further decline unless effective means are found to control root weevil or prices are raised to such an extent as to make attractive what may be termed a hazardous undertaking.

IV. STRAWBERRY RECOMMENDATIONS

1. Strawberry growing has a definite place in Hood River horticulture and should receive further attention and development for the following reasons:

(a) It offers cash returns reasonably attractive in proportion to the investment and labor expended.

(b) Its harvesting season enables some fruit growers to secure a better cropping system and distribution of labor than where tree fruits alone are grown.

(c) In the development of young orchards it has a definite place providing the grower does not neglect his trees by this

intercropping. Where orchards are more than five years of age intercropping with strawberries does not seem advisable.

(d) Strawberry growing affords an opportunity to utilize profitably tracts of land where tree fruits are not grown.

2. Commercial strawberry growing in connection with the production of apples, pears, and other tree fruits does not seem advisable where large acreages of the latter are handled. The growing and harvesting of berries comes at a time when trees need attention in spraying and other cultural practices. Unless competent labor is available for this purpose strawberry growing is not advisable on a large scale except in special cases.

3. Growing berries for both fresh fruit shipments and canneries is advisable and should be encouraged.

4. There is need for immediate information relative to root weevil control and experimental work dealing with this problem should be undertaken.

5. There is need of more information concerning the influence of fertilization, soils, breeding and selection.

6. Growers should plant only on land suitable for strawberry growing and well supplied with available plant food.

7. Strawberries should not be planted on land where weevil is known to exist. Suitable rotations will assist in the control of this insect. Only those plants which are rigidly inspected and known to be free of weevil should be set.

8. The future development of strawberry growing locally should center around the Clark Seedling unless varieties of superior qualities are created or introduced and then only after subsequent trials have shown them to be adapted.

F. THE CHERRY INDUSTRY

The sweet cherry at the present time is essentially a Pacific Coast monopoly. While heavy plantings of sweet cherries have been made in recent years, a moderate increase in plantings appears feasible at this time in the districts that are well adapted to cherry growing. Markets for sweet cherries can doubtless be stimulated to a certain extent.

The sweet cherry from the standpoint of the orchardist is a desirable fruit for Hood River. Under proper conditions the sweet cherry does especially well in certain parts of the Valley. It fits in well with apples and pears. It usually gives returns during the "off" years. It can usually be harvested during favorable weather and it adds to proper labor distribution throughout the season.

Prices received by Hood River cherry growers have been generally satisfactory over a period of years. Net prices per 16-pound box for Bings have been about as follows for the years 1921 to 1924: $2.16, $2.05, $1.77, and $2.49. The prices on Lamberts during this period have been $3.01, $2.21, $2.47, and $3.11. See Table VI.

Varieties

But three varieties of sweet cherries can be considered from a commercial standpoint at this time. Royal Ann is essentially a canning and processing cherry and should be planted with this in mind. Western Oregon is planting heavily to this variety. Bing and Lambert are probably the best all around sorts for fresh fruit shipment. These produce fruit that is large in size, firm in texture, and of exceptional quality. Lambert, however, has a tendency to separate from the stems, and this may react against it in some cases.

Pollenizers

There is but little doubt that pollenizers are essential to heavy yields of most sweet cherries. To a large extent, Royal Ann, Bing, and Lambert are not only self-sterile but they are intersterile. Since Black Republican has commercial value of itself it is a very desirable sort for pollenizing purposes. In all cases, however, scion wood should be taken only from proved trees.

Stocks

Bacterial gummosis of the cherry has not been a decided factor in Hood River Valley. Consequently the use of such stocks as Black Mazzard appears to be of less importance here than elsewhere.

Soils and Sites

Experience shows that sweet cherry growing may be successfully conducted on a variety of soils in different parts of the Valley. On the higher elevations, fruiting has not been uniformly satisfactory. This applies especially to the upper valley. It is advised that prospective planters avoid such locations as do not afford good air and water drainage.

Pest Control

Thus far no really serious pest has affected the sweet cherry in Hood River Valley. Thus far the Valley has been free from the cherry fruit fly which is common in other parts of the state. It is recommended that a rigid quarantine be placed against all shipments of cherries coming from the districts that are known to be infested with this fly, this to apply whether the fruit is unloaded at Hood River or merely passes through. Since Hood River cherries are still free from the cherry fruit fly it is urged that the California quarantine, so far as it applies to Hood River cherries, be removed.

