

An Economic Study of the Cherry Industry with Special Refer- ence to Oregon



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SUMMARY AND CONCLUSIONS

I. Oregon's production of sour cherries amounts to less than 1 per cent of the national total, more than 78 per cent originating in the states of Michigan, New York, and Wisconsin. Sour cherry production on a commercial scale on the Pacific Coast is confined to Oregon and Washington. Despite their relatively small production, these states already appear to have reached the stage where they are obliged to look east of the Rockies for market outlets. Their normal markets are in the Pacific Coast area. Because of competition from Eastern states enjoying superior shipping advantages, efforts to invade Eastern markets through the sale of canned and cold-packed cherries are not, in the long run, likely to prove successful.

II. Nearly all of the national production of sweet cherries is concentrated on the Pacific Coast. Of the five Western sweet cherry-producing states, Oregon supplied 24 per cent of the acreage in 1930. Expansion in sweets has been notable in recent years, particularly in the Pacific Northwest.

III. In recent years the proportion of all canned fruit packed as cherries has been 5 per cent. In growth of pack they have not held their own compared to the canned pack of other fruit considered in the aggregate. This is particularly true of canned sweets, which gained only slightly compared to the more pronounced gain made by sours. About 57 per cent of the national canned pack of cherries has been sours and 43 per cent sweets. The outlook for any considerable expansion of sweets in canned form is not bright.

IV. Unlike sweets, the outlook for the utilization of sours in cold-pack form is very attractive. This form of pack has already made large inroads on the canned pack, and existing evidence points strongly to the ultimate ascendancy of the cold pack.

V. Until the Tariff Act of 1930 began to shut out importations, manufacturers of maraschino and glacé cherries in Eastern states were accustomed to look to Europe, principally Italy, for their supplies of cherries, sulfured and in brine. If the tariff rates on importations of cherries introduced by this act are permitted to stand, it is probable that most of the business of supplying domestic markets with the raw material for processing maraschino and glacé cherries—namely, barreled cherries, sulfured and in brine—will be shifted to the Pacific Coast. The outlet afforded through the barreling industry is badly needed to absorb the greatly expanded production from non-bearing acreage of white sweet cherries now in prospect.

VI. In the Pacific Northwest, and in California to a somewhat less degree, shipments of cherries in fresh form have been confined almost entirely to black sweet cherries. A pronounced upward trend in shipments has been taking place from all five of the far-western states producing these cherries, but most notably so in those from Oregon. Shipments to the New York auction from this state have outsold those from its neighboring states, Washington and Idaho. The black cherry industry appears headed for rough sledding as compared to the smooth progress it has enjoyed in the past unless there is a movement to reduce materially the acreage slated to come into bearing, or unless a marked improvement in methods of distribution is worked out with the resultant prospect of opening up new consumer areas.

VII. That prices of both sour and sweet cherries have been attractive in the past is attested to by the rapidity with which acreage has expanded. The business depression has brought in its wake a pronounced recession in prices. Even under more normal conditions of market demand, expansion may already have proceeded too far. Unless constructive measures are taken, future price trends for several years to come are likely to be disappointingly low.

An Economic Study of the Cherry Industry with Special Reference to Oregon

By

MILTON N. NELSON and GEORGE L. SULERUP

IMPORTANCE OF CHERRIES IN OREGON

IN Oregon, as in the United States generally, two distinct types of cherries are grown, the sweet and the sour. Though the bearing acreage of sour cherries in Oregon does not loom large when compared to that of sweets, since it constitutes but 7.8 per cent¹ of the total, the acreage of sour cherries coming into bearing in both Oregon and Washington, not to mention the midwestern and eastern states where the bulk of the acreage is grown, has been expanding so rapidly in recent years that it has been deemed advisable to pay considerable attention to this group of cherries as well as to sweets.

Comparison with other orchard crops. A comparison of cherry trees in bearing with those of the other principal orchard crops of the state discloses that cherries occupy a position fourth in importance. Prunes (including plums) are far in the lead. Apples come next, followed by pears, after which come cherries. That the bearing acreage of cherries is slated to play a relatively more important role in the near future is brought out

RELATIVE IMPORTANCE OF PRINCIPAL ORCHARD FRUITS IN OREGON, 1930

(BASIS, NUMBER OF TREES BEARING AND NON-BEARING AGE)

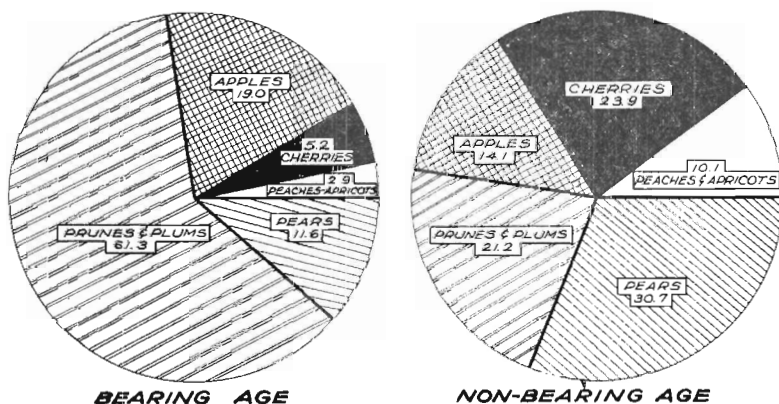


Figure 1

¹Table VI, page 13.

TABLE I. CHERRIES: NUMBER OF TREES OF BEARING AND NON-BEARING AGE, BY GEOGRAPHIC DIVISIONS AND STATES IN THE UNITED STATES, 1890-1930*

Geographic division and state	Trees of bearing age					Trees of non-bearing age		
	1890	1900	1910	1920	1930	1910	1920	1930
<i>New England</i>								
Total	54,816	71,986	68,236	70,830	42,860	32,587	42,868	14,733
<i>Middle Atlantic</i>								
New York	391,446	539,742	673,989	1,027,203	875,753	342,959	279,864	352,026
New Jersey	35,452	88,906	102,124	101,542	50,928	36,743	32,614	10,238
Pennsylvania	465,867	956,273	1,075,031	951,924	600,889	280,251	217,046	192,957
Total	892,765	1,584,921	1,851,144	2,080,669	1,527,570	659,953	529,524	555,221
<i>North Central</i>								
Ohio	368,311	697,270	1,144,271	805,838	399,365	342,328	195,187	136,575
Indiana	617,168	896,641	815,742	475,333	139,448	251,959	132,006	50,174
Illinois	288,836	727,973	843,283	536,458	188,057	239,605	217,124	60,248
Michigan	447,334	895,375	760,183	1,076,748	1,187,028	540,580	351,892	994,786
Wisconsin	75,670	273,740	290,495	437,480	454,793	148,775	84,215	264,595
Iowa	199,067	791,327	908,764	391,226	187,566	229,352	130,199	64,488
Missouri	381,185	679,985	622,332	522,026	160,181	247,425	333,180	83,800
Nebraska	175,944	607,017	494,468	289,221	207,230	267,529	120,194	101,882
Kansas	1,087,890	1,109,673	661,267	395,436	208,490	237,051	184,093	128,180
All others	3,429	41,437	81,828	86,363	49,318	136,176	66,848	26,426
Total	3,644,834	6,720,438	6,622,633	5,016,129	3,181,476	2,640,780	1,814,938	1,911,154
<i>South Atlantic</i>								
Virginia	132,631	269,690	352,783	236,199	179,382	83,323	55,251	40,996
West Virginia	126,307	300,363	332,429	284,739	249,567	124,567	81,504	66,859
North Carolina	111,774	174,295	168,065	158,187	181,116	74,111	71,880	76,551
All others	85,700	296,858	210,548	207,230	105,589	82,117	76,368	48,183
Total	456,412	1,041,206	1,063,825	886,355	715,654	364,118	285,003	232,589

<i>South Central</i>								
Kentucky	131,089	237,612	212,118	171,604	87,620	102,766	72,596	63,642
Tennessee	68,715	217,917	201,830	220,625	168,171	128,406	98,714	119,586
Arkansas	33,083	109,001	60,046	82,921	32,030	47,556	65,264	22,651
Oklahoma	30	404,758	295,042	145,832	122,709	150,541	101,091	75,970
All others	29,774	134,515	69,728	53,458	61,020	70,412	39,225	71,920
Total	262,691	1,103,803	838,764	674,440	471,550	499,681	376,890	353,769
<i>Mountain</i>								
Colorado	4,085	127,001	203,806	348,832	286,111	319,624	74,799	230,218
Idaho	2,480	50,778	61,881	117,672	100,524	95,423	25,877	47,835
Utah	4,259	66,215	79,775	112,695	110,050	109,119	7,646	114,230
Montana	806	20,164	19,938	65,633	31,930	24,237	4,073	26,490
All others	4,537	22,211	25,244	32,766	31,281	33,238	22,969	15,693
Total	16,167	286,369	390,644	677,598	559,896	581,641	135,364	434,466
<i>Pacific</i>								
Washington	22,852	210,516	241,038	329,187	461,484	229,067	72,976	304,864
Oregon	51,277	237,155	223,456	395,073	446,106	313,770	89,396	371,956
California	236,945	686,891	522,304	657,470	974,876	300,063	347,572	436,534
Total	311,074	1,134,562	986,798	1,381,730	1,882,466	842,900	509,944	1,113,354
United States total	5,638,759	11,943,287	11,822,044	10,787,751	8,381,472	5,621,660	3,694,531	4,615,286

*Sources of Information:

Year 1890: Eleventh Census of the United States, 1890, as recorded in House Misc. Documents, 1st Session, 52nd Congress, 1891-92, Vol. 50, pt. 10, pg. 498.

Year 1900: Twelfth Census of the United States, 1900, Vol. VI, Agriculture, Pt. II, Crops and Irrigation, pg. 617.

Year 1910: Thirteenth Census of the United States, 1910, Vol. V, Agriculture, General Report and Analysis, pg. 709.

Year 1920: Fourteenth Census of the United States, 1920, Vol. V, Agriculture, General Report and Analytical Tables, pg. 867. (Also summarizes 1910 Census figures.)

Year 1930: Fifteenth Census of the United States, 1930, Agriculture, Second Series, by states.

in the circle chart (Figure 1) where trees of non-bearing age are compared for the fruits just mentioned. Compared to the number of trees in bearing, which is only 5 per cent of the total of these principal orchard crops, non-bearing cherry trees constitute nearly 24 per cent of the total non-bearing and occupy a position only second to that of pears in importance, the latter taking first rank.

Kinds of cherries in Oregon. Turning next to a consideration of the relative importance of cherries by kind in Oregon (Figure 2, Tables V and VI), it is found that in 1930, 92 per cent of the cherry trees of all ages

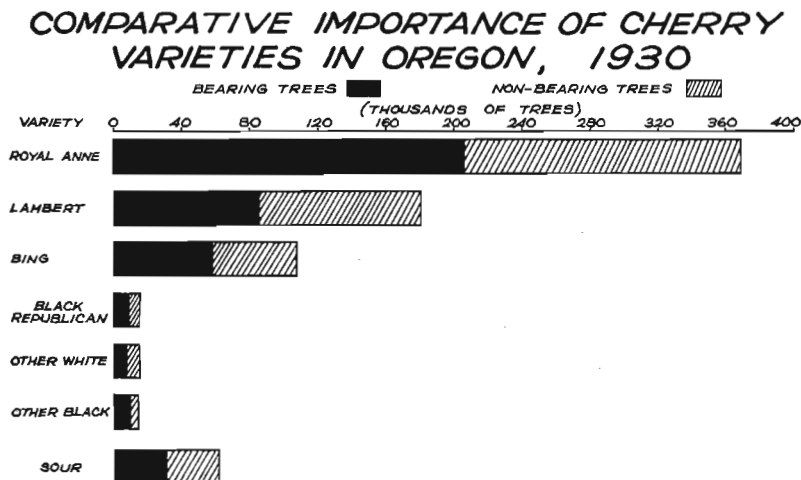


Figure 2

were sweets, the remainder being sour. Of the total sweets of all ages, 45 per cent were blacks, of which 34.6 per cent were of the Bing variety, 56.7 per cent Lamberts, 4.6 per cent Black Republicans, and the remainder "Other blacks." Of the white varieties, 96 per cent were Royal Anns.

NATIONAL AND REGIONAL TRENDS IN PLANTINGS AND PRODUCTION

The production of sour cherries other than the relatively few that are grown in Washington, Oregon, and Utah is limited to the region of the United States lying east of the Rocky Mountains.¹ With the exception of small quantities grown in New York and Michigan, and two or three other states producing trivial amounts, the sweet cherry, both black and white, is found only in the region west of the Rockies, chiefly in California, Oregon, and Washington, but with substantial acreages in Idaho and Utah.²

¹The intermountain state, Colorado, is of considerable importance, and Montana is of growing importance.

²S. W. Shear of the Giannini Foundation, University of California, in an unpublished article on Sour Cherries in 1929, states: "Probably only about 10% of the present cherry production of the Pacific Northwest consists of sour. Probably less than 10% of the crop in the rest of the United States is made up of sweets."

Sour cherries. In using United States census figures in an effort to ascertain the importance of the different regions in the plantings and production of either sour or sweet cherries it must be borne in mind that these statistics do not segregate cherries by kind. The figures are for all cherries, as set forth in Tables I, II, and IV. Since the region east of the Rockies is probably responsible for from 5 to 10 per cent of the sweets grown in the United States, census figures will give only a rough approximation to the true figures covering trends in plantings of sours in the leading commercial states.

TABLE II. CHERRIES: PERCENTAGE DISTRIBUTION OF TREES OF BEARING AND NON-BEARING AGE, BY GEOGRAPHIC DIVISIONS IN THE UNITED STATES, 1890-1930*

Geographic divisions	Trees of bearing age					Trees of non-bearing age		
	1890	1900	1910	1920	1930	1910	1920	1930
	%	%	%	%	%	%	%	%
New England	1.0	.6	.6	.7	.5	.6	1.2	.3
Middle Atlantic	15.8	13.3	15.6	19.3	18.2	11.7	14.3	12.0
East North Central.....	31.9	29.2	32.6	30.9	28.3	27.1	26.5	32.6
West North Central.....	32.8	27.0	23.4	15.6	9.7	19.9	22.6	8.8
South Atlantic	8.1	8.7	9.0	8.2	8.5	6.5	7.7	5.1
East South Central	3.8	4.4	3.8	3.9	3.3	4.6	5.1	4.5
West South Central.....	.8	4.8	3.3	2.3	2.3	4.3	5.1	3.2
Mountain .....	.3	2.4	3.3	6.3	6.7	10.3	3.7	9.4
Pacific	5.5	9.6	8.4	12.8	22.5	15.0	13.8	24.1
United States total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Pacific, by States</i>								
Oregon .....	.4	2.1	1.9	3.7	5.3	5.6	2.4	8.0
Washington .....	.9	1.8	2.0	3.0	5.5	4.1	2.0	6.6
California	4.2	5.7	4.5	6.1	11.7	5.3	9.4	9.5
Total	5.5	9.6	8.4	12.8	22.5	15.0	13.8	24.1

*Computed from data in Table I.

According to census figures (Table I) the leading sour-producing states arranged in the order of their importance are Michigan, New York, Pennsylvania, Wisconsin, Ohio, and Colorado. It is understood, however, that Wisconsin is much more important commercially than Pennsylvania since most of the acreage in the latter state is of the family-orchard type.¹ To a somewhat less extent the same appears true of Ohio; hence Colorado may be more important commercially.² Michigan, New York, and Wisconsin are recognized by the trade as the three most important commercial producing states. It is estimated that in 1930 there were in the neighborhood of 9,628,300 sour cherry trees of all ages in the United States,³ of which 34.7 per cent were non-bearing. Of the total trees of all ages, the

¹Wisconsin's average production during the past five years has been slightly greater than that of Pennsylvania (Table III).

²S. W. Shear places Colorado fourth in production.

³The method of calculation was to compute from the census (Table I) the total number of trees for all states except California, Oregon, Washington, Idaho, and Utah, which produce principally sweet cherries. It is thought that the small acreage of sweets grown in New York and Michigan is roughly offset by the small acreage of sours grown in Oregon, Washington, and Utah. California does not produce sours in commercial quantities, and Idaho's commercial production is of minor importance.

TABLE III. CHERRY PRODUCTION BY STATES IN THE UNITED STATES, 1919-1931*

Year	Pacific Northwest				Total California and North-west	Utah	Colorado	States specified				Other states	United States total
	Oregon	Washington	Idaho	Total				New York	Michigan	Wisconsin	Total		
1919	7,600	6,300	2,300	16,200	32,500	3,100	4,100	4,200	9,000	4,000	17,200	41,700	98,600
1920	6,500	6,000	2,500	15,000	32,600	2,000	900	14,500	11,000	3,000	28,500	70,000	134,000
1921	3,500	7,000	1,500	12,000	25,000	1,000	3,900	4,000	6,000	5,500	15,500	30,000	75,400
1922	6,000	7,000	3,000	16,000	33,000	5,000	5,700	15,000	23,500	6,000	44,500	80,000	168,200
1923	9,000	7,500	2,800	21,300	40,300	5,500	6,000	13,500	18,500	3,500	35,500	70,000	168,200
1924	10,400	4,800	1,700	16,900	30,400	3,800	8,000	17,500	16,500	3,600	43,600	70,000	148,600
1925	7,200	8,400	2,400	18,000	30,000	5,500	3,900	15,300	11,600	3,600	30,500	50,000	119,900
1926	15,100	10,500	3,200	28,800	48,800	5,300	7,600	16,400	13,800	9,700	39,900	80,000	181,600
1927	11,300	4,100	1,300	16,700	28,700	3,800	4,500	10,500	6,800	3,200	20,500	30,000	87,500
1928	11,500	9,700	3,100	24,300	42,800	4,600	1,700	9,600	21,500	10,300	41,400	70,000	160,500
1929	8,500	15,550	3,100	27,150	43,450	3,200	5,100	14,670	15,750	4,600	35,020	6,360	93,130
1930	12,640	16,500	3,200	32,340	49,840	3,500	3,500	25,000	21,100	5,200	51,300	7,110	115,250
1931	9,000	10,000	3,000	22,000	45,000	2,000	2,500	17,000	22,500	6,000	45,500	13,090	108,090
Average 1919-21	5,867	6,433	2,100	14,400	30,033	2,033	2,967	7,566	8,667	4,167	20,400	47,233	102,666
1929-31	10,047	14,017	3,100	27,164	46,096	2,900	3,700	18,890	19,783	5,267	43,940	8,853	105,490

PERCENTAGES

1919	7.7	6.4	2.3	16.4	16.5	3.1	4.2	4.3	9.1	4.1	17.5	42.3	100.0
1920	4.8	4.5	1.9	11.2	24.3	1.5	.7	10.8	8.2	2.3	21.3	52.2	100.0
1921	4.6	9.3	2.0	15.9	33.1	1.3	5.2	5.3	8.0	7.3	20.6	39.8	100.0
1922	3.6	4.2	1.8	9.6	19.7	3.0	3.4	8.9	14.0	3.5	26.4	47.5	100.0
1923	5.9	6.2	1.9	14.0	26.5	3.6	3.5	8.9	12.1	2.3	23.3	42.7	100.0
1924	7.0	3.2	1.2	11.4	20.5	2.5	3.5	11.8	11.1	6.5	29.4	47.1	100.0
1925	6.0	7.0	2.0	15.0	25.0	4.6	3.2	12.8	9.6	3.0	25.4	41.7	100.0
1926	8.3	5.8	1.8	15.9	11.0	2.9	4.2	9.0	7.6	5.3	21.9	44.1	100.0
1927	12.9	4.7	1.5	19.1	32.8	4.3	5.2	12.0	7.8	3.6	23.4	34.3	100.0
1928	7.2	6.0	1.9	15.1	26.6	2.9	1.1	6.0	13.4	6.4	25.8	43.6	100.0
1929	9.1	16.7	3.3	29.1	46.6	3.5	5.5	15.8	16.9	4.9	37.6	6.8	100.0
1930	11.0	14.3	2.8	28.1	43.3	3.0	3.0	21.7	18.3	4.5	44.5	6.2	100.0
1931	8.3	9.3	2.8	20.4	41.7	1.9	2.3	15.7	20.8	5.3	42.0	12.1	100.0
Average 1919-21	5.7	6.3	2.0	14.0	29.2	2.0	2.9	7.4	8.4	4.1	19.9	46.0	100.0
1929-31	9.5	13.3	2.9	25.7	43.7	2.7	3.5	17.9	18.8	5.0	41.7	8.4	100.0

*Source of Information: 1919 to 1923 inclusive taken from figures of S. W. Shear, Giannini Foundation; 1924 to 1928 inclusive taken from figures of Year-book of Agriculture, 1931. 1929 to 1931 inclusive taken from figures of Crop Report, U. S. Department of Agriculture, December 16, 1931.

†Figures for 1929, 1930 and 1931 are the revised figures.

states of Michigan, New York and Wisconsin were responsible for 42.9 per cent, Michigan's proportion being 22.7 per cent, New York's 12.7 per cent, and Wisconsin's 7.5 per cent.

In terms of production these three states contributed on an average nearly 78 per cent of the United States output of sours during the period 1929 to 1931 (Table III).¹ Michigan's share of the total was 35 per cent, New York's 33.4 per cent, and Wisconsin's 9.3 per cent.

Compared to these states Oregon's plantings of sours appear insignificant. Trees of all ages of this kind in Oregon in 1930 are estimated at 65,445. This is but .68 per cent of the United States total. Washington's sour cherry trees of all ages, amounting to 266,690 trees² in 1930, are 2.8 per cent of the United States total. Both states are doubtless more important commercially than these percentages would indicate.

What has been the trend in sour cherry acreage and production? The belief is wide-spread that taking the country as a whole considerable expansion has occurred. The available statistics as set forth in Tables I and III fail to bear this out: Calculations based on Table I indicate a decline of 22 per cent in trees of all ages from 1920 to 1930. Those based on Table III disclose a decline of 20 per cent in average production from 1919-1921 to 1929-1931 inclusive. Aside from Oregon, Washington, and Utah, the only states to register an increase in the number of trees of all ages from 1920 to 1930 were Michigan, Wisconsin, and Colorado, this increase averaging 44 per cent (Table I). The other sour cherry producing states suffered a decline of 37.6 per cent. This was of sufficient proportions to lead to a net loss for the country as a whole, as already stated. During the period in question both bearing and non-bearing acreage declined except in the states of Michigan, New York, Wisconsin, Colorado, Washington, Oregon, and Utah. The decline in trees in bearing for the other sour cherry producing states averaged nearly 45 per cent and for non-bearing trees nearly 37 per cent.

In the commercially important states of Michigan, New York, Wisconsin, and Colorado, trees in bearing declined nearly 3 per cent between the years 1920 and 1930, and non-bearing trees increased nearly 133 per cent. Of this group Michigan and Wisconsin had increases in both bearing and non-bearing acreage, while New York and Colorado suffered declines in bearing acreage but had increases in non-bearing. New York's trees in bearing declined 15 per cent but its trees of non-bearing age increased nearly 26 per cent. In trees of all ages she suffered a net decline of 6 per cent. Colorado showed a loss of 18 per cent in trees of bearing age but experienced a gain of nearly 208 per cent in trees of non-bearing age. In trees of all ages there was a net increase of nearly 22 per cent. Michigan experienced a gain of trees in bearing of more than 10 per cent and in non-bearing of nearly 183 per cent. This gain raised the total non-bearing trees of the country's most important sour cherry producing state to nearly a million in 1930 and raised the percentage of non-bearing to bearing trees

¹United States total computed by taking cherry production for all states except California, Oregon, Washington, Idaho, and Utah.

²An estimate calculated by taking 34.8 per cent of the trees of all ages as shown in the U. S. Census for Washington. This represents the percentage of sour cherry trees of all ages in Washington as developed in Table VII, page 14.

TABLE IV. CHERRIES: NUMBER OF TREES OF BEARING AND NON-BEARING AGE, OREGON AND FIVE WESTERN STATES, 1890-1930*

Year	Trees of bearing age		Trees of non-bearing age		Oregon as a percentage of five western states	
	Oregon	Five west-ern states†	Oregon	Five west-ern states†	Bearing age	Non-bearing age
	<i>Trees</i>	<i>Trees</i>	<i>Trees</i>	<i>Trees</i>	%	%
1890..	51,277	317,813	-----	-----	16.1	-----
1900..	237,155	1,251,555	-----	-----	18.9	-----
1910..	223,456	1,128,454	313,770	1,047,442	19.8	30.0
1920..	395,073	1,612,097	89,396	543,467	24.5	16.4
1930..	446,106	2,093,040	371,956	1,275,419	21.3	29.2

*United States Federal Census data. For detailed references see footnote, Table I.

†Includes California, Oregon, Washington, Idaho, and Utah. See also Table I.

from nearly 33 per cent in 1920 to nearly 84 per cent in 1930. In Wisconsin there was a gain of 4 per cent in trees in bearing and a gain of more than 214 per cent in non-bearing trees. The proportion of non-bearing to bearing rose from 19 per cent in 1920 to 58 per cent in 1930.

Statistics are not available for making comparisons between the years 1920 and 1930 for Oregon, Washington, and Utah, the only far western states where sour cherries are grown in commercial quantities. As far as Oregon is concerned nearly 46 per cent of the sour cherry trees of all ages were non-bearing in 1930 (Table V).¹

According to the statement of one of the leading and best informed canners in that state, the number of sour cherry trees planted in Washington has increased very greatly during the past ten years, probably five-fold, the largest plantings taking place within the past five years. He estimates that within five years the production of sour cherries will be three times the present (1931) production.^{2, 3} Of Washington's cherry trees of all ages 35 per cent are sour. (Table VII.)

On the basis of a calculation derived from United States census figures for 1930⁴ it appears that Utah's acreage of sour was only slightly less than that of Oregon—namely, 59,622 trees as against 65,445⁵ for Oregon. Of Utah's total more than 59 per cent are estimated to have been non-bearing at that time. Nearly 27 per cent of her total cherry trees of all kinds were sour.

¹On the basis of a sample census taken by F. L. Kent, Agricultural Statistician, U. S. Bureau of Agricultural Economics, Portland, Oregon, 1929, and adjusted to United States Census figures, it is estimated that 6 per cent of the total cherry trees of all ages in Oregon were sour in 1920.

²Letter from L. M. Hatch, President, The Puyallup and Sumner Fruit Growers Association, October 22, 1931.

³There is the following statement by H. D. Locklin, Horticulturist, Western Washington Experiment Station, contained in an article entitled "Sour Cherry Growing in Puget Sound District" found in *Better Fruit*, January, 1931: "The Washington State Department of Agriculture reports that in 1922 there were in western Washington 129,436 cherry trees. At least 95% of these were sour cherries. In 1926 the number had increased to 168,701. The total for 1930 is tentatively set as 286,969 trees. Using 1922 as a basis, there would be an average annual increase for the last 8 years of 19,691 trees per year, and if set 108 trees (20x20 ft.) an annual acre increase of approximately 182 acres."

⁴Computed by applying to the United States Census a percentage figure for sour to total of all cherry trees contained in a sample census of Utah cherry trees covering 50 orchards made April, 1931, by the Division of Crop and Livestock Estimates of the Bureau of Agricultural Economics, Salt Lake City, Utah.

⁵Computed by taking 8 per cent of the total cherry trees of all ages as given in the United States Census.

TABLE V. SUMMARY OF CHERRY VARIETIES IN OREGON
AS OF APRIL 1, 1930*

Variety	Number of trees†			Percentages of total		
	Bearing age	Non-bearing age	Total all ages	Bearing age	Non-bearing age	All ages
				%	%	%
Bing	56,149	53,667	109,816	51.1	48.9	100.0
Lambert	88,350	91,761	180,111	49.1	50.9	100.0
Black Republican	8,723	5,719	14,442	60.4	39.6	100.0
Other Black	8,100	4,996	13,096	61.9	38.1	100.0
Total Black	161,322	156,143	317,465	50.8	49.2	100.0
Royal Ann	224,235	147,721	371,956	60.3	39.7	100.0
Other White	8,015	7,400	15,415	52.0	48.0	100.0
Total White	232,250	155,121	387,371	60.0	40.0	100.0
Total Sweet	393,572	311,264	704,836	55.8	44.2	100.0
Sour Varieties	33,199	27,818	61,017	54.4	45.6	100.0
Total Cherries	426,771	339,082	765,853	55.7	44.3	100.0

*Information taken from Table X. Represents more than 95 per cent of the state total number of bearing trees, and about 91 per cent of the non-bearing trees, as revealed by the United States Census.

†Sweet cherries 7 years of age and under are considered non-bearing; all over 7 years, bearing. Sour cherries 5 years and under are considered non-bearing; over 5 years of age, bearing.

Plantings since April 1, 1930, are estimated to be as follows (based on replies from inquiries made to county agents, horticultural fruit inspectors, nurserymen, etc., during the latter part of 1931):

Clackamas, Multnomah, Marion, and Linn counties, replacements only;
Columbia, Washington, Yamhill, and Benton counties, none of any consequence;
Lane county, 7000 trees Montmorency sour cherries and 3000 trees sweet cherries (mostly Royal Ann);
Polk county, 1000 trees;
Hood River, 10,000 trees (Lambert 60 per cent, Bing 15 per cent, Royal Ann 25 per cent);
Wasco, 6,000 trees;
Union, 5,000 trees;
Umatilla, plantings 5 per cent above replacements.

Cherries in Oregon average about 54 trees per acre, according to reports which were received in this inquiry.

TABLE VI. PERCENTAGE DISTRIBUTION CHERRY VARIETIES
IN OREGON, APRIL 1, 1930*

Variety	Number of trees		
	Bearing age	Non-bearing age	All ages
Bing	13.2	15.8	14.3
Lambert	20.7	27.1	23.5
Black Republican	2.0	1.7	1.9
Other Black	1.9	1.5	1.7
Total Black	37.8	46.1	41.4
Royal Ann	52.5	43.5	48.6
Other White	1.9	2.2	2.0
Total White	54.4	45.7	50.6
Total Sweet	92.2	91.8	92.0
Sour Varieties	7.8	8.2	8.0
Total	100.0	100.0	100.0

*Data based on Table V.

Not only is it important for producers and packers in Oregon and Washington to follow developments in Utah, but Colorado and possibly Montana also bear watching as shippers in these states may endeavor to penetrate markets for red sours on the Pacific Coast.¹ The situation in Colorado has already received attention.² The United States census for 1930 (Table I) shows 58,420 trees of all ages for Montana. It is thought that more than 60 per cent of these were sours as it is understood that some 400 acres have been devoted to sweets.³ More than 45 per cent of the 58,420 trees were non-bearing. A horticulturist in the State College of that state believes these figures to be an understatement, and estimates that "during each of the last four years . . . some 35,000 to 50,000 sour cherry trees have been put out each spring."⁴

TABLE VII. CHERRIES: NUMBER OF TREES BY VARIETY AND YEAR OF PLANTING, STATE OF WASHINGTON, 1930-1931*

Variety	Years of planting						Total
	1929-30	1927-28	1924-26	1921-23	1916-20	1915 and older	
Bings	36,327	47,589	53,279	22,724	10,992	59,366	230,277
Lamberts	7,789	11,031	14,149	8,758	3,947	18,979	64,653
Black Republicans	483	63	140	24	2	504	1,216
Royal Anns	10,152	9,087	13,217	7,786	4,704	29,493	74,439
Miscellaneous Sweets	4,064	5,163	6,209	5,998	5,304	19,171	45,909
Total Sweets	58,815	72,933	86,994	45,290	24,949	127,513	416,494
Total Sours†	54,229	30,060	46,752	48,572	26,412	16,328	222,353
Grand Total	113,044	102,993	133,746	93,862	51,361	143,841	638,847
<i>Percentages</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
Bings	32.1	46.2	39.8	24.2	21.4	41.3	36.0
Lamberts	6.9	10.7	10.6	9.3	7.7	13.2	10.1
Royal Ann	9.0	8.8	9.9	8.3	9.2	20.5	11.7
Other Sweets	4.0	5.1	4.7	6.4	10.3	13.7	7.4
Total Sweets	52.0	70.8	65.0	48.2	48.6	88.7	65.2
Total Sours	48.0	29.2	35.0	51.8	51.4	11.3	34.8
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data summarized from 1931 Orchard Census reports of State Department of Agriculture, Olympia, Washington. Includes more than 83% of State total as found in the 1930 U. S. Census, Table I.

†Montmorency cherries make up about 96% of this total.

The foregoing analysis of trends in sour cherry acreage and production throughout the country reveals a noteworthy tendency toward concentration of cherry production on a commercial scale in the states of Michigan, New York, and Wisconsin, and to some extent, Colorado. A shift from the family-orchard type of production for home and local consumption, characterized by small acreages on numerous farms distributed over nearly all the states of the Union, to production for the market on farms of larger acreages specializing in cherries in regions more highly adapted to the production of this fruit, seems to have been taking place.

There is no evidence of increased production per capita for the country as a whole. Quite the contrary. In fact, as stated earlier,⁵ there was a

¹In the past, so far as can be ascertained, Pacific Coast markets have not been invaded to any appreciable extent.

²See page 11.

³Allowing 54 trees to the acre.

⁴Letter from F. M. Harrington, Department of Horticulture, Montana State College, Bozeman, Montana, October 13, 1931.

⁵Page 11.

decline of 22 per cent in trees of all ages from 1920 to 1930 and a decline of 20 per cent in production during approximately the same period. It is rather that in the process of commercialization of the sour cherry industry, a shift in producing areas has taken place. Production is becoming concentrated in a few centers. The increasing difficulties encountered in recent years by producers in the important commercial regions in their efforts to market red sour cherries is in part attributable to the fact that in areas where cherry production has been going out, consumers have evidently not continued consumption in former quantities. Shifts in points of production, bringing in their wake this commercialization, appear to be taking place more rapidly than adequate consumer demand can be built up in the larger population centers to offset declining consumption in the rural areas where cherries were formerly consumed because home grown. These difficulties have of course been enormously accentuated by reason of the collapse in consumer demand provoked by the recent business recession.

The large proportion of acreage not yet in bearing in the important commercial producing states brings up the question whether markets in consuming centers can be broadened with sufficient rapidity to absorb, at prices that will prove remunerative to growers, the rapidly increasing tonnage that is destined for those markets. In years past, for lack of an adequate market on the Pacific Coast substantial quantities of sour cherries in canned form have been shipped east from Oregon and Washington. If the large surpluses impending in states like Michigan, Wisconsin, New York, and Colorado actually materialize, it is scarcely to be hoped that supplies from Oregon and Washington can be absorbed upon these middlewestern and eastern markets at satisfactory prices.¹ This would appear to be true even in the absence of a business depression.

The prospects for finding an outlet in these markets might be brighter were Oregon and Washington sour cherries markedly superior in quality to those grown in the important commercial areas east of the Rockies, but such does not appear to be the case. A canvass of leaders in the trade raises a question whether western sour cherries are quite the equal of the eastern grown cherries, particularly from the standpoint of color and firmness of texture.²

This being the situation, and taking into account the additional handicap of the higher freight rates that western producers must bear,³ the

¹Speaking of the new plantings in Wisconsin and Michigan, Mr. Goff, President of the Fruit Growers' Union Cooperative, Sturgeon Bay, Wisconsin, stated: "In the Wisconsin area, 1925 saw enough trees planted to make 350 additional acres; 1926 saw 525; 1927, 750; 1928, 950; 1929, 1,100; and 1930, 1,800. None of this is now in bearing, yet it will more than replace every bearing tree in the Door County region. In Michigan, in March, 1930, a count of the grower contractors of our organization showed in their orchards 158,000 trees over five years of age, and 216,000 under five years. That does not include 1930 plantings. New York acreage is expanding, Colorado plantings are on the increase, and cherry sections are beginning to develop elsewhere in the United States. If every bearing cherry tree in the country were to be destroyed tomorrow, four years from now would probably see a greater production of cherries than we have today." See M. B. Goff, "Organization in the Cherry Industry of Wisconsin and Michigan," *American Cooperation*, 1930, Volume 11, page 92.

