

UNIVERSITY OF IDAHO

AGRICULTURAL EXPERIMENT STATION
DEPARTMENT OF AGRICULTURAL ECONOMICS

In Cooperation With

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ECONOMICS

Statistics On The
Prices And Destinations
Of Idaho Apples

The four crops,
1923 to 1926.

by
CLINTON F. WELLS

Bulletin No. 162

June, 1928.

Published by the University of Idaho, Moscow, Idaho

UNIVERSITY OF IDAHO AGRICULTURAL EXPERIMENT STATION

BOARD OF REGENTS

MRS. J. G. H. GRAVELEY, President.....	Boise
CLENCY ST. CLAIR, Vice-President.....	Idaho Falls
HUNTINGTON TAYLOR, Secretary.....	Coeur d'Alene
ASHER B. WILSON.....	Twin Falls
STANLEY A. EASTON.....	Kellogg
W. D. VINCENT, Commissioner of Education.....	Boise

EXECUTIVE COMMITTEE

ASHER B. WILSON	HUNTINGTON TAYLOR	W. D. VINCENT
	FREDERICK J. KELLY, Secretary	

EXPERIMENT STATION STAFF

FREDERICK J. KELLY, Ph.D.....	President
E. J. IDDIGS, M.S.....	Director
C. W. HUNGERFORD, Ph. D.....	Vice-Director
OREN A. FITZGERALD, B. A.....	Agricultural Editor

HOBART BERESFORD, B. S. (Agr. E.).....	Agricultural Engineer
ALFRED D. EDGAR, B. S. (Agr. Eng.).....	Assistant Agricultural Engineer
EDGAR H NEAL, B. S. (Agr.).....	Irrigationist
H. W. HULBERT, M. S. (Agr.).....	Agronomist
G. R. MCDOLE, M. A.....	Soil Technologist
JOHN D. REMSBERG, Jr., M. S. (Agr.).....	Assistant Agronomist
F. L. BURKHART.....	Field Superintendent
C. W. HICKMAN, M. S. (Agr.).....	Animal Husbandman
J. E. NORDBY, M. S. (Agr.).....	Assistant Animal Husbandman
B. L. TAYLOR, D. V. M.....	Veterinarian
R. F. JOHNSON, B. S. (Agr.).....	Assistant in Feeding Investigation
G. L. A. RUEHLE, M. S.....	Bacteriologist
CHAS. C. PROUTY, M. S.....	Assistant Bacteriologist
GEORGE SHILLING, M. S.....	Assistant Bacteriologist
** R. E. NEIDIG, M. S.....	Chemist
R. S. SNYDER, M. S.....	Associate Chemist
H. P. MAGNUSON, M. S.....	Assistant Soil Chemist
W. B. BOLEN, Ph. D.....	Assistant Chemist
GEORGE E. DRAPER, B. S.....	Assistant Chemist
F. W. ATKESON, B. S.....	Dairy Husbandman
D. R. THEOPHILUS, M. S.....	Asssitant Dairy Husbandman
G. C. ANDERSON, B. S.....	Assistant Dairy Husbandman
H. C. HANSEN, M. S.....	Assistant Dairy Husbandman
* H. A. MATHIESEN, B. S. (Agr.).....	Agent in Dairying
CLAUDE WAKELAND, M. S.....	Entomologist
R. W. HAEGELE, A. B.....	Assistant Entomologist
A. M. SOWDER, M. S. (For.).....	Forester
R. H. ENGLE, M. S.....	Economist
G. L. SULERUD, M. S.....	Assistant Economist
C. F. WELLS, M. A.....	Assistant Economist
C. C. VINCENT, M. S. (Agr.).....	Horticulturist
LEIF VERNER, M. S.....	Assistant Horticulturist
T. R. ASHLEY.....	Florist
C. W. HUNGERFORD, Ph. D.....	Plant Pathologist
* J. M. RAEDER, M. S.....	Associate Plant Pathologist
W. M. PIERCE, M. S. (Agr.).....	Assistant Plant Pathologist
C. E. LAMPMAN, B. S. (Agr.).....	Poultry Husbandman
FRANK E. MOORE, B. S. (Agr.).....	Assistant Poultry Husbandman
JESSIE C. AYRES.....	Seed Analyst
* A. A. McCLYMONDS, B. S. (Agr.).....	Superintendent Aberdeen Substation
D. A. STUBBLEFIELD.....	Superintendent Caldwell Substation
W. A. MOSS, B. S. (Agr.).....	Superintendent High Altitude Substation
J. H. CHRIST, M. S. (Agr.).....	Superintendent Sandpoint Substation

* In Cooperation with U. S. Department of Agriculture.