Harvesting

Only cherries of high quality should be packed for shipment. All cherries showing signs of mechanical injury should be discarded. Cherries whether for processing or for fresh fruit shipment should be fairly matured. Much harm is being done the Oregon sweet cherry by the practice of picking the fruit too soon.

Sour cherries

Sour cherries should not be planted in large quantities at this time. The eastern states in general are heavy producers of sour cherries, which, for the most part, are of good quality and which would seriously compete with the western growers' product.

A RESOLUTION REGARDING THE PROTECTIVE TARIFF ON CHERRIES

WHEREAS, Practically all the Royal Ann cherries grown in the Hood River Valley are sold for canning and processing, and

WHEREAS, The existing protective tariff makes it possible for American canners to compete with foreign canners and still pay the growers a reasonable amount for their cherries, and

WHEREAS, A lowering of the protective tariff now in effect would make it possible for foreign canners and processers to lay their product down on American soil for less money than that for which American growers can afford to sell the fresh fruit, and

WHEREAS, A lowering of the existing protective tariff would ruin the industry of growing cherries for canning and processing purposes; therefore be it

Resolved, That it is the desire of Hood River fruit growers in conference assembled that the existing protective tariff on cherries remain permanent and that a copy of this resolution be sent to Oregon representatives in Congress.

Dated at Hood River, December 20, 1924.

G. RASPBERRIES

While the raspberry acreage has increased in Oregon during recent years, it has not increased for the country as a whole. A few eastern districts are now stressing raspberry production, primarily for local markets. Present indications are that red raspberry production in Oregon can stand a moderate increase at this time. Canners here and there are still asking for more raspberries. In certain cases there seems to be a future for the raspberry as a fresh fruit, provided that berries of firm texture and of good quality can be produced.

Raspberry Growing in Hood River County

Commercial raspberry growing in Hood River Valley is of comparatively recent origin. Even now the total bearing acreage of this fruit in the Valley is not more than 75 acres. The non-bearing acreage is not more than 50 acres. As might be expected, the industry is to a large extent in the experimental stages. Many questions regarding it are as yet unanswered. Consequently large plantings of raspberries in Hood River Valley do not seem advisable at this time.

Need for More Information

There is need for more information regarding the production of quality berries. Irrigation and fertilization of the soil need special attention in this regard. The influence of climate on the fruit and yields needs to be better understood. The matter of varieties also needs to be further investigated. The problem of disease and insect control needs further attention. The future status of the raspberry industry in Hood River will depend largely upon the solution of these problems.

Soils and Sites

Raspberry plantings in the Valley thus far have been made on a variety of soils. Experience has not yet definitely indicated the most desirable soil types. It is clear, however, that plantings should be made

only on soils well supplied with available plant foods, and of good drainage.

Growers should recognize that low winter temperatures and crushing snows often prevail and should govern their cultural practices accordingly.

Varieties.

The Cuthbert variety is the only raspberry that can be recommended at this time. This is one of the darker red varieties. It is only a moderate producer but its firmness and all around good quality overcome this defect.

Yields

Red raspberry yields in Oregon usually vary from one to four tons per acre. Occasionally the exceptional grower will secure as much as five tons per acre, but this record is very exceptional and while it should be held as an ideal towards which growers may strive, raspberry growing should be undertaken with the understanding that returns and profits must usually be figured on the basis of lower yields.

A comparatively high yield is necessary for success. Investigations in the Puyallup Valley of Washington have shown that cost of production was more than twice as high per pound when the yield was 3,000 pounds as when it was 8,000 pounds per acre.

Soil fertility and moisture are probably the chief factors affecting yields.

The above report of the horticultural group was prepared under the direction of and submitted by several committees, as follows:

Apples and pears: C. A. Reed, chairman, D. L. Pierson, A. F. S. Steele, Wm. McGuire.

Cherries: Albert Case, chairman, Allison Fletcher, Floyd Nunamaker.

Strawberries and raspberries: I. R. Atcheson, chairman, G. G. Brown, W. R. Gibson, M. Yasui.

Report of Dairy Group

The Dairy group of the Hood River County Economic Conference, while recognizing that dairying is a minor enterprise in the county, believes that in some areas it may profitably be made a major farm enterprise and because of its value in the permanency of agriculture may, within certain limits, be expanded to advantage on orchard farms. It is desired, however, to call attention to certain facts relative to the industry. Upon them our recommendations depend.