²On this point note the following statement of Mr. L. M. Hatch: "The opinion is quite widespread that red sour cherries produced in Michigan, Wisconsin and New York are superior to those produced in the Pacific Northwest. The claim is made that these cherries have a better color and are firmer. There is some evidence that this condition is well founded." Letter, November 16, 1931.

³Mr. L. M. Hatch, in an address before the Puyallup Commercial Club, March, 1930, stated: "The Pacific Northwest has a handicap of about $\frac{1}{2}$ a pound in transportation to competitive territory (not quite so much to the Atlantic Seaboard), hence must be able to secure better yields to compete successfully. It is doubtful if this handicap can be entirely overcome."

long-run policy of growers of sour cherries in the far West should clearly be that of limiting production to Pacific Coast consumption requirements. These requirements already appear to have been exceeded.¹ Even if prices should at some time in the future rise to attractive levels in markets normally tributary to middlewestern and eastern points of production it would still be unwise for producers in the far West to expand their production to the point where shipments into those markets might be made necessary. The slack in supply would immediately be taken up through expansion in production on the part of the producers located in those favored production areas.

The per capita consumption of sour cherries in the Pacific Coast area appears to be somewhat smaller than that prevailing east of the Rockies. Using trees in bearing in 1930 as an index (a rather poor index, to be sure), the production of the three chief sour cherry producing states in the far West—namely, Oregon, Washington, and Utah—would figure out to less than 3 per cent of the United States total. But the population of the consuming states normally tributary to those producing states, let us say the population of California, Arizona, Nevada, and Idaho (besides that of the producing states themselves), would aggregate 8 per cent of the total population of the United States in that year.² The apparent failure of the population on the Pacific Coast to consume as high a proportion of sour cherries as is done east of the Rockies may be due to the nearness of a vast supply of competing fruits. Members of the trade report a decided indifference toward the consumption of red sour cherries in such population centers as San Francisco and Los Angeles. Efforts need to be made to overcome this apathy if growers are to dispose of growing surpluses at prices that are not disastrously low.

Sweet cherries. As previously stated,³ except for a small percentage of sweet cherries grown in the states of Michigan and New York,^{4,5} virtually all of the acreage of this type of cherry is located (in the order of importance) in California, Oregon, Washington, Idaho, and Utah. In 1930, 28 per cent of all cherry trees of non-bearing age in the United States and 25 per cent of the bearing were to be found in these far-western states. Of the cherry trees of all ages in these five western states, about 11 per cent were estimated to be sour and were to be found in the states of Washington, Oregon, and Utah.⁶ Cherry trees of all ages found in the five sweet cherry producing states of California, Oregon, Washington, Idaho, and Utah, according to the 1930 census, totaled 3,368,459 (Table IV). To arrive at the number of trees of sweets of all ages it is necessary to

¹Mr. L. M. Hatch, letter, November 16, 1931: "So far as we can determine, there are now produced more red sour cherries in the Pacific Northwest than can be consumed upon the Pacific Coast. We have been shipping varying quantities of cherries into the western portion of the Midwest for the past year or two. This statement particularly applies to canned cherries. To the present time we believe that practically all the cold pack cherries packed in the Pacific Northwest have been consumed on the Coast, a very large percentage of which have gone to California."

²It appears undesirable to include Colorado and Montana among the producing states serving this consuming territory as shipments out of these states are not thought to have gone to Pacific Coast markets in appreciable quantities.

³Page 8.

⁴Advices are that acreages devoted to sweets are on the decline in both Michigan and New York.

⁵According to advices some 400 acres in plantings are also found in Montana. Pennsylvania also produces a small quantity.

⁶In 1930, 35 per cent of Washington's total cherry trees of all ages were estimated to be in sour, Oregon's 8 per cent, and Utah's 27 per cent.

deduct the number of sour cherry trees of all ages growing in Washington, Oregon, and Utah, estimated at 394,223, leaving 2,974,236. About 47 per cent of this total is attributable to California, 25 per cent to Oregon, 17 per cent to Washington, 6 per cent to Utah, and 5 per cent to Idaho.

In considering trends from 1920 to 1930 in numbers of sweet cherry trees both bearing and non-bearing for the five western states, the United States census figures (Table IV) will have to be used as they stand without attempting to make allowance for sour cherry trees existing in those states in 1920 or 1930. It is quite certain that those existent in 1920 did not exceed the percentage found in 1930, namely about 11 per cent.¹ The use of the census figures as they stand, though faulty, will provide at least a rough index of trends in the acreage of the sweet cherry. Reference to Table IV indicates that for trees of all ages there was an increase of 56 per cent in the five western states during the period in question. Trees in bearing increased 30 per cent, non-bearing trees 135 per cent. In 1930 the ratio of non-bearing to bearing trees was 61 per cent; in 1920 it was but 34 per cent.

If trends in production are examined over this ten-year period (Table III²) an increase of 53 per cent is indicated. This may be compared with the increase of 30 per cent in trees of bearing age referred to in the preceding paragraph, and denotes a substantial increase in yield per tree for the five western states as a whole.

CHERRIES: NUMBER OF TREES OF BEARING AND NON-BEARING AGE, OREGON AND FIVE WESTERN STATES 1890-1930

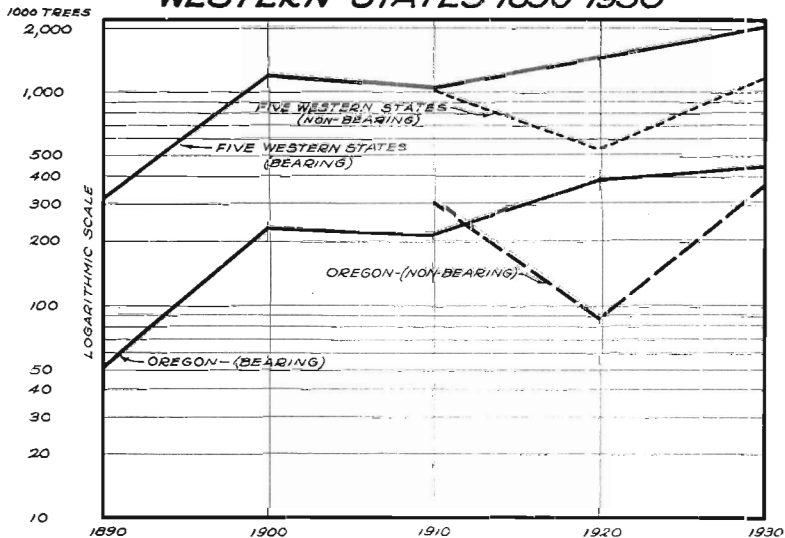


Figure 3

¹Oregon's proportion of sour cherry trees of all ages is estimated at 6 per cent of her total cherry trees of all ages in 1920.

²The figures in Table III are for all cherries and allowance must be made for the presence of sour.

These statistical comparisons indicate the rapidity with which expansion in sweet cherries has been taking place and point to the large acreage yet to come into bearing.

It is of interest also to compare trends in trees of bearing and non-bearing age between Oregon, on the one hand, and the five western states on the other. This is done in Figure 3 and Table IV. During the decade from 1920 to 1930 Oregon's proportion of trees of bearing age declined from 24.5 per cent to 21 per cent, but her share of trees of non-bearing age increased from 16 per cent to 29 per cent. Oregon's proportion of trees of all ages increased from 22.5 per cent to 24 per cent.

The greater relative growth registered in Oregon has been accompanied by a smaller relative growth in California, where the largest acreage is grown. When compared to the five western states the latter state lost ground from 1920 to 1930. For the group as a whole, as previously stated,¹ there was an increase of 56 per cent in trees of all ages. California's increase was limited to 40 per cent (Table I). Her relative decline in trees of non-bearing age has been quite striking. In the five western states these increased 135 per cent, while California's increase was but 26 per cent. Trees in bearing in the five western states increased 30 per cent;² those of California increased 48 per cent. California has also experienced a downward trend in yield over the past decade. The increase in average production was but 21 per cent from 1919-21 to 1929-31 (Table III), in contrast to a gain of 48 per cent in trees in bearing (Table I).

It is understood that little or no new acreage of sweet cherries was planted in 1931³ in any of the five western states. The suspension in planting was a natural accompaniment of business depression and low prices.

Sweet cherry varieties in Oregon. In 1930 as previously stated,⁴ 45 per cent of the sweet cherry trees of all ages in Oregon were blacks, the remainder being whites. The percentage of trees of non-bearing age as of 1930 was very large for both kinds. In the case of blacks it roughly equaled that of the bearing; for whites it amounted to 40 per cent of all white cherry trees. Of the two important varieties of blacks the percentage of non-bearing Bings and Lamberts to their respective totals showed about the same proportion as prevailed for all blacks. The same was roughly true of the percentage of Royal Anns that were non-bearing as compared to those that were non-bearing in the case of all whites.

Official statistics revealing the relative importance of the various kinds of sweet cherries grown in California are lacking. Information obtained from a private source⁵ indicates that blacks and whites are about evenly divided, the acreage of whites being a little less but production a little greater. The whites are said to be practically all Royal Anns. The blacks, according to this source of information, are found in the following proportions: Tartarians, 35 per cent; Bings, 35 per cent; Lamberts, 10 per

¹Page 17.

²Advices from California indicate that growers in that state are showing a growing preference for the production of black cherries rather than Royal Anns. In concentrating on shipping varieties they doubtless hope to escape most of the competition that is encountered from the Pacific Northwest in marketing Royal Anns in processed form. Letter, Guy L. Philip, Associate in Pomology, University of California, Davis, California.

³The same statement will doubtless hold true for 1932.

⁴Page 8.

⁵E. A. Smith, California Cherry Growers Association, Letter, February 5, 1932.

cent; Black Republicans, 10 per cent; Chapmans, 5 per cent; miscellaneous, 5 per cent.

In Washington, according to a census taken by the State Department of Agriculture in 1931, 71 per cent of all sweet cherry trees were blacks, of which 58 per cent were non-bearing. Forty-four per cent of the whites were found to be non-bearing. (Table VII.)

In Utah it is estimated that in 1930, 86 per cent of the sweet cherry trees of all ages in the state were blacks, the remainder being whites. Forty-eight per cent of the blacks were non-bearing, and 45 per cent of the whites (nearly all of which were Royal Anns) were non-bearing. The chief varieties of blacks and their percentage to total blacks of all ages in 1930 were: Lamberts, 49 per cent; Bings, 32 per cent; Windsors, 9 per cent; Tartarians, 5 per cent; miscellaneous, 5 per cent.¹

Both blacks and whites are grown in Idaho. In what proportions is not known with exactness. The chief blacks are the Bing and Lambert; the chief white is the Royal Ann.²

TRENDS IN PLANTINGS IN OREGON BY DISTRICTS AND COUNTIES

ALL CHERRIES

Situation in 1930. Figures 4, 5 and Tables VIII, IX show the distribution of bearing and non-bearing cherry trees of all kinds in Oregon in 1930 and trends since 1890. In order to facilitate comparison the more important cherry producing counties have been grouped into districts in the manner shown in Table VIII.³

In 1930, District 1 (Willamette Valley) contained 68 per cent of the trees of bearing age and 62 per cent of the non-bearing trees (Table IX). Of this number the counties of Marion, Polk, and Yamhill (District 1b) had 61 per cent of the bearing and 69 per cent of the non-bearing. Of these

¹These estimates are based on an adjustment of United States census figures (1930) to the percentages revealed in a sample census of 50 Utah cherry orchards, made April 1, 1931, by the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics, U. S. Department of Agriculture, Salt Lake City, Utah.

²The following statement covering the situation in Idaho was received from C. C. Vincent, Head, Department of Horticulture, University of Idaho: "According to the last census report, Idaho has 100,524 cherry trees of bearing age and 47,835 non-bearing. The principal producing counties are Nez Perce and Gem. In Nez Perce County, 49 per cent of the plantings are Bing, 30 per cent Royal Ann, and 21 per cent Lambert. In Gem County, 33 per cent are Bing, 33 per cent Royal Ann, and 33 per cent Lambert. I have no figures as to the percentage of those bearing and non-bearing in Gem County. In Twin Falls County, most of the trees listed are of the sour variety. In Latah County, there are only three or four commercial orchards, consisting of about 30-40 acres. Possibly 50 per cent of the trees are Royal Ann. In Kootenai County, 75 to 80 per cent of the trees are Bing and Lambert."

³It will be noted that District 1 includes the counties found in the Willamette Valley, beginning with Multnomah, Washington, and Columbia counties to the north and ending with Lane county to the south. District 2 covers the three cherry growing counties in Southern Oregon, District 3 the territory tributary to The Dalles and Hood River, District 4 the territory in the vicinity of Milton-Freewater in Umatilla county and the La Grande-Union-Cove regions in Union county, District 5 the few trees found in the other counties in Oregon that are unimportant commercially.

three counties Marion, the most important cherry-producing county in the state, had 38 per cent of the bearing and 63 per cent of the trees of non-bearing age.

***DISTRIBUTION OF BEARING AND NON-BEARING
CHERRY TREES IN OREGON, 1930***

LEGEND - ONE DOT REPRESENTS 300 TREES

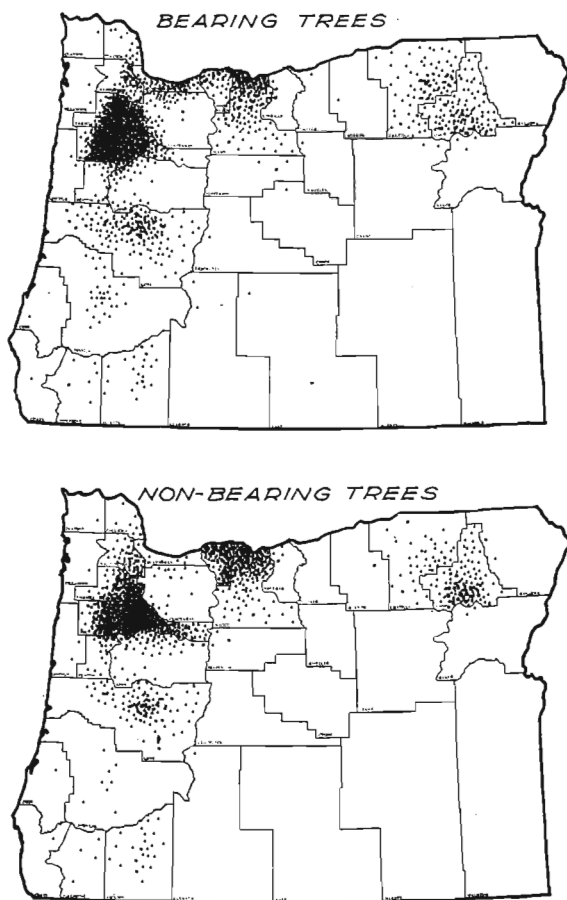


Figure 4

CHERRIES: PERCENTAGE DISTRIBUTION OF TREES OF BEARING AND NON-BEARING AGE BY DISTRICTS IN OREGON 1890-1930

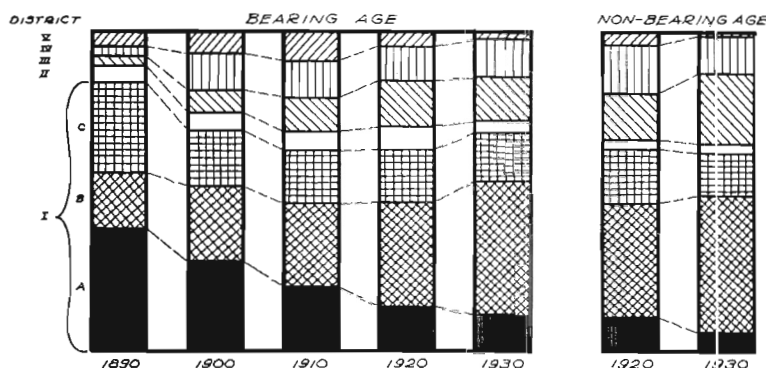


Figure 5

Next to the Willamette Valley district in importance comes District 3, comprising the counties of Wasco and Hood River. In 1930, 14 per cent of the trees in bearing and 22 per cent of the trees of non-bearing age in the State were located in these two counties. The trees of all ages in Wasco were about $2\frac{1}{2}$ times the number found in Hood River county.

Following District 3 in importance comes District 4 (Umatilla and Union counties). District 2 (Douglas, Jackson, and Josephine) and District 5 (all other counties in Oregon) were relatively unimportant commercially.

Ranked in the order of their importance according to the number of trees of all ages found within their confines, the chief cherry-producing counties of the state would range in the following order: Marion, Polk, Wasco, Lane, Yamhill, Union, and Hood River. It should be noted, however, that Wasco's trees of non-bearing age exceed those of Polk in number; likewise the trees of non-bearing age in Yamhill and Lane counties are exceeded by those in Union and Hood River counties, the latter two being of nearly equal importance (Table VIII).

Trends since 1890. If 1890 is compared to 1930, District 1 (Willamette Valley) experienced a decline in its proportion of the state total of cherry trees in bearing from 84 per cent in the former year to 68 per cent in the latter. From 1920 to 1930, however, there was a gain of 5 per cent. The number of trees of non-bearing age declined from 63 to 62 per cent of the state total during this decade. Within the Willamette Valley itself, pronounced shifts in acreage took place during the forty-year interval from 1890 to 1930. In those sections of the Valley termed Districts 1a (Clackamas, Multnomah, Washington, and Columbia counties) and 1c (Lane, Linn, and Benton counties) percentage declines took place in the number of trees of both bearing and non-bearing age. In the former district there was a steady decline throughout the entire period. In the latter, trees of

TABLE VIII. CHERRIES: NUMBER OF TREES OF BEARING AND NON-BEARING AGE, BY COUNTIES AND DISTRICTS IN OREGON, 1890-1930*

District and county	Trees of bearing age					Trees of non-bearing age	
	1890	1900	1910	1920	1930	1920	1930
<i>District Ia</i>							
Clackamas	8,268	26,156	16,869	18,468	17,952	3,391	4,834
Multnomah	7,784	22,738	13,966	20,513	13,550	3,117	2,081
Washington	3,125	10,093	10,773	12,195	14,362	2,434	12,588
Columbia	657	7,741	3,546	3,987	4,342	660	2,061
Total	19,834	66,728	45,154	55,163	50,206	9,602	21,564
<i>District Ib</i>							
Marion	5,926	29,259	22,535	45,666	71,399	14,079	99,836
Polk	1,607	7,422	11,971	54,143	69,778	12,140	39,087
Yamhill	1,385	19,328	23,780	29,899	45,744	5,528	20,521
Total	8,918	56,009	58,286	129,708	186,921	31,747	159,444
<i>District Ic</i>							
Lane	4,759	23,283	17,465	45,202	50,346	10,445	29,527
Linn	8,132	17,226	15,448	13,309	11,788	3,055	13,179
Benton	1,433	409	3,909	5,358	5,178	1,474	6,097
Total	14,324	40,918	36,822	63,869	67,312	14,974	48,803
Total District I.....	43,076	163,655	140,262	248,740	304,439	56,323	229,811
<i>District II</i>							
Douglas	1,800	9,619	7,941	11,374	9,032	1,778	2,427
Jackson	816	2,582	4,295	7,098	6,163	584	6,881
Josephine	99	824	1,183	9,904	1,745	167	1,159
Total District II.....	2,715	13,025	13,419	28,376	16,940	2,529	10,467
<i>District III</i>							
Wasco	1,549	16,402	18,883	47,949	50,586	9,302	52,039
Hood River			4,552	8,483	11,126	3,784	30,455
Total District III....	1,549	16,402	23,435	56,432	61,712	13,086	82,494
<i>District IV</i>							
Union	1,004	18,325	17,757	25,084	29,353	5,245	31,980
Umatilla	469	8,866	8,121	19,093	24,555	8,652	12,519
Total District IV....	1,473	27,191	25,878	44,177	53,908	13,897	44,499
Total District Vt....	2,464	16,882	20,462	17,348	9,107	3,561	4,685
State Total.....	51,277	237,155	223,456	395,073	446,106	89,396	371,956

*Sources of information:

Eleventh Census of United States 1890, as recorded in House Miscellaneous Documents, First Session 52nd Congress, 1891-92, Vol. 50, Part 10, pg. 526.

Twelfth Census of United States 1900, Vol. VI, Agriculture, Part II, pp. 617; 674. Thirteenth Census of United States 1910, Vol. V, Agriculture, pp. 710-713; also Vol. VII, Agriculture, pp. 413-420.

Fourteenth Census of United States 1920, State Compendium, Oregon, pg. 55; pp. 67-70.

Fifteenth Census of United States 1930, Agriculture, Oregon Second Series, pg. 5; pp. 10-15.

†Includes the following counties: Sherman, Baker, Wallowa, Malheur, Grant, Morrow, Gilliam, Wheeler, Jefferson, Crook, Deschutes, Klamath, Lake, Harney, Curry, Coos, Lincoln, Tillamook, and Clatsop.

bearing age declined from 28 per cent of the state total in 1890 to 15 per cent in 1930. The decline from 1920 to 1930, however, was only 1 per cent. Trees of non-bearing age declined from 17 per cent in 1920 to 13 per cent in 1930.

The ground lost in these two subdistricts of the Willamette Valley was more than made up in the remaining subdistrict—i.e., District 1b (Marion, Polk, and Yamhill counties). The percentage gain in trees of bearing age was steady throughout the forty-year period, being 17 per cent of the state total in 1890 and 42 per cent in 1930. In 1920 the number of trees of non-bearing age amounted to 35.5 per cent of the state total; in 1930, to 43 per cent.

TABLE IX. CHERRIES: PERCENTAGE DISTRIBUTION OF TREES OF BEARING AND NON-BEARING AGE BY DISTRICTS IN OREGON, 1890-1930*

District	Trees of bearing age					Trees of non-bearing age	
	1890	1900	1910	1920	1930	1920	1930
	%	%	%	%	%	%	%
District Ia	38.7	28.1	20.2	14.0	11.2	10.7	5.8
District Ib	17.4	23.6	26.1	32.8	41.9	35.5	42.9
District Ic	27.9	17.3	16.5	16.2	15.1	16.8	13.1
Total District I ..	84.0	69.0	62.8	63.0	68.2	63.0	61.8
District II	5.3	5.5	6.0	7.2	3.8	2.8	2.8
District III	3.0	6.9	10.5	14.3	13.8	14.6	22.2
District IV	2.9	11.5	11.6	11.2	12.1	15.5	12.0
District V	4.8	7.1	9.1	4.3	2.1	4.1	1.2
State Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data computed from Table VIII. For counties included in each district see Table VIII.

District 2 (Douglas, Jackson, and Josephine counties), which experienced a small percentage rise in the number of trees of bearing age from 1890 to 1920, suffered a decline from 7 per cent of the state total in 1920 to 4 per cent in 1930. No change took place in the percentage of trees of non-bearing age (3 per cent) controlled from 1920 to 1930.

Besides District 1b in District 1, the other district in the state that has shown a marked increase in the proportion controlled of the state total number of trees of non-bearing age is District 3 (Wasco and Hood River counties). In 1920 it was 15 per cent; in 1930, 22 per cent. The corresponding rise in District 1b, it will be recalled, was from 35.5 per cent to 43 per cent. From the standpoint of trees of bearing age, however, while District 1b was experiencing an increase of 9 per cent, District 3 continued virtually stationary.

The comparisons of trends in plantings just made point clearly to a definite shift to and concentration of acreage in two districts in the state—namely, District 3 (Wasco and Hood River counties) in Eastern Oregon, and District 1b (Marion, Polk, and Yamhill counties) in Western Oregon. To be sure, District 4 (Umatilla and Union counties) showed substantial actual gains in trees of both bearing and non-bearing age since 1920, but in terms of percentage control this district did not hold its own with the other two leading districts where more rapid development took place.

Since the acreage of sour cherries is of minor significance in all three of these districts (more especially so in District 4), the fact that the percentage relationships noted above pertain to all cherries, irrespective of kind, does not appreciably modify the conclusion that these relationships are applicable to the sweet varieties primarily.

Probably the concentration in acreage that appears to be taking place is attributable in large part to the superior economic advantage enjoyed by these favored localities in the growing of the sweet cherry. Another contributing factor may be that the growing of cherries in those districts is perhaps economically more advantageous than the production of certain other crops in those same localities.

KINDS AND VARIETIES IN OREGON BY DISTRICTS AND COUNTIES

Sour cherries. The distribution of bearing and non-bearing sour cherry trees among the leading districts and counties in the state is indicated from various points of view in Tables X, XI, XII, and XIII.¹ As Table XI shows, 88 per cent of the sours of all ages in the state's leading cherry districts were found in the Willamette Valley (District 1). Of the total number in this district, 57 per cent were in District 1c, the southern portion of the Valley (Lane, Linn, and Benton counties). Among the counties of the state, Lane was in the lead with 31 per cent of the state total of all ages; Marion was next with 21 per cent; Polk third with 13 per cent; Linn fourth with 11 per cent; and Wasco fifth with 10 per cent (Table XII). It is evident that 85 per cent or more of all sour cherry trees were to be found in Western Oregon in 1930. In Eastern Oregon, Wasco was the only county where sour cherries were of any importance whatever, 6 per cent of its cherry trees of all ages being sours. The growing of sours is of recent occurrence there. In 1930, trees of non-bearing age in that county were more than twice as numerous as those of bearing age. It is of interest that though responsible for but 7 per cent of the sour cherry trees of bearing age in the state, District 3 (Wasco and Hood River counties) contributed 16 per cent of the trees of non-bearing age (Table XI).

The ratio of sour cherry trees of non-bearing age to total sours in the leading counties in 1930 was as follows: Lane, 37 per cent; Marion, 47 per cent; Polk, 49 per cent; Linn, 41 per cent; and Wasco, 68 per cent.

Black cherries. In 1930 virtually one-half of the black cherry trees of all ages in the state's leading cherry districts were found in the Willamette Valley (District 1). The bulk of the remainder were pretty evenly divided between District 3 (Wasco and Hood River counties) and District 4 (Umatilla and Union counties), the latter district having a slight edge (Table XI).

On a county basis Marion was in the lead with 26.5 per cent of the state total² of black cherry trees of all ages; Union came next with 13

¹The statistics in these tables, and those numbered XIV to XVIII inclusive, are based on returns from a cherry inquiry made by Mr. F. L. Kent, Regional Statistician, U. S. Bureau of Agricultural Economics, and adjusted to the Federal census figures as of April 1, 1930. Where figures have been refined down to varieties on a county basis as in Tables XII to XVIII, inclusive, the statistics may not be equally accurate for each of the counties. In comparison with the total as given by the U. S. Census, the Kent census included more than 46 per cent of the state total of cherry trees of all ages. In no county of those that reported were the returns below 16 per cent of that county's total. In the important counties, outside of Hood River (20 per cent), and Yamhill (21 per cent), the percentage returns ran high—in Wasco, 86 per cent; Marion, 37 per cent; Polk, 62 per cent; Union, 49 per cent; Umatilla, 51 per cent; and Lane, 49 per cent. Reports were received from all counties where cherries are of any consequence except Clackamas and Multnomah. The quantity of cherries grown in those counties is of little commercial significance (see Table VIII). In Clackamas county, according to Mr. Inskeep, the County Agent, the commercial cherry orchards are relatively few, but a considerable number of trees are planted in small orchards and around the farmsteads which supply Portland canneries when there is a demand for the product. In Multnomah county, according to Mr. Hall, County Agent, the acreage of sweet cherries is about 80 acres, mostly in small plantings. The few commercial plantings in the county have been neglected for several years.

²Leading cherry districts and counties in the state.

per cent; Wasco third with 11 per cent; and Umatilla and Hood River shared fourth position with approximately 10 per cent each. These five counties accounted for 71 per cent of the state total.¹ Following these came Polk with 8 per cent, Lane with 7 per cent, Yamhill with 5 per cent, and so on to the end of the list (Table XII).

TABLE X. CHERRIES: NUMBER OF TREES OF BEARING AND NON-BEARING AGE, BY VARIETIES, LEADING DISTRICTS IN OREGON, APRIL 1, 1930*

Variety	District I†				District	District	District	Total‡
	A	B	C	Total	II	III	IV	
Bearing Age:								
Bing	384	12,736	6,576	20,196	7,739	10,918	17,296	56,149
Lambert	1,027	51,746	10,460	63,233	5,537	10,607	8,973	88,350
Black Republican	331	1,829	1,206	3,366	431	3,804	1,122	8,723
Other Black	355	2,305	948	3,608	623	1,461	2,408	8,100
Total Black	2,597	68,616	19,190	90,403	14,330	26,790	29,799	161,322
Royal Ann	5,586	133,397	29,552	168,635	6,579	38,488	10,533	224,235
Other White	72	2,875	2,660	5,607	396	1,900	112	8,015
Total White	5,758	136,272	32,212	174,242	6,975	40,388	10,645	232,250
Total Sweet	8,355	204,888	51,402	264,645	21,305	67,178	40,444	393,572
Sour Varieties	219	10,875	19,599	30,693	169	2,239	98	33,199
Total	8,574	215,763	71,001	295,338	21,474	69,417	40,542	426,771
Non-bearing Age:								
Bing	53	5,176	2,052	7,281	2,579	17,700	26,107	53,667
Lambert	466	52,408	3,100	55,974	1,714	16,726	17,347	91,761
Black Republican	189	432	172	793	524	3,875	527	5,719
Other Black	27	1,378	1,216	2,621	104	1,277	994	4,996
Total Black	735	59,394	6,540	66,669	4,921	39,578	44,975	156,143
Royal Ann	21,757	58,693	24,746	105,196	649	29,190	12,686	147,721
Other White	0	2,593	2,973	5,566	68	1,667	99	7,400
Total White	21,757	61,286	27,719	110,762	717	30,857	12,785	155,121
Total Sweet	22,492	120,680	34,259	177,431	5,638	70,435	57,760	311,264
Sour Varieties	2,287	9,922	10,855	23,064	295	4,354	105	27,818
Total	24,779	130,602	45,114	200,495	5,933	74,789	57,865	339,082
All Ages:								
Bing	937	17,912	8,628	27,477	10,318	28,618	43,403	109,816
Lambert	1,493	104,154	13,560	119,207	7,251	27,333	26,320	180,111
Black Republican	520	2,261	1,378	4,159	955	7,679	1,649	14,442
Other Black	382	3,683	2,164	6,229	727	2,738	3,402	13,096
Total Black	3,832	128,010	25,730	157,072	19,251	66,368	74,774	317,465
Royal Ann	27,443	192,090	54,298	273,831	7,228	67,678	23,219	371,956
Other White	72	5,468	5,633	11,173	464	3,567	211	15,415
Total White	27,515	197,558	59,931	285,004	7,692	71,245	23,430	387,371
Total Sweet	30,847	325,568	85,661	442,076	26,943	137,613	98,204	704,836
Sour Varieties	2,506	20,797	30,454	53,757	464	6,593	203	61,017
Total	33,353	346,365	116,115	495,833	27,407	144,206	98,407	765,853

*The statistics in this table are based on returns from a cherry inquiry made by Mr. F. L. Kent, Regional Statistician, U. S. Bureau of Agricultural Economics, and adjusted to the Federal Census figures as of April 1, 1930. For counties included in each district see Table VIII, page 22.

†Clackamas and Multnomah counties are not included since no returns were obtained from these counties in the special cherry inquiry.

‡Represents about 95 per cent of the state total number of bearing trees and more than 91 per cent of the non-bearing trees. Clackamas and Multnomah counties and counties in District V are not included. See Table V, page 13.

Nearly 43 per cent of the state total¹ of black cherry trees of non-bearing age were found in the Willamette Valley (District 1). Districts 3 and 4 were responsible for most of the rest—namely, 54 per cent (Table XI). Evidently the expansion in blacks has been going on more rapidly in these Eastern Oregon districts than it has in the Valley.

¹Leading cherry districts and counties in the state.

Within the more important counties, themselves, the percentage of non-bearing blacks to total blacks ran as follows: Marion, 63.5 per cent; Union, 64 per cent; Wasco, 46 per cent; Umatilla, 55 per cent; Hood River, 73 per cent; Polk, 22 per cent; Lane, 23 per cent; and Yamhill, .22 per cent (Table XIII). The last county appears to be going out of black cherry production.

TABLE XI. PERCENTAGE DISTRIBUTION OF CHERRY VARIETIES BY LEADING DISTRICTS IN OREGON, APRIL 1, 1930. (BASIS: NUMBER OF TREES, BEARING AND NON-BEARING AGE)*

Variety	District I				District	District	District	Total
	A	B	C	Total	II	III	IV	
	%	%	%	%	%	%	%	%
<i>Bing:</i>								
Bearing	1.6	22.7	11.7	36.0	13.8	19.4	30.8	100.0
Non-bearing .....	.1	9.6	3.8	13.5	4.8	33.0	48.7	100.0
All ages .....	.8	16.3	7.9	25.0	9.4	26.1	39.5	100.0
<i>Lambert:</i>								
Bearing	1.2	58.6	11.8	71.6	6.3	12.0	10.1	100.0
Non-bearing .....	.5	57.1	3.4	61.0	1.9	18.2	18.9	100.0
All ages .....	.9	57.8	7.5	66.2	4.0	15.2	14.6	100.0
<i>Black Republican:</i>								
Bearing	3.8	21.0	13.8	38.6	4.9	43.6	12.9	100.0
Non-bearing	3.3	7.6	3.0	13.9	9.2	67.7	9.2	100.0
All ages	3.6	15.7	9.5	28.8	6.6	53.2	11.4	100.0
<i>Other Black:</i>								
Bearing	4.4	28.5	11.7	44.6	7.7	18.0	29.7	100.0
Non-bearing .....	.5	27.6	24.3	52.4	2.1	25.6	19.9	100.0
All ages	2.9	28.1	16.5	47.5	5.6	20.9	26.0	100.0
<i>Total Black:</i>								
Bearing	1.6	42.5	11.9	56.0	8.9	16.6	18.5	100.0
Non-bearing .....	.5	38.0	4.2	42.7	3.2	25.3	28.8	100.0
All ages	1.1	40.3	8.1	49.5	6.1	20.9	23.5	100.0
<i>Royal Ann:</i>								
Bearing	2.5	59.5	13.2	75.2	2.9	17.2	4.7	100.0
Non-bearing	14.7	39.7	16.8	71.2	.4	19.8	8.6	100.0
All ages	7.4	51.6	14.6	73.6	1.9	18.2	6.3	100.0
<i>Other White:</i>								
Bearing .....	.9	35.9	33.2	70.0	4.9	23.7	1.4	100.0
Non-bearing	0.0	35.0	40.2	75.2	.9	22.5	1.4	100.0
All ages .....	.5	35.5	36.5	72.5	3.0	23.1	1.4	100.0
<i>Total White:</i>								
Bearing	2.5	58.6	13.9	75.0	3.0	17.4	4.6	100.0
Non-bearing	14.0	39.5	17.9	71.4	.5	19.9	8.2	100.0
All ages	7.1	51.0	15.5	73.6	2.0	18.4	6.0	100.0
<i>Total Sweet:</i>								
Bearing	2.1	52.0	13.1	67.2	5.4	17.1	10.3	100.0
Non-bearing	7.2	38.8	11.0	57.0	1.8	22.6	18.6	100.0
All ages	4.4	46.2	12.1	62.7	3.8	19.5	14.0	100.0
<i>Sour Varieties:</i>								
Bearing .....	.7	32.7	59.0	92.4	.5	6.8	.3	100.0
Non-bearing	8.2	35.7	39.0	82.9	1.0	15.7	.4	100.0
All ages	4.1	34.1	49.9	88.1	.8	10.8	.3	100.0
<i>Total Trees:</i>								
Bearing	2.0	50.6	16.6	69.2	5.0	16.3	9.5	100.0
Non-bearing	7.3	38.5	13.3	59.1	1.7	22.1	17.1	100.0
All ages	4.4	45.2	15.1	64.7	3.6	18.8	12.9	100.0

*Data computed from Table X. For counties included in each district see Table VIII, page 22.