** On leave of absence.

STATISTICS ON
THE PRICES AND DESTINATIONS
OF IDAHO APPLES

Foreword

In recent years there has been a concentration of the apple industry in the sections more highly favored for commercial, specialized production. This has been true for Idaho as well as the nation as a whole. Because of the importance and condition of the commercial apple industry, a comprehensive study of it has been undertaken by the United States Department of Agriculture, Bureau of Agricultural Economics, in which various State Agricultural Experiment Stations are cooperating. As a part of this national study, the Idaho Agricultural Experiment Station has been interested in studying in detail the economics of both the production and the marketing of Idaho apples. The part of the national study already made at the Idaho Station is reported in this bulletin.

In this inquiry statistics have been sought which would give information on three aspects of the marketing of Idaho apples; namely, (1) the volume, value and representative price of recent Idaho apple crops; (2) a comparison by grade, by type of pack, and by variety, of prices received by the producer; and (3) the marketing areas into which these apples were shipped. This should furnish some of the information necessary to assist the marketing manager to judge his efficiency, and to help the producer to understand variations in price as influenced by the variety grown, by the quality as measured by grades, and by the type of pack used.

The price statistics used in this study are based upon the number of carload records shown in Table I.

Table I—Number of carloads for which prices were obtained.

Crop of	Number of Carloads
1923	701
1924	223
1925	843
1926	664

These data were taken directly from the books of dealers and large orchardists by the author. Acknowledgment is hereby made of the valuable cooperation of these shippers and orchardists whose aid has made this report possible.

A comparison of prices by varieties is useful in deciding what variety to plant. A comparison of prices by pack, when combined with a producer's own figures on the cost of the different types of pack should be of value in choosing the best type of pack. A comparison of prices by grade should be of assistance in deciding the grade or combination grade into which the fruit should be sorted.

THE PRICE OF COMMERCIAL APPLES
RECEIVED BY THE PRODUCER
IN IDAHO

THE COMMERCIAL CROP

The price discussed in the following pages is the amount the producer has left after paying all commissions, marketing and freight charges except packing cost, delivery at the car or packing house, loading if any, and detention and demurrage at the shipping end.

The following table shows the yearly average price of all apples of the commercial crop for four seasons. This average price is weighted for the different varieties, grades and packs.

Table 2—Commercial Apples Prices to Producer.

Crop of	Season Average Price per bu.*
1923	\$.66
1924	1.06
1925	1.01
1926	.65

*From Appendix I.

Assuming that total carlot shipments of apples out of Idaho represent the majority of the commercial crop we find that this changes quite decidedly from year to year. The following table shows that 1924 and 1926 were relatively short crop years in Idaho.

Table No. 3—Total Carlot Shipments From Idaho and total for the United States.

Crop of	IDAHO		UNITED STATES
	Cars	Bushels (4)	Cars
1923	(1) 6935	4,722,495	(1) 133,184
1924	(1) 2223	1,507,807	(1) 103,844
1925	(2) 7485	5,062,512	(2) 127,902
1926	(3) 3677	2,471,443	(5) 133,847

(1) From the 1926 Yearbook of Agriculture Page 897.

The season is the 13 months starting June 1st.

(2) Same source but subject to revision.

(3) Preliminary from Northwest Boxed Apple Deal, period from July 1-May 30.

(4) From Table 13.

(5) From July 1927 crops and markets.

The table also shows that 1926 was a year of heavier production for the nation as a whole. The prices in Table 3 are affected by changes in national production rather than by changes in Idaho production.

By using the prices in Table 2 and the number of bushels shipped in Table 3 we may estimate the total value of Idaho shipments for the four years as shown in Table 4.