I. LOCAL DAIRY STATISTICS

1. Production

World market conditions indicate that the demand is being well supplied this year and that due to rates of exchange the United States has been a profitable market for foreign countries to the extent that storage stocks in this country this fall have exceeded the five-year average by 25 to 50 percent. Under such conditions material increases in price cannot be expected.

Local data show that there are 1105 cows in the county owned by 563 persons, 342 of whom own only one cow each. More than 200,000 pounds of butter-fat is produced annually, which is an average of approximately 200 pounds per cow.

There are 28 dairy sires in the county, of which 25 percent are grades or scrubs. Of dairy feeds produced in the county reports indicate a small surplus of hay this year. Approximately 25 percent of the needed quantity of succulent feed is produced, and the percentage of required grains is even less.

2. Marketing and Manufacturing

Dairy products from local cows, together with those shipped in from other sections and made into manufactured goods here, amount to a surplus as far as local needs are concerned and necessitate shipping to outside points. Prices paid for raw products by the local plants compare quite favorably with those paid at other points. About 25,000 pounds of butter substitutes are imported by this county annually.

II. ANALYSIS OF STATISTICS

1. Though local expansion of dairying will not affect prices, yet those contemplating expansion or beginning dairying should recognize the *why* of present prices and make increases only after determining that the feed problem can be satisfactorily met, or that the by-products obtained are of sufficient value to offset any feed disadvantage.

2. The apparent surplus of hay in the county this year, if the quality is satisfactory, should discourage further importation from other sections, and at the same time should encourage the production of hay of a high quality. It would also indicate that some farms may be in a position to use more cows.

3. The amount of succulent feeds now produced, although inadequate, could be made sufficient by increasing the use of either corn or sunflower silage, apple pomace which is as good as corn silage, root crops, and small potatoes.

4. Few farms can profitably produce the required amount of grain.

5. The average county production of 200 pounds of fat per cow, while much above that for many counties of the state, should be increased at least 25 percent due to peculiar local feed conditions.

6. Considering the advantages and present costs of pure-bred sires, 25 percent is too high a proportion of grade or scrub sires to be kept in use.

7. Disregarding the farms with only one cow the average number of cows per farm is less than four. From the standpoint of labor and overhead costs this number is entirely too few, but the amount of feed available is the determining factor here. Reports further indicate that many farms have areas that because of topography or soil type are unfitted for orchards and which could be turned to irrigated permanent pastures, thereby making possible the carrying of additional cows. Some well managed orchards have found it advantageous to remove trees from unsatisfactory soil types and increase the dairy herd. The increased amount of manure obtained made a larger yield of fruit on the orchard remaining. A number of upper valley farms, moreover, have an adequate feed supply to carry additional cows.

8. The 25,000 pounds of butter substitutes imported into the county displace practically the same amount of locally manufactured dairy products thus necessitating the location of outside markets. These substitutes are produced under conditions with which the American farmer, having a high standard of living, cannot compete.

III. DAIRY RECOMMENDATIONS

In view of these facts we recommend:

1. That dairymen of the county endeavor to increase the average production per cow in their herds, by

(a) Eliminating those which systematic records of production show to be low producers, and

(b) Breeding up better cows by using only approved pure-bred sires.

2. That succulent feeds suited to the individual farm be provided in adequate amounts for cows when not on pasture.

3. That irrigated permanent pastures be given greater consideration both by dairy farmers and by orchardists who have areas unsuited for fruits.

4. That herds be built up to at least 10 cows on dairy farms and on orchard farms at least two cows for each 10 acres.

5. That patrons of the local creamery continue to cooperate in delivering products of the highest quality possible and that, in view of prices paid and treatment accorded, the local plant be given the united support of cream producers of the county.

6. That for the same quality of hay, purchasers give local farmers preference in supplying their needs.

7. That the attention of our representatives in Congress be called to disastrous competition caused by tropical vegetable oils and be requested to impose such additional duties or taxes as may be applicable.

8. That proper feeding of producing cows and proper care of dairy products on the farm be given greater consideration by dairymen of the county, and that the rations and other instructions attached be given careful consideration.

—E. F. BATTEN, Chairman.