Black cherry varieties. In 1930 black cherry trees of the Lambert variety comprised 56.7 per cent of the state total¹ of blacks of all ages; Bings, 34.6 per cent; and Black Republicans, 4.6 per cent (Table XIV).

¹Leading cherry districts and counties in the state.

TABLE XII. CHERRIES: NUMBER OF TREES OF BEARING AND NON-BEARING AGE BY KIND, LEADING DISTRICTS AND COUNTIES IN OREGON, APRIL 1, 1930*

District and county	Blacks			Whites			Sours			All kinds		
	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total
<i>District Ia:</i>												
Washington	2,056	712	2,768	5,475	16,470	21,945	192	2,045	2,237	7,723	19,227	26,950
Columbia	541	23	564	283	5,287	5,570	27	242	269	851	5,552	6,403
Total	2,597	735	3,332	5,758	21,757	27,515	219	2,287	2,506	8,574	24,779	33,353
<i>District Ib:</i>												
Marion	30,693	53,413	84,106	45,422	28,861	74,286	6,807	6,036	12,843	82,922	88,313	171,235
Polk	20,800	5,943	26,743	42,047	32,128	74,175	4,061	3,886	7,947	66,908	41,957	108,865
Yamhill	17,123	38	17,161	48,803	294	49,097	7	0	7	65,933	332	66,265
Total	68,616	59,394	128,010	136,272	61,286	197,558	10,875	9,922	20,797	215,763	130,602	346,365
<i>District Ic:</i>												
Lane	16,214	4,900	21,114	25,857	14,052	39,909	11,819	7,031	18,850	53,890	25,983	79,873
Linn	1,388	1,322	2,910	5,087	10,079	15,166	4,066	2,825	6,891	10,541	14,426	24,967
Benton	1,588	118	1,706	1,268	3,588	4,856	3,714	999	4,713	6,570	4,705	11,275
Total	19,190	6,540	25,730	32,212	27,719	59,931	19,599	10,855	30,454	71,001	45,114	116,115
Total Dist. I	90,403	66,669	157,072	174,242	110,762	285,004	30,693	23,064	53,757	295,338	200,495	495,833
<i>District II:</i>												
Douglas	7,116	704	7,820	3,471	42	3,513	126	0	126	10,713	746	11,459
Jackson	6,108	3,438	9,546	2,784	675	3,459	38	1	39	8,930	4,114	13,044
Josephine	1,106	779	1,885	720	0	720	5	294	299	1,831	1,073	2,904
Total	14,330	4,921	19,251	6,975	717	7,692	169	295	464	21,474	5,933	27,407
<i>District III:</i>												
Wasco	18,038	15,497	33,535	37,844	24,986	62,830	1,991	4,269	6,260	57,873	44,752	102,625
Hood River	8,752	24,081	32,833	2,544	5,871	8,415	248	85	333	11,544	30,037	41,581
Total	26,790	39,578	66,368	40,388	30,857	71,245	2,239	4,354	6,593	69,417	74,789	144,206
<i>District IV:</i>												
Union	15,090	26,676	41,766	8,081	11,394	19,475	23	69	92	23,194	38,130	61,333
Umatilla	14,709	18,299	33,008	2,564	1,391	3,955	75	36	111	17,348	19,726	37,074
Total	29,799	44,975	74,774	10,645	12,785	23,430	98	105	203	40,542	57,856	98,407
Total	161,322	156,143	317,465	232,250	155,121	387,371	33,199	27,818	61,017	426,771	339,082	765,853

*Based on a sample census taken for the crop year 1929 by F. L. Kent, Agricultural Statistician, United States Bureau of Agricultural Economics, Portland, Oregon, and adjusted to the United States census figures as of April 1, 1930. In comparison to the total as given by the United States census, the Kent census includes more than 46 per cent of the state total of cherry trees of all ages.

TABLE XIII. PERCENTAGE DISTRIBUTION OF CHERRY TREES OF BEARING AND NON-BEARING AGE, BY KINDS, LEADING DISTRICTS AND COUNTIES IN OREGON, APRIL 1, 1930*

District and county	Blacks			Whites			Sours			All kinds		
	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total
	%	%	%	%	%	%	%	%	%	%	%	%
<i>District Ia:</i>												
Washington	74.3	25.7	100.0	24.9	75.1	100.0	8.6	91.4	100.0	28.6	71.4	100.0
Columbia	96.0	4.0	100.0	4.9	95.1	100.0	10.0	90.0	100.0	13.1	86.9	100.0
Total	77.9	22.1	100.0	20.9	79.1	100.0	8.8	91.2	100.0	25.6	74.4	100.0
<i>District Ib:</i>												
Marion	36.5	63.5	100.0	61.2	38.8	100.0	53.0	47.0	100.0	48.5	51.5	100.0
Polk	77.8	22.2	100.0	56.7	43.3	100.0	51.1	48.9	100.0	61.5	38.5	100.0
Yamhill	99.78	.22	100.0	99.4	.6	100.0	100.0	0.0	100.0	99.5	.5	100.0
Total	53.6	46.4	100.0	69.0	31.0	100.0	52.2	47.8	100.0	62.3	37.7	100.0
<i>District Ic:</i>												
Lane	76.8	23.2	100.0	64.8	35.2	100.0	62.7	37.3	100.0	67.5	32.5	100.0
Linn	47.7	52.3	100.0	33.5	66.5	100.0	59.0	41.0	100.0	42.2	57.8	100.0
Benton	93.2	6.8	100.0	26.1	73.9	100.0	78.8	21.2	100.0	58.3	41.7	100.0
Total	74.6	25.4	100.0	53.7	46.3	100.0	64.4	35.6	100.0	61.1	38.9	100.0
Total Dist. I	57.6	42.4	100.0	61.2	38.8	100.0	57.1	42.9	100.0	59.6	40.4	100.0
<i>District II:</i>												
Douglas	91.0	9.0	100.0	98.8	1.2	100.0	100.0	0.0	100.0	93.5	6.5	100.0
Jackson	64.0	36.0	100.0	80.5	19.5	100.0	96.1	3.9	100.0	68.5	31.5	100.0
Josephine	58.7	41.3	100.0	100.0	0.0	100.0	1.6	98.4	100.0	63.1	36.9	100.0
Total	74.4	25.6	100.0	90.7	9.3	100.0	36.4	63.6	100.0	78.4	21.6	100.0
<i>District III:</i>												
Wasco	53.8	46.2	100.0	60.2	39.8	100.0	31.8	68.2	100.0	56.4	43.6	100.0
Hood River	26.6	73.4	100.0	30.2	69.8	100.0	74.5	25.5	100.0	27.7	72.3	100.0
Total	40.4	59.6	100.0	56.7	43.3	100.0	34.0	66.0	100.0	48.1	51.9	100.0
<i>District IV:</i>												
Union	36.1	63.9	100.0	41.5	58.5	100.0	25.5	74.5	100.0	37.8	62.2	100.0
Umatilla	44.6	55.4	100.0	64.7	35.3	100.0	67.6	32.4	100.0	46.8	53.2	100.0
Total	39.9	60.1	100.0	45.4	54.6	100.0	48.3	51.7	100.0	41.2	58.8	100.0
Total	50.8	49.2	100.0	60.0	40.0	100.0	54.4	45.6	100.0	55.7	44.3	100.0

*Data based on Table XII.

TABLE XIV. PERCENTAGE DISTRIBUTION OF SWEET CHERRY VARIETIES OF ALL AGES, BY LEADING DISTRICTS AND COUNTIES IN OREGON, APRIL 1, 1930*

District and county	Blacks					Whites		
	Bings	Lamberts	Black Republicans	Other blacks	Total blacks	Royal Anns	Other whites	Total whites
	%	%	%	%	%	%	%	%
<i>District Ia:</i>								
Washington	17.9	51.9	17.5	12.7	100.0	99.8	.2	100.0
Columbia	78.4	9.6	6.4	5.6	100.0	99.5	.5	100.0
Total	28.7	44.8	15.6	11.5	100.0	99.7	.3	100.0
<i>District Ib:</i>								
Marion	13.5	82.8	1.1	2.6	100.0	97.0	3.0	100.0
Polk	19.9	71.5	3.2	5.4	100.0	95.7	4.3	100.0
Yamhill	7.2	89.7	2.8	.3	100.0	99.9	.1	100.0
Total	14.0	81.4	1.8	2.8	100.0	97.2	2.8	100.0
<i>District Ic:</i>								
Lane	33.8	56.8	5.5	3.9	100.0	91.0	9.0	100.0
Linn	13.6	39.4	3.0	44.0	100.0	89.2	10.8	100.0
Benton	64.2	24.6	7.6	3.6	100.0	91.7	8.3	100.0
Total	33.5	52.7	5.4	8.4	100.0	90.6	9.4	100.0
Total Dist. I	17.5	75.9	2.6	4.0	100.0	96.1	3.9	100.0
<i>District II:</i>								
Douglas	47.2	47.2	2.1	3.5	100.0	99.4	.6	100.0
Jackson	63.8	31.8	2.8	1.6	100.0	92.9	7.1	100.0
Josephine	28.5	27.8	27.8	15.9	100.0	72.8	27.2	100.0
Total	53.6	37.7	4.9	3.8	100.0	94.0	6.0	100.0
<i>District III:</i>								
Wasco	49.8	25.7	18.2	6.3	100.0	95.1	4.9	100.0
Hood River	36.3	57.0	4.8	1.9	100.0	94.2	5.8	100.0
Total	43.1	41.2	11.6	4.1	100.0	95.0	5.0	100.0
<i>District IV:</i>								
Union	36.9	56.3	1.5	5.3	100.0	99.1	.9	100.0
Umatilla	84.8	8.5	3.1	3.6	100.0	99.1	.9	100.0
Total	58.0	35.2	2.2	4.6	100.0	99.1	.9	100.0
Total	34.6	56.7	4.6	4.1	100.0	96.0	4.0	100.0

*For source of data see footnote, Table XII.

Of the state total¹ of Lamberts of all ages, 66 per cent were in the Willamette Valley (District 1) and 87 per cent of those in the Valley were in District 1b (Marion, Polk, and Yamhill counties). The bulk of the remaining state total¹ of Lamberts was divided rather evenly between District 3 (Wasco and Hood River counties) and District 4 (Umatilla and Union counties) each of which had approximately 15 per cent.

Of the state total¹ 51 per cent of Lamberts of all ages were non-bearing. The two Eastern Oregon districts had a somewhat heavier percentage of the state total¹ of non-bearing Lambert trees than was true of Lamberts of all ages. District 3 had 18 per cent and District 4, 19 per cent; District 1 had 61 per cent of which 94 per cent were in District 1b (Table XI). In Districts 1, 3, and 4, of the total Lamberts 47, 61, and 66 per cent respectively were non-bearing in each district (Table XVI).

Considering Lamberts of all ages on a county basis, Marion was in the lead with 39 per cent of the state total; Union was second with 13 per cent; Polk third with 11 per cent; Hood River fourth with 10 per cent; Yamhill fifth with 8.5 per cent; Lane sixth with 7 per cent; and Wasco seventh with 5 per cent (Table XV).

¹Leading cherry districts and counties in the state.

Of the state total¹ 66 per cent of Bings of all ages were in the two leading Eastern Oregon districts, District 3 having 26 per cent of this total and District 4, 40 per cent. The Willamette Valley (District 1) had 25 per cent and District 2 (Douglas, Jackson, and Josephine counties), 9 per cent.

Of the state total of Bings of all ages, 49 per cent were non-bearing (Table XVI). The two Eastern Oregon districts had a still heavier percentage of the Bing trees of non-bearing age than was true of Bings of all ages, both of them together aggregating 82 per cent, of which District 3 was responsible for 33 per cent and District 4 for 49. District 1 accounted for 13 per cent and District 2 for 5 per cent (Table XI). In Districts 1, 2, 3, and 4, of total Bings 26.5, 25, 62 and 60 per cent respectively were non-bearing (Table XVI).

Considering Bings of all ages on a county basis, Umatilla was in the lead with 25.5 per cent of the state total; Wasco ranked next with 15 per cent; Union third with 14 per cent; Hood River fourth with 11 per cent; Marion fifth with 10 per cent; Lane sixth with 6.5 per cent; Jackson seventh with 5.5 per cent; and Polk eighth with 5 per cent (Table XV).

Little need be said regarding Black Republicans. They are too small to be a successful shipping cherry and are grown in relatively small quantities, constituting but 5 per cent of all black cherry trees in the state¹ in 1930. In that year, 53 per cent of this variety of all ages were in District 3 (Wasco and Hood River counties), the bulk of the remainder being in District 4, 1b, and 1c (Table XI). The trees of non-bearing age in the state as a whole¹ amounted to nearly 40 per cent of the trees of all ages. The greatest expansion in trees of non-bearing age occurred in the two Eastern Oregon districts. Wasco county alone was responsible for 60 per cent of the trees of non-bearing age in these two districts, and Hood River for 28 per cent.

The statistical analysis of black cherries just made is intended to reveal the importance of the various varieties of blacks in the different districts and counties in the state and give some indication of the extent to which each of them has been responsible for the large expansion in non-bearing acreage that has taken place in recent years.

The preference shown for the growing of Bings in Eastern Oregon and Lamberts in Western Oregon is indicated with considerable clarity, particularly with reference to Bings. As previously stated, the two Eastern Oregon districts (Districts 3 and 4) controlled not only 66 per cent of the total trees of all ages of the Bing variety in the State,¹ but no less than 82 per cent of the trees of non-bearing age. The Willamette Valley (District 1) on the other hand, had 66 per cent of the total trees of all ages of the Lambert variety in the state, but its percentage of trees of non-bearing age fell below this figure, being 61 per cent as against an aggregate of 37 per cent for the two Eastern Oregon districts.

One county in each of these Eastern Oregon districts—namely, Hood River in District 3 and Union in District 4—were found to run counter to the tendency to emphasize the growing of Bings in Eastern Oregon. Both counties grew more Lamberts, both bearing and non-bearing, than Bings in 1930. The explanation may rest in the greater availability of moisture in these two counties as well as in conditions of marketing. Lamberts do not thrive as well in the absence of adequate water supply as Bings. Hood

¹Leading cherry districts and counties in the state.

TABLE XV. NUMBER OF BLACK CHERRY TREES BASED ON VARIETY BY LEADING DISTRICTS AND COUNTIES IN OREGON, APRIL 1, 1930*

District and county	Bings			Lamberts			Black Republicans			Other blacks			All blacks		
	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total
<i>District Ia:</i>															
Washington ..	451	44	495	987	452	1,439	295	189	484	323	27	350	2,056	712	2,768
Columbia	433	9	442	40	14	54	36	0	36	32	0	32	541	23	564
Total	884	53	937	1,027	466	1,493	331	189	520	355	27	382	2,597	735	3,332
<i>District Ib:</i>															
Marion	7,812	3,542	11,354	20,683	48,957	69,640	744	181	925	1,454	733	2,187	30,693	53,413	84,106
Polk	3,688	1,634	5,322	15,698	3,423	19,121	610	246	856	804	640	1,444	20,800	5,943	26,743
Yamhill	1,236	0	1,236	15,365	38	15,393	475	5	480	47	5	52	17,123	38	17,161
Total	12,736	5,176	17,912	51,746	52,408	104,154	1,829	432	2,261	2,305	1,378	3,683	68,616	59,394	128,010
<i>District Ic:</i>															
Lane	5,289	1,848	7,137	9,283	2,710	11,993	1,061	100	1,161	581	242	823	16,214	4,900	21,114
Linn	233	163	396	781	366	1,147	68	19	87	306	974	1,280	1,388	1,522	2,910
Benton	1,051	41	1,095	396	24	420	77	53	130	61	0	61	1,588	118	1,706
Total	6,576	2,052	8,628	10,460	3,100	13,560	1,206	172	1,378	948	1,216	2,164	19,190	6,540	25,730
Total Dist. I	20,196	7,281	27,477	63,233	55,974	119,207	3,366	793	4,159	3,608	2,621	6,229	90,403	66,669	157,072
<i>District II:</i>															
Douglas	3,691	0	3,691	3,052	639	3,691	131	33	164	242	32	274	7,116	704	7,820
Jackson	3,605	2,485	6,090	2,122	914	3,036	252	15	267	129	24	153	6,108	3,438	9,546
Josephine	443	94	537	363	161	524	48	476	524	252	48	300	1,196	779	1,885
Total	7,739	2,579	10,318	5,537	1,714	7,251	431	524	955	623	104	727	14,330	4,921	19,251
<i>District III:</i>															
Wasco	7,331	9,369	16,700	6,041	2,577	8,618	3,448	2,655	6,103	1,218	896	2,114	18,038	15,497	33,535
Tlood River	3,587	8,331	11,918	4,566	14,149	18,715	356	1,220	1,576	243	381	624	8,752	24,081	32,833
Total	10,918	17,700	28,618	10,607	16,726	27,333	3,804	3,875	7,679	1,461	1,277	2,738	26,790	39,578	66,368
<i>District IV:</i>															
Union	5,764	9,648	15,412	7,289	16,225	23,514	403	223	626	1,634	580	2,214	15,090	26,676	41,766
Umatilla	11,532	16,459	27,991	1,684	1,122	2,806	719	304	1,023	774	414	1,188	14,709	18,299	33,008
Total	17,296	26,107	43,403	8,973	17,347	26,320	1,122	527	1,649	2,408	994	3,402	29,799	44,975	74,774
Total	56,149	53,667	109,816	88,350	91,761	180,111	8,723	5,719	14,442	8,100	4,996	13,096	161,322	156,143	317,465

*For source of data see footnote, Table XII.

TABLE XVI. PERCENTAGE DISTRIBUTION OF BLACK CHERRY TREES BASED ON VARIETY BY LEADING DISTRICTS AND COUNTIES IN OREGON. APRIL 1, 1930*

District and county	Bings			Lamberts			Black Republicans			Other blacks			All blacks		
	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
<i>District Ia:</i>															
Washington ..	91.2	8.8	100.0	68.6	31.4	100.0	61.0	39.0	100.0	92.2	7.8	100.0	74.3	25.7	100.0
Columbia	97.95	2.05	100.0	75.0	25.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	96.0	4.0	100.0
Total	94.3	5.7	100.0	68.8	31.2	100.0	63.7	36.3	100.0	92.9	7.1	100.0	77.9	22.1	100.0
<i>District Ib:</i>															
Marion	68.8	31.2	100.0	29.7	70.3	100.0	80.4	19.6	100.0	66.5	33.5	100.0	36.5	63.5	100.0
Polk	69.3	30.7	100.0	82.1	17.9	100.0	71.3	28.7	100.0	55.7	44.3	100.0	77.8	22.2	100.0
Yamhill	100.0	0.0	100.0	99.82	.18	100.0	99.02	.98	100.0	90.0	10.0	100.0	99.78	.22	100.0
Total	71.1	28.9	100.0	49.7	50.3	100.0	80.9	19.1	100.0	62.6	37.4	100.0	53.6	46.4	100.0
<i>District Ic:</i>															
Lane	74.1	25.9	100.0	77.4	22.6	100.0	91.4	8.6	100.0	70.5	29.5	100.0	76.8	23.2	100.0
Linn	58.9	41.1	100.0	68.1	31.9	100.0	78.3	21.7	100.0	23.9	76.1	100.0	47.7	52.3	100.0
Benton	96.3	3.7	100.0	94.4	5.6	100.0	59.5	40.5	100.0	100.0	0.0	100.0	93.2	6.8	100.0
Total	76.2	23.8	100.0	77.1	22.9	100.0	87.5	12.5	100.0	43.8	56.2	100.0	74.6	25.4	100.0
Total Dist. I	73.5	26.5	100.0	53.1	46.9	100.0	80.9	19.1	100.0	57.9	42.1	100.0	57.6	42.4	100.0
<i>District II:</i>															
Douglas	100.0	0.0	100.0	82.7	17.3	100.0	79.5	20.5	100.0	88.4	11.6	100.0	91.0	9.0	100.0
Jackson	59.2	40.8	100.0	69.9	30.1	100.0	94.3	5.7	100.0	84.2	15.8	100.0	64.0	36.0	100.0
Josephine	82.5	17.5	100.0	69.2	30.8	100.0	9.1	90.9	100.0	84.1	15.9	100.0	58.7	41.3	100.0
Total	75.0	25.0	100.0	76.4	23.6	100.0	45.1	54.9	100.0	85.7	14.3	100.0	74.4	25.6	100.0
<i>District III:</i>															
Wasco	43.9	56.1	100.0	70.1	29.9	100.0	56.5	43.5	100.0	57.6	42.4	100.0	53.8	46.2	100.0
Hood River ..	30.1	69.9	100.0	24.4	75.6	100.0	22.6	77.4	100.0	38.9	61.1	100.0	26.6	73.4	100.0
Total	38.2	61.8	100.0	38.8	61.2	100.0	49.5	50.5	100.0	53.4	46.6	100.0	40.4	59.6	100.0
<i>District IV:</i>															
Union	37.4	62.6	100.0	31.0	69.0	100.0	64.3	35.7	100.0	73.8	26.2	100.0	36.1	63.9	100.0
Umatilla	41.2	58.8	100.0	60.0	40.0	100.0	70.2	29.8	100.0	65.1	34.9	100.0	44.6	55.4	100.0
Total	39.9	60.1	100.0	34.1	65.9	100.0	68.0	32.0	100.0	70.8	29.2	100.0	39.9	60.1	100.0
Total	51.1	48.9	100.0	49.1	50.9	100.0	60.4	39.6	100.0	61.9	38.1	100.0	50.8	49.2	100.0

*Data based on Table XV.

River irrigates its cherries and Union county enjoys rainfall later into the season than is the case with any other cherry-producing section in Eastern Oregon. Its cherries are the last to come on the market in the Pacific Northwest. Since Lamberts mature a few days later than Bings, moreover, possibly a greater price advantage is enjoyed by growing Lamberts since less competition in Eastern markets may be encountered at that time of the marketing season.¹ The tendency for Umatilla county to emphasize the growing of Bings almost entirely despite the fact that irrigation is practiced may be due to the desire to reap the full benefits of an early market since this district is the first to ship cherries out of the Pacific Northwest. The fact that Bings shipped out of Oregon have averaged higher in price than Lamberts on the New York Auction may also have been a consideration.² The strong leaning toward the Bing shown by Wasco county is doubtless due chiefly to the fact that this is a dry-farming area favored with only a limited amount of rainfall. The apparent market preference enjoyed by the Bing has probably also been a factor.³

The pronounced preference shown for the Lambert in the Willamette Valley is doubtless closely associated with climatic considerations. The presence of excessive rains at harvest time during many seasons, combined with the prevalence of insect pests and numerous diseases that go hand in hand with such conditions, has worked a hardship on growers of all types of cherries in the Valley, but the Bing in particular has shown itself peculiarly sensitive to such influences, its soft, tender skin cracking more easily than that of the Lambert in the presence of moisture. It is also understood to be a more shy bearer than the Lambert. Since cherries must be well-nigh perfect to withstand shipment across the continent, the loss through culling has been large and those actually shipped have been too moisture-laden in many cases to carry successfully.

White cherries. In 1930 nearly three-fourths of the state total⁴ of sweet cherry trees of all ages of the white variety were found in the Willamette Valley (District 1), the bulk of the remainder (18 per cent) being in District 3 (Wasco and Hood River counties) (Table XI). In reality this means Wasco county, as 88 per cent of the whites in this district were located in that county. Of the state total⁵ 51 per cent of whites were in District 1b (Marion, Polk, and Yamhill counties) and constituted 69 per cent of those in the entire Willamette Valley District (District 1).

On a county basis, leadership in the state was evenly shared between Marion and Polk counties, each having approximately 19 per cent of the state total⁶ of white cherry trees of all ages. Wasco ranked third with 16 per cent; Yamhill fourth with 13 per cent; and Lane fifth with 10 per cent. These five counties accounted for 77.5 per cent of the state total.⁷ Following these came Washington with 6 per cent; Union with 5 per cent; Linn with 4 per cent; and so on down the list (Table XVII).

Nearly three-fourths (71 per cent) of the state total⁸ of non-bearing white cherry trees were found in the Willamette Valley (District 1), District 3 (Wasco and Hood River counties) (20 per cent), and District 4

¹See later discussion, pages 79-82.

²See later discussion, pages 83-86.

³Leading cherry districts and counties in the state.

TABLE XVII. NUMBER OF WHITE CHERRY TREES BASED ON VARIETY BY LEADING DISTRICTS AND COUNTIES IN OREGON, APRIL 1, 1930*

District and county	Royal Ann			Other white			All whites		
	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total
<i>District Ia:</i>									
Washington	5,431	16,470	21,901	44	0	44	5,475	16,470	21,945
Columbia	255	5,287	5,542	28	0	28	283	5,287	5,570
Total	5,686	21,757	27,443	72	0	72	5,758	21,757	27,515
<i>District Ib:</i>									
Marion	44,820	27,237	72,057	602	1,627	2,229	45,422	28,864	74,286
Polk	39,823	31,162	70,985	2,224	966	3,190	42,047	32,128	74,175
Yamhill	48,754	294	49,048	49	0	49	48,803	294	49,097
Total	133,397	58,693	192,090	2,875	2,593	5,468	136,272	61,286	197,558
<i>District Ic:</i>									
Lane	23,461	12,856	36,317	2,396	1,196	3,592	25,857	14,052	39,909
Linn	4,951	8,577	13,528	136	1,502	1,638	5,087	10,079	15,166
Benton	1,140	3,313	4,453	128	275	403	1,268	3,588	4,856
Total	29,552	24,746	54,298	2,660	2,973	5,633	32,212	27,719	59,931
Total Dist. I.....	168,635	105,196	273,831	5,607	5,566	11,173	174,242	110,762	285,004
<i>District II:</i>									
Douglas	3,450	42	3,492	21	0	21	3,471	42	3,513
Jackson	2,605	607	3,212	179	68	247	2,784	675	3,459
Josephine	524	0	524	196	0	196	720	0	720
Total	6,579	649	7,228	396	68	464	6,975	717	7,692
<i>District III:</i>									
Wasco	36,030	23,721	59,751	1,814	1,265	3,079	37,844	24,986	62,830
Hood River	2,458	5,469	7,927	86	402	488	2,544	5,871	8,415
Total	38,488	29,190	67,678	1,900	1,667	3,567	40,388	30,857	71,245
<i>District IV:</i>									
Union	7,990	11,310	19,300	91	84	175	8,081	11,394	19,475
Umatilla	2,543	1,376	3,919	21	15	36	2,564	1,391	3,955
Total	10,533	12,686	23,219	112	99	211	10,645	12,785	23,430
Total	224,235	147,721	371,956	8,015	7,400	15,415	232,250	155,121	387,371

*For source of data see footnote. Table XII.

TABLE XVIII. PERCENTAGE DISTRIBUTION OF WHITE CHERRY TREES BASED ON VARIETY BY LEADING DISTRICTS AND COUNTIES IN OREGON, APRIL 1, 1930*

District and county	Royal Ann			Other white			All whites		
	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total	Bearing	Non-bearing	Total
	%	%	%	%	%	%	%	%	%
<i>District Ia:</i>									
Washington	24.8	75.2	100.0	100.0	0.0	100.0	24.9	75.1	100.0
Columbia	4.6	95.4	100.0	100.0	0.0	100.0	4.9	95.1	100.0
Total	20.7	79.3	100.0	100.0	0.0	100.0	20.9	79.1	100.0
<i>District Ib:</i>									
Marion	62.2	37.8	100.0	27.0	73.0	100.0	61.2	38.8	100.0
Polk	56.1	43.9	100.0	69.7	30.3	100.0	56.7	43.3	100.0
Yamhill	99.4	.6	100.0	100.0	0.0	100.0	99.4	.6	100.0
Total	69.4	30.6	100.0	52.6	47.4	100.0	69.0	31.0	100.0
<i>District Ic:</i>									
Laure	64.6	35.4	100.0	66.7	33.3	100.0	64.8	35.2	100.0
Linn	36.6	63.4	100.0	8.3	91.7	100.0	33.5	66.5	100.0
Benton	25.6	74.4	100.0	31.7	68.3	100.0	26.1	73.9	100.0
Total	54.4	45.6	100.0	47.2	52.8	100.0	53.7	46.3	100.0
Total Dist. I	61.6	38.4	100.0	50.2	49.8	100.0	61.2	38.8	100.0
<i>District II:</i>									
Douglas	98.8	1.2	100.0	100.0	0.0	100.0	98.8	1.2	100.0
Jackson	81.1	18.9	100.0	72.5	27.5	100.0	80.5	19.5	100.0
Josephine	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0
Total	91.0	9.0	100.0	85.3	14.7	100.0	90.7	9.3	100.0
<i>District III:</i>									
Wasco	60.3	39.7	100.0	58.9	41.1	100.0	60.2	39.8	100.0
Hood River	31.0	69.0	100.0	17.6	82.4	100.0	30.2	69.8	100.0
Total	56.9	43.1	100.0	53.3	46.7	100.0	56.7	43.3	100.0
<i>District IV:</i>									
Union	41.4	58.6	100.0	51.8	48.2	100.0	41.5	58.5	100.0
Umatilla	64.9	35.1	100.0	57.1	42.9	100.0	64.7	35.3	100.0
Total	45.4	54.6	100.0	53.8	46.2	100.0	45.4	54.6	100.0
Total	60.3	39.7	100.0	52.0	48.0	100.0	60.0	40.0	100.0

*Data based on Table XVII.

(Umatilla and Union counties) (8 per cent), being responsible for nearly all of the remainder (Table XI). In the Willamette Valley District itself, 55 per cent of that district's total was contributed by District 1b (Marion, Polk, and Yamhill counties), 25 per cent by District 1c (Lane, Linn, and Benton counties) and 20 per cent by District 1a (Washington and Columbia counties).

Within the more important counties themselves, the percentages of non-bearing whites to total whites ran as follows: Marion, 39 per cent; Polk, 43 per cent; Wasco, 40 per cent; Lane, 35 per cent; and Yamhill, .6 per cent (Table XVIII). Aside from the noteworthy point that Yamhill county had less than 300 trees of non-bearing age despite the fact that she ranked fourth among the counties of the state in total number of white cherry trees of all ages found within her boundaries, other changes of significance among the various counties calling for special comment occurred in Washington and Columbia counties. In the former more than 75 per cent of the whites of all ages, and in the latter more than 95 per cent, were found to be non-bearing. Hood River with 69 per cent and Benton with 74 per cent also showed considerable expansion in trees of non-bearing age when considered in terms of their own totals of all ages.

White cherry varieties. In 1930, 96 per cent of all whites in the state¹ were of the Royal Ann variety (Table XIV). The remaining 4 per cent were composed chiefly of varieties useful in pollinating, the Waterhouse probably being the most common. Since nearly all whites are Royal Anns, no useful purpose would be served in analyzing this variety in the fashion done for all whites or for the various varieties of blacks. For all practical purposes the analysis already made of all whites will serve equally well for the Royal Anns.

The percentage of "Other Whites" found in the Willamette Valley District (District 1) did not vary materially from that recorded for all whites in the state as a whole. Within the district itself, however, District 1c appeared to have a relatively larger ratio of these less desirable varieties and District 1b relatively fewer (Table XIV). In Eastern Oregon, District 3 (Wasco and Hood River counties), and in Southern Oregon, District 2 (Douglas, Jackson, and Josephine counties), appeared to have more than their proportionate share of "Other Whites."

SIZE OF ORCHARDS ON FARMS

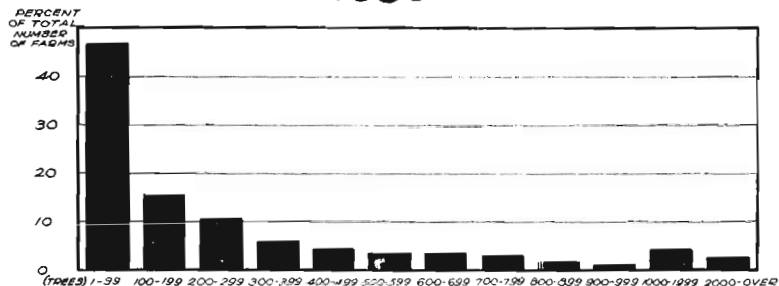
Most of Oregon's cherry crop was found to be produced on a relatively small number of farms² (Figure 6, Table XIX). Nearly 75 per cent of the total trees reported in the survey were planted on slightly more than 20 per cent of all the reporting farms. Of the total number of trees, 31 per cent were reported as growing on farms representing 2 per cent of the total number. Nearly one-half of the farms reporting had less than 100 trees on their places. If we allow 54 trees to the acre (the average prevailing in the state as calculated from this survey) an acreage of less than two

¹Leading cherry districts and counties in the state.

²Conclusion based on a sample of 847 reports received from growers in 1930. Data obtained through the office of F. L. Kent, Regional Statistician, U. S. Bureau of Agricultural Economics, Portland, Oregon.

acres was found to exist on nearly half the farms reporting. The business of growing cherries in Oregon has evidently gone a considerable distance in the direction of commercialization.

PERCENTAGE DISTRIBUTION OF CHERRY TREES ON SAMPLE FARMS IN OREGON 1930



PERCENTAGE DISTRIBUTION OF CHERRY TREES BY FARMS HAVING VARIOUS SIZES OF ORCHARDS, OREGON, 1930

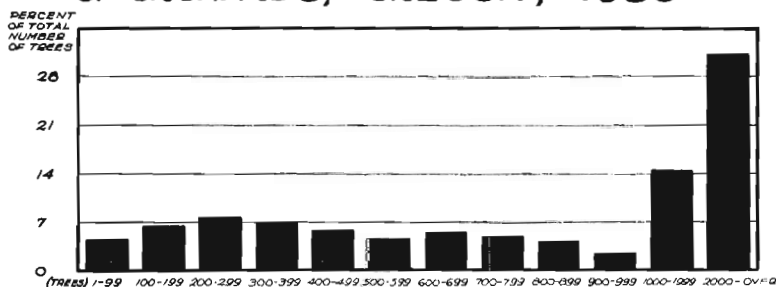


Figure 6

TABLE XIX. CLASSIFICATION OF CHERRY ORCHARDS IN OREGON
ACCORDING TO NUMBER OF TREES PER FARM, 1930*
(SAMPLE OF 847 REPORTS)

Class interval	Number of farms reporting	Total† number of trees	Average number trees per farm	Percentage of total	
				Number of farms	Number of trees
<i>Number of trees</i>				%	%
Less than 100	397	12,726	32	46.9	4.7
100- 199	130	17,619	136	15.4	6.5
200- 299	87	20,929	241	10.2	7.7
300- 399	56	18,584	310	6.6	6.9
400- 499	36	15,875	440	4.2	5.9
500- 599	25	13,406	536	3.0	4.9
600- 699	25	15,780	631	3.0	5.8
700- 799	20	14,428	721	2.4	5.2
800- 899	14	11,644	831	1.7	4.3
900- 999	7	6,495	928	.8	2.4
1000-1999	30	39,084	1,303	3.5	14.4
2000 and over.....	20	84,551	4,228	2.3	31.3
Total	847	271,121	320	100.0	100.0

*Data obtained through the office of F. L. Kent, Regional Statistician, U. S. Bureau of Agricultural Economics, Portland, Oregon.