Table 4—Value of Carlot Shipments of Idaho Apples, 1923-1926

Crop of	Carlot Shipments		Total Value
	Bushels	Average Price per Bu.	
1923	4,722,495	\$.66	\$3,116,847
1924	1,507,807	1.06	1,598,275
1925	5,062,512	1.01	5,113,137
1926	2,471,443	.65	1,606,438

PRICES COMPARED BY GRADES

The grades used here are the Official Idaho Standards for Apples as described in the official publication of these standards by the Idaho Department of Agriculture. These standards recognize three basic grades and several combination grades. The three basic grades, named in the order of excellence in quality represented, are "extra fancy," "fancy," and "C." The "extra fancy and fancy" is one of the combination grades, made up as the name indicates. The grade here called combination grade is the Idaho "combination extra fancy," "fancy," and "C" grade

made up of all three basic grades. The official standards require that the red varieties contain at least twenty-five per cent of the highest grade and other varieties at least fifteen per cent, and that the "C" grade apples shall comprise not more than one-third of the total.

Percentages of all Apples in each Grade.

The Idaho Department of Agriculture inspected 57 per cent of all apples shipped during the four crop seasons, 1923-1926. From these inspection certificates as summarized in the biennial reports of that department, the following figures are derived. They have been slightly changed to allow for the fact that the department has not inspected a representative proportion of boxed apples, which fact, if not adjusted for, would make the percentages in the boxed apple grades (those above combination grade) too small.

Table 5—Grades—Percentage of All Apples Falling in each Grade

Crop of	Total	Ex. Fancy	Ex. Fancy and Fancy	Fancy Combination	
	Per cent	Per cent	Per cent	Per cent	Per cent
1923	100	4.2	6.3	2.7	86.8
1924	100	10.1	6.2	5.2	78.5
1925	100	3.5	5.0	2.4	89.1
1926	100	5.9	2.8	4.8	86.5

It may be seen that the Idaho combination grade accounts for by far the largest proportion of Idaho commercial apples.

In 1924, the year of lowest production and highest price in the four-year period, there was a larger proportion of all the boxed grades, particularly the extra fancy. Evidently, either the quality of the crop was distinctly superior or the higher price induced a closer selection of the better grades, or both these conditions prevailed.

Average Price Per Grade

Table 6 shows both the yearly average price per grade and a four-year average price per grade. Like all the prices presented in this report, the prices are those received by the producer after all commissions, freight and other marketing charges were paid.

Table 6—Grade—Average Price Per Grade to Producer**

Crop of	Extra	Extra	Fancy	Combination	Season
	Fancy	Fancy and	Fancy		Aver. Price
	(\$ per	(\$ per	(\$ per	(\$ per	(\$ per
	bu.)*	bu.)*	bu.)*	bu.)*	bu.)*
					all Grades
1923	0.86	0.68	0.68	0.65	0.66
1924	1.47	1.40	1.12	1.00	1.06
1925	1.27	1.40	1.12	1.00	1.06
1926	0.92	0.58	0.69	0.63	0.65
4 year weighted average	‡1.11	0.93	0.88	0.81	

* A bushel is assumed to weigh 45 lbs.

‡ The weight used is proportional to the grade percentages shown in Table 5 and to the yearly shipments shown in Table 3.

** From Appendix No. 1.

The grade prices are a weighted average of all varieties and packs of the given grade. This method of weighting prevents the relatively high average price of Delicious apples from making certain grade prices too high. The pack weights used prevent the relatively high price of apples in boxes from raising the price of combination grade unduly.

An examination of Table 6 shows that the four year average price for extra fancy apples of all varieties and packs was 18c per bushel higher than the price for extra fancy and fancy grade, 23c higher than fancy, and 30c or 37 per cent higher than the price received for combination grade.

The average price per grade of each variety in each year may be found in Appendix No. 1.

PRICES BY TYPE OF PACK

Percentage of All Apples in Each Pack.

The contents of Table 7 show that in the normal year about 60 percent of Idaho apples are packed in baskets. The percentages shown in Table 7 are based on inspections made by the Idaho Department of Agriculture which, as stated above, constitute a 57 percent sample.