RATIONS FOR DIFFERENT FARM ROUGHAGES

Alfalfa hay, 18 lbs.; corn silage, 30 lbs. For cows producing more than 6/10 of a pound of fat per day add four pounds of feed mixture for each additional 3/10 pound of fat produced. Feed mixture to consist of two parts molasses and five parts bran or mill-run. Oats may be added to this mixture in any amount without changing the balance. If less hay is fed, additional grain must be used at the rate of one pound of hay for each 1½ pounds of grain displaced.

Alfalfa, 30 lbs.; no succulent. For cows producing more than 7/10 pound of fat per day add four pounds of feed mixture for each additional 3/10 pound of fat produced. Feed mixture to consist of four parts molasses and two parts bran or mill-run. Molasses alone may be fed with hay, but no more than three pounds per day should be used.

Molasses in these rations may be sprinkled on the hay or mixed in the grain ration. These rations should be considered as temporary ones, to be used under present grain prices and changed when prices change.

CARE OF MILK AND CREAM

To produce first-grade cream the following essentials are suggested:

Cows must be healthy, and free from garget infection.

Feed and water must be clean. Feeds must not contain weeds or weed seeds which impart undesirable flavors. Green feeds and silage should be fed after milking. Water must be clean and pure. Milking must be done in a clean barn and in a clean manner. Clip long hair from udder and clean with moist cloth, do not sweep barn floor or put down hay before milking because of dust. Milk with dry hands.

Use clean, scalded utensils. Separate immediately after milking in separator that has been washed clean after each use. Do not skim thinner than 30 percent cream.

Cool the cream at once by placing in tank or trough of cold water.

Cream should be delivered at least twice each week, and in hot weather should be protected from the sun while in transit.

A satisfactory mixture of grass seeds for permanent pastures is composed of the following:

Brome grass, 5 pounds
English rye grass, 5 pounds
Orchard grass, 5 pounds
White clover, 1 pound
Meadow fescue, 3 pounds

This will be sufficient to sow one acre. Care should be exercised in the purchase of seed. Buy seed separately and have germination tests made, as grass roots often have a low germination.

Report of Potato Group

I. THE SITUATION

1. Production Exceeds Local Needs

Hood River county is on a potato exporting basis. The population of the county consumes something over 30,000 bushels, while 70,000 bushels are produced on the average, leaving an exportable surplus of from 30 to 50 cars.

The acres of potatoes grown by years are as follows:

1909	611 acres
1919	490 acres
1920	694 acres
1921	500 acres
1922	500 acres
1923	400 acres

In California and other districts like Hood River where land values are relatively high, usually other vegetables and fruit tend to crowd out potatoes. Thus in California the potato acreage is decreasing and is now largely confined to areas where production per acre is very high, such as the peat soils around Stockton.

It is presumed therefore that the acreage of potatoes in this county will not increase very much in the future, perhaps not at all. The present acreage is nearly all around Parkdale.

2. Average Yield is About 100 Sacks Per Acre

The average yield per acre of all the potatoes in the county is slightly less than 100 sacks, but the yield of the commercial growers will average about 150 sacks per acre and some as high as 200 sacks.

3. Production Costs are High

For the commercial grower the costs of production are high. These costs vary greatly with different conditions, such as the preceding crop, the yield obtained, price of seed, price of land, etc. It is impossible therefore to set any definite figure as to the cost of production. The following figures are given merely as a guide, and indicate the fact that potatoes are expensive to grow. The figures are based on a yield of 150 sacks per acre. With larger yields some of the expense items will increase, others will remain stationary.

Growing costs:		
Plowing	$ 3.50	
Disking and harrowing	3.25	
Seed (2000 lbs.)	30.00	
Planting	5.00	
Cutting and treating seed	5.00	
Cultivating	1.25	
Irrigating (labor)	3.50	
Water cost	3.50	
Hoeing	3.00	
Total growing costs		$58.00
Harvesting costs:		
Digging and sacking	$ 20.00	
Sacks	12.00	
Sorting	10.00	
Hauling	3.00	
Total harvesting cost		45.00
Total cost		$103.00

4. Railroad Rates

The large proportion of Oregon potatoes shipped from the state goes to California, freight rates to most other places being prohibitive. In most years Portland uses as many potatoes from Yakima as from Oregon. Yakima growers usually dispose of their corps irrespective of price, while most Oregon growers refuse to sell at very low prices. Accordingly the percentage of Yakima potatoes used in Portland is increasing and may be expected to increase in the future, leaving Oregon growers more and more dependent on California points.