†Includes both bearing and non-bearing trees.

TRENDS IN CANNED AND COLD CHERRY PACK NATIONAL, REGIONAL, AND STATE

CANNED PACK

Comparison with other fruits. Compared to other leading canned fruits, the volume of cherries of all kinds that are canned has not loomed large. Based on an average for the years 1925-1927 and 1929, cherries occupied seventh position among the leaders in the fruit canned in the United States, including Hawaiian pineapple (Figure 7). The proportion of all canned fruit packed as cherries was 5 per cent (Table XX). Although canned cherries registered a moderate gain in actual volume of pack during the period from 1919-1923 to 1925-1929 when compared to all canned fruits, there was a decline from 6 per cent of the total in the former period to 4.6 per cent in the latter. In recent years canned cherries and berries appear to have lost more ground proportionately than any of the other leading fruits. The only fruits to show relative gains were pears, Hawaiian pineapple, and "all other fruits" (Figure 8, Table XX).

Canned cherries also failed to keep pace with the rate of growth in the total canned pack of all fruits in Oregon or the Pacific Northwest (Figure 9, Table XXI). The average annual pack of cherries in 1919-1922 was 10.9 per cent of the canned pack of all fruits in Oregon. The same was true for the Pacific Northwest. In 1927-1931 the average had declined to 8.6 per cent for Oregon and 7.8 per cent for the Pacific Northwest.

Trends of canned cherry pack by leading states. The distribution of the volume of canned cherries of all kinds by leading states over a period of years is indicated in Figure 10 and Table XXII. Since these figures do not show a segregation of cherries by kind they are of less practical

CANNED PACK OF FRUITS IN THE UNITED STATES AND HAWAII, BY KIND

AVER OF YEARS 1925-1927 & 1929

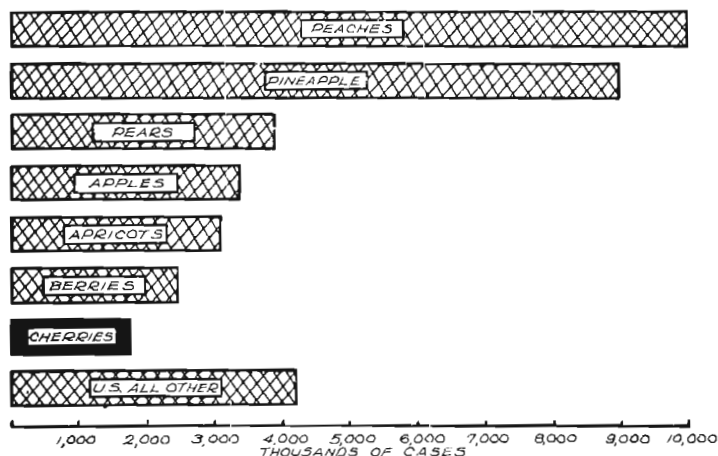


Figure 7

CANNED PACK OF FRUITS IN THE UNITED STATES AND HAWAII, BY KIND 1899 - 1929

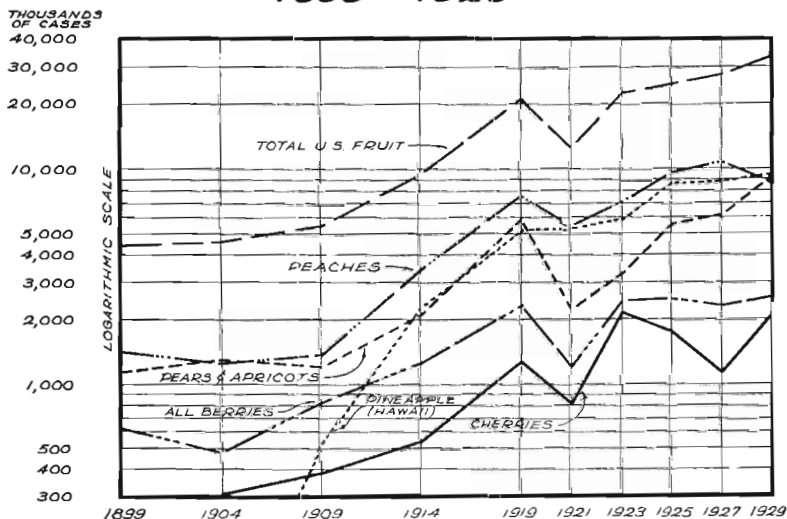


Figure 8

CANNED PACK OF CHERRIES AND OTHER FRUITS, OREGON & PACIFIC NORTHWEST 1919 - 1931

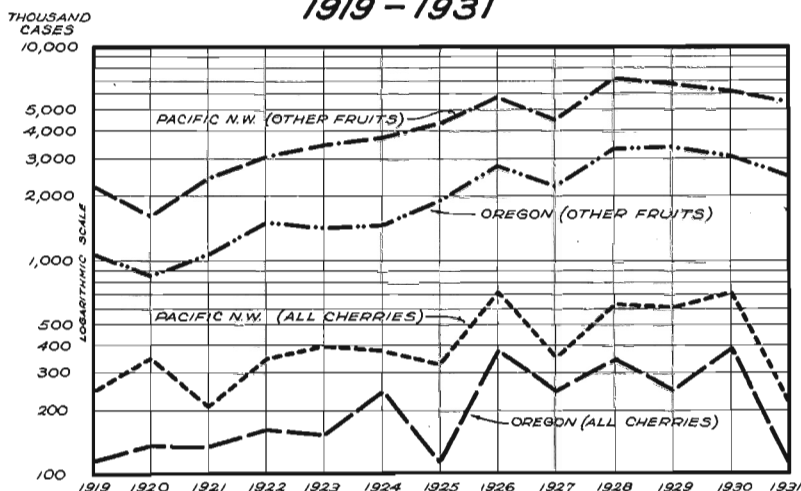


Figure 9

PERCENTAGE DISTRIBUTION OF CANNED CHERRY PACK, BY STATES, UNITED STATES, 1914 - 1929

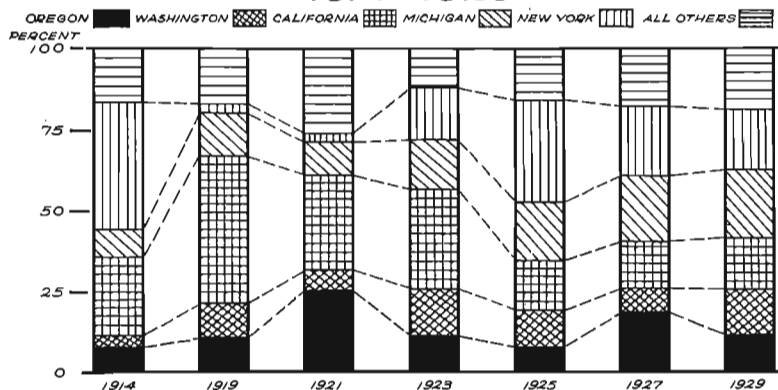


Figure 10

TABLE XX. CANNED FRUIT PACK IN THE UNITED STATES AND HAWAII, BY KIND, 1899-1929*

(Standard Cases, 1899-1923; Actual Cases, 1925-1929)

Year	Cherries	Peaches	Apricots	Pears	Apples	All berries	All other fruit	United States total	Hawaiian pineapple†	Grand total
	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>
1899	114,367	1,449,356	531,648	672,485	645,762	600,419	453,780	4,467,817	.....	4,467,817
1904	319,350	1,304,867	539,815	789,120	490,341	489,637	695,111	4,628,241	25,500	4,653,741
1909	390,351	1,467,213	630,185	637,782	1,205,742	815,851	354,280	5,501,404	510,000	6,011,404
1914	543,213	3,407,906	1,051,816	1,062,672	1,514,939	1,333,449	535,187	9,449,182	2,262,806	11,711,988
1919	1,362,832	7,706,855	3,939,768	2,021,610	2,447,927	2,347,213	1,606,188	21,432,393	5,071,976	26,504,369
1921	779,602	5,417,213	1,056,857	1,165,204	2,239,428	1,257,379	600,331	12,516,014	5,262,503	17,778,517
1923	2,123,541	7,039,334	1,561,658	1,817,924	2,726,498	2,447,494	2,612,508	20,328,957	5,895,747	26,224,704
1925	1,877,380	9,898,740	1,941,090	3,593,379	2,604,173	2,501,852	2,958,420	25,375,534	8,728,580	34,104,114
1927	1,229,386	11,305,057	3,099,357	2,953,502	2,939,031	2,374,588	3,663,420	27,564,341	8,879,252	36,443,593
1929	2,140,856	8,723,622	4,267,294	4,931,622	4,495,942	2,516,374	5,974,396	33,050,106	9,210,240	42,260,346
<i>Average</i>										
1899-1914	341,820	1,907,336	688,366	790,515	964,196	809,839	509,589	6,011,661	699,576	6,711,237
1919-1923	1,421,992	6,721,134	2,186,094	1,668,246	2,471,284	2,017,362	1,606,342	18,092,454	5,410,075	23,502,529
1925-1929	1,749,374	9,975,807	3,102,580	3,826,168	3,346,382	2,464,271	4,198,745	28,663,327	8,939,357	37,602,684
<i>Percentages of total average</i>	%	%	%	%	%	%	%	%	%	%
1899-1914	5.1	28.4	10.2	11.8	14.4	12.1	7.6	89.6	10.4	100.0
1919-1923	6.0	28.6	9.3	7.1	10.6	8.6	6.8	77.0	23.0	100.0
1925-1929	4.6	26.5	8.2	10.2	8.9	6.6	11.2	76.2	23.8	100.0

*Sources of information as follows: 12th Census of United States, 1900, Vol. 9, Manufactures, pt. 3, pp. 474-78; Census of Manufactures, 1905. Special reports of Census Office, Manufactures, pt. 3, pp. 410-12; 13th Census of United States, 1910, Vol. 10, Manufactures, pp. 391-397; Census of Manufactures, 1914 Special Reports of Census, Vol. 2, pp. 379-381; 14th Census of United States, 1920, Manufactures, Section on Canning and Preserving. For years 1921, 1923, 1925, and 1927 data obtained from Federal Census of Manufactures, Biennial Reports. Year 1929 from special advance reports received from United States Department of Commerce, Bureau of the Census (15th Census of the United States).

†Data obtained from Association of Hawaiian Pineapple Cannery, University of Hawaii, Honolulu, Hawaii.

import than the table that immediately follows (Table XXIII),¹ where comparisons are made between the sour and sweet cherry canned pack by regions over a period of years. According to this table, in the period 1926-1931 sours represented nearly 57 per cent of the canned pack of cherries put up in the leading states, and sweets 43 per cent. In the period covering the years 1919, 1921, and 1923 sweets averaged more than 63 per cent of the pack, and sours less than 37 per cent. Comparing the period 1920-1924 inclusive with that covering the period 1926-1931 inclusive, the average gain in the volume of canned sweets was 2,000 cases or 4 per cent (Table XXV); for sours 163,000 cases or 19 per cent (Table XXIV). The comparative gain of sours becomes more significant when one considers that in late years large inroads have been made on the canned sour pack by the rapid development of growing preference shown for sours in cold-pack form. In the case of sweets there has been no such development.

TABLE XXI. CANNED FRUIT PACK, OREGON AND PACIFIC NORTHWEST, 1919-1931*

Year	Oregon			Pacific Northwest		
	All cherries	All other fruits	Total	All cherries	All other fruits	Total
	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>
1919	120,181	1,113,555	1,233,736	251,052	2,266,445	2,517,497
1920	147,728	870,896	1,018,624	353,861	1,757,224	2,111,085
1921	142,429	1,162,008	1,304,437	211,783	2,465,990	2,677,773
1922	173,463	1,620,391	1,793,854	357,596	3,065,456	3,423,052
1923	168,859	1,564,472	1,733,331	399,425	3,509,736	3,909,161
1924	254,095	1,570,360	1,824,455	380,632	3,888,309	4,268,941
1925	118,401	1,958,719	2,077,120	329,924	4,361,943	4,691,867
1926	389,335	2,812,068	3,201,403	708,990	5,794,272	6,503,262
1927	251,735	2,256,510	2,508,245	359,144	4,523,198	4,882,342
1928	346,921	3,359,704	3,706,625	634,041	7,016,488	7,650,529
1929	263,058	3,371,779	3,634,837	607,962	6,850,618	7,458,580
1930	396,210	3,028,688	3,424,898	713,560	6,016,420	6,729,980
1931	114,886	2,571,103	2,685,989	212,118	5,450,360	5,662,478
Aver. 1919-22..	145,950	1,191,712	1,337,662	293,573	2,388,779	2,682,352
Aver. 1923-26..	232,672	1,976,405	2,209,077	454,743	4,388,565	4,843,308
Aver. 1927-31..	274,562	2,917,557	3,192,119	505,365	5,971,417	6,476,782
<i>Percentages</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
Aver. 1919-22..	10.9	89.1	100.0	10.9	89.1	100.0
Aver. 1923-26..	10.5	89.5	100.0	9.4	90.6	100.0
Aver. 1927-31..	8.6	91.4	100.0	7.8	92.2	100.0

*Data summarized from annual reports of Northwest Cannery Association, Portland, Oregon.

Since the great bulk of the sour cherry tree acreage is found in states located east of the Rocky Mountains, it is to be expected that most of the pack of this cherry is canned in that territory. In fact, in the 1926-1931 period more than 83 per cent of the average pack originated in the three foremost sour cherry producing states—namely, Michigan, New York, and Wisconsin. In earlier years the proportion of the national pack produced in these states has been even higher, but inroads have been made in recent years by other states, principally by Oregon, Washington, Utah, and Colorado. Except for Colorado it is only during the past decade that these states have begun to pack any significant portion of the national sour cherry pack. The average pack

¹This table and Tables XXIV and XXV were supplied through the courtesy of S. W. Shear, Agricultural Economist, Giannini Foundation, University of California, Berkeley, California.

TABLE XXII. CANNED CHERRY PACK BY STATES IN THE UNITED STATES, 1899-1929*

Year	Oregon	Washing- ton	Califor- nia	Utah	New York	Michigan	Colorado	All others	United States total
	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>
1899	14,570	†	49,374	165	21,207	1,417	†	28,878	115,611
1904	27,346	†	171,298	2,749	46,160	12,684	†	57,129	317,366
1909	22,770	†	224,084	†	90,445	20,572	8,470	24,010	390,351
1914	43,121	21,022	131,252	17,272	214,265	45,699	8,835	61,747	543,213
1919	149,203	146,782	618,210	33,079	30,636	184,472	51,929	148,521	1,362,832
1921	198,918	50,945	226,190	7,699	20,301	81,693	36,859	156,997	779,602
1923	233,596	314,562	648,339	36,273	353,370	326,927	†	210,474	2,123,541
1925	114,877	170,273	228,991	56,483	471,537	266,218	40,995	137,257	1,486,631
1927	228,308	94,008	174,297	37,808	266,051	250,069	60,270	118,575	1,229,386
1929-Total	248,892	305,785	332,297	66,343	402,573	452,362	106,762	225,842	2,140,856
Sweet	222,263	222,660	332,297	56,466	107,336	31,094	†	44,885	1,017,001
Sour	26,629	83,125	†	9,877	295,237	421,268	106,762	180,957	1,123,855
<i>Percentages of total</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
1899	12.6	†	42.7	.1	18.4	1.2	†	25.0	100.0
1904	8.6	†	54.0	.9	14.5	4.0	†	18.0	100.0
1909	5.8	†	57.4	†	23.2	5.3	2.2	6.1	100.0
1914	7.9	3.9	24.2	3.2	39.4	8.4	1.6	11.4	100.0
1919	10.9	10.8	45.4	2.4	2.3	13.5	3.8	10.9	100.0
1921	25.5	6.5	29.0	1.0	2.6	10.5	4.7	20.2	100.0
1923	11.1	14.8	30.5	1.7	16.6	15.4	†	9.9	100.0
1925	7.7	11.5	15.4	3.8	31.7	17.9	2.8	9.2	100.0
1927	18.6	7.7	14.2	3.1	21.6	20.3	4.9	9.6	100.0
1929-Total	11.6	14.3	15.5	3.1	18.8	21.1	5.0	10.6	100.0
Sweet	21.8	21.9	32.7	5.5	10.6	3.1	†	4.4	100.0
Sour	2.4	7.4	†	.8	26.3	37.5	9.5	16.1	100.0

*Sources of information:

Year 1899 from 12th Census of the United States, Vol. 9, Manufactures, pt. 3, pg. 474. Year 1904 from Special Reports of the Census Office, Manufactures, pt. 3, pg. 310. Year 1909 from 13th Census of United States, Vol. 9, Canning and Preserving, pg. 396. Year 1914, Census of Manufactures, 1914, Vol. 2, Canning and Preserving, pg. 333. Year 1919 from 14th Census of United States Manufactures, Canning and Preserving, pg. 18. Year 1921, Biennial Census of Manufactures, Department of Commerce, Canning and Preserving, pg. 63. Year 1923, Biennial Census of Manufactures, Canning and Preserving, pg. 72. Year 1925, Biennial Census of Manufactures, Canning and Preserving, pg. 79. Year 1927, Biennial Census of Manufactures, Canning and Preserving, Table 8. Year 1929 from special advance reports received from U. S. Department of Commerce, Bureau of Census (15th Census of the United States).

†Not reported separately in these years; hence included in "All others" column.

TABLE XXIII. PERCENTAGE OF SOUR AND SWEET CHERRY PACK BY LEADING STATES IN THE UNITED STATES*

	Crop years															Averages				
	1909	1914	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1909 and 1914	1919, 21,23	1920, 1924	1925, 27,29	1926, 1931
<i>Oregon:</i>	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Sour .....	†	.....	.....	.....	.....	6.0	3.8	2.9	5.4	4.0	10.5	7.1	9.4	9.9	31.3	.....	.....	4.2||	9.1	9.4
Sweet	100.0	100.0	100.0	100.0	100.0	94.0	96.2	97.1	94.6	96.0	89.5	92.9	90.6	90.1	68.7	100.0	100.0	95.8||	90.9	90.6
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Washing- ton:</i>																				
Sour .....	†	.....	.....	.....	.....	16.7	14.1	12.3	7.1	9.4	25.8	23.5	27.1	31.0	65.4	.....	.....	14.5||	20.4	26.1
Sweet	†	100.0	100.0	100.0	100.0	83.3	85.9	87.7	92.9	90.6	74.2	76.5	72.9	69.0	34.6	100.0	100.0	85.5||	79.6	73.9
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Idaho:</i>																				
Sour .....	†	.....	.....	.....	.....	6.9	7.9	50.0	3.3	7.7	20.0	5.7	5.9	5.6	19.9	.....	.....	12.0||	4.3	7.7
Sweet	†	100.0	100.0	100.0	100.0	93.1	92.1	50.0	96.7	92.3	80.0	94.3	94.1	94.4	80.1	100.0	100.0	88.0||	95.7	92.3
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Pacific North- west:</i>																				
Sour .....	†	.....	.....	.....	.....	10.6	9.1	7.1	6.1	6.4	14.9	13.5	18.1	19.6	45.3	.....	.....	8.9||	14.0	16.3
Sweet	100.0	100.0	100.0	100.0	100.0	89.4	90.9	92.9	93.9	93.6	85.1	86.5	81.9	80.4	54.7	100.0	100.0	91.1||	86.0	83.7
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Cali- fornia:</i>																				
Sour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweet	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Pacific Coast</i>																				
Sour .....	†	.....	.....	.....	.....	4.4	3.6	4.6	3.7	3.6	10.0	9.3	10.7	11.6	23.3	.....	.....	4.2	8.6	9.9
Sweet	100.0	100.0	100.0	100.0	100.0	95.6	96.4	95.4	96.3	96.4	90.0	90.7	89.3	88.4	76.7	100.0	100.0	96.8	91.4	90.1
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Utah:</i>																				
Sour .....	†	.....	.....	.....	.....	6.5	54.5	31.6	22.0	58.3	53.1	73.1	58.3	58.8	60.0	.....	.....	34.4||	46.0	60.4
Sweet	†	100.0	100.0	.....	100.0	93.5	45.5	68.4	78.0	41.7	46.9	26.9	41.7	41.2	40.0	100.0	100.0	65.6||	54.0	39.6
Total.....	.....	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Colorado:</i>																				
Sour	100.0	100.0	100.0	.....	100.0	.....	.....	.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sweet	0	0	0	.....	0	.....	.....	.....	0	0	0	0	0	0	0	100.0	100.0	0	0	0
Total.....	100.0	100.0	100.0	.....	100.0	.....	.....	.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

<i>New York:</i>																				
Sour	100.0	100.0	100.0	100.0	100.0	98.3	96.3	98.4	96.4	97.4	98.5	100.0	97.4	98.4	97.1	100.0	100.0	97.8**	97.1	98.1
Sweet		\$				1.7	3.7	1.6	3.6	2.6	1.5	0	2.6	1.6	2.9			2.2**	2.9	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Michigan:</i>																				
Sour	100.0	100.0	100.0		100.0	90.9	90.9	88.9	83.0	80.3	92.0	94.6	92.6	94.6	95.6	100.0	100.0	90.2**	89.8	92.7
Sweet		\$				9.1	9.1	11.1	17.0	19.7	8.0	5.4	7.4	5.4	4.4			9.8**	10.2	7.3
Total	100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Total N.Y. & Mich.:</i>																				
Sour	100.0	100.0	100.0	100.0	100.0	93.6	94.4	93.6	91.9	89.3	95.0	95.6	94.4	96.1	96.0	100.0	100.0	93.8	93.6	94.6
Sweet		\$				6.4	5.6	6.4	8.1	10.7	5.0	4.4	5.6	3.9	4.0			6.2	6.4	5.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Wisconsin:</i>																				
Sour		\$		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
Sweet		\$				5.6	4.9	5.1	7.4	0	0	0	0	0	0		0	0	0	0
Total				100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0
<i>Total New York, Michigan and Wisconsin:</i>																				
Sour	100.0	100.0	100.0	100.0	100.0	94.4	95.1	94.9	92.6	91.5	95.6	96.5	95.0	96.5	96.7	100.0	100.0	94.6	94.2	95.4
Sweet		\$				5.6	4.9	5.1	7.4	8.5	4.4	3.5	5.0	3.5	3.3			5.4	5.8	4.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Total states listed:</i>																				
Sour	33.2	53.7	25.8	34.3	39.2	60.1	42.8	64.4	57.1	45.2	54.3	58.7	51.5	58.7	77.3	42.3	36.5	52.7	51.0	56.9
Sweet	66.8	46.3	74.2	65.7	60.8	39.9	57.2	35.6	42.9	54.8	45.7	41.3	48.5	41.3	22.7	57.7	63.5	47.3	46.0	43.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* Data based on Tables XXIV and XXV.

† Data for Pacific Northwest States prior to 1922 include a small but unknown pack of sour cherries.

‡ Blanks indicate no data available.

\$ A small but unknown pack of sweet cherries was canned in Michigan and New York prior to 1922.

|| Four-year average, 1921-1924.

†† Computed on the basis of three years, 1922-1924, as data on the sour cherry pack are not available for the states indicated prior to 1922.

** Computed on the basis of three years, 1922-1924, as data on the sweet cherry pack are not available for the states indicated prior to 1922.

TABLE XXIV.* CANNED PACK OF SOUR CHERRIES BY LEADING STATES IN THE UNITED STATES†

Crop year	Pacific Northwest					States listed below					States listed total
	Oregon	Washing- ton	Idaho	Total	Utah	Colo- rado	New York	Michi- gan	Wiscon- sin	Total	
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases
1909†	||	||	||	||	||	7,000\$	82,000\$	18,000\$	-----	100,000	107,000
1914†	-----	-----	-----	-----	-----	7,000\$	178,000\$	38,000\$	-----	216,000	223,000
1919†	-----	-----	-----	-----	-----	47,000\$	27,000\$	164,000\$	65,000	256,000	303,000
1920†	-----	-----	-----	-----	-----	-----	389,000	-----	82,000	471,000	471,000
1921†	-----	-----	-----	-----	-----	34,000\$	27,000	75,000\$	131,000	233,000	267,000
1922	10,000	24,000	2,000	36,000	2,000	-----	426,000	700,000	178,000	1,304,000	1,342,000
1923	6,000	25,000	3,000	34,000	24,000	-----	369,000	200,000\$	88,000	657,000	715,000
1924	7,000	14,000	5,000	26,000	6,000	-----	430,000	400,000	235,000	1,065,000	1,097,000
1925	6,000	12,000	1,000	19,000	9,000	37,000	458,000	200,000	64,000	722,000	787,000
1926	15,000	25,000	3,000	43,000	21,000	92,000	374,000	290,000	203,000	867,000	1,023,000
1927	25,000	24,000	1,000	50,000	26,000	54,000	193,000	207,000	57,000	457,000	587,000
1928	23,000	55,000	2,000	80,000	38,000	10,000	159,000	665,000	230,000	1,054,000	1,182,000
1929	23,000	76,000	2,000	101,000	35,000	96,000	260,000	386,000	82,000	728,000	960,000
1930	24,000	78,000	2,000	104,000	50,000†	80,000	364,000	525,000	108,000	997,000	1,231,000
1931	36,000†	58,500†	1,500†	96,000†	3,000†	50,000	201,000	656,000	200,000	1,057,000	1,206,000
Averages: *†											
1909 and 1914†	-----	-----	-----	-----	-----	7,000	130,000	28,000	-----	158,000	165,000
1919, 21, 23†	-----	-----	-----	-----	-----	40,000††	141,000	146,000	95,000	382,000	422,000
1920-24	8,000††	21,000††	3,000††	32,000††	11,000††	40,000\$§	328,000	315,000||	143,000	786,000	869,000
1925, 27, 29	18,000	37,000	1,000	56,000	23,000	62,000	304,000	264,000	68,000	636,000	777,000
1925-29	18,000	38,000	2,000	58,000	26,000	58,000	289,000	350,000	127,000	766,000	908,000
1926-31	24,000	53,000	2,000	79,000	29,000	64,000	258,000	455,000	147,000	860,000	1,032,000

Percentages

	%	%	%	%	%	%	%	%	%	%	%
1909						6.6	76.6	16.8		93.4	100.0
1914						3.1	79.8	17.1		96.9	100.0
1919						15.5	8.9	54.1	21.5	84.5	100.0
1920							82.6		17.4	100.0	100.0
1921						12.7	10.1	28.1	49.1	87.3	100.0
1922 .....	.7	1.8	.15	2.65	.15		31.7	52.2	13.3	97.2	100.0
1923 .....	.8	3.5	.4	4.7	3.4		51.6	28.0	12.3	91.9	100.0
1924 .....	.6	1.3	.5	2.4	.5		39.2	36.5	21.4	97.1	100.0
1925 .....	.8	1.5	.1	2.4	1.1	4.8	58.2	25.4	8.1	91.7	100.0
1926	1.5	2.4	.3	4.2	2.1	9.0	36.6	28.3	19.8	84.7	100.0
1927	4.2	4.1	.2	8.5	4.4	9.2	32.9	35.3	9.7	77.9	100.0
1928	1.9	4.7	.2	6.8	3.2	.8	13.5	56.3	19.4	89.2	100.0
1929	2.4	7.9	.2	10.5	3.7	10.0	27.1	40.2	8.5	75.8	100.0
1930	1.9	6.3	.2	8.4	4.1	6.5	29.6	42.6	8.8	81.0	100.0
1931	3.0	4.9	.1	8.0	.2	4.1	16.7	54.4	16.6	87.7	100.0
Averages: 1909 and 1914						4.2	78.8	17.0		95.8	100.0
1919, 21, 23						9.5††	33.4	34.6	22.5	90.5	100.0
1920-24 .....	.9††	2.4††	.4††	3.7††	1.3††	4.6§§	37.7	36.2|||	16.3	90.4	100.0
1925, 27, 29	2.3	4.8	.1	7.2	3.0	8.0	39.1	34.0	8.7	81.8	100.0
1925-29	2.0	4.2	.2	6.4	2.9	6.4	31.8	38.5	14.0	84.3	100.0
1926-31	2.3	5.2	.2	7.7	2.8	6.2	25.0	44.1	14.2	83.3	100.0

*Sources of information. This table has been adapted from a similar table furnished by S. W. Shear, Giannini Foundation. Data marked § based on reports of the U. S. Census of Manufactures. Other data for individual states based on the following sources: Michigan, 1922, estimated from total cherry pack in Michigan Crop Report for 1922, p. 11; 1924, rough estimate by the author (Shear); 1925-1929, mimeographed reports of the Michigan Crop Reporting Service on quantity of fruit bought by Michigan canners, converted at 45 pounds of fresh unprepared fruit per case of 21 No. 2½ cans. (These data may include some fruit utilized for cold or frozen pack as well as for canning); 1930, from data assembled and compiled by C. A. Scholl, Department of Economics, Michigan State College. "Other States" based upon annual reports of respective canners' associations of Pacific Northwest, Utah, and New York converted as indicated above except that data for Wisconsin cover only the Door County pack made available through the canneries operating at Sturgeon Bay.

†Equivalent cases of 24 No. 2½ cans.

‡Data for New York and Michigan prior to 1923 include a small but unknown pack of sweet cherries.

§Data so marked are based on reports of the U. S. Census of Manufactures.

||Dashes indicate no data available. A small but unknown pack of sour cherries was canned in the Pacific Northwest states and Utah prior to 1922.

|||Data from annual reports of the Northwest Canners Association. Idaho's pack was arrived at by assuming it to be the same percentage of the Pacific Northwest pack as obtained in 1930.

**Totals and subtotals for averages as shown are the sum of the averages for appropriate individual states (and hence check by horizontal addition but may not by vertical addition).

††Two-year average, 1919 and 1921.

‡‡Three-year average, 1922-1924.

§§Estimated.

|||The 1920 pack for Michigan was assumed to be 200,000 cases in computing the 1920-1924 average.

¶¶In a letter dated February 4, 1933, Dr. Shear states that the Secretary of the Utah Canners Association is of the opinion that not more than 25 per cent of the canned pack of cherries for the past three years has consisted of sour cherries.

TABLE XXV.* CANNED PACK OF SWEET CHERRIES BY LEADING STATES IN THE UNITED STATES†

Crop year	Pacific Northwest‡						States listed below				States listed total
	Oregon	Washington	Idaho	Total	California	Pacific Coast total	Utah	New York	Michigan	Total	
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	
1909†	20,000§	18,000§	10,000§	20,000	195,000§	215,000					215,000
1914†	37,000§			65,000	113,000§	178,000					192,000
1919†	133,000	131,000	24,000	288,000	552,000§	840,000	14,000§				870,000
1920†	140,000	164,000	30,000	334,000	570,000	904,000	30,000§				904,000
1921†	134,000	48,000	18,000	200,000	207,000§	407,000					414,000
1922	157,000	120,000	27,000	304,000	480,000	784,000	7,000§	7,000	70,000	77,000	890,000
1923	153,000	152,000	35,000	340,000	560,000	900,000	29,000	14,000	20,000§	34,000	954,000
1924	233,000	100,000	5,000	338,000	200,000	538,000	20,000	7,000	50,000	57,000	608,000
1925	106,000	157,000	29,000	292,000	210,000	502,000	13,000	17,000	41,000	58,000	592,000
1926	358,000	240,000	36,000	634,000	510,000	1,144,000	32,000	10,000	71,000	81,000	1,240,000
1927	212,000	69,000	4,000	285,000	165,000	450,000	15,000	3,000	18,000	21,000	494,000
1928	300,000	179,000	33,000	512,000	268,000	780,000	23,000	0	38,000	38,000	832,000
1929	221,000	205,000	32,000	458,000	382,000	840,000	14,000	7,000	31,000	38,000	903,000
1930	219,000	174,000	34,000	427,000	369,000	796,000	25,000	6,000	30,000	36,000	867,000
1931	78,990	30,892	6,038	115,920**	199,801††	315,721	35,000††	2,000††	6,000††	30,000††	353,721
Average:§§ and 1909											
1914	29,000	18,000||	10,000||	57,000	154,000	211,000	14,000||				225,000
1919											
21, 23	140,000	110,000	26,000	276,000	440,000	716,000	19,000				735,000
1920											
24	163,000	117,000	23,000	303,000	403,000	706,000	17,000¶¶	9,000***	47,000***	56,000***	779,000
1925											
27, 29	179,000	144,000	22,000	345,000	252,000	597,000	27,000	9,000	30,000	39,000	663,000
1925											
29	239,000	170,000	27,000	436,000	307,000	743,000	22,000	7,000	40,000	47,000	812,000
1926											
31	231,000	150,000	24,000	405,000	316,000	721,000	19,000	5,000	36,000	41,000	781,000
Percent- ages	%	%	%	%	%	%	%	%	%	%	%
1909	9.3			9.3	90.7	100.0					100.0
1914	19.3	9.4	5.2	33.9	58.8	92.7	7.3				100.0
1919	15.3	15.1	2.7	33.1	63.4	96.5	3.5				100.0
1920	15.5	18.1	3.3	36.9	63.1	100.0					100.0
1921	32.4	11.6	4.3	48.3	50.0	98.3	1.7				100.0
1922	17.6	13.6	3.0	34.2	53.9	88.1	3.2	.8	7.9	8.7	100.0

1923..	16.0	15.9	3.7	35.0	58.7	94.3	2.1	1.5	2.1	3.6	100.0
1924..	38.3	16.5	.8	55.6	32.9	88.5	2.1	1.2	8.2	9.4	100.0
1925..	17.9	26.5	4.9	49.3	35.5	84.8	5.4	2.9	6.9	9.8	100.0
1926..	28.9	19.4	2.9	51.2	41.1	92.3	1.2	.8	5.7	6.5	100.0
1927..	42.9	14.0	.8	57.7	33.4	91.1	4.7	.6	3.6	4.2	100.0
1928..	36.1	21.5	3.9	61.5	32.2	93.7	1.7	0	4.6	4.6	100.0
1929..	24.5	22.7	3.5	50.7	42.3	93.0	2.8	.8	3.4	4.2	100.0
1930..	25.3	20.1	3.9	49.3	42.5	91.8	4.0	.7	3.5	4.2	100.0
1931..	22.3	8.8	1.7	32.8	56.5	89.3	.5	1.7	8.5	10.2	100.0
<i>Averages:</i>											
1909 and 1914..	12.9	8.0|||	4.4|||	25.3	68.5	93.8	6.2|||	-----	-----	-----	100.0
1919, 21, 23 1920-24.....	19.0	15.0	3.5	37.5	59.9	97.4	2.6	-----	-----	-----	100.0
1925, 27, 29 1925-29.....	20.9	15.0	3.0	38.9	51.7	90.6	2.2||	1.2**	6.0***	7.2	100.0
1926-31.....	27.0	21.7	3.3	52.0	38.0	90.0	4.1	1.4	4.5	5.9	100.0
	29.4	21.0	3.3	53.7	37.8	91.5	2.7	.9	4.9	5.8	100.0
	29.6	19.2	3.1	51.9	40.4	92.3	2.4	.7	4.6	5.3	100.0

*Sources of information. This table has been adapted from a similar table furnished by S. W. Shear, Giannini Foundation. Data marked with superscript § based upon reports of the U. S. Census of Manufactures. Other data for individual states based upon the following sources: Michigan--1922, estimate for total cherry pack in Michigan, Crop Report for 1922, p. 11; 1924, rough estimate by the author (Shear); 1925-1929, mimeographed reports of the Michigan Crop Reporting Service on quantity of fruit bought by Michigan canners, converted at 35 pounds of fresh unprepared fruit per case of 24 No. 2½ cans. (these data may include some fruit utilized for cold or frozen pack as well as for canning); 1930, from data assembled and compiled by C. A. School, Department of Economics, Michigan State College. Other states based upon annual reports of respective canners' associations of California, Pacific Northwest, Utah, and New York, converted as indicated above, or for California in some years by applying percentage equivalents based upon Pacific Northwest data to actual number of cases except percentage equivalent for California for 1920 interpolated.

†Equivalent cases of 24 No. 2½ cans.

‡Data for Pacific Northwest states prior to 1922 include a small but unknown pack of sour cherries.

§Data so marked are based on reports of the United States Census of Manufactures.

|| Dashes indicate no data available.

||| A small but unknown pack of sweet cherries was canned in Michigan and New York prior to 1922.

**Figures summarized from annual reports of Northwest Canners' Association.

††Figures from Canners League of California.

‡‡In a letter dated February 4, 1933, Dr. Shear states that the Secretary of the Utah Canners' Association is of the opinion that not more than 25 per cent of the canned pack of cherries for the last 3 years has consisted of sour cherries.

§§Totals and subtotals for averages as shown are the sum of the averages for appropriate individual states (and hence check by horizontal addition but may not by vertical addition).

||| Data for year 1914 only.

|| Four-year average, 1921-1924.

***Three-year average, 1922-1924.

for the years 1926-1931 amounted to 2 per cent of the total of the chief producing states in Oregon's case, slightly more than 5 per cent for Washington, 3 per cent for Utah, and nearly 7 per cent for Colorado. Among the three leading Eastern states New York and Wisconsin have lost considerable ground in recent years to Michigan (Table XXIV).

Since nearly all of the sweet cherry trees grow west of the Rockies, the bulk of the canned sweet cherry pack naturally originates in this territory. During the period 1926-1931, 92 per cent of the average pack in the chief producing states originated in the four Pacific Coast states, and if Utah is included the total is raised to 95 per cent. The bulk of the remainder came from Michigan (Table XXV).

CANNED PACK OF ROYAL ANNE CHERRIES, PACIFIC NORTHWEST, OREGON, AND CALIFORNIA, 1919-1931

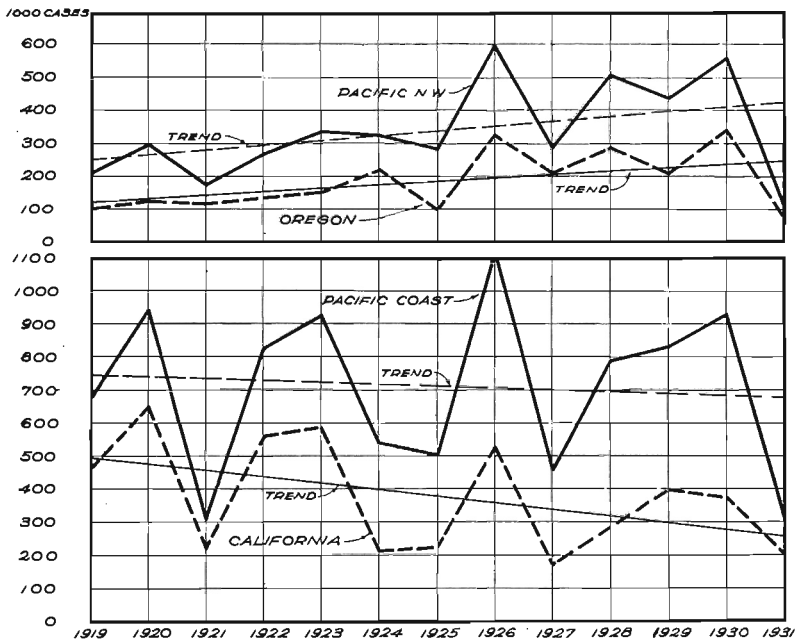


Figure 11

Very few sweet cherries other than the Royal Ann have been canned anywhere in the country. During the period 1926-1931 California was responsible for 44 per cent of the average pack of this variety canned in the five western states (Table XXVI).¹ There was a time in her history, however, when she controlled more than 90 per cent of the pack (1909). Since that time California's proportion has shown a steady decline, and during the past decade the actual volume of her pack also declined (Figure 11). The slack has been taken up to a considerable extent by increases in the Pacific Northwest. In the period 1909-1914 this territory accounted for slightly

¹The figures given for California in Table XXVI are for all cherries, but it understood that these are virtually identical with Royal Anns since California cans no other kinds of cherries in commercial quantities.

more than 23 per cent of the average national pack; in 1926-1931 it averaged 49 per cent (Table XXV).¹ Oregon and Washington were responsible for virtually all of this increase. There was practically no gain in Idaho's pack and very little in that of Utah, Michigan, and New York. The increase in pack from Oregon and Washington was scarcely adequate to offset the heavy decline in California's pack. Hence, as Figure 11 indicates, the trend for the Pacific Coast as a whole has been slightly downward.

TABLE XXVI. CANNED CHERRY PACK, WESTERN STATES, 1919-1931*

Year	All cherries		Royal Anns		California	Pacific Northwest and California	Utah
	Pacific Northwest	Oregon	Pacific Northwest	Oregon			
	I Cases	II Cases	III Cases	IV Cases	V Cases	VI Cases	VII Cases
1919	251,052	120,181	207,620	100,471	460,614	668,234	.....
1920	353,861	147,728	292,643	123,501	647,977	940,620	.....
1921	211,783	142,429	175,145	119,071	222,772	397,917	.....
1922	357,596	173,463	264,213	132,798	357,591	821,804	.....
1923	399,425	168,859	333,085	149,396	590,685	923,770	.....
1924	380,632	254,095	326,057	218,311	215,114	541,171	.....
1925	329,924	118,401	282,232	97,558	222,816	505,048	44,587
1926	708,990	389,335	594,919	324,508	526,520	1,121,439	55,961
1927	359,144	251,735	287,315	207,681	170,909	458,224	52,015
1928	634,041	346,921	507,233	286,210	280,126	787,359	59,355
1929	607,962	263,058	436,308	205,180	393,750	830,058	63,029
1930	713,560	396,210	557,775	339,327	369,370	927,145	90,538
1931	212,118	114,886	106,680	71,768	199,801	306,481	4,389
Average 1926-1931	539,302	293,691	415,038	239,112	323,413	738,451	54,215

*Sources of data:

Oregon and Pacific Northwest figures summarized from annual reports of the Northwest Canners' Association. California figures were obtained from Canners' League of California, annual reports and special correspondence. Utah figures from Utah Canners Association, special correspondence. See also California Agricultural Experiment Station Bulletin 488 "Cherries." Figures in this table do not correspond exactly with those in Table XXII since the data were obtained from different sources.

I. Includes Oregon, Washington, and Idaho.

III and IV. The Northwest Canners' Association published the canned cherry pack by kind for the years 1922-1926, and 1929-1931. Years prior to 1922 were assumed to have the same proportion of Royal Ann pack as the average for the years 1922-1926; years 1927 and 1928 were assumed to have the same proportion of Royal Ann pack as the average of adjacent years, 1925-1926 and 1929-1930. See also Table XXVII.

V. Practically the entire canned pack of California cherries is made up of Royal Anns.

VI. Combines columns III and V.

VII. Includes pack of all cherries. Information from Utah Canners Association indicates that over a period of years the proportion packed will be about 60 per cent sweet cherries and 40 per cent red sour cherries, although in 1930-31 the proportion was about half and half.

Canned cherries by kind in Oregon and the Pacific Northwest. The Royal Ann is by far the most important cherry from the canning standpoint in either Oregon or the Pacific Northwest. In the period 1929-1931 nearly 80 per cent of Oregon's average cherry pack and 72 per cent of that of the Pacific Northwest was composed of the Royal Ann (Figure 12, Table XXVII). Of the total pack of Royal Anns in the Pacific Northwest, Oregon's share in recent years has probably not been far from 55 per cent; Washington's, 39 per cent; and Idaho's, 6 per cent. In the course of the

¹This table includes all sweet cherries. It is assumed that 90 per cent of the Northwest pack are Royal Anns.

past decade, Washington's percentage appears to have deviated very little from this figure, but Oregon gained slightly at the expense of Idaho.

Next in importance in Oregon and the Pacific Northwest is the canned pack of sours. In 1929-1931 it averaged nearly 12 per cent of the total pack of cherries in Oregon and more than 21 per cent in the Pacific Northwest (Figure 12, Table XXVII). As far back as records go (1922) with but few exceptions Washington has packed more than twice as many cases of sours as Oregon. During the past decade her proportion of the Pacific Northwest pack deviated very little from 65 per cent. Oregon's share rose slightly from approximately 25 per cent to 31 per cent, and Idaho's dropped from about 9 per cent to 3.5 per cent of the total (Table XXIV).¹

TABLE XXVII. CHERRIES: VOLUME OF CANNED PACK BY KIND, OREGON AND PACIFIC NORTHWEST, AVERAGE 1922-26, AND 1929-1931*

Item	Average 1922-26	1929	1930	1931	Average 1929-31
	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>
<i>Oregon:</i>					
Black	26,737	31,216	29,294	7,222	22,577
Royal Ann	184,514	205,180	339,327	71,768	205,425
Sour	9,580	26,662	27,589	35,896	30,049
Total	220,831	263,058	396,210	114,886	258,051
<i>Pacific Northwest:</i>					
Black	41,379	57,403	39,114	9,240	35,252
Royal Ann	360,101	436,308	557,775	106,680	366,921
Sour	33,833	114,251	116,671	96,198	109,040
Total	435,313	607,962	713,560	212,118	511,213
	%	%	%	%	%
<i>PERCENTAGES OF TOTAL</i>					
<i>Oregon:</i>					
Black	12.1	12.0	7.0	6.0	8.8
Royal Ann	83.6	78.0	86.0	63.0	79.6
Sour	4.3	10.0	7.0	31.0	11.6
Total	100.0	100.0	100.0	100.0	100.0
<i>Pacific Northwest:</i>					
Black	9.5	9.0	5.0	4.0	6.9
Royal Ann	82.7	72.0	78.0	51.0	71.8
Sour	7.8	19.0	17.0	45.0	21.3
Total	100.0	100.0	100.0	100.0	100.0

*Data summarized from annual reports of Northwest Cannery Association.

Of least importance in both Oregon and the Pacific Northwest is the canned black cherry pack. In 1929-1931 it averaged less than 9 per cent of the total cherry pack in Oregon and about 7 per cent of that in the Pacific Northwest (Figure 12, Table XXVII). The black cherry has always found its market outlet principally as a fresh shipping cherry. The percentage decline in the canned pack of blacks in Oregon and the Pacific Northwest during the past decade is nearly as striking as the increase in the pack of sours. In Oregon in the period 1920-1926 the pack of blacks averaged about 12 per cent of all cherries; in 1929-1931 the average had shrunk to less than 9 per cent. Similarly in the Pacific Northwest there was a shrinkage from 9.5 per cent to less than 7 per cent. A decline took place not only in proportion to the canned cherry pack as a whole but in actual number of cases packed as well.²

¹It will be noted that there is some discrepancy between the statistics recorded in this table and those in Table XXVII. The two tables are based on different sources of information.

²Table XXVIII shows the volume of canned pack by kind and size of container in Oregon and the Pacific Northwest over a period of years. Because its contents are thought to be self-explanatory it is inserted without comment.

TABLE XXVIII. CHERRIES: VOLUME OF CANNED PACK BY KIND AND SIZE OF CONTAINER, OREGON AND PACIFIC NORTHWEST, AVERAGE 1922-23; 1924-26; AND 1929-31*

Cherries and size can	Oregon			Pacific Northwest		
	Average 1922-23	Average 1924-26	Average 1929-31	Average 1922-23	Average 1924-26	Average 1929-31
	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>
Black						
8 oz.			1,327			1,883
48 No. 1	259	561	543	395	635	681
24 No. 2	700	712	713	1,330	917	931
24 No. 2½	11,411	13,588	8,206	19,621	16,744	12,190
6 No. 10	8,476	15,833	11,788	18,306	24,234	19,567
Total	20,846	30,664	22,577	39,652	42,530	35,252
Royal Ann						
8 oz.		915	28,578		915	40,552
48 No. 1	6,262	23,409	15,558	21,395	55,012	35,891
24 No. 2	7,772	8,951	13,454	22,430	26,370	38,448
24 No. 2½	88,045	103,144	83,100	184,058	200,690	152,876
6 No. 10	39,018	77,040	64,735	70,746	118,082	99,154
Total	141,097	213,459	205,425	298,649	401,069	366,921
Sour						
8 oz.			121			273
48 No. 1	8	62	61	52	387	97
24 No. 2	307	312	6,141	3,259	1,876	9,410
24 No. 2½	2,797	79		4,054	397	2,127
6 No. 10	6,105	9,368	23,726	32,844	26,923	97,133
Total	9,217	9,281	30,049	40,209	29,583	109,040

*Data summarized from annual reports of Northwest Cannery Association.

RELATIVE IMPORTANCE OF VOLUME OF CANNED CHERRIES BY KIND, OREGON AND PACIFIC NORTHWEST
(BASIS, 1929-'31 AVERAGE NO. OF CASES)

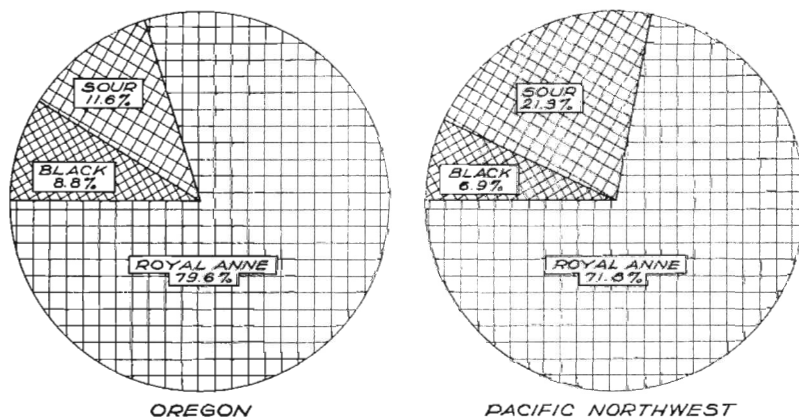


Figure 12

Opening prices of canned cherries compared to other canned fruits. It is of interest to compare canned-cherry opening prices with those of other fruits and to note the influence exerted on such prices by canning costs. In the period 1927-1931 only three other fruits had higher average opening prices—namely, strawberries, and red and black raspberries (Figure 13, Table XXIX). As this figure and table disclose, among the cherries themselves blacks commanded slightly higher prices than Royal Anns, and the latter sold somewhat higher than sour.

The influence exercised by canning costs upon opening prices may be seen in Figures 14 and 15 and Table XXX where opening prices are compared with the average direct costs of the various canned fruits. The direct costs shown include the average cost of fruit, direct labor, sugar, labels, cases, and cans. Other cost items such as indirect labor, fuel, administration and selling expense are not included; hence the remainder of

COMPARATIVE OPENING PRICES OF OREGON AND CALIFORNIA CANNED FRUITS, 1927-1931 AVER.

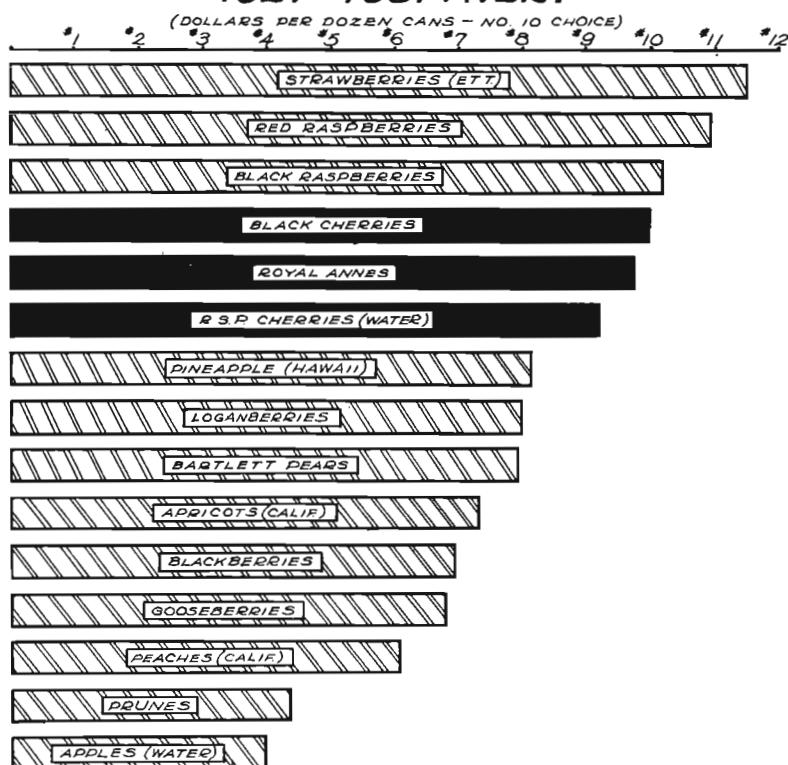


Figure 13

TABLE XXIX. AVERAGE OPENING PRICES OF OREGON CANNED CHERRIES,
BY KIND, 1925-1931*
(DOLLARS PER DOZEN NO. 10 CANS)

Year	Royal Anns			Black cherries			Sour cherries water pitted
	Fancy	Choice	Water pitted	Fancy	Choice	Water pitted	
1925	\$11.10	\$10.10	\$ 7.80	\$10.65	\$ 9.60	\$ 7.85	\$ 9.00
1926	11.25	10.50	8.00	11.50	10.50	8.00	9.25
1927	11.00	10.00	8.00	12.00	10.50	8.50	10.00
1928	11.35	10.35	7.90	11.35	10.35	7.90	10.00
1929	11.80	10.80	7.75	11.60	10.60	8.00	10.00
1930	11.25	10.45	7.75	11.75	10.65	7.85	10.00
1931	7.85	7.15	4.50	8.85	7.85	4.50	6.00
Average 1927-31 ..	\$10.65	\$ 9.75	\$ 7.18	\$11.11	\$10.00	\$ 7.35	\$ 9.20

*These data were computed from opening price lists furnished by several representative canneries in Oregon. Owing to the precipitous decline in the price of canned fruits in general during 1930-31, the opening prices in these years are probably too high as reflecting actual selling price.

Note: Following are the reasons offered for canned black cherries averaging somewhat higher in opening price than canned Royal Anns, though the price paid for raw fruit is somewhat less:

1. Re-enameled cans are generally used in canning black cherries, which cost more than the plain can used for Royal Anns.
2. Greater spoilage of blacks makes it necessary for cannerymen to be protected by higher price.
3. Small volume of blacks as compared to canned Royal Anns.

DIRECT COSTS AND OPENING PRICE OF OREGON CANNED FRUITS 1927-1931 AVER.

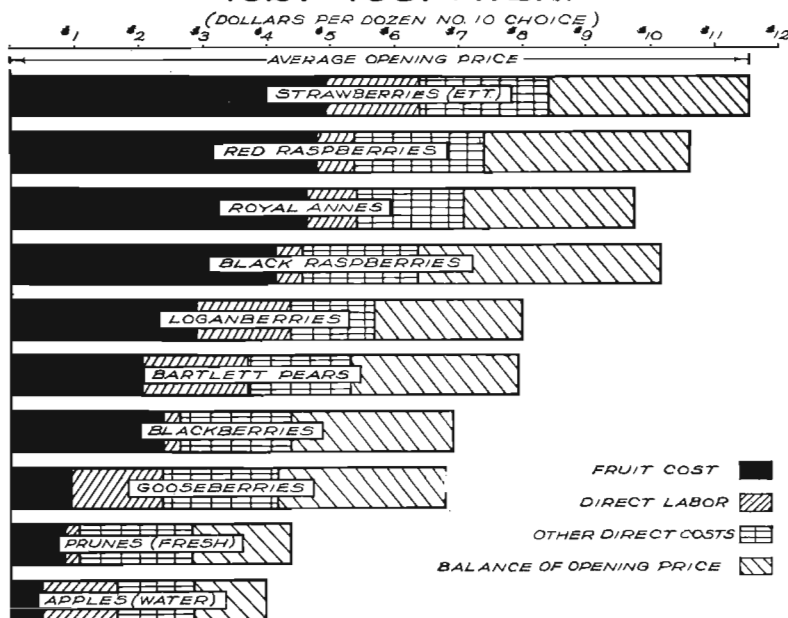


Figure 14

the opening price here shown should not be interpreted as the canner's margin of profit.

The explanation of the wide divergence in opening prices of the various fruits is found to a large extent in the wide differences in the direct costs themselves. As will be noted in Figures 14 and 15, the direct costs and also the prices paid growers range downward, in harmony with the downward direction taken by the opening prices themselves, in a fairly constant relationship.

In the period in question the higher cost of the fresh fruit accounted chiefly for the relatively high opening prices prevailing for canned cherries. A factor in the case of the sweet cherry is also the danger of spoilage, because tin cans cannot withstand the corrosive tendencies of the product as successfully as most other fruits. Red sours give little if any trouble in this respect, but the black cherry is particularly susceptible to this menace—more so than the Royal Ann. When determining his opening price the canner probably takes into account the risk of loss due to (1) deterioration of stocks on hand and (2) claims for adjustment from customers due to spoilage.

PRICES PAID GROWERS IN OREGON AND CALIFORNIA FOR FRESH FRUITS USED IN PROCESSING, 1927-1931 AVERAGE

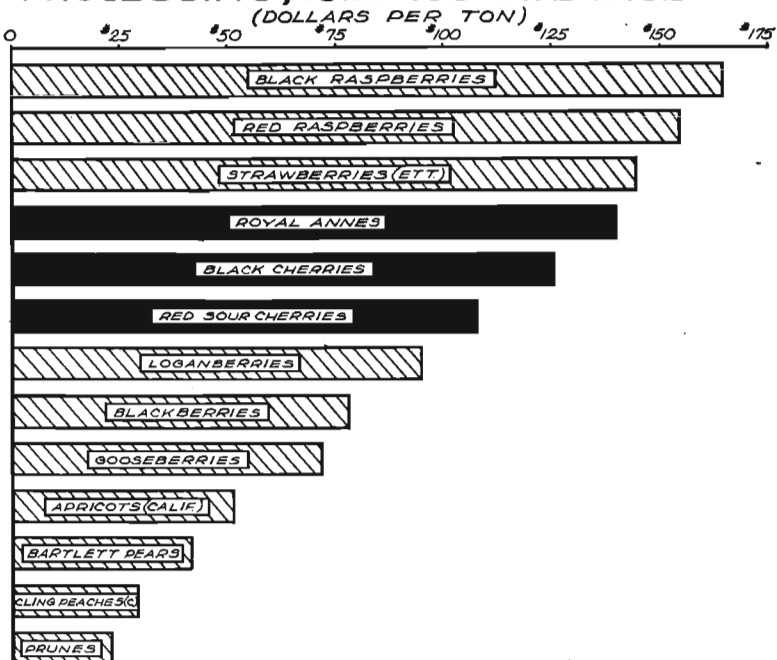


Figure 15

TABLE XXX. AVERAGE FRESH-FRUIT REQUIREMENTS AND DIRECT COSTS OF CANNED FRUITS, OREGON 1927-1931 AVERAGE (PER DOZEN NO. 10 CANS)

Grade and kind	Fresh fruit re-quirements I	Cost of fruit per lb. II	Total cost of fruit III	Direct labor IV	Other direct costs V	Total direct costs VI	Open- ing prices 1927-1931 Average VII
	Pounds						
<i>Choice</i>							
Strawberries (Ettersburg)	68	7.2¢	\$4.90	\$1.50	\$2.01	\$8.41	\$11.51
Red raspberries	62	7.7	4.77	.62	2.01	7.40	10.59
Royal Anns	66.5	7.0	4.65	.81	1.62	7.08	9.75
Black raspberries	51	8.2	4.18	.38	1.78	6.34	10.18
Loganberries	61	4.8	2.93	.48	2.28	5.69	8.00
Bartlett pears	98	2.1	2.06	1.65	1.62	5.33	7.95
Blackberries	60.5	3.9	2.36	.28	1.71	4.35	6.91
Gooseberries	54	3.6	1.94	.40	1.83	4.17	6.80
Prunes, fresh	60	1.16	.70	.40	1.73	2.83	4.35
Pineapple (Hawaii)							8.17
Apricots (California)	71	2.6	1.85				7.30
Peaches (California)	90	1.47	1.32				6.10
<i>Water Pitted</i>							
Red sours	92	5.4	4.97	.58	1.25	6.80	9.20
Royal Anns	80	3.5*	2.80	.69	1.14	4.63	7.18
Prunes	75	1.16	.87				4.26
<i>Water Apples</i>							
Apples	142	0.35	.50	1.18	1.15	2.83	3.99

I. Based on data obtained from a number of cooperative canneries in Oregon covering the period 1924 to 1928. Assistance was also rendered by the Horticultural Products Department, Oregon Agricultural Experiment Station, in arriving at these averages. Royal Anns (unpitted) and strawberries are seldom packed in water. The water pack of red raspberries will average about 67 pounds of fruit. Fewer pounds of black raspberries are required because they absorb moisture and swell a lot when canned. Loganberries, water pack, will average about 63 pounds of fruit; blackberries, 66 pounds; and prunes about 62 pounds. Most of the gooseberries are packed in water and the fruit requirements will average about the same as above.

II. Oregon cherry figures from same source as price data in Table XXIX. For fruits other than cherries, data obtained from Oregon Agricultural Experiment Station Bulletin 274, page 70, and from the office of F. L. Kent, Regional Statistician, U. S. Bureau of Agricultural Economics, Portland, Oregon. California figures obtained by special correspondence with the California Agricultural Experiment Station.

III. Items in column I multiplied by corresponding items in II.

IV. Based largely on data obtained from several cooperative canneries in Oregon covering the period 1924 to 1928, allowance being made for lower wages in 1931.

V. Includes sugar at 5.5 cents per pound; labels at 6.4 cents per dozen; cans ranging from 80 to 98 cents per dozen, and cases at 13.7 cents each, or 27.4 cents per two. Other manufacturing expenses or costs not included.

VI. Combines columns III, IV and V.

VII. Data on Oregon fruits from same sources as in Table XXIX. California and Hawaii quotations were obtained from the "Western Canner and Packer," *Statistical Review*, 1927, pg. 35; and *Statistical Review*, 1930, pg. 50. Years 1930 and 1931 from annual comparative opening price statements of R. E. Cotter Co., San Francisco, California.

*Fruit going into this pack is valued at one-half price paid for fruit delivered at station.

COLD PACK

Very few cherries other than sours are put up in cold-pack form. As Table XXXII indicates, the leading states in the cold pack of sours have been New York, Wisconsin, and Michigan.¹ The output from the Pacific Northwest has ranked considerably below that of these states, particularly in comparison with New York and Wisconsin.

¹The statistics of cold pack in these three leading states were obtained by indirect means and may therefore be subject to some margin of error. Their value lies chiefly in showing trends. The method pursued was to convert the canned pack of sours as given in Table XXIV to a fresh-fruit basis, using 48 pounds to the case as the conversion figure, and subtracting this from the combined figures for canned and cold pack as given in Table XXXI. In calculating barrels, 400 pounds fresh fruit fill-in weight was used as a conversion figure.

TABLE XXXI. VOLUME OF RED SOUR CHERRIES CANNED AND COLD PACKED, LEADING STATES IN THE UNITED STATES, 1925-1931
(IN THOUSANDS OF POUNDS FRESH FRUIT)

State	1925	1926	1927	1928	1929	1930	1931
	Thou- sands of pounds	Thou- sands of pounds	Thou- sands of pounds	Thou- sands of pounds	Thou- sands of pounds	Thou- sands of pounds	Thou- sands of pounds
New York	27,465	22,571	10,637	12,933	20,332	42,370	16,582
Michigan	14,344	18,315	9,066	33,893	20,125	29,932	32,673
Wisconsin	7,696	16,165	3,833	20,000	9,000	10,500	13,393
Ohio, Pennsylvania*	549	947	1,736	725	1,390	2,441	.....
Colorado, Nebraska, Utah†	2,322	4,490	2,674	788	5,500	5,273	2,896
Pacific Northwest	930	2,327	2,158	3,719	5,539	7,073	5,612
Total	53,306	64,819	30,104	72,058	61,886	97,589	71,156

Sources of data:

New York State—Years 1925-1928. Estimates from private sources obtained through S. W. Shear, Giannini Foundation, University of California. Years 1929-1931 from Association of New York State Cannerymen, Inc., Rochester, New York (annual reports). Michigan—Years 1925-1929. Estimates from private sources obtained through S. W. Shear, Giannini Foundation. Years 1930 and 1931 from Michigan Cannerymen's Association and Michigan State College, Horticulture Department. Wisconsin—Years 1925-1930. From private sources obtained through S. W. Shear, Giannini Foundation. Year 1931 from Michigan State College Horticulture Department. Ohio, Pennsylvania, Nebraska, Colorado and Utah, same sources as above. Pacific Northwest figures computed from annual reports of Northwest Cannerymen's Association.

*No data for Pennsylvania during years 1925 to 1928.

†No data for Nebraska, 1925 to 1929. Utah not included, years 1929 to 1931.

Canned vs. cold pack. The large inroads that the cold pack has made on the canned pack of sour cherries in all states, and particularly in 1930, may be observed from glancing at the percentages shown in Table XXXII. These data by themselves may not be adequate to prove conclusively the trend of the future adjustment that is destined to take place between the respective

PACIFIC NORTHWEST COLD PACK OF CHERRIES, BY KIND, 1926-1931

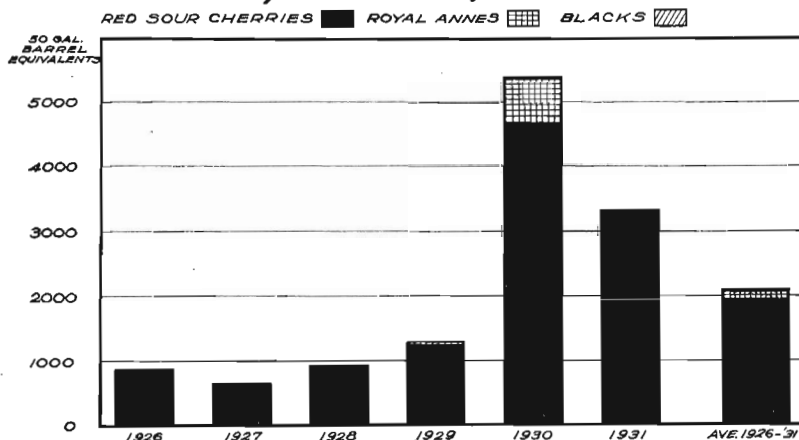


Figure 16

TABLE XXXII. CANNED AND COLD-PACKED RED SOUR CHERRIES, LEADING STATES IN THE UNITED STATES, 1926-1931

	New York			Michigan			Wisconsin			Pacific Northwest		
	Canned*		Cold packed†	Canned*		Cold packed†	Canned*		Cold packed‡	Canned*		Cold packed†
	Pounds‡	Pounds‡	50-gal. barrels‡	Pounds‡	Pounds‡	50-gal. barrels‡	Pounds‡	Pounds‡	50-gal. barrels‡	Pounds‡	Pounds‡	50-gal. barrels‡
1926	17,952,000	4,619,000	11,547	13,920,000	4,395,000	10,988	9,744,000	6,425,000	16,063	2,064,000	354,450	886
1927	9,264,000	1,373,000	3,433	9,936,000			2,736,000	1,097,000	2,742	2,400,000	261,814	655
1928	7,632,000	5,301,000	13,253	31,920,000	1,973,000	4,932	11,040,000	5,960,000	14,900§	3,840,000	371,354	928
1929	12,480,000	7,852,000	19,630	18,528,000	1,597,000	3,993	3,936,000	5,064,000	12,660	5,484,000||	511,686	1,279
1930	17,472,000	24,898,000	62,245	25,200,000	9,800,000§	24,500	5,184,000	5,316,000	13,290	5,600,000||	1,938,675	4,847
1931	9,648,000	6,934,000	17,335	31,488,000	1,185,000	2,963	9,600,000	3,793,000	9,482	4,618,000||	1,379,424	3,448

Percentage canned and cold packed to total pack

	Canned	Cold pack	Total	Canned	Cold pack	Total	Canned	Cold pack	Total	Canned	Cold pack	Total
	%	%	%	%	%	%	%	%	%	%	%	%
1926	79.5	20.5	100.0	76.0	24.0	100.0	60.3	39.7	100.0	85.3	14.7	100.0
1927	87.1	12.9	100.0	100.0	0	100.0	71.4	28.6	100.0	90.2	9.8	100.0
1928	59.0	41.0	100.0	94.2	5.8	100.0	64.9	35.1	100.0	91.2	8.8	100.0
1929	61.4	38.6	100.0	92.1	7.9	100.0	43.7	56.3	100.0	91.5	8.5	100.0
1930	41.2	58.8	100.0	72.0	28.0	100.0	49.4	50.6	100.0	74.3	25.7	100.0
1931	58.2	41.8	100.0	96.4	3.6	100.0	71.7	28.3	100.0	77.0	23.0	100.0

*Data on canned pack derived from Table XXIV.

†Data on cold pack derived from Table XXXI.

‡Cases converted to pounds on basis of 48 pounds per case. Pounds converted to barrels on basis of 400 pounds per barrel.

§Data obtained from Michigan Cannery Association.

||Data obtained from Northwest Cannery Association.

¶Data obtained from Northwest Barrelers' Association.

volumes of sours canned and cold packed, but there is other evidence pointing strongly to the ultimate ascendancy of the cold pack.

In this connection it is of interest to cite the experience of one of the largest organizations to handle canned and cold-packed sours in the country—namely, the Door County Fruit Growers Union, Wisconsin. The statement is made by the manager, Mr. H. W. Ullsperger, that while in 1920 less than a thousand barrels were cold-packed on a national scale, in 1930 approximately 100,000 were so utilized. He goes on to point out that of the 17 million pounds of sour cherries handled by his organization in 1930, nearly half, or more than 8 million pounds, were sold as frozen cherries as against 9 million that went into cans. He predicts that within the next five years 75 per cent will be frozen and the remainder sold as fresh

TABLE XXXIII. PACIFIC NORTHWEST COLD PACK OF CHERRIES BY KIND, 1926-1931*

Item	1926	1927	1928	1929	1930	1931	Average 1926-1931
	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>
<i>50-gallon barrel equivalents</i>							
Red sour cherries	860	635	908	1,230	4,666	3,275	1,929
Royal Anns.....	.....	8	8	.....	697	.....	119
Black cherries	10	.....	.....	34	25	11	13
Total cherries	870	643	916	1,264	5,388	3,286	2,061
All other fruits†	83,730	75,202	138,867	96,656	96,345	117,260	101,343
Total, all fruits	84,600	75,845	139,783	97,920	101,733	120,546	103,404
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
<i>Fresh fruit equivalents</i>							
Red sour cherries	354,450	261,814	371,354	511,686	1,938,675	1,379,424	802,900
Royal Anns .....	.....	3,750	3,000	.....	325,727	.....	55,413
Black cherries	3,750	.....	.....	15,937	11,531	4,537	5,959
Total cherries	358,200	265,564	374,354	527,623	2,275,933	1,383,961	864,272
	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>
<i>Percentages</i>							
Red sour cherries	99.0	98.6	99.2	97.0	85.2	99.7	92.9
Royal Anns.....	.....	1.4	.8	.....	14.3	.....	6.4
Black cherries	1.0	.....	.....	3.0	.5	.3	.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Computed from annual reports of the Northwest Cannery Association. All sizes of containers were first converted to 50-gallon-barrel equivalents. The fresh-fruit equivalents were arrived at by dividing the corresponding total figures in Table XXXIV by .8, since it is estimated that about 20 per cent of the weight of fresh fruit is lost through pitting and sorting.