The railroad rates from Parkdale are as follows:

Parkdale to San Francisco combination rail and water	45½	cents per 100 pounds
Parkdale to San Francisco all rail	52½	cents per 100 pounds
Parkdale to Portland, all rail	21	cents per 100 pounds
All rail rate to San Francisco from Yakima is	49⅓	cents per 100 pounds
All rail rate to San Francisco from Portland is	35½	cents per 100 pounds
All rail rate to San Francisco from Eugene is	48	cents per 100 pounds
Rates from Bend to San Francisco are about	50	cents per 100 pounds

Parkdale growers are thus on a nearly even basis with Yakima, Bend, and southern Willamette Valley but are handicapped 17 cents per hundred as compared with the growers of the northern Willamette Valley. Klamath county is rapidly increasing its potato acreage and the rate from Klamath Falls to San Francisco is about the same as from Portland.

5. Varieties Grown

At present the varieties grown are as follows:

Netted Gem 75 percent of the acreage.
Burbank 20 percent of the acreage.
Early Rose 5 percent of the acreage.

6. Outlook for Future Markets

The average price to growers over a ten-year period is $1.00 per hundred for potatoes. There is no way of knowing whether this will be an index of future prices to be expected, but it is the only guide we have. With higher cost of production it is possible that prices will average slightly higher than this during the next ten years.

Columbia River points would take about four car-loads of Early Ohio or Bliss Triumph potatoes for seed if some district were producing a reliable seed potato of these varieties. If a satisfactory seed market can be developed it is a better market outlook than table stock because seed is needed no matter what the price for commercial potatoes.

Burbanks have a constant seed market in California.

It is probable that the acreage of potatoes grown in California will not increase, and some decrease may be expected. Population on the Coast is increasing rapidly. From these facts it may be expected that prices for table stock potatoes will average slightly higher in Oregon than in the Middle West.

II. CONCLUSIONS AND RECOMMENDATIONS

1. We urge growers to stay with standard varieties such as those now grown rather than to experiment with new or little known varieties.

2. We urge a consideration of the seed market by a few growers.

3. The state potato grading law has been beneficial to the grower from the standpoint of protecting shippers from rejections at point of designation. The United States grades allow smaller potatoes than most buyers are willing to take and we believe that not more than 10 percent of the 1⅞-inch potatoes should be allowed in No. 1 grade.

We believe the Oregon inspectors are too particular in rejecting tubers with small scratches or bruises on them.

4. Every grower intending to stay in the business should provide himself with a good storage cellar.

5. Potatoes should not be grown commercially unless the grower can average more than 110 sacks per acre. Smaller yields will not in the long run be profitable.

6. It would pay in price received if all of the Parkdale growers would get together and agree to use a uniform brand on all potatoes shipped out. The use of such a brand would increase confidence in Hood River potatoes and tend to bring better prices.

7. A high yielding crop cannot be produced if the seed is very badly diseased. Some attention must therefore be paid to the seed. We favor importing to the district nothing but certified seed, thus guarding against the possible importation of badly diseased potatoes. We also urge the building up of the seed we now have by selecting vigorous, high yielding hills in the field.

8. Heavy application of fertilizer will ordinarily give larger returns on land already rich than they will on poor, low-yielding land. If land is run down in fertility it will be cheaper and it will pay better to build it up by growing and plowing under clover than to try to build it up by adding commercial fertilizer. Potato yields may be increased by fertilizer on lands already producing good crops.

Work by the Hood River Experiment Station and practical field tests by growers both indicate that nitrogen, phosphoric acid, and sulfur are of value in securing maximum yields. Potash has so far not increased yields. The use of nitrogen in the form of sulfate of ammonia is favored because of the presence of soluble sulfur. Likewise superphosphate is valuable because it also has soluble sulfur. We recommend the following fertilizer formula:

1000 lbs. superphosphate
400 lbs. sulfate of ammonia

This formula has been used in amounts ranging from 700 to 2800 pounds per acre. The use of 1000 pounds per acre may be considered a conservative application.

A safe means of application is by drilling in with the seed.

—R. J. MCISAAC, Chairman

Report of Poultry Group

I. THE SITUATION

The poultry industry of Hood River county is of recent development. It is as yet a minor agricultural industry. In value of chickens and eggs produced the county ranks twenty-second in the state of Oregon. According to the figures of the United States census of 1919, the county produced $86,301.00 of poultry products.

There are eleven farms in the county where poultry flocks are managed either as a special unit of farm work or as a major enterprise. Hood River county is safe in affirming that it is the only county in Oregon that has a 100 percent membership of eligible flocks in the state marketing association known as the Pacific Cooperative Producers' Association.

The average price per dozen received for the past three years through the above-named system of marketing is as follows: extras, 34.6c; selects, 31c; firsts, 30.3c; pullets, 27c.

The major part of the total volume of poultry products is produced by farms where poultry is not considered a very important phase of farming. About 6500 hens are found on farms of orchardists, flocks varying in size from a dozen hens to 50 or 60 hens. There are only 6,545 hens listed on the assessment roll of Hood River county; however, no assessment was made on flocks of 50 hens and less. The total number of hens in the county is approximately 14,000.

The state of Oregon now produces more eggs than its population consumes and is therefore an egg exporting state. Hood River county annually produces about 1,100 cases of eggs in excess of its county consumption.

There exists a strong outside buying demand for the surplus eggs of good quality. In view of existing conditions the poultry industry of Hood River county cannot be considered as an independent unit in itself, but as a unit of the industry of the state as a whole. Any increase of the industry in this county would have no effect on the state or national price of the product. Even though the state produces a surplus of eggs, no difficulty is foreseen in marketing a material increase in egg volume of exportable quality.

II. POULTRY RECOMMENDATIONS

1. Increase is Advocated

Climatic conditions and availability of green feed are factors quite favorable to poultry production in the county. The marketing of surplus eggs of quality can be done efficiently through the cooperative agency now functioning. Railroad and highway conditions are favorable transportation agencies to market. Orchard soils would be enriched by the fertilization value of poultry manure. The smaller apple orchards of 20 acres and less frequently have labor to invest in farm side-lines.

It is therefore recommended that poultry keeping be increased in the county; such increase to be guided by the principles of management as outlined in this report.

2. Flocks of 400 or Else Just Enough for Home Needs.

Farm flocks too small to be considered an important unit of farm work usually suffer from poor management. During the flush season of production a surplus of inferior-quality eggs is dumped on the over-produced markets of the state. The greater volume of the aggregate product is produced haphazardly on the general farm rather than by well managed flock units.

The poultrymen hereby recommend that on farms where some labor is available each day, where green feeds can be provided throughout the year, and where proper housing and management can be given, a minimum unit of 400 laying hens be established.

On farms not interested in poultry, where the major farm activity does not allow surplus labor, it is recommended that present flocks now carried be reduced to the number necessary to supply only the needs of the home table.

3. At Least 10 Tillable Acres for Each 1000 Hens

Many poultry enterprises, successful for a time, have been compelled to quit business because of soil contamination. This is caused by using the same area over and over for brooding and ranging the stock. Poultry keeping on a large scale on one and two acres is hazardous where young stock is reared annually. It is recommended that commercial poultry keeping should not be attempted on less than ten acres of tillable land, for a unit of 1000 hens. A surplus of yard alternation must be worked out to make poultry keeping a success. Additional range territory may be provided for growing stock in orchards.

4. Movable Brooder House is Best

The success of poultry keeping in Hood River county depends upon the ability of the growers to raise pullets that are vigorous and free of intestinal parasites. This can be done more safely through careful effort to brood chicks on clean soil each year.

The movable brooder house is recommended as the safest system to follow. Producers may guide their construction plans by Experiment Station Circular 52.

On farms where permanent brooder houses must be used, due to hill land, it is recommended that they be located on a given area in such a way that the area may be divided into three or four yards. Under this system only one yard is to be used each year in its logical turn.

In any system of brooding, the brooder house and particularly the brooder yard are to be used only until the chicks no longer need artificial heat and are old enough to be moved out on free range. Range houses are explained in Experiment Station Circular 54.

5. Buy All Chicks at One Time

It is very unsatisfactory to attempt to brood and range together chicks of different ages. In terms of financial results, labor and economy, it is cheaper to purchase 500 day-old chicks at one time to secure 200 pullets than to attempt two or three hatches from an incubator of small capacity. A uniform lot of chicks simplifies the brooding, feeding, growing, housing, labor, and production problems.

It is therefore recommended that producers secure all chicks at one time, where only one brooder and one range are available.

6. Buy Chicks Early

Poultry producers must have the benefit of the fall and winter prices for eggs in order to secure a better average price per dozen for the year. They must have fall and winter production in order to get the most months of lay from the pullets before molting season.