†Mostly berries. See Oregon Agricultural Experiment Station Bulletin 274, page 56.

and canned goods.¹ As will be explained below, the trade has been showing a strong preference for the cold pack for pie baking.²

The Pacific Northwest³ cold pack of sour cherries has gained considerably at the expense of the canned in recent years. In 1930 there was a gain of nearly 280 per cent in the former over 1929. A decline of only 30 per cent from this high peak year took place in 1931 (Figure 16, Table XXXIII).⁴ From 1929 to 1930 the canned sour pack, on the other hand, increased only 2 per cent and this was followed by a decline of 17 per cent in 1931 (Table XXVII).

TABLE XXXIV. PACIFIC NORTHWEST COLD PACK OF CHERRIES BY KIND AND SIZE OF CONTAINER, 1926-1931*
(CONVERTED TO PITTED-FRUIT BASIS)

Kind and size of container	1926	1927	1928	1929	1930	1931	Average 1928-1931
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Red sour cherries							
50-gallon barrels	283,560	206,580	89,385	149,358	318,348	308,403	216,373
30-gallon barrels				201	19,980	27,930	12,028
10-gallon kegs			1,742	3,417		1,675	1,708
5-gallon kegs			2,376				594
5-gallon cans		2,871	112,860	59,914	85,477	23,404	70,414
2-gallon cans					1,179		295
1-gallon cartons						14,796	3,699
50-pound cans				70,815	439,430	502,747	253,248
30-pound cans			84,465	93,050	524,986	219,134	230,409
15-pound cans			3,375	19,772	20,850	3,888	11,971
10-pound cans			2,880	540	94,234	225	24,470
1-pound cartons				12,282	46,456	1,337	15,019
Total	283,560	209,451	297,083	409,349	1,550,940	1,103,539	840,228
Royal Ann cherries							
50-gallon barrels		3,000	2,400		256,650		64,762
30-pound tins					3,082		770
15-pound tins					850		213
Total		3,000	2,400		260,582		65,745
Black cherries							
50-gallon barrels	3,000			12,750		3,630	4,095
30-gallon barrels					6,750		1,687
30-pound cans					2,475		619
Total	3,000			12,750	9,225	3,630	6,401

*Computed from annual reports of the Northwest Cannery Association. In converting to pitted-fruit basis the following figures were used:

Fruit packed with no sugar, 375 pounds per barrel, or 7.5 pounds per gallon; fruit packed in the ratio of two parts cherries to one part sugar, 300 pounds per barrel, or 6.0 pounds per gallon; for ratio of 3:1 an allowance of 330 pounds per barrel, 4:1 an allowance of 336 pounds per barrel, and 5:1 an allowance of 355 pounds fruit per barrel, was made.

¹Ullsperger, H. W., *An Appraisal of the Frozen Fruit Market, Especially Relative to Cherries*; Proceedings of the New York Food Marketing Research Council, December 9, 1930.

²See pages 63-65.

³This means Oregon and Washington as the pack in Idaho is of no consequence. According to Mr. L. M. Hatch, the State of Washington has been responsible for approximately 90 per cent of the cold pack of sour cherries in the Pacific Northwest over a period of years, and Oregon for the remaining 10 per cent. Letter, November 16, 1931. California packs no sour cherries.

⁴According to the statement of L. M. Hatch, President, The Puget Sound and Sumner Fruit Growers Association, in Washington, the figures in this table may be understated to the extent of 5 to 10 per cent for the years 1929-1931 inclusive. Several small packers operating in the Puget Sound area during that period, who are not members of the Barreleters' Association responsible for the compilation of these statistics, are thought not to have made reports to the Association. Letter, January 3, 1933.

Cold-pack containers. It is of interest to note the kinds and sizes of containers in which cherries have been cold-packed. As Table XXXIV discloses, in more recent years most of the pack in the Pacific Northwest has been confined to the 50-gallon barrel and the fifty- and thirty-pound cans. These are the sizes that appear to be most suitable for the pie-baking industry which absorbs the greatest bulk of the red sours. The small amounts of Royal Anns and blacks (aside from those put up in one-pound cartons) that have been cold packed went principally into the fifty-gallon barrel in the case of the former, and fifty- and thirty-gallon barrel in the case of the latter.

TRENDS IN CANNED AND COLD-PACK CHERRIES IN RELATION TO MARKET DEMANDS

Sour cherries. Although there has been a satisfactory growth in volume of the national canned sour-cherry pack in the past, there is considerable room for doubt whether in future years it can continue to hold its own against the inroads of the cold-pack method of processing. The rate of growth of the latter the past two or three years may have been too rapid to be maintained, but the preference expressed by the trade for the cold pack is already so pronounced that with improvement in packing technique the demand for this form of pack should continue to grow and the volume of canned pack demanded dwindle correspondingly.¹

In an inquiry addressed by the authors to thirty firms handling or using canned or cold-packed sours, twenty-four responded that in their opinion the utilization of sours in cold-packed form was relatively on the increase. The chief advantages mentioned were (1) the more attractive appearance of the cherries, the cherries thus processed retaining more nearly their natural fresh-fruit color in contrast to the canned product; (2) the possession of a superior flavor; (3) the fact that when packed they stand up better in pies, and in consequence less cherries are required to make an attractive, tasty cherry pie; (4) their greater cheapness and convenience of handling; and (5) their high immunity from loss through deterioration of flavor, color, or appearance. It appears that pie bakers and other users who are situated so that it is practicable for them to use the cold pack are rapidly turning to this form of pack. The bulk of the cold-pack cherries is used by large pie bakeries, hotels, restaurants, and caterers that can use the product in sufficient quantities to make daily withdrawals from the cold storage plant.² Others operating in localities lacking in storage facilities will doubtless continue to use the canned pack. One of the leading drawbacks to the further extension of the use of cold-pack cherries, and applicable as well to all cold-pack fruits, is that cold-pack facilities at acceptable rates are available only in the larger cities. Mr. Ullsperger made a survey in which he found that towns of 50,000 to 75,000 population did not as a rule have cold-storage houses. In those instances where one or two cold-storage houses existed the rates charged were stated to be almost prohibitive.²

¹Mr. H. C. Diehl, Senior Physiologist in the U. S. Frozen Pack Laboratory, Seattle, Washington, expresses himself as follows: "Sour cherries in frozen pack are no doubt on the upgrade, and the progress made may finally result in the practical elimination of the canned product, particularly as packing technique improves." Letter, October 22, 1931.

²Ullsperger, H. W.; *An Appraisal of the Frozen Fruit Market, Especially Relative to Cherries*. Proceedings of the New York Food Marketing Research Council, December 9, 1930.

From all that can be learned the cold pack put up in the Pacific Northwest operates at less of a disadvantage compared to that put up in the Middlewestern and Eastern states than is the case with the canned pack. Despite this, twenty-four out of thirty firms whose opinions were sought thought that Middlewestern and Eastern grown cherries, when cold-packed, were superior in color to those packed in the Pacific Northwest. Eight out of eighteen thought the pack East of the Rockies more uniform, the remainder expressing the view that the Pacific Northwest pack compared favorably in this respect. As to texture, eleven out of twenty-one expressed the opinion that the pack produced East of the Rockies was superior, three that there was no difference. It is evident that if the freight rate differential working against the Pacific Northwest is also taken into account, this territory, all things considered, operates at a distinct disadvantage in attempting to penetrate Eastern markets.¹ These considerations lead one to conclude that the local outlet for this pack is limited to consumer areas on the Pacific Coast.²

If, however, shipments of sour cherries to markets east of the Rockies is found necessary, disposal through the cold-pack route will doubtless be found more successful and profitable than through the can. Not only is the expense of shipment less³ but the difference in quality of pack between that of the Pacific Northwest and the important producing states in the Midwest and East is less pronounced. Less bleaching is said to occur in the cold pack.

As far as frozen sour cherries in small containers are concerned, leaders in the trade express the opinion that the future holds attractive prospects for rapid development. The future of the small-container business for all fruits and vegetables hinges upon a better system of distribution, particularly in smaller consumption centers, than now prevails. Most retailers in the smaller communities are not properly equipped with refrigeration facilities, nor are consumers. There is hope that with sufficient work of a sales-promotion and developmental character the housewife may learn to go to the store and take a can of frozen cherries home as she now buys processed strawberries and ice-cream.

Growers in the Pacific Northwest can do much to overcome the handicaps they now face in their efforts to compete with the Eastern-grown red sour cherry. The cherry will hold its color better in the can if growers refrain from picking the fruit until it is fully ripe. Plenty of pruning to give all parts of the tree as much sunlight as possible will also help to produce color. The lack of uniformity in color is due not only to

¹L. M. Hatch, President of the Puyallup and Sumner Fruit Growers' Association, Washington, letter, November 16, 1931: "So far as we can determine, whenever it is necessary for the packers on the coast to ship East, the cherry producers in the last analysis will have to stand the difference in freight between the coast and the point of consumption, and Michigan, Wisconsin, and New York State to the same point of consumption."

²L. M. Hatch, letter, November 16, 1931: "To the present time we believe that practically all the cold-pack cherries packed in the Pacific Northwest have been consumed on the Coast, a very large per cent of which have gone to California."

³Frozen fruits are now shipped by rail. Intercoastal steamers have as yet developed no refrigerator service out of Portland. If this were to be done an added advantage over the canned pack in lower freight rates would doubtless redound to the benefit of cold-pack cherries.

the practice of picking cherries in different stages of ripeness, but to the many strains and varieties of red sour cherries that have been permitted to grow up. These get mixed into the pack and it takes on an irregular appearance. Growers should standardize on the best of the existing strains and varieties.

Canned Royal Ann cherries. The canned Royal Ann is admittedly an excellent product, but so long as its price to the consumer remains substantially higher than that of leading competing fruits such as peaches, pineapple, and pears, its sales will remain limited, and it is thought that canning will not provide an outlet for the substantial increase in production that is now in prospect without reacting very unfavorably on prices realized by growers.

Until the depression began to get in its work with its attendant collapse in consumer demand, the crop of Royal Anns available for canning purposes had been kept sufficiently in line with the consuming capacity of the market, limited as it was, to afford a satisfactory return to the producer. Considering the volume of fruit that seems likely to come into bearing, the future promises to change all this. Little confidence can be reposed in the ability of the market to absorb increasing quantities of canned Royal Anns without disastrous consequences to grower returns. Even if the size of the pack were to force it to substantially lower price levels in the future, it is doubtful whether Royal Anns would move into consumption with the same readiness as certain of their most formidable competitors where expansion in acreage has also been taking place. Although cannery costs, other than those for the fresh fruit itself, may be no higher, the risks of loss connected with the poor keeping qualities of the fruit are so pronounced that dealers are loath to stock the product. Cannery, it is understood, do not customarily guarantee the product against spoilage beyond nine months. Retailers are therefore chary of stocking the fruit at all. If they do so, they doubtless set a price upon it that gives promise of reimbursing them for the added trouble and expense involved. The product will not be pushed; turnover slows down and prices remain correspondingly high. To be sure, the fruit is not well known to the consumer. Concerted advertising has not been tried. In the face of the higher price differential that canned Royal Anns must command so long as the cost of the fresh fruit remains on a higher level than that of competing fruits, the possibilities of successfully expanding consumer demand by resort to this device appear limited. That is particularly true where competing products, such as peaches and pineapple, are adjudged by many to possess equal or superior excellence.¹

Cold-pack Royal Ann cherries. The cold-packing of Royal Anns is of very small proportions. Besides the few that have been sold in small containers to housewives for use in salads or as dessert, a small quantity has been barreled for the pie trade from time to time. The cold-packing of white cherries promises to remain small unless some better process is discovered for freezing this fruit than now prevails. Under present methods the fruit turns brown or black and gives the appearance of being un-

¹In an effort to discover reasons for the light demand for canned sweet cherries, inquiries were sent to 38 firms handling this product. Of these 31 mentioned price; 10 consumer preference for other fruits; 12 consumer ignorance of product; and 9 loss in storage or on shelves owing to spoilage. Sixteen out of 31 thought advertising would help.

wholesome, although in reality the fruit is not spoiled. According to Mr. H. C. Diehl,¹ the important limiting factor is the oxidation of the frozen product, particularly in the case of the light-colored cherries. By vacuumizing the container, the natural color of the frozen product is retained very well, and for long periods of time, but no way has been found to stop discoloration after the cherries are thawed out for consumption. Mr. Diehl adds that the dessert quality does not seem to him to be as good in frozen sweet cherries as in frozen strawberries, raspberries or loganberries, at least under our present technique, "there being a slight leatherness of texture and shriveling of product as a result of uncontrolled osmotic activity prior to freezing."

Canned black cherries. What has been stated respecting the keeping qualities of canned Royal Anns applies in still greater degree to canned black cherries. In fact, canners have experienced so much trouble with spoilage of this fruit that many of them refuse to process them at all, and those who do will customarily pack them only on order. Guaranties against "swells" are ordinarily not given. No tin container has been found that will withstand the corrosive influences of this product upon it. Those who can blacks appear to favor the Bing over the Lambert. They declare that the Bing stays black in the can longer in contrast to the Lamberts which fade to a purple hue. It is further claimed that they possess a better flavor, keep longer, are more easily pitted, and are less apt to be wormy and diseased by reason of the fact that they are harvested earlier. If the technical difficulties connected with canning could be overcome, the black cherry should have a promising future as there is evidence that the relatively few consumers who have had an opportunity to taste this product find it very appealing. There are those who predict that if the black cherry could be successfully canned it would win the favor of the consumer at the expense of the white cherry, and in considerable degree supplant it.

Cold-pack black cherries. The possibility of cold-packing or freezing the black cherry, although fraught with many difficulties, appears to carry greater promise just now than is true of the Royal Ann, the chief reason being that it retains its natural appearance better after the fruit has been thawed out.

Although of less importance than berries or vegetables, or possibly red sour, the small-container business in blacks holds forth some possibilities of development. A prominent canner in the state has packed a few cartons of Royal Anns and blacks in frozen form in recent years for a large food corporation. The movement thus far has been chiefly of an experimental character. Like Royal Anns, the few blacks that have been frozen have been sold to the housewife in one-pound cartons for table use as a dessert or in salads. Those that have been cold-packed have gone out in barrels to pie bakers, candy makers, and some may have been absorbed in the making of wines.

Canned cherry exports. How does the volume of canned cherries exported from the United States compare with the total exports of all canned fruits? Table XXXV discloses that in no year during the past

¹Letter, October 22, 1931.

TABLE XXXV. COMPARISON OF CANNED CHERRY EXPORTS WITH EXPORTS OF ALL CANNED FRUITS FROM THE UNITED STATES 1922-1930*

Year	Canned cherries	All canned fruits	Percentage of cherries
	<i>Thousands of pounds</i>	<i>Thousands of pounds</i>	<i>%</i>
1922	1,926	205,154	.9
1923	1,466	147,576	1.0
1924	1,794	224,313	.8
1925	1,695	263,360	.6
1926	1,917	223,750	.9
1927	1,802	247,878	.7
1928	2,202	305,762	.7
1929	2,069	307,366	.7
1930	1,409	262,938	.5
1931	855	282,221	.3
Average 1922-24	1,729	192,348	.9
Average 1929-31	1,444	284,175	.5

*From "Foreign Commerce and Navigation of United States," Annual reports of Department of Commerce.

TABLE XXXVI. COMPARISON OF CANNED CHERRY EXPORTS WITH CANNED CHERRY PACK, UNITED STATES AND PACIFIC COAST STATES* 1922-1931

Year	Pacific Coast states			United States		
	Canned cherry pack†	Canned cherry exports‡	Percentage of cherry pack exported	Canned cherry pack leading states§	Canned cherry exports||	Percentage of cherry pack exported
	<i>Cases</i>	<i>Cases</i>	<i>%</i>	<i>Cases</i>	<i>Cases</i>	<i>%</i>
1922	821,804	34,763	4.2	2,232,000	42,798	1.9
1923	923,770	23,291	2.5	1,669,000	32,571	2.0
1924	541,171	29,564	5.5	1,705,000	39,867	2.3
1925	505,048	25,248	5.0	1,379,000	37,671	2.7
1926	1,121,439	30,455	2.7	2,263,000	42,593	1.9
1927	458,224	28,616	6.2	1,081,000	40,049	3.7
1928	787,359	34,273	4.4	2,014,000	48,944	2.4
1929	830,058	32,047	3.9	1,863,000	45,979	2.5
1930	927,145	23,054	2.5	2,098,000	31,300	1.5
1931	306,481	14,139	4.6	1,559,721	19,008	1.2
<i>Averages:</i>						
1922-24	762,248	29,206	3.8	1,868,667	38,412	2.1
1925-29	720,426	30,128	4.2	1,710,000	43,047	2.5
1929-31	687,895	23,080	3.4	1,840,240	32,096	1.7
1922-31	722,250	27,545	3.8	1,786,372	38,079	2.1

*Oregon, Washington, Idaho, and California.

†Data taken from Table XXVI.

‡Data taken from Table XXXVII.

§Data taken from Tables XXIV and XXV.

||Data taken from Table XXXVII. Includes all exports from the United States.

decade have cherries exceeded one per cent of the total. This is less than the ratio existing between the volume of cherries canned in the United States and the volume of all fruits put up in canned form (see Table XX).¹ Compared to all canned fruits the proportion exported in the form of canned cherries is not only small but has been showing a slight tendency to decline to still smaller proportions (Table XXXV).

¹As Table XX reveals, based on the period 1925-1929, canned cherries amounted to 4.6 per cent of the total canned fruit pack in the United States, including pineapple packed in Hawaii.

During the past decade (1922-1931) the percentage of the Pacific Coast cherry pack exported (3.8 per cent) has slightly exceeded that obtaining for the pack coming from the leading states of the Union (2.1 per cent)¹ (Table XXXVI).

TABLE XXXVII EXPORTS OF CANNED CHERRIES FROM PACIFIC COAST CUSTOMS DISTRICTS AND UNITED STATES TOTAL, 1922-1931*
(Years ending December 31)

Year	Oregon	Washing- ton	Los An- geles, San Francisco	Total Pacific Coast	United States All other	Total United States exports
	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>	<i>Cases</i>
1922	3,747	2,727	28,289	34,763	8,035	42,798
1923	233	949	22,109	23,291	9,281	32,571
1924	1,396	3,404	24,764	29,564	10,303	39,867
1925	125	288	24,835	25,248	12,423	37,671
1926	961	1,107	28,387	30,455	12,138	42,593
1927	164	375	27,877	28,616	11,433	40,049
1928	1,364	961	31,948	34,273	14,671	48,944
1929	4,524	1,201	26,322	32,047	13,932	45,979
1930	884	520	21,651	23,054	8,246	31,300
1931	271	486	13,382	14,139	4,869	19,008
Average 1922- 24	1,792	2,360	25,054	29,206	9,206	38,412
Average 1929- 31	1,893	736	20,451	23,080	9,016	32,096
Percentages						
	%	%	%	%	%	%
1922	8.7	6.4	66.1	81.2	18.8	100.0
1923 .....	.7	2.9	67.9	71.5	28.7	100.0
1924	3.5	8.6	62.1	74.2	25.8	100.0
1925 .....	.3	.8	65.9	67.0	33.0	100.0
1926	2.3	2.6	66.6	71.5	28.5	100.0
1927 .....	.4	1.5	69.6	71.5	28.5	100.0
1928	2.8	2.0	65.2	70.0	30.0	100.0
1929	9.8	2.6	57.3	69.7	30.3	100.0
1930	2.8	1.7	69.2	73.7	26.3	100.0
1931	1.4	2.6	70.4	74.4	25.6	100.0
Average 1922- 24	4.7	6.1	65.2	76.0	24.0	100.0
Average 1929- 31	5.9	2.3	63.7	71.9	28.1	100.0

*Data summarized from the United States Department of Commerce annual, "Foreign Commerce and Navigation of the United States," year 1922, page 421; 1923, page 396; 1924, page 292; 1925, Vol. I, page 284; 1926, Vol. I, page 281; 1927, Vol. I, page 289; 1928, Vol. I, page 306; 1929, Vol. I, page 319; 1930 and 1931, special correspondence with U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce; also recorded in 1930 annual report.

Pounds converted to cases by allowing 45 pounds gross weight per case.

How have Pacific Coast exports of canned cherries compared to those for the United States as a whole? In the period 1922-1924 inclusive, they represented 76 per cent of the total; in 1929-1931, 72 per cent (Table XXXVII).

In recent years (1927-1931 average) virtually half of the canned cherries exported from the United States have gone to the Orient and Australia, North America taking next rank with 25 per cent, and Europe third with

¹This percentage is only slightly less than would be true if the entire national pack were compared with the total national pack exported, instead of with the pack for the leading states. For example, for the years 1925, 1927, and 1929 it would amount to an average of 2.55 per cent.

TABLE XXXVIII. EXPORTS OF CANNED CHERRIES FROM THE UNITED STATES BY COUNTRIES OF DESTINATION 1922-1931*
(Years Ending December 31)

Country	Average 1922- 1926	1927	1928	1929	1930	1931	Average 1927- 1931
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
China	186,126	286,239	387,325	220,911	198,622	118,331	242,286
Java and Madura	139,813	124,230	144,045	184,786	121,562	107,248	136,374
Philippine Islands	103,347	109,452	157,645	137,908	113,361	86,116	120,896
British India	82,334	145,400	111,603	105,994	68,354	55,182	97,307
Other Nether- land E. I.	51,772	63,701	66,070	104,661	46,599	38,074	63,821
All Others†	158,331	200,945	225,382	226,629	117,194	59,125	165,855
Total, Orient and Australia ..	721,723	929,967	1,092,070	980,889	665,692	464,076	826,539
Canada	241,274	256,545	407,126	325,155	159,471	59,425	241,544
All Others, North America ..	213,998	216,034	193,271	214,516	161,959	91,222	175,401
Total, North America	455,272	472,579	600,397	539,671	321,430	150,647	416,945
South America	115,599	206,567	130,253	175,804	82,533	41,110	127,253
United Kingdom	393,637	133,212	291,989	275,407	285,899	147,042	226,710
All Others, Europe	50,218	31,844	64,332	73,110	39,897	39,389	49,714
Total, Europe ..	443,855	165,056	356,321	348,517	325,796	186,431	276,424
All Others‡	23,050	28,019	23,412	24,210	13,062	13,104	20,362
Grand total	1,759,499	1,802,188	2,202,453	2,069,091	1,408,513	855,368	1,667,524

*The foregoing data were summarized from annual reports of the United States Department of Commerce as follows: "Foreign Commerce and Navigation of the United States," 1922, p. 219; 1923, p. 218; 1924, p. 45; 1925, Vol. I, p. 42; 1926, Vol. I, p. 43; 1927, Vol. I, p. 45; 1928, Vol. I, p. 45; 1929, Vol. I, p. 45; 1930, Vol. I, p. 45.

†All others in Orient and Australia.

‡Africa and Asia Minor.

TABLE XXXIX. PERCENTAGE DISTRIBUTION OF UNITED STATES CANNED CHERRY EXPORTS BY COUNTRIES AND CONTINENTS OF DESTINATION, 1922-1931*

Country and continent	Average 1922- 1926	1927	1928	1929	1930	1931	Average 1927- 1931
	%	%	%	%	%	%	%
Orient and Australia	41.0	51.6	49.6	47.4	47.3	54.3	49.6
North America	25.9	26.2	27.3	26.2	22.8	17.6	25.0
South America	6.6	11.5	5.8	8.5	5.9	4.8	7.6
United Kingdom	22.4	7.4	13.3	13.3	20.3	17.2	13.6
All Others, Europe	2.8	1.8	2.9	3.5	2.8	4.6	3.0
Total, Europe	25.2	9.2	16.2	16.8	23.1	21.8	16.6
All Others‡	1.3	1.5	1.1	1.2	.9	1.5	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Data computed from Table XXXVIII.

‡Africa and Asia Minor.

nearly 17 per cent (Tables XXXVIII, XXXIX). All except 3 per cent of Europe's total has gone to the United Kingdom. It will be noted, too, that in the course of the past decade there has been a substantial decline in the proportion going to that country. This, however, has been counterbalanced by an increase in the percentage exported to such regions as the Orient and Australia.

MARASCHINO CHERRIES

It has been previously noted that canning as a method of profitably disposing of the growing surplus of Royal Ann cherries destined to come into bearing in the next few years is subject to distinct limitations.¹ Neither does this cherry lend itself successfully to fresh shipment.² The remaining market outlet of any significance is its use in the manufacture of maraschino and glacé cherries.³ The former is by far the more important of the two forms of utilization.⁴ Both products are widely used in icings, ice-cream, soda-fountain preparations, as garnishes, in home cooking, and by bakers and confectioners.

There are no available statistics of maraschino or glacé cherry production. The domestic centers of production are in New York, San Francisco, Cincinnati, Boston, Philadelphia, and Baltimore.⁵

***ESTIMATED TONNAGE OF CHERRIES PACKED
IN BRINE, PACIFIC NORTHWEST, 1925-1932***

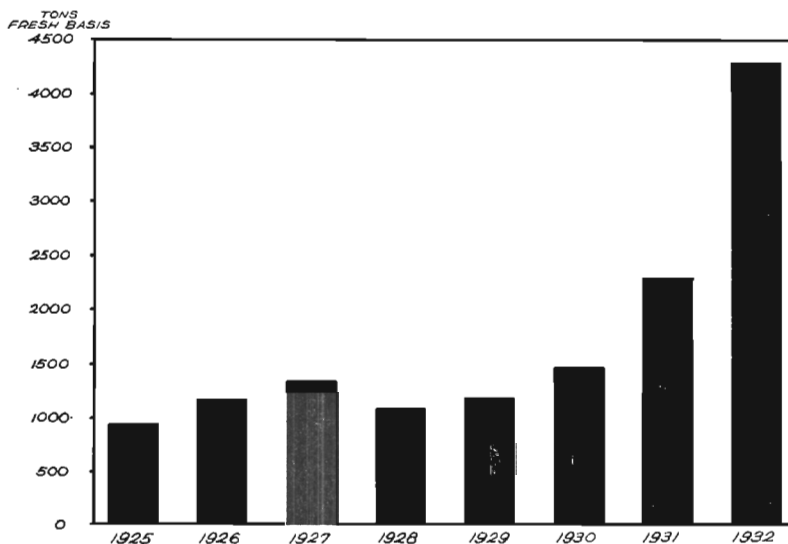


Figure 17

¹See page 64.

²See page 76.

³The Royal Ann of course, is the white cherry mainly used in the manufacture of maraschino and glacé cherries. A few so-called "soft white" cherries have been used, such as the Waterhouse, Governor Woods, Sparks Golden, and Centennials. Efforts have also been made to use black and red sour cherries and even white grapes.

⁴The process of maraschino manufacture, according to the U. S. Tariff Commission, is as follows: The cherry is first salted and placed in brine, following which it is stemmed and pitted. It is then washed to remove sulfur and brine, after which it is placed in sirups of successively increasing density. Following that a brilliant red dye is applied, after which it is artificially flavored and then packed in sirups in containers ranging in size from three-ounce bottles to fifty-gallon barrels. "For glacé cherries the syruing is carried on until the cherry is saturated with sugar, when it is allowed to drain and is sold without syrup, packed in boxes or bottles." See *Summary of Tariff Information, 1929, on Tariff Act of 1922*, page 1245.

⁵U. S. Tariff Commission, *Summary of Tariff Information, 1929, on Tariff Act of 1922*, p. 1245.

Until the Tariff Act of 1930 began to shut out importations, Eastern manufacturers were accustomed to look to Europe for their supplies of cherries, sulfured or in brine. Such business of this character as had developed on the Pacific Coast was confined to meeting the requirements of manufacturers located in that area. The Tariff Act of 1930 became operative June 18, 1930. In that year, however, Western producers of cherries, sulfured and in brine, received little or no Eastern business, as in anticipation of the passage of the act large quantities of this raw material had been shipped into this country in 1929 from abroad.

In 1931, however, a substantial volume of cherries sulfured and brined on the Pacific Coast was shipped eastward, and in 1932 considerably augmented quantities. The extent to which production in these years was stimulated by this Eastern business may be observed in Table XL where figures covering the Northwest pack from 1925-1932, inclusive, and the California pack from 1928-1932, inclusive, are given. (Note also Figure 17, showing trends in the tonnage of cherries packed in brine in the Pacific Northwest.) The bulk of the brining done on the Pacific Coast has been confined to California and Oregon. Washington is understood to have participated only to the extent of three to four hundred barrels a year.

TABLE XL. CHERRIES PACKED IN BRINE ON PACIFIC COAST
1925-1932

Year	Pacific Northwest*	California†
	<i>Tons, fresh fruit</i>	<i>Tons, fresh fruit</i>
1925	925	.....
1926	1151	.....
1927	1320	.....
1928	1085	1170
1929	1160	1322
1930	1450	2170
1931	2272	3495
1932	4273‡	3191‡

*F. L. Kent, Bureau of Agricultural Economics, Division of Crop and Livestock Estimates, Portland, Oregon; Report, March 12, 1931.

†Estimates from private packer.

‡Furnished by E. M. Burns, Secretary, Northwest Fruit Barrelers Association. The 1932 figure for California was furnished in terms of barrels (25,531) and a conversion figure of 250 pounds to the barrel was used.

Cherry imports. Inasmuch as domestic maraschino manufacturers in the Eastern centers of production have in years past relied almost entirely on imports for their supply of cherries sulfured and in brine, it is of interest to present the official statistics dealing with such imports for the sake of revealing trends. Unfortunately, until 1930 these statistics were not segregated in such a way as to reveal the exact volume of imports of cherries, sulfured and in brine.¹ Hence the data as found in Figure 18 and Tables XLI and XLII are lump-sum figures for all cherries imported, irrespective of whether they were brought in as cherries sulfured or in brine, fresh cherries, maraschino or glacé cherries, or in dried, evaporated,

¹In certain years, for example, large quantities of cherries, sulfured and in brine, stemmed or pitted, have been included under "maraschino and other prepared or preserved cherries."

or desiccated form.¹ According to Table XI.I, from 1924 to 1931 inclusive, imports of all cherries have averaged close to 7,500 tons annually.

It is probable that between 80 and 85 per cent of total imports have been barreled cherries in sulfur and in brine. All but a few of these are understood to have come from Italy.²

TABLE XI.I. CHERRIES (NATURAL STATE, PREPARED OR PRESERVED):
GENERAL IMPORTS INTO THE UNITED STATES BY COUNTRIES OF
ORIGIN, 1924-1931, AND IMPORTS FOR CONSUMPTION, 1922-1931*
(YEARS ENDING DECEMBER 31)

Year	General imports, countries of origin					Imports for consump- tion
	Italy	France	Yugoslavia and Al- bania	All others	Total	
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
1922						13,833,311
1923						22,621,719
1924	8,947,530	859,192	33,551	342,416	10,182,689	10,977,066
1925	14,458,746	458,406	22,046	342,365	15,281,563	15,092,337
1926	21,414,270	608,114		751,330	22,773,714	18,752,014
1927	14,535,137	2,027,214	265,985	431,175	17,257,511	20,348,425
1928	11,755,851	1,490,944	348,542	357,880	13,951,217	13,869,865
1929	22,375,076	1,549,457	258,839	447,342	24,630,714	23,661,140
1930	6,903,140	711,426	627,756	78,187	8,319,509	8,934,522
1931	5,848,759	533,681	1,170,096	42,361	7,594,897	7,760,913
<i>Average</i>						
1926-31	13,804,539	1,153,472	445,203	351,379	15,754,593	15,554,480

*Sources of Information: *Foreign Commerce and Navigation of the United States*, 1922, page 537; 1923, page 517; 1924, pages 213 and 459; 1925, Vol. I, pages 207-208, and Vol. II, page 22; 1926, Vol. I, pages 206 and 437; 1927, Vol. I, pages 214 and 445; 1928, Vol. I, pages 229 and 474; 1929, Vol. I, pages 236 and 490; 1930, pages 244, 509 and 580.

Note: General imports of cherries include cherries for warehouse and entries for consumption. Imports for consumption include entries for consumption and withdrawals from warehouse for consumption. Normally general imports are larger than imports for consumption approximately by the amounts of imported stocks remaining in bonded customs warehouses at the end of the year. An excess of withdrawals from warehouse during the same period will cause the imports for consumption to be larger than general imports, which was true in the years 1924, 1927, and 1930.

In the period 1926-1931 more than 87 per cent of all general imports of cherries, irrespective of kind, came from that country, of which about 6 per cent were in all probability dried cherries, the remainder being barreled. In the same period France contributed more than 7 per cent, most of these being maraschino and glacé cherries.³ Of the remaining general imports,

¹There is reason to believe, also, that the official statistics recorded in Table XI.I have understated the true volume of imports. In the case of Yugoslavia, for example, compare the total imports of dried cherries as given in Table XI.III, for 1928, 1929, and 1930 with total imports from this country and Albania as given in Table XI.I for the same years. The explanation of the variance in figures given by Mr. J. Holm, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, is as follows: "... the figures issued by Plant Quarantine and Control Administration (Table XI.III) are obtained from inspection certificates and represent fiscal years ending June 30, whereas our figures are obtained from the entries filed by importers at the custom houses and represent calendar years ending December 31." Frank Messenger, District Manager, Portland office of Bureau of Foreign and Domestic Commerce, letter, October 13, 1932.

Reference to the fact that one tabulation refers to fiscal years and the other to calendar years seems inadequate as an explanation because the total imports of dried cherries in these years as recorded in Table XI.III for Yugoslavia was in excess of imports of all cherries as recorded in Table XI.I for Yugoslavia and Albania.

²U. S. Tariff Commission, *Summary of Tariff Information*, 1929, page 1242.

³*Ibid.*, page 1242.

TABLE XLII. CHERRIES: PERCENTAGE DISTRIBUTION OF GENERAL IMPORTS BY COUNTRIES OF ORIGIN, 1924-1931*

Year	Italy	France	Yugoslavia and Al- bania	All others	Total
	%	%	%	%	%
1924	87.9	8.4	.3	3.4	100.0
1925	94.6	3.0	.1	2.3	100.0
1926	94.0	2.7	.....	3.3	100.0
1927	84.2	11.7	1.5	2.6	100.0
1928	84.2	10.7	2.5	2.6	100.0
1929	90.8	6.3	1.0	1.9	100.0
1930	83.0	8.6	7.5	.9	100.0
1931	77.0	7.0	15.4	.6	100.0
Average 1926-31	87.6	7.3	2.8	2.3	100.0

*Data computed from Table XLI.

the bulk came from Yugoslavia and Albania and are understood to have been chiefly dried sour cherries.¹ The small amount of fresh cherries that have been imported are understood to have come mainly from Canada.

For several years prior to 1930 it is estimated that 80 per cent or more of the total volume of the United States consumption of cherries, sulfured and in brine, came from abroad (Figure 18, Tables XL and XLI).² In 1930 domestic production appears to have exceeded the quantity imported by three or four hundred tons. In 1931 general imports amounted to less than half of domestic production, thus tending to demonstrate the effec-

CHERRIES: UNITED STATES IMPORTS FOR CONSUMPTION, 1922-1931

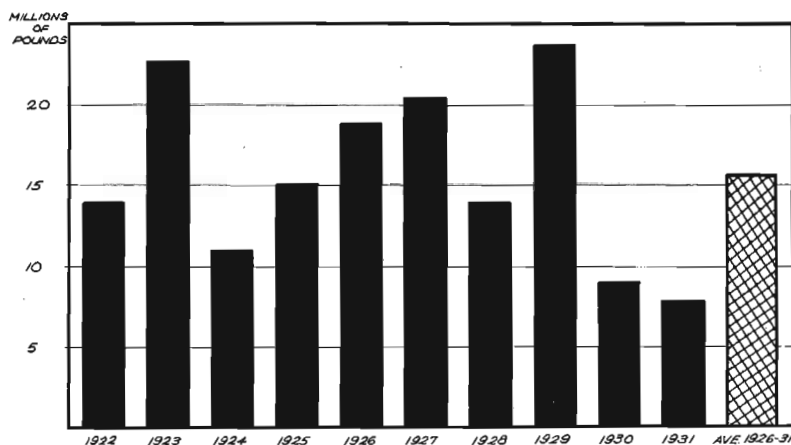


Figure 18

¹The dried cherries that have come from Italy are also understood to be sour.

²It is of interest to note that there are years when imports of cherries, sulfured and in brine, actually reach the Pacific Coast. In 1930 some 240 tons were reported received in the San Francisco customs district. Source, *Foreign Commerce and Navigation of the United States, 1930*, page 427.

tiveness of the Tariff of 1930 in holding down the supply from abroad, and in stimulating the production of a domestic supply to take its place (Figures 17 and 18).

Cherry exports. According to the Tariff Commission there have been no exports of cherries, sulfured and in brine. Some maraschino and glacé cherries have been exported, however.¹

The Tariff Act of 1930. Insufficient time has elapsed to permit one to appraise fully the long-run effects of the higher rates on imports of cherries that went into effect with the passage of the Tariff Act of 1930. The operation of the tariff thus far lends support to the belief that it will go a long way in stemming the flow of imports from abroad. The business of supplying domestic markets with barreled cherries, sulfured and in brine, already appears to be shifting swiftly to the Pacific Coast. Since there is scant hope of greatly augmenting the utilization of the white sweet cherry in canned form except at prices unremunerative to growers, the producer feels that this additional outlet is badly needed to absorb the greatly expanded production from non-bearing acreage now in prospect.

Because of a growing anti-tariff feeling, however, the tariff duty affords a very uncertain support upon which to lean. It is by no means assured that present rates² can be maintained. Opposition to them on the part of Eastern maraschino and glacé manufacturers has been strong. In fact, the opposition was such that shortly after the passage of the Tariff Act of 1930 Congress ordered the United States Tariff Commission to make a further investigation. The result was a recommendation by the Commission to President Hoover that the rates prevailing under the Act of 1930 be reduced.³ In a letter to the chairman of the tariff commission, dated April 1, 1931, President Hoover disapproved of the recommendation, explaining in part that "the commission's investigation was of necessity based upon conditions maintaining before the emergency was created by the drought and in some cases upon data over a period of so short experience as to make it desirable that the commission be afforded more time," and concluded with the request that "the commission undertake to review the facts upon the basis of the forthcoming crop (1931 crop year) and make another report." Up to the time of this writing (September 1932) the Commission has made public no report.

If no downward revision in the tariff is effected, domestic producers of the white sweet cherry should enjoy a clear field unhampered by competition from raw-material substitutes. That in effect means Pacific Coast

¹U. S. Tariff Commission, *Summary of Tariff Information, 1929, on Tariff Act of 1922*, pp. 1244-45.

²Under the tariff enacted June 18, 1930, rates were raised from 2¢ a pound to 5½¢ for cherries, sulfured and in brine, unpitted, from 3¢ a pound to 9½¢ for cherries, sulfured and in brine, stemmed, pitted; from 40% ad valorem to 9½¢ per pound plus 40% ad valorem for maraschino cherries, candied, crystallized, or glacé cherries, or those prepared or preserved in any manner. For an account of tariff rates in earlier years see United States Tariff Commission, *Cherries*, p. 1 (a report of the United States Tariff Commission to the President of the United States) 1928. This reports the Commission's investigation of cherries, sulfured and in brine, made in 1927, and provided the chief basis for the Congressional investigation which led to the passage of the Tariff Act of 1930.

³Press release from United States Tariff Commission, April 7, 1931: "In the case of cherries, sulphured or in brine, the Commission recommended that the rate of duty on unpitted cherries fixed by the Tariff Act of 1930, viz. 5½¢ per lb., be reduced to 3¢ per lb. and that the rate of duty fixed by that act on pitted cherries, namely 9½¢ per lb. be reduced to 6¢ per lb."

producers. To be sure, a limited tonnage of sweets for maraschino purposes has been furnished by Michigan and New York, principally, but manufacturers say the quality is not as good. Efforts have been made to use black cherries, red sour,¹ and even white grapes as raw material for the manufacture of maraschino stock, but such attempts have in the main proved abortive. The results have not proved generally satisfactory and resort to such substitutes will be made in most instances only when a shortage in white cherries of the proper sizes prevails.

Aside from the question of the probable effect on the cost of producing the final product—i.e., the maraschino or glacé cherry itself—the chief issue between manufacturers of these cherries and domestic growers appears to revolve around the question of whether, with the present tariff in operation, enough domestic cherries of the proper size and texture can be grown to meet the requirements of these manufacturers. The manufacturers, particularly those operating in the eastern states, allege that domestic growers can offer no assurance of their ability to furnish the proper size and quality of cherry in adequate volume. They contend that the bulk of our domestic supply runs too large in size and is too soft in texture. Cultural practices, they insist, have been pointed in the direction of growing a cherry suited solely to canning and fresh-fruit market uses. It is alleged that 50 per cent of the maraschino cherries used in the United States are consumed in the ice-cream and confectionery industries, where small-sized cherries are demanded, and the assertion is made that it is only in the relatively less important uses, as for the manufacturer of fruit salads, for example, that the large size is suitable. Manufacturers furthermore affirm that because imported cherries come from trees that are not cultivated, a cherry of relatively tough texture and small size is produced.

Those in a position to speak with authority admit that their contention carries some weight as far as the Pacific Northwest is concerned, but deny the correctness of their position with reference to California. It is asserted that cherries of small size can be obtained in ample quantities from that state. Growers furthermore maintain that except for cherries needed in the confectionery trade where the small-sized cherry is admittedly required, manufacturers are glad to have the large cherries when the price is right, and that with the rapidly expanding acreage there should be little or no difficulty encountered in furnishing an adequate supply of the required sizes. They assert, too, that if need be, cultural practices can easily be changed so as to bring about the production of the proper range of sizes.² And thus the matter rests.

Conclusions. Although difficult of proof, it is improbable that it would be to the interest of growers in the Pacific Northwest in the long run to revise cultural practices in the direction of producing a smaller, firmer cherry for the maraschino trade. Although the relatively slow progress made by the Royal Ann canned pack even during so-called normal times

¹It is understood that sour may be used for glacé purposes.

²One member of the trade remarks that so long as domestic cherries will not satisfy the demands for small-sized cherries for candy dipping, the tariff will be no obstacle to importation from Italy, where it is possible to get almost unlimited quantities of cherries in all sizes from extra small to large, or 12 to 22 millimeters in diameter. According to this member cherries measuring 16 millimeters in diameter are the ones most generally used for dipping purposes, and the requirements for these cherries far exceed the needs for the larger sized fruits. Mr. R. E. Morris, The Morris Bros. Brokerage Company, Denver, Colorado. Letter, December 28, 1931.

is somewhat disconcerting, once business starts on the upgrade this pack will doubtless resume its former relative place in point of volume and will provide an outlet which, though limited, will not be dependent for its support upon an artificial prop in the form of a tariff. The maraschino trade will provide a welcome supplemental outlet for such cherries as cannot be profitably absorbed in the canned pack. In some districts the brining industry gives promise of developing to a plane of major importance. Such appears to be the case in Wasco county, where great strides have already been made toward acquiring suitable facilities for processing and grading the product as well as in establishing market contacts. Absorption of considerable quantities of cherries in the maraschino and glacé cherry trade will, of course, place prices to growers on a higher level than would obtain in the absence of this additional market outlet. The maintenance of this outlet is doubtless dependent upon continued tariff protection.

The brining of cherries for maraschino stock is a new undertaking for many, if not most, packers on the Pacific Coast. At first thought the process appears simple in character. In reality it involves a technique that is not easily mastered. Extreme care must therefore be exercised to keep the business in competent hands; otherwise there is danger that the industry may be lost to the Pacific Coast. Every precaution should be taken to maintain quality. Those interested in supplying the maraschino trade would do well to study the question of cultivation, time of picking, and the treatment of cherries thereafter, so that the fruit will be firm in texture and of the proper color and size.

DRIED CHERRIES

Domestic production. In recent years the production of domestic dried cherries has been of very small proportions. Both soft white and black cherries have been dried on the Pacific Coast. It is doubtful whether the volume of those produced has averaged more than a hundred tons per year in the Pacific Northwest. Before canning became common considerable quantities of red sour cherries were also dried in Eastern states, particularly of the Richmond variety, but this method of utilization is now understood to be of virtually no commercial importance. Sweet cherries bring so much more money in fresh or canned form that only the off-grade cherries are now evaporated. In consequence, the domestic dried cherry does not rate high as a product. As far as can be ascertained, the market has been dwindling. The bakery trade has absorbed some; the rest appear to have gone principally into wine making or the manufacture of extracts and soda-fountain supplies.

Imports. According to the trade, the dried cherries imported from abroad are superior to the domestic product. Importations have been considerably in excess of those produced at home. As indicated in Table XLIII, imports in recent years have averaged more than 700 tons. Because of the inferior flavor and quality of the domestic pack, it has not been able to compete successfully with that imported from abroad. It is understood that these imports are chiefly, if not entirely, of the sour variety of cherry. According to a member of the trade, they are no longer shipped in pitted as formerly, but come in kegs and barrels in their own juice and hence are

not entirely dry. As Table XLIII indicates, most of them have been coming from Italy and Yugoslavia, but in certain years substantial quantities have also come from Roumania. According to information from the trade, the imported product is purchased almost exclusively by Jews and Italians who desire the product for wine-making purposes. The assertion is made that the domestic product has never suited their requirements.

TABLE XLIII. UNITED STATES IMPORTS OF DRIED CHERRIES, 1926-1931*
(Years Ending June 30)

Country and origin	1926	1927	1928	1929	1930	1931	Average 1926-1931
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
Italy	940,883	1,371,307	1,377,029	488,250	856,768	358,233	892,078
Yugoslavia	258,444	81,065	172,859	432,435	634,224	950,850	421,646
Roumania			170,717	166,060	21,000		59,628
All others	44,463		95,652	29,565			28,280
Total	1,243,790	1,452,372	1,816,257	1,076,300	1,511,992	1,309,083	1,401,632

*As reported under Quarantine No. 56, Plant Quarantine and Control Administration. Acknowledgment is made to S. W. Shear, Giannini Foundation, Berkeley, California, for the use of his personal files covering years 1926 to 1929. Years 1930 and 1931 were furnished directly by the U. S. Plant Quarantine and Control Administration, Washington, D. C. Imports for July 1 to December 15, 1931, as follows: From Italy, 165,000 pounds; from Yugoslavia, 686,005 pounds; total, 851,685 pounds during this period.

The demand for the imported product is said to be so persistent that it would not be materially reduced by a high tariff barrier.¹

Conclusion. Drying as a form of utilization appears to carry little promise of extending market outlets for either sour or sweet cherries.

THE USE OF CHERRIES AS JUICE

An unimportant use of cherries not mentioned elsewhere is their utilization in the form of juice. A relatively small amount of red sour and black cherries is used in this manner. Some of the juice from red sour cherries goes into the manufacture of cherry extract or flavoring, but the market is very limited since most extracts are made synthetically. Some is absorbed in the manufacture of summer nectars or beverages, but not a great quantity. Some goes to the soda-fountain trade, but the cherry is not one of the popular flavors and demand for cherry drinks is very small. A little of it doubtless goes into the manufacture of wines. The manufacture of black-cherry juice on a small scale is now being undertaken by an Oregon firm. "Health" stores constitute the chief outlet.

FRESH CHERRY SHIPMENTS

In the Pacific Northwest, shipments of cherries in fresh form have been confined almost entirely to black sweet cherries. No sour cherries in any appreciable quantities have been shipped in this manner, and the shipments of Royal Anns for fresh market utilization would probably not exceed 2

¹The rate of duty on dried, dessicated or evaporated cherries, as provided for in Paragraph 737 of the Tariff Act of 1930, is 6¢ per pound.

per cent of the total fresh shipments in any year during the past decade. Neither has California¹ nor Utah shipped fresh any considerable quantities of the Royal Ann. Unfortunately Royal Anns bruise very easily in transit. Because of their light color these bruises show up prominently and militate against sale at prices comparable to those received for blacks. It has not been the practice in the Pacific Northwest to ship Royal Anns to fresh-fruit markets in straight car lots; they have been used mainly as "fill-ins." In instances where straight cars have been shipped, it has occurred chiefly in years when a shortage of blacks for fresh shipment prevailed.²

TABLE XLIV. CHERRIES: CAR-LOT SHIPMENTS FROM FIVE WESTERN STATES AND THE UNITED STATES, 1920-1931*
(INCLUDES SHIPMENTS FOR BOTH FRESH MARKET AND MANUFACTURE)

Year	Oregon	Washington	Idaho	Utah	California	Total five states	United States total
	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
1920	160	183	67	24	641	1,075	1,730
1921	101	204	85	3	783	1,176	1,489
1922	164	269	176	97	751	1,457	2,261
1923	238	389	143	48	904	1,722	2,501
1924	262	160	74	29	839	1,364	2,046
1925	196	503	107	92	719	1,617	2,304
1926	485	409	182	105	1,249	2,430	3,155
1927	277	106	44	99	681	1,207	1,461
1928	372	673	207	77	1,036	2,365	2,671
1929	359	639	206	52	838	2,094	2,299
1930	426	625	248	81	1,002	2,382	2,531
1931	128	272	189	15	1,110	1,714	1,873
Average 1920-25	187	285	109	49	773	1,402	2,055
Average 1926-31	341	454	179	71	986	2,032	2,332
Percentages:	%	%	%	%	%	%	%
1920-25 Average	13.3	20.3	7.8	3.5	55.1	100.0	.....
1926-31 Average	16.8	22.3	8.8	3.5	48.6	100.0	.....

*Sources of information:

Years 1920, 1921, 1922, and 1923 from U. S. Department of Agriculture Statistical Bulletin No. 8, pp. 28-30.

Years 1924 and 1925 from U. S. Department of Agriculture Statistical Bulletin No. 19, pp. 24-25.

Years 1926 and 1927 from U. S. Department of Agriculture Statistical Bulletin No. 27, pp. 27-28.

Years 1928 and 1929 from U. S. Department of Agriculture Statistical Bulletin No. 35, pp. 26-27.

Years 1930 and 1931 from U. S. Department of Agriculture, *Crops and Markets*, monthly publication, May to September issues, 1931.

The official statistics of car-lot shipments of all cherries from the five important Western cherry states and for the United States as a whole for the period from 1920 to 1931 inclusive are shown in Table XLIV.³ These figures include shipments for both fresh market and manufacture. It will be noted that fully 87 per cent of the United States total has in recent years

¹See page 80.

²Statement of Mr. Roy Hurst, Salem, Oregon, June 28, 1932.

³"Montana ships a few black cherries, nearly all of which are Bings and Lamberts. There is probably an acreage of about 400 acres. Additional plantings will be made this coming spring to the extent of at least 100 to 200 acres. Shipments are in LCL lots and appear on the market late in July." F. M. Harrington, Department of Horticulture, Montana State College: Letter, October 13, 1931.

originated in the five Western states. It is apparent, too, that during the past decade Oregon's percentage of cars shipped from the five Western states has increased at a somewhat faster rate than that for any of the other states in the group.

An upward trend in shipments is plainly indicated for all the five Western states. The rapidity with which these car shipments have expanded may be observed by comparing averages for the years 1920 to 1925 with the years 1926 to 1931, as is done in Table XLIV. For the five Western states there was an increase of 45 per cent, for Oregon 82, Washington 59, Idaho 64, and California 28 per cent.¹

***CARLOT SHIPMENTS OF CHERRIES,
EXPRESS & MANUFACTURE, BY STATES,
FIVE WESTERN STATES, 1926-1931 AVER.***

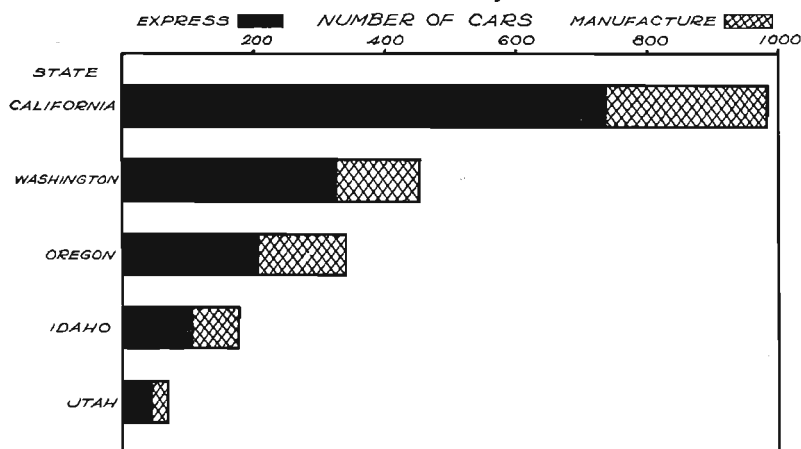


Figure 19

Figure 19 and Table XLV present a summary of the relative importance of carlot shipments via express compared to those intended for manufacture in the five Western states. It has been necessary to segregate the latter in order to ascertain the proportion of shipments that have found their way into the fresh markets.² Shipments going into manufacture are thought to have been chiefly, if not entirely, Royal Anns absorbed by canneries. In contrast to express and passenger freight shipments which go mainly to a few auction centers in the East, the bulk of the shipments intended for manufacture has probably been intrastate in character. It will be observed that more than half the cars shipped to fresh-fruit markets

¹If account is taken of the fact that the figures in the table include shipments intended for manufacture, the percentages of increase in shipments intended for fresh market would be somewhat higher as carlot shipments intended for manufacture have shown a declining tendency. See Table XLV.

²In the Pacific Northwest, shipments of cherries to fresh-fruit markets have been made mainly in full car lots. Shipments by truck or LCL shipments have been of minor significance.

TABLE XLV. CHERRIES: SUMMARY OF CAR-LOT SHIPMENTS VIA EXPRESS AND MANUFACTURE, FIVE WESTERN STATES, 1925-1931*

Method of shipment and state	1926	1927	1928	1929	1930†	1931†	Average 1926- 1931
<i>Express‡</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
California	693	563	807	610	741	1,011	737
Washington	117	6	603	479	498	248	326
Oregon	266	160	216	224	274	99	207
Idaho	108	15	129	107	141	143	107
Utah	63	82	48	37	38	11	46
Total	1,247	826	1,803	1,457	1,692	1,512	1,423
<i>Manufacture‡</i>							
California	556	118	229	228	261	99	248
Washington	292	100	70	160	127	24	129
Oregon	219	117	156	135	152	29	135
Idaho	74	29	78	99	107	46	72
Utah	42	17	29	15	43	4	25
Total	1,183	381	562	637	690	202	609
<i>Total</i>							
California	1,249	681	1,036	838	1,002	1,110	986
Washington	409	106	673	639	625	272	454
Oregon	485	277	372	359	426	128	341
Idaho	182	44	207	206	248	189	179
Utah	105	99	77	52	81	15	71
Grand Total	2,430	1,207	2,365	2,094	2,382	1,714	2,032

*The foregoing data were computed by use of the daily car-lot shipments as reported in the U. S. Bureau of Agricultural Economics Market News Service daily reports taken from the Portland, Spokane and San Francisco daily news letters for corresponding years. Acknowledgment is made to S. W. Shear, Giannini Foundation of Agricultural Economics, for furnishing tabulations for years 1926 to 1928. Original totals, obtained from summarizing the daily reports, averaged roughly three-fourths to four-fifths of the final totals, and were used as a basis for arriving at the proportionate distribution of the final figures each year.

†Includes the following shipments via freight:

Year 1930—California 16 cars; Oregon 3 cars.

Year 1931—California 10 cars; Washington 3 cars; Oregon 1 car (boat).

It is believed that these freight shipments were for fresh market, but in any event are unimportant in the totals.

‡These computations are approximations only, but are believed to reflect fairly well the true proportion of shipments moving to fresh market and to manufacturing plants.

from the five Western states the past six years have originated in California. About 23 per cent have come from Washington, 15 per cent from Oregon, 8 per cent from Idaho, and 3 per cent from Utah (Table XLV).

Competition between the five Western states. The extent to which the five Western cherry-producing states compete against each other in the fresh-fruit markets is a consideration of particular importance for such a fruit as cherries because of its highly perishable character. The shipping season for each of these states is revealed in Figure 20 for the years 1930 and 1931, and in Table XLVI for the years 1928 to 1931 inclusive. It will be observed from Table XLVI that in three years out of four, cars began rolling out of California as early as the third week in April, and that shipments reached their peak anywhere from the middle of May to the first few days in June. In these same years the peak of shipments from Oregon, Washington, Idaho, and Utah was not reached until the third or fourth week in June. If these years may be regarded as typical, it is only during two or three weeks, at the close of California's shipping season, that shipments from Oregon, Washington, and Idaho encounter competition in Eastern markets from that source.

TABLE XLVI. CHERRIES: WEEKLY CAR-LOT SHIPMENTS FROM WESTERN STATES, 1928-1931*
(Number of Cars)†

Year and week	California	Oregon	Washington	Idaho	Utah	Total five western states
	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
1928						
Apr. 22-28	5					5
Apr. 29-May 5	30					30
May 6-12	80					80
May 13-19	226					226
May 20-26	279					279
May 27-June 2	247					247
June 3-9	111					111
June 10-16	41	66	61			168
June 17-23	2	107	200	64		373
June 24-30		85	190	78		353
July 1-7		51	123	31	24	229
July 8-14		31	79	11	16	137
July 15-21		19	16	1	3	39
July 22-28		8	1			9
July 29-Aug. 4		1				1
Total	1,021	368	670	185	43	2,287
1929						
May 5-11	16					16
May 12-18	40					40
May 19-25	76					76
May 26-June 1	163					163
June 2-8	201					201
June 9-15	158	2	2	1		163
June 16-22	109	28	33	7		177
June 23-29	69	96	185	37		387
June 30-July 6	6	57	178	63	3	307
July 7-13		44	159	70	25	298
July 14-20		53	53	19	20	145
July 21-27		44	24	6		74
July 28-Aug. 3		28	5	1		34
Aug. 4-10		7				7
Aug. 11-17						0
Total	838	359	639	204	48	2,088
1930						
April 20-26	3					3
April 27-May 3	28					28
May 4-10	60					60
May 11-17	87					87
May 18-24	127					127
May 25-31	237		1			238
June 1-7	255	3	6	2		266
June 8-14	150	31	60	1		242
June 15-21	52	71	139	32	6	300
June 22-28	3	74	237	116	27	457
June 29-July 5		38	95	80	36	249
July 6-12		57	64	16	12	149
July 13-19		67	20	1		88
July 20-26		28	3			31
July 27-Aug. 2		5				5
Aug. 3-9		1				1
Total	1,002	375	625	248	81	2,331
1931						
April 19-25	5					5
April 26-May 2	56					56
May 3-9	127					127
May 10-16	210					210
May 17-23	298					298
May 24-30	188					188
May 31-June 6	148			1		149
June 7-13	72	38	9			119
June 14-20	6	33	53	42		134
June 21-27		33	126	101	7	267
June 28-July 4		21	55	41	8	125
July 5-11		9	26	4		39
July 12-18		7	3			10
July 19-25		2				2
Total	1,110	143	272	189	15	1,729

*†See page 81 for footnotes.

Because California enjoys the position of being the earliest shipping state, her cherries have returned prices as high or higher than those received in the Pacific Northwest.¹ In point of volume the Black Tartarian is the leading variety for fresh shipment, followed by Bing, Royal Ann, Black Republican, and Early Chapman, in the order named. "During the period 1925-1929, 35 per cent of total sales of California cherries on the New York Auction Market were Black Tartarians, 24 per cent Bings and 12 per

CHERRIES: WEEKLY CARLOT SHIPMENTS FROM FIVE WESTERN STATES, 1930-1931

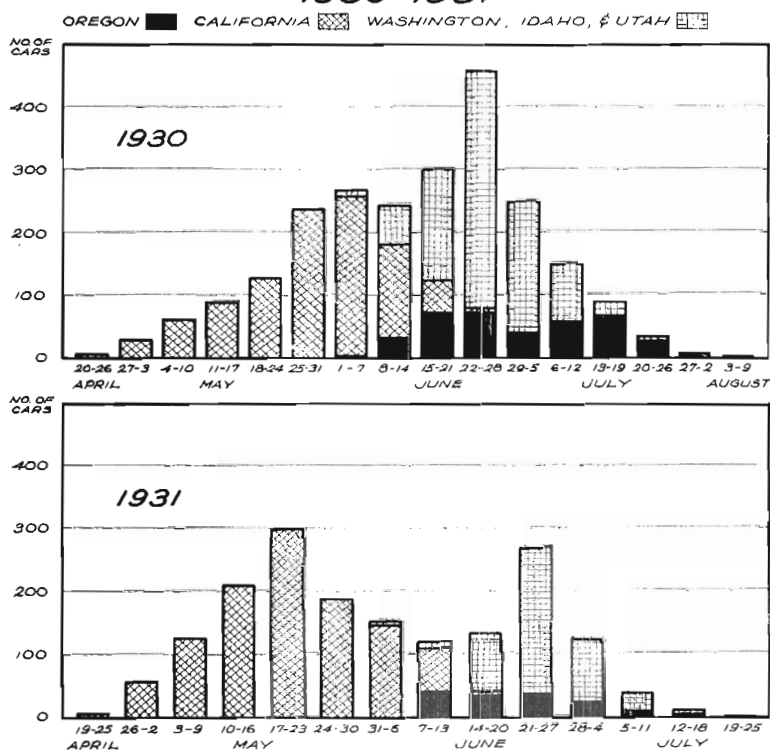


Figure 20

¹See Wellman, H. R., and Braun, E. W., *Cherries*, Bulletin 488, February 1930, page 23. Giannini Foundation of Agricultural Economics, Berkeley, California.

Footnotes for Table XLVI (page 40).

*Sources of data:

Year 1928 as recorded in California Agricultural Experiment Station Bulletin 488, *Cherries*, pg. 13.

Years 1929, 1930 and 1931 summarized from United States Bureau of Agricultural Economics, *Weekly Summary of Carlot Shipments*, Washington, D. C., weekly issues.

†These data include both fresh shipments and shipments to canneries, similar to data in Table XLIV. Season totals will not check exactly with data in Table XLIV because of revisions made after the close of the season.

cent Royal Annes."¹ The percentage of Royal Anns shipped fresh is much higher than is found true of the Pacific Northwest states. Compared to the total crop in California, however, only a small part is shipped. It is not considered a first-class shipping variety. The Early Chapman has been the first to appear on the market, followed by the Black Tartarian. After these have come the Bing and Royal Ann at the peak of the shipping season, followed a week or so later by the Black Republican. Over a period of years the Early Chapman has commanded the best prices, chiefly by virtue of its early maturity, after which have come the Bing, Black Tartarian, Black Republican, and Royal Ann, in the order mentioned.² In the Pacific Northwest cherries shipped fresh have been confined almost exclusively to the Bing and Lambert.³

TABLE XLVII. RECEIPTS OF NORTHWESTERN CHERRIES, NEW YORK AUCTION, BY STATES AND VARIETIES 1928-1930*
(Number of packages)

State and year	Bing	Lambert	Black Republican	Total	Percentages of total			
					Bing	Lambert	Black Republican	Total
					%	%	%	%
<i>Oregon</i>								
1928	69,895	41,755	†	111,650	62.6	37.4	†	100.0
1929	59,045	44,015	.....	103,060	57.3	42.7	.....	100.0
1930	66,965	64,135	7,840	138,940	48.2	46.2	5.6	100.0
<i>Washington</i>								
1928	123,625	45,790	.....	169,415	73.0	27.0	.....	100.0
1929	156,185	67,855	.....	224,040	69.7	30.3	.....	100.0
1930	131,210	52,350	14,655	198,215	66.2	26.4	7.4	100.0
<i>Idaho</i>								
1928	38,600	28,235	.....	66,835	57.8	42.2	.....	100.0
1929	28,290	22,035	.....	50,325	56.2	43.8	.....	100.0
1930	39,740	39,255	.....	78,995	50.3	49.7	.....	100.0
<i>Total, Oregon, Washington, Idaho</i>								
1928	232,120	115,780	.....	347,900	66.7	33.3	.....	100.0
1929	243,520	133,905	.....	377,425	64.5	35.5	.....	100.0
1930	237,915	155,740	22,495	416,150	57.2	37.4	5.4	100.0

*Sources of information: Years 1928-1929-1930 from The Produce Barometer, Brown-Mayer Publishing Company, Inc., 105 Hudson Street, New York.

†In the cases denoted by blanks no shipments were indicated as having been received during the year on the New York Auction.

Pacific Northwest varieties. Based on data for the years 1928-1930,⁴ Table XLVII discloses the relative importance of the several varieties of cherries shipped from the three Pacific Northwest states as determined by receipts on the New York Auction during those years. Since the New York Auction offers by far the most important outlet of any of the auctions in the Eastern consuming centers, these data should afford a reliable picture of the situation with respect to these varieties. It will be observed that no Royal Anns were shipped to this auction in any of these years, and that in only one year out of three did any Black Republicans arrive on this market from the Pacific Northwest. In that year (1930) less than 6 per

¹See Wellman, H. R., and Braun, E. W., *Cherries*, Bulletin 488, February 1930, pages 17-18. Giannini Foundation of Agricultural Economics, Berkeley, California.

²*Ibid.*, p. 23.

³This is also the case in Utah.

⁴Figures for 1931 could not be procured.

cent of all shipments were of this variety. During the three years in question Bings averaged 63 per cent and Lamberts 36 per cent of the total shipped from the Pacific Northwest. In Oregon, Bings averaged 55 per cent and Lamberts 42 per cent of the total shipped from the state to the New York Auction.

Shipping districts in Oregon. The leading shipping districts in Oregon, ranked in the order of their importance according to car-lot shipments made during the past seven years, are Milton-Freewater, Salem, The Dalles, and Hood River. If La Grande and Union are considered as one district, however, their car-lot shipments would aggregate more than those of Hood River. The Eugene district has shipped the smallest number of cars (Table XLVIII).

In ascertaining to what extent these districts have competed against each other on the New York Auction it is of interest to observe the dates when car-lot cherry shipments left these points. In Table XLIX this information is set forth for the years 1929-1931 inclusive. If these data may be considered typical, the shipping season in Oregon has ranged anywhere from the first or second week in June to the last week in July or the first or second week in August. During this three-year period the earliest shipments in substantial volume have come from the Milton-Freewater district, followed a week or two later by those from The Dalles and Mosier. Following these localities, shipments from the Salem-Eugene area and Hood River have started in volume a week or so afterwards, while those from the La Grande-Union territory have been the last to appear on the market.

New York Auction prices. Whether it will pay the various districts to seek to avoid, if practicable, the peaks in shipments converging on the New York Auction from Oregon, Washington, Idaho and Utah at certain times

TABLE XLVIII. CAR-LOT SHIPMENTS OF CHERRIES VIA EXPRESS AND PASSENGER FREIGHT, STATIONS IN OREGON, 1925-1931*

Station	1925	1926	1927	1928	1929	1930	1931	Average 1926- 1931
	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>	<i>Cars</i>
<i>Eastern Oregon</i>								
Milton	63	64	7	105	56	67	32	55
The Dalles.....	34	60	16	46	46	61	30	43
Hood River.....	9	22	17	18	38	40	3	23
La Grande.....	7	9	2	17	30	21	8	14
Union	3	39	.....	15	16	13	6	16
Total	116	194	42	201	186	207	79	151
<i>Western Oregon:</i>								
Salem	16	73	112	7	11	63	12	47
Eugene .....	.....	26	24	5	5	15	2	13
Others†	3	42	19	2	.....	16	.....	13
Total	19	141	135	14	16	94	14	73
State total	135	335	197	215	202	301	93	224

*Data summarized from records obtained through courtesy of Railway Express Agency; Spokane, Portland and Seattle Railway Company; and Northern Pacific Railway Company. It will be noted that the state totals do not check with those found in Tables XLIV, XLV, and XLVI as the data in the last named tables were derived from a different source of information. It is believed that the totals given in the above table are more nearly accurate.

†Includes Cresswell, Gresham, McMinnville, Mosier, Portland, Roseburg, Sheridan, and Troutdale.

TABLE XLIX. CAR-LOT SHIPMENTS OF CHERRIES VIA EXPRESS, BY WEEKS, STATIONS IN OREGON, 1929-1931*

Year and week	Milton	The Dalles Mosier	Hood River	La Grande Union	Salem Eugene	Other†	State total
1929							
June 8-15	1	6	.....	.....	.....	.....	1
June 16-23	15	14	.....	.....	.....	.....	21
June 24-30	22	14	.....	.....	.....	.....	36
July 1-7	8	15	.....	.....	.....	.....	23
July 8-15	10	10	8	.....	8	.....	24
July 16-23 .....	.....	1	25	8	10	.....	44
July 24-31 .....	.....	.....	5	26	.....	.....	31
Aug. 1-7 .....	.....	.....	.....	11	.....	.....	11
Aug. 8-15 .....	.....	.....	.....	1	.....	.....	1
Total	46	46	38	46	16	.....	192
1930							
June 1-7	2	.....	.....	.....	.....	.....	2
June 8-15	17	.....	.....	.....	.....	.....	17
June 16-23	17	18	.....	.....	.....	.....	35
June 24-30	9	34	.....	.....	1	1	45
July 1-7 .....	.....	11	11	.....	9	3	34
July 8-15 .....	.....	4	23	8	26	5	64
July 16-23 .....	.....	.....	6	21	24	1	52
July 24-31 .....	.....	.....	.....	10	2	.....	12
Aug. 1-7 .....	.....	.....	.....	2	.....	.....	2
Total	45	67	40	39	62	10	263
1931							
June 8-15	18	1	.....	.....	.....	.....	19
June 16-23	6	10	.....	.....	2	.....	18
June 24-30 .....	.....	14	1	.....	4	.....	19
July 1-7 .....	.....	5	2	.....	3	.....	10
July 8-15 .....	.....	.....	.....	10	1	.....	11
July 16-23 .....	.....	.....	.....	4	.....	.....	4
Total	24	30	3	14	10	.....	81

*Data summarized from records obtained through courtesy of Railway Express Agency offices, Portland, Oregon. These data do not include 60 cars shipped by passenger freight during these years for which shipping dates were not available.