It is strongly recommended that producers secure the chicks early enough in the spring so that they will be old enough to come into flock production in October. Late February, March, and early April is recommended as the most suitable time to secure chicks.

7. Follow O. A. C. Plans in Building Laying Houses

Proper poultry housing is essential to successful poultry keeping. The amateur has a tendency to construct laying houses according to some untried hobby rather than to use as a pattern some type of house that has proved satisfactory. It is recommended that producers desiring to build new laying houses be guided by the building plans set forth in Experiment Station Circular 51, Oregon Agricultural College.

8. Disease Study is Needed

One of the serious limiting factors of poultry production in county or state is the increase in poultry diseases. The poultry industry in Oregon was valued in excess of $10,000,000.00 for the year 1923. The rapid development of commercial poultry keeping, high rate of egg yields, intensified systems, concentrated rations, and other factors are constantly producing troubles which result in heavy losses to the individual owners and to the state as a whole. A growing industry of this magnitude and an industry which has returned a profit to the grower during a period of deflation should warrant at least one man's study of its disease and nutrition problems.

It is recommended that the Hood River County Agricultural Economic Conference endorse the efforts of the Oregon Poultrymen's Association to secure a small appropriation from the state legislature to carry on this work.

9. Green Feed is Necessary

Green feed is one of the four major classes of poultry feeds necessary to growth and egg production. Kale does not live through the winter in the county, hence root crops, alfalfa hay, cabbage, etc., must be provided to use during the winter for laying stock.

Green feed is perhaps the most important feed in the ration of growing chicks. Alfalfa, summer kale, etc., must be provided for growing stock.

It is recommended that poultry keeping be discouraged on farms where green feed in some form can not be economically provided throughout the entire year.

10. Repeal Present Cold Storage Law

Those engaged or interested in the poultry industry of Oregon believe that the consumption of eggs is reduced by the present Oregon law which regulates the sale of cold storage eggs. Meats, fruits, vegetables, and dairy products held in cold storage are not required to be sold under a prominent cold storage sign.

Placing of eggs in cold storage is necessary in order to care for the surplus eggs and to prevent a demoralizing price during the flush season. The present storage law is not rigidly enforced and admittedly cannot be enforced.

There is a nation-wide effort to eliminate cold storage egg regulation. The poultry industry of Oregon as well as the consuming public would be benefited by a different sales standard.

The poultrymen of Hood River county therefore recommend that the state legislature of Oregon repeal the present cold storage egg law and pass instead a law requiring that eggs be sold to the consumer according to *size* and *quality*.

—J. R. NICKELSEN, Chairman.

Report of Boys' and Girls' Clubs Committee

Value of Club Work

Boys' and girls' club work as conducted by the United States Department of Agriculture, the Oregon Agricultural College, and the State Department of Education, cooperating, is giving to these young people a training that will be of inestimable value to them in their future work. As the result of this training the development of these young people will benefit the county, the state, and the nation.

Hood River county has been doing more or less club work for the past eight years, and boys and girls who were doing this work in the past have developed to be real leaders among young people. During the year 1924 there were organized in Hood River county 36 standard clubs with an enrolled membership of 264 boys and girls. Of these 162 completed their work, made an exhibit and filed a final report. These reports show a total valuation of $3,306.97 costing these club members $1,647.55, thus giving them a profit in dollars and cents of $1,659.42. These clubs have been handled largely by teachers in the various schools acting as local leaders, the teachers having volunteered to lead these clubs because they realized the value of the work to the boys and girls. Many teachers devoted much extra time to this work.

Recommendations

In view of the above facts we recommend the following:

1. That boys' and girls' club work be extended throughout the county, thus making it possible for all boys and girls in the county wishing the work to participate.

2. That to as great an extent as possible teachers be relieved of the active leadership of these clubs by parents or other adults in the community. We hope the teachers, however, will continue to give encouragement and advice in the work.

3. That the parent-teacher and Grange organizations in the county assume some of the responsibility of securing local leaders and promotion of the work.

4. That three dairy calf clubs be organized in the county this year as follows: one on the East side, one in the upper valley, and one on the West side.

That more money be provided for premiums for our county school fair.

That as far as possible the club program in the county be correlated with the agricultural program that will be adopted by this economic conference.

Respectfully submitted,

J. W. Crites
A. W. Peters
Mrs. C. K. Benton
Mrs. E. T. Barrett
L. F. Smith