†Includes Roseburg and Sheridan.

during the shipping season (see Figure 20), will depend upon the trend of prices during the season and the probable effect of a shift in time of shipments upon such prices. The latter can, of course, be only a matter of mere conjecture. The trend of average prices paid for black cherries shipped from the Pacific Northwest states on the New York Auction for the years 1928-1931 inclusive, by weeks, is indicated in Table L. In order to be conclusive, a longer period than two or three years should be studied, but in so far as the years 1930 and 1931 may be taken as a criterion, prices of Pacific Northwest cherries were materially lower for the shipments received on the auction in the fourth week of June, when shipments from Pacific Northwest states reached a peak, than they were for the previous week (See Figure 20 and Table L). The preference expressed by the Milton-Free-water district for the growing of Bings may perhaps be accounted for in part by the fact that by concentrating on the Bing, which matures earlier than the Lambert, the severe competition occasioned by peak-load shipments converging on Eastern markets a week or two later is avoided. Likewise, aside from climatic considerations, districts such as Hood River, the Willamette Valley, and the La Grande-Union districts may have found that by concentrating on the Lambert, better returns have been realized

because prices appear to strengthen somewhat during the second and third week of July. It would doubtless pay all shipping districts to make a careful study of how they may best synchronize shipments with the intensity of market demand as registered by prices.

TABLE L. WEEKLY AVERAGE PRICES OF PACIFIC NORTHWEST BINGS AND LAMBERTS, NEW YORK AUCTION, 1928-1931*
(Dollars per package)

Year and week ending	Bings			Lamberts		
	Wash- ington	Oregon	Idaho	Wash- ington	Oregon	Idaho
1928						
June 15	\$4.95	.....	.....	.....	.....	.....
June 22	3.60	\$3.60	\$3.50	.....	.....	.....
June 29	2.70	2.45	3.00	\$2.45	\$2.35	\$2.20
July 6	2.65	2.85	2.55	2.50	2.45	2.50
July 13	2.30	2.85	2.10	2.35	2.90	2.50
July 20	1.95	2.15	1.70	2.50	3.35	1.90
July 27	1.80	2.45	.....	2.25	3.00	.....
August 3 .....	.....	2.65	.....	.....	2.15	.....
Season average†..	\$2.77	\$3.03	\$2.96	\$2.44	\$2.70	\$2.46
1929						
June 22	\$4.75	.....	.....	.....	.....	.....
June 29	4.05	\$3.50	.....	.....	.....	.....
July 6	2.95	2.25	.....	.....	.....	.....
July 13	2.65	2.20	2.25	\$2.75	\$2.20	\$1.75
July 20	2.35	3.10	2.15	2.55	2.00	2.15
July 27	2.80	3.10	2.35	2.50	2.60	2.50
August 3	2.70	3.25	2.30	2.90	3.30	2.10
August 10 .....	.....	2.65	.....	2.90	3.40	2.20
Season average†..	\$2.94	\$3.04	\$2.29	\$2.60	\$3.02	\$2.41
1930						
June 15	\$2.75	.....	.....	.....	.....	.....
June 22	2.70	.....	.....	.....	.....	.....
June 29	2.54	\$2.85	\$2.35	.....	.....	.....
July 5	2.33	2.45	2.18	2.03	2.67	1.75
July 13	2.76	2.24	2.23	2.43	2.06	2.50
July 20	2.77	2.73	.....	2.73	2.50	2.68
July 27	2.45	3.04	.....	3.12	3.11	2.55
July 31 .....	.....	2.36	1.65	2.15	2.68	1.70
Season average†..	\$2.55	2.49	1.95	.....	2.53	1.90
1931						
June 15	\$3.59	\$3.58	.....	.....	.....	.....
June 22	3.31	3.40	\$3.07	.....	\$2.99	.....
June 29	2.22	2.42	2.55	\$2.20	2.55	\$2.09
July 5	1.52	2.45	1.84	1.83	3.05	2.13
July 13	2.87	2.33	2.53	2.76	2.49	2.55
July 20	2.38	3.30	.....	2.95	.....	.....
Season average†..	\$2.55	\$3.20	\$2.45	\$2.32	\$2.74	\$2.27

*Sources of Information:

Years 1928, 1929, and 1930 from The Produce Barometer, The Brown-Mayer Publishing Company, Inc., 105 Hudson Street, New York. Year 1931 summarized from U. S. Department of Agriculture daily market news letters, Portland and Spokane.

†Season average price weighted according to volume received on New York Auction during the season. Packages will average about 15 pounds of fruit, net.

A comparison of average prices realized by each of the Pacific Northwest states for black cherries on the New York Auction during the period 1928-1931 is indicated in Figure 21.¹ It will be observed that the cherries

¹Data taken from Table L.

from Oregon, both Bings and Lamberts, outsold those of the neighboring states, Washington and Idaho, and that in all three states Bings brought a somewhat higher price than Lamberts.

In Oregon itself the returns realized by the various shipping districts have by no means been on a uniform level. Returns must be gauged by prices paid growers in these respective districts as it was not found possible to segregate New York Auction prices by districts.¹ It is not purposed to go into grower returns at this point, that discussion being reserved for a later section,² except to point out that fresh shipments of black cherries out of the Willamette Valley have brought considerably lower prices in Eastern markets than those shipped out of Eastern Oregon.

**SEASONAL AVERAGE PRICE OF BINGS
AND LAMBERTS ON NEW YORK AUCTION,
NORTHWESTERN STATES, 1928-1931 AVER.**

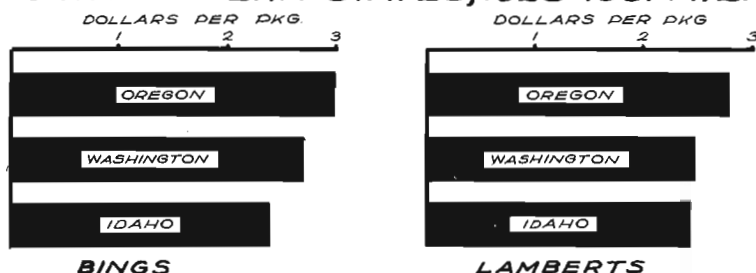


Figure 21

Grading and packaging. In seeking for causes for the lower prices returned to Valley shipments, much of the blame should doubtless be laid at the door of the climatic factor already dwelt upon,³ but growers and shippers might with profit give more thought to the feasibility of raising the standards for grading and packaging which prominent Eastern Oregon shippers assert are not as high as those followed by the more progressive shippers in that locality. To be sure, even if this allegation is correct, it is well not to underestimate the added complications to successful grading engendered by adverse climatic conditions. Members of the trade, however, are virtually united in their belief that extreme care in grading and packaging pays handsome returns. The opinion prevails that the shipper should adopt a very fancy package in which only the most perfect cherries are packed. Certain shippers in Eastern Oregon have adopted this policy with apparently gratifying results to themselves and their growers. The expense is admittedly high, but the claim is made that cherries attractively graded and packaged bring a price that more than counterbalances the high cost of grading and packing as well as the loss suffered through the

¹Grower returns are believed to afford a fairly accurate basis for judging market returns by districts as packer and dealer margins in the various localities are not thought to be substantially different

²Pages 91-96.

³Page 33.

culling of fruit, for which an outlet must be found through less profitable channels.

Trends in fresh-cherry shipments in relation to market demand. Until the weight of the depression began to be felt in 1931 and 1932, the average prices realized for black cherries on fresh markets had been maintained on an attractive basis for a good many years, despite a strong and rapid rise in the volume shipped. The collapse of prices that took place in 1932 was doubtless a manifestation of highly depressed business conditions. The black cherry is a commodity that most people regard as a luxury and is therefore peculiarly susceptible to the effects of reduced consumer purchasing power. As business recovers, demand should be measurably restored. In former years under more normal conditions consuming markets have absorbed an ever increasing supply at prices that have been well sustained. The large acreage yet to come into bearing¹ raises a grave question whether the remunerative prices received in past years can be anywhere near approximated in the future unless market consumption can be materially expanded.

Channels of distribution. The opportunity for market expansion exists. There are in the United States large consumer areas where the black sweet cherry is scarcely known. Present methods of distribution are such that these areas are not ordinarily reached. Nearly all of the cars from the Pacific Northwest are shipped eastward to be sold on auction or otherwise distributed in a few of the larger cities, notably New York, Chicago, Philadelphia, Boston, Pittsburgh, Cleveland, and Baltimore.

A California study indicates that "in both 1928 and 1929 over 80 per cent of the total interstate shipments from that state were sent to the four markets of New York, Chicago, Philadelphia, and Boston, and about 50 per cent to New York alone."² It is not believed that the fresh market distribution of Pacific Northwest cherries would be found greatly different.

Another California writer estimates that approximately 70 per cent of the American population east of the Rockies is never afforded an opportunity to purchase sweet cherries. He avers that 2,000 to 3,000 car-loads could be absorbed in this enlarged market at better prices than are now realized under present methods of market disposal by means of car-lot shipments to eastern auction centers.³

The other side of the picture is presented by certain large wholesale receivers and distributors who contend that the great perishability of cherries precludes shipping them to markets that cannot quickly absorb them in car lots, and that because of the large number of packages in a car (1,100 to 1,200), the luxury character of the commodity, and its high price, the only feasible method is to ship them to the large terminal markets where consumer demand in sufficient volume can be relied upon. If the condition of the cherry upon arrival warrants it, redistribution to smaller

¹See pp. 12-15. Note also: "The Cherry Crop Outlook Report for California, 1931," which states that 65 per cent of present non-bearing acreage in California is planted to blacks which are shipped fresh. Agricultural Extension Service, University of California, Berkeley, California, 1931.

²Wellman, H. R., and Braun, E. W., *Cherries*, Bulletin 488, February 1930, pp. 16-17. Giannini Foundation of Agricultural Economics, Berkeley, California.

³Bergtholdt, J. E., *Inadequate Distribution of California Cherries*, California Cultivator, Vol. LXX, No. 7, Feb. 18, 1928, p. 194.

cities and towns can then take place. Because of the danger of spoilage the radius of such shipments, however, is said to be limited to a distance of 100 miles. Introduction into use of the refrigerator truck, now a novelty, will doubtless widen the area that can be reached. Cherries cannot be shipped LCL without refrigeration.

Middlemen who are reconciled to present methods of distribution allege that when attempts have been made to reach smaller markets the effort has too often proved disastrous. It is their thought that little can be done toward bettering the means of distribution in the near future. If market expansion must await the growth of smaller cities and towns until they reach the point where they can absorb car lots, progress will be slow and the remedy against lower prices must be sought in keeping production well within bounds of immediate market requirements. An official of the American Railway Express Company states that sufficient volume has not been in evidence to justify LCL refrigerator service.¹ California is in a better position than the Pacific Northwest to fill orders for smaller markets with unified cars of deciduous fruits including a portion of cherries. The steps that express companies have taken, putting into effect special rates on cars partly unloaded in one market where the remainder is forwarded to another, is a step in the right direction. Airplane service may in time afford a solution and provide rapid transportation of Royal Anns as well as black cherries to smaller centers for fresh consumption. At present the cost is prohibitive and the carrying capacity of planes too small. Promoters of this type of service are sanguine in regard to its possibilities, however.

Considering (a) the obstacles that lie in the way of market expansion and (b) the rapid expansion of acreage yet to come into bearing that has taken place, there is a real basis for the growing apprehension of producers regarding the probable effect on market prices. The whole situation, of course, has been made immeasurably more difficult by reason of the severe business depression in which we now find ourselves. But even with the resumption of more normal business activity the fresh black-cherry industry appears headed for rough sledding compared to the smooth progress it has enjoyed in the past. The only saving considerations that can now be perceived lie in the direction of a movement to reduce materially the acreage slated to come into bearing, or a marked improvement in methods of distribution with the resulting prospect of opening up new consumer areas.

UTILIZATION OF CHERRIES IN OREGON AND THE PACIFIC NORTHWEST

In Figure 22 and Table L.I an attempt has been made to estimate for Oregon and the Pacific Northwest the average annual volume of cherries (1926-1931 average) that has found its way into the various forms of utilization.² It will be observed that the difference between harvested production and total utilization represents apparent local consumption.

¹Statement, E. N. Graham, General Agent, American Railway Express Company, Portland, Oregon, June 28, 1932.

²Since complete data could not in all instances be procured, particularly with reference to the allocation of tonnage between Oregon and the Pacific Northwest, the figures given should be regarded only as approximations.

For sours and Royal Anns, canning has constituted the most important form of utilization. In the case of sours, this form of market disposal has amounted to nearly 92 per cent of the total utilization in Oregon, and 80 per cent in the Pacific Northwest, the remainder going into cold pack. Of the total volume of utilization of Royal Anns in Oregon, more than 73 per cent has gone into the can, all but 1 per cent of the remainder being brined; in the Pacific Northwest 81 per cent has gone into the can, 17 per cent into brine, and about 2 per cent into fresh shipments or cold pack.

Of the blacks in Oregon, more than 78 per cent have been shipped fresh, the rest (except for insignificant quantities cold packed or dried) going into the can. In the Pacific Northwest more than 88 per cent have

**ESTIMATED UTILIZATION OF CHERRIES, BY
KIND, OREGON AND PACIFIC NORTHWEST,
1926-1931 AVER.**

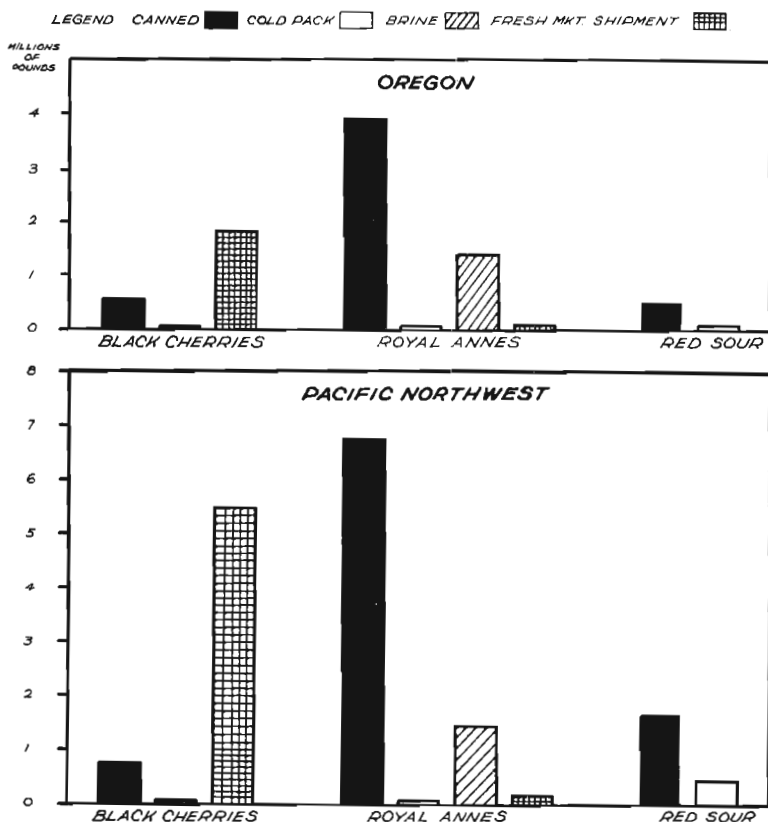


Figure 22

been shipped fresh, virtually all of the remainder going into the can. Two major changes in the character of utilization have been taking place, one involving the Royal Ann, the other the red sour cherry. In the case of the latter, there have been pronounced inroads on the canned pack by the cold pack; in the former case the brining of cherries has leaped into prominence, not in the main as a substitute for canning, but supplemental to it.

TABLE LI. ESTIMATED PRODUCTION AND UTILIZATION OF CHERRIES IN OREGON AND PACIFIC NORTHWEST. 1926-1931 AVERAGE

Item	Harvested production*	Utilization					
		Canned†	Cold packed‡	Brined§	Fresh shipments||	Total utilization	Apparent local consumption¶
	Tons	Tons	Tons	Tons	Tons	Tons	Tons
<i>Oregon:</i>							
Black	4,695	517	2	-----	1,861	2,380	2,315
Royal Ann..	5,738	3,880	18	1,362	38	5,298	440
Sour	907	450	40	-----	-----	490	417
Total ..	11,340	4,847	60	1,362	1,899	8,168	3,172
<i>Pacific Northwest:</i>							
Black	12,255	707	3	-----	5,457	6,167	6,088
Royal Ann..	10,439	6,726	28	1,406	111	8,271	2,163
Sour	2,521	1,614	401	-----	-----	2,015	506
Total ..	25,215	9,047	432	1,406	5,568	16,453	8,762
	%	%	%	%	%	%	%
<i>PERCENTAGES</i>							
<i>Oregon:</i>							
Black	100.0	11.0	.1	-----	39.6	50.7	49.3
Royal Ann	100.0	67.6	.3	23.8	.7	92.4	7.6
Sour	100.0	49.6	4.4	-----	-----	54.0	46.0
Total	100.0	42.7	.5	12.0	16.8	72.0	28.0
<i>Pacific Northwest:</i>							
Black	100.0	5.8	.03	-----	44.5	50.3	49.7
Royal Ann	100.0	64.4	.3	13.5	1.0	79.2	20.8
Sour	100.0	64.0	15.9	-----	-----	79.9	20.1
Total	100.0	35.9	1.7	5.6	22.1	65.3	34.7

*Data taken from Table III.

†Data taken from Tables XXVI and XXVII. Figures shown in these tables were converted from cases to pounds on the following bases:

Size Royal Anns and Blacks		Sours	
6/10	33 lbs. per case	40 lbs.	per case
24/2½	36 lbs. per case	48 lbs.	per case
24/2	24 lbs. per case	32 lbs.	per case
48/1	34 lbs. per case	36 lbs.	per case
72/8 oz.	24 lbs. per case	27 lbs.	per case

Distribution according to sizes followed the distribution as shown for the years 1929-1931 in Table XXVIII.

‡Data taken from Table XXXIII. Figures for Oregon estimated as follows: 75 per cent of black cherry cold pack of Pacific Northwest, 65 per cent of Royal Ann cold pack, 10 per cent of sour cold pack.

§Data from Table XL. Oregon's share of Pacific Northwest pack estimated at 97 per cent.

||Data from Table XLV for Idaho and Washington, and from Table XLVIII for Oregon.

¶This item represents the difference between "Harvested production" and "Total utilization." It also includes the small amount of black and white cherries put up in dried or juice form. The amount dried probably would not exceed 100 tons in any one year, and that put up in juice form would average considerably less. The amounts for which Oregon was responsible as distinct from the Pacific Northwest could not be ascertained.

PRICES PAID GROWERS

In analyzing prices paid growers, it is important to differentiate between prices actually received and the same prices adjusted to take account of changes in the general price level. If, for example, the price of cherries has shown a rising tendency over a period of years, the conclusion is not necessarily warranted that the industry has improved its position, because the general price level may have risen likewise.¹ In Figure 23 and Tables LII-LIV, adjusted as well as actual prices are shown.

**ACTUAL AND ADJUSTED PRICES PAID
OREGON GROWERS FOR CHERRIES USED
IN PROCESSING, 1914-1931**

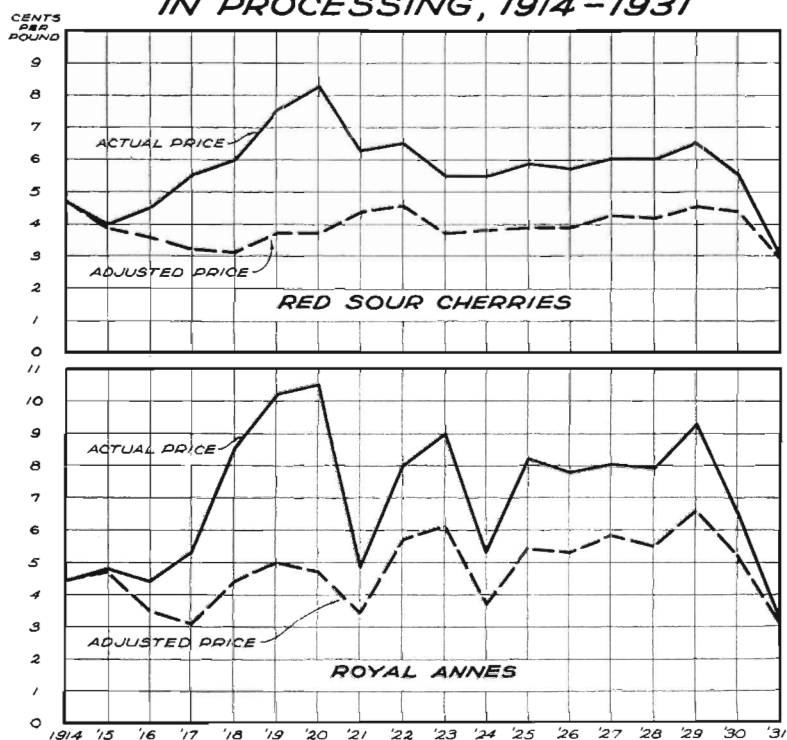


Figure 23

¹From the standpoint of the grower, interest in price changes in terms of grower purchasing power might be greater. Unfortunately there is no index available to present adequately the prices paid over a period of years by Oregon cherry growers for commodities they must purchase.

TABLE LII. ACTUAL AND ADJUSTED AVERAGE PRICES PAID OREGON GROWERS FOR CHERRIES USED IN PROCESSING, 1914-1931*
(Cents per pound)

Year	Actual prices				Adjusted prices†		
	Royal Anns	Black sweet cherries	Red sour cherries	All commodity index‡	Royal Anns	Black sweet cherries	Red sour cherries
1914	4.4¢	----	4.7¢	99	4.4¢	----	4.7¢
1915	4.8	----	4.0	102	4.7	----	3.9
1916	4.4	----	4.5	125	3.5	----	3.6
1917	5.3	----	5.5	172	3.1	----	3.2
1918	8.5	----	6.0	192	4.4	----	3.1
1919	10.2	----	7.5	202	5.0	----	3.7
1920	10.5	----	8.3	225	4.7	----	3.7
1921	4.8	4.6¢	6.3	142	3.4	3.2¢	4.4
1922	8.0	6.2	6.5	141	5.7	4.4	4.6
1923	9.0	6.0	5.5	147	6.1	4.1	3.7
1924	5.3	4.8	5.5	143	3.7	3.4	3.8
1925	8.2	7.0	5.9	151	5.4	4.6	3.9
1926	7.8	6.5	5.7	146	5.3	4.5	3.9
1927	8.0	6.8	6.0	139	5.8	4.9	4.3
1928	7.9	6.3	6.0	143	5.5	4.4	4.2
1929	9.3	8.0	6.5	141	6.6	5.7	4.6
1930	6.5	6.2	5.5	126	5.2	4.9	4.4
1931	3.2	4.0	3.0	104	3.1	3.8	2.9
Average 1914-1920	6.9	----	5.8	160	4.3	----	3.7
Average 1921-1926	7.2	5.8	5.9	145	4.9	4.0	4.0
Average 1927-1931	7.0	6.3	5.4	131	5.2	4.7	4.1

*The foregoing data are intended to represent average prices paid Oregon growers by bargaining associations, cannerymen, and barrelers for fruit used in processing.

†United States Bureau of Labor Statistics All Commodities Wholesale Price Index as reported in the U. S. Bureau of Agricultural Economics, *The Agricultural Situation*, October 1931 and February 1932. Index obtained by dividing the new series, 1926 = 100, by its prewar average, 1910-1914, 68.5.

‡Computed by dividing the average prices paid producers as shown in first three columns above for each year, by the all-commodity wholesale price index for the corresponding year.

Sour cherries. Figure 23 and Table LII disclose that though the actual prices paid Oregon growers for sour cherries showed a recession from an average price of 5.9 cents for the years 1921-1926 to 5.4 cents for 1927-1931, adjusted prices rose from 4 cents to 4.1 cents. In 1929 sours reached a peak price (actual) of 6.5 cents, a price not equaled in any year since 1922. It is noteworthy that paralleling this upward trend in prices, bearing and non-bearing acreage was steadily advancing. Beginning with 1930, a decline in both actual and adjusted prices set in, which took on drastic proportions in 1931.¹

In recent years Pacific Coast markets have failed to absorb all of the sour cherries produced in the Pacific Northwest, and substantial quantities of canned sours have been shipped to Eastern consuming centers in competition with those grown and packed in such states as Michigan, Wisconsin and New York. It is of interest, therefore, to compare returns paid growers in these competing localities with those received by growers in Oregon. Figure 24 shows such a comparison between Oregon and Michigan, and Table LIII extends the comparison to include Wisconsin. It will be observed that the returns to Oregon growers have averaged substantially lower than those paid growers in either of these states. From 1921 to 1926, for example, Oregon grower prices averaged 5.9 cents, in Michigan 6.4 cents, and in Wisconsin 6.6 cents. From 1927 to 1931 the

¹1932 returns when finally computed promise to average considerably below those for 1931. The same is true for all other kinds of cherries, whether processed or sold as fresh fruit.

corresponding prices were 5.4 cents for Oregon, 6.2 cents for Michigan, and 6.4 cents for Wisconsin. Figures on comparative costs of producing sour cherries in these localities are not available, but those best informed believe that they can be grown in Michigan and Wisconsin as cheaply as anywhere. If that is the case, Oregon growers may find themselves operating at a permanent disadvantage if production is expanded to the point where an outlet must be sought in Eastern centers. Eastern growers can expand acreage as readily as those in the Pacific Northwest, and doubtless will do so if market demand warrants it. Since sour cherries grown in the Pacific Northwest have the added handicap of receiving a lower rating in quality by many in the trade, there is ample reason for concluding that acreage in Oregon, and probably Washington, should be confined to Pacific Coast requirements.

**COMPARATIVE PRICES PAID GROWERS
FOR CANNING ROYAL ANNES AND RED
SOUR CHERRIES, OREGON & COMPETING
STATES, 1914-1931**

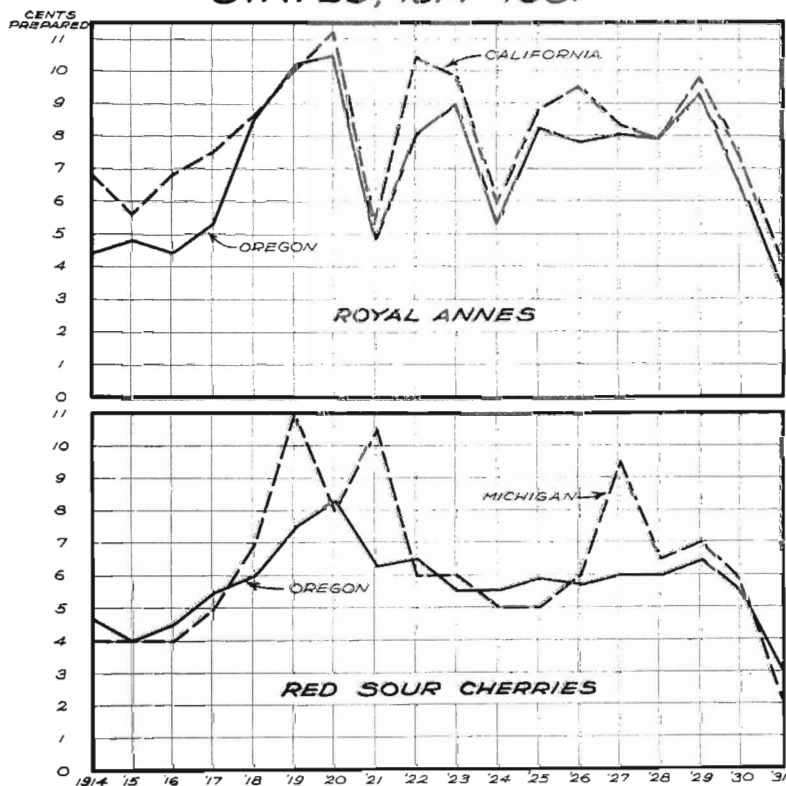


Figure 24

Royal Anns. If average prices are compared between the periods 1921-1926 and 1927-1928, the actual prices returned to growers of Royal Anns declined from 7.2 cents to 7 cents, and adjusted prices rose from 4.9 cents to 5.2 cents (Figure 23 and Table LII). Prices were well sustained despite rapidly expanding acreage. The turn in prices came in 1930 when both actual and adjusted prices started downward, and 1931 and 1932 witnessed greatly reduced prices.¹

TABLE LIII. COMPARATIVE PRICES PAID GROWERS FOR CANNING ROYAL ANNS AND RED SOUR CHERRIES, OREGON AND COMPETING STATES, 1914-1931*
(Cents per pound)

Year	Royal Anns		Red sour cherries		
	Oregon	California	Oregon	Michigan Traverse City	Wisconsin Door County
1914	4.4¢	6.8¢	4.7¢	4.0¢	4.0¢
1915	4.8	5.6	4.0	4.0	4.5
1916	4.4	6.8	4.5	4.0	5.0
1917	5.3	7.5	5.5	5.0	5.5
1918	8.5	8.6	6.0	7.0	9.0
1919	10.2	10.0	7.5	11.0	9.0
1920	10.5	11.2	8.3	8.0	10.0
1921	4.8	5.3	6.3	10.5	10.5
1922	8.0	10.4	6.5	6.0	7.2
1923	9.0	9.8	5.5	6.0	5.6
1924	5.3	5.9	5.5	5.0	4.8
1925	8.2	8.8	5.9	5.0	5.0
1926	7.8	9.5	5.7	6.0	6.6
1927	8.0	8.3	6.0	9.5	7.5
1928	7.9	7.9	6.0	6.5	7.8
1929	9.3	9.8	6.5	7.0	7.8
1930	6.5	7.4	5.5	5.8	6.0
1931	3.2	4.0	3.0	2.0†	3.0†
Average 1914-1920	6.9	8.1	5.8	6.1	6.7
Average 1921-1926	7.2	8.3	5.9	6.4	6.6
Average 1927-1931	7.0	7.5	5.4	6.2	6.4

*Sources of data:

Oregon prices same as recorded in Table LII. California prices from California Agricultural Experiment Station Bulletin 488, *Cherries*, pg. 38. Years 1930 and 1931 by special correspondence with the California Agricultural Experiment Station.

Michigan and Wisconsin prices were taken from *American Cooperation* 1930, Vol. 2, article, *Organization in the Cherry Industry of Wisconsin and Michigan* by M. B. Goff, pg. 86 onward. Years 1930 and 1931 by special correspondence with Fruit Growers Union, Traverse City, Michigan, and Fruit Growers Union, Sturgeon Bay, Wis. See also April 1931 issue of *American Fruit Grower*, *The Cherry Grower Takes a Bigger Piece of Pie*, by H. Titus.

†Tentative.

As Figure 24 and Table LIII indicate, growers of Royal Anns in California have realized higher prices than growers in Oregon. During the years 1921 to 1926 the former received an average price of 8.3 cents, the latter 7.2 cents; from 1927 to 1931 the prices averaged 7.5 cents and 7 cents respectively.

Black cherries. The prices Oregon growers have received for black cherries used in processing have been considerably lower than for those disposed of in the fresh-fruit market (see Tables LII and LIV). Relatively few, however, have been processed.² Both actual and adjusted prices of

¹See footnote (1), page 92.

²See page 65.

blacks used in processing enjoyed an upward trend ranging from an average of 5.8 cents for the actual and 4 cents for the adjusted during 1921-1931 inclusive, to 6.3 cents and 4.7 cents respectively during 1927-1931.

Trends in average prices paid growers for blacks sold for fresh markets by leading producing districts are shown in Table LIV.¹ Prices were sustained on an attractive basis until 1931,² some recession having occurred, however, in 1930. It will be observed that growers in Eastern Oregon have enjoyed returns considerably in excess of those received by growers operating in the Willamette Valley.

TABLE LIV. AVERAGE PRICES PAID GROWERS, BLACK SWEET CHERRIES FOR FRESH MARKET, BY DISTRICTS IN OREGON, 1925-1931³
(Cents per Pound)

Year	Willamette Valley†	The Dalles‡	Hood River§	Milton-Freewater||	Union||
1925	9.0	14.0	16.3	.....	.....
1926	8.5	10.3	14.5	.....	.....
1927	9.5	12.7	18.2	.....	.....
1928	8.0	8.2	14.4	.....	10.0
1929	8.5	9.3	14.5	12.0	12.0
1930	7.0	7.6	13.7	10.0	8.5
1931	5.0	7.3	.....	11.0	10.0

*Includes Bings and Lamberts but not Black Republicans.

†Computed from price data received from private buyers and cooperative associations.

‡An average of prices as reported by Staedelman Fruit Company and The Dalles Cooperative Growers. Figures for 1925, 1926, and 1927 furnished by a prominent grower.

§Represents returns to members of Apple Growers' Association as reported by H. M. Dexter, Assistant Sales Manager. Figures for 1931 were not submitted as cherry crop in that locality was "almost a failure due to rain." Letter, January 30, 1932.

||As reported by R. D. Monahan, Freewater. Milton-Freewater returns are an average of three pools.

The extraordinarily high returns enjoyed by the Hood River district are attributable not only to the outstanding excellence of the pack put up by the cooperative shipping association operating in that locality, but also to the uniformly large-sized cherries put into the pack and its exceptional weight. According to the manager, Eastern buyers are willing to pay good premiums for large cherries.⁴ In the Milton-Freewater district high returns are attributable in considerable part to the fact that it is the earliest shipping district in the Pacific Northwest. Returns to growers in the La Grande-Union district are materially aided because this locality is usually the very last to ship out of the Pacific Northwest.

The reasons for the lower returns received by Valley growers have already been commented upon to some extent.⁴ Black cherries from this section of Oregon do not enjoy the high reputation with the trade that shipments from the leading districts in Eastern Oregon do. Eastern middlemen complain of irregularity in size and quality. Occasional cars rate well in these respects but others do not. They assert, too, that cherries from the Valley region have not always been packed and graded in the careful manner characteristic of other districts. Valley shippers are said now to be making a conscientious effort to turn out a high-grade pack.

¹These figures represent the price per pound received by the grower for packed cherries and does not take into consideration the cullage necessary to obtain the pack.

²Indications are that returns for 1932 will suffer drastic declines.

³V. C. Follenius, Hood River Apple Growers Association.

⁴See page 86.

It must be recognized that they face a formidable obstacle in achieving the desired quality and uniformity of pack sought by the Eastern trade and for which they have been willing to pay fancy prices. The growing of black cherries is understood to be a main enterprise with relatively few of the growers in this locality. Production in small lots as a sideline does not make for regularity in size and quality. But more basic than this are the unfavorable climatic conditions already alluded to as prevailing in most years at harvest time.¹ Excessive moisture not only may cause direct injury to the fruit but promotes disease, the worst of which is the Brown Rot spore which causes premature decay. There is some hope that the ravages of this disease may in time be stayed by washing the cherry just before shipment in some chemical that will kill the spores. This development, however, is still in an experimental stage.

Conclusions. At the low prices prevailing for cherries of all kinds in 1931 and 1932 it is safe to say that no new plantings of any consequence will be made anywhere in the near future. Because of the high cost and numerous hazards attendant upon bringing a cherry orchard into bearing (particularly sweet cherries) prices must be attractive before growers are tempted to expand acreage. That the inducement has heretofore been sufficient is attested to by the rapidity with which acreage has expanded.

How low prices must recede before growers will begin to pull up their trees is debatable. Prices are thought to have reached a point in 1931, and particularly in 1932, where if trees are not actually pulled, they will at least be neglected to a considerable extent, particularly on farms with high-cost producing orchards. If prices remain low for any length of time, aggregate production will doubtless not increase in the proportion that one might anticipate from contemplating the large acreage not yet in bearing.

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¹See page 33. Growers in Eastern Oregon are not entirely free of adverse weather conditions. Windstorms and frosts give rise to considerable damage in certain years.