If the estimated number of cars of each pack is desired, it may be found in Table 13.

Table 7—Percentage Distribution of Idaho Apples by Type of Pack. (1)

Pack—Percentage Distribution by Year*

	1923 per cent	1924 per cent	1925 per cent	1926 per cent
Baskets	48.4	60.6	60.3	64.8
Boxes	26.6	38.6	30.8	22.4
Bulk	25.0	.8	8.9	12.8

1. From the Biennial Reports of the Idaho Department of Agriculture.
2. Bulk apples are loose in car without containers.

Average Price per Pack

The four-year average price of the different packs for each of four important varieties is given in Table 8. These data make possible comparison of the prices received by the producer for the different packs. If he knows the cost of the packs he can determine which pack has been the most profitable in the four-year period under discussion.

Table 8—Four Year Average Price to Producer (1) by Variety and Type of Pack.

Variety	Grade	Average Price—4 crops 1923-1926		
		Boxes* (\$ per bu.)	Baskets* (\$ per bu.)	Bulk (\$ per bu.)
Jonathan	Combination	.99	.87	.50
Rome Beauty	Combination	.88	.81	.53
Winesap	Combination	.98	.86	.49
Delicious	Combination	1.43	1.41	none
Others	Combination	.97	.81	.48

* Assuming boxes contain 44 lbs. of apples, baskets 45 lbs. and a bushel 45 pounds.

- (1) For definition see page 5.

PRICE BY VARIETY

Relative importance of Four Major Varieties.

The data in the following table are based on records of inspections made by the Idaho Department of Agriculture. The percentage may be slightly low for Rome Beauty and Delicious due to the fact that certain boxed apple shippers did not take inspections and to these shippers having a larger than average percentage of these varieties. The effect of this is not large enough, however, to justify an attempt to adjust for it.

Table 9—Percentage of All Apples in each of the
Four Important Varieties*
Crops of 1923 to 1926

Variety	1923 Per cent	1924 Per cent	1925 Per cent	1926 Per Cent
Jonathans	33.3	22.2	41.9	28.3
Rome Beauty	17.7	39.3	19.8	24.4
Winesaps	12.8	12.1	10.3	12.3
Delicious	3.1	2.8	5.3	3.5
Others	33.1	23.6	22.7	31.5
Total	100.0	100.0	100.0	100.0

* From Biennial Report of Idaho Dept. of Agr.

Average Price By Variety

Orchardists or others having in mind the planting of new orchards have to decide what variety of apples to plant. Several factors must be taken into consideration in making this decision. One of the important factors is the relative prices received for the different varieties in the past. The following table gives a four-year average price for each of four important varieties in Idaho. In computing the prices shown the grades have been combined by means of grade weights, the packs by means of pack weights, and the years by means of yearly carlot shipments as weights. The average price is therefore weighted for all of these factors and should represent the average differences in price that have existed between the varieties, as such, over the past four seasons.

Table 10—Four Year Average Price to Producer (1)
of Each of Four Important Varieties.

Variety	(\$ Per Bu.)
Delicious	1.45
Winesaps	.88
Jonathans	.84
Rome Beautys	.79
Others	.74

(1) For definition of this price see page 5.

Comparative prices of these varieties in each of the crop years, 1923-1926, may be found in Appendix I.

DESTINATIONS.

Of All Apples.

The best data at hand showing the destinations of carlot shipments of Idaho apples are those furnished by the Pacific Fruit Express Company on special request. It covers the years 1920 through 1925 and shows the destinations by state of about 85 per cent of all apples shipped. In the following table this material has been condensed into destinations by districts.

Table 11.—Percentage of All Apples Shipped to Given District 1920-1925*

Year*	Dist. 1	Dist. 2	Dist. 3	Dist. 4	Dist. 5	Dist. 6	Total
	North Atlantic	South Atlantic	Ind. Mich. Ky. Ohio	North Central	South West	Mountain and Pacific	
	per cent	per cent	per cent	per cent	per cent	per cent	per cent
1920	10.5	1.3	7.4	43.3	16.2	21.3	100.0
1921	9.2	4.1	13.0	58.4	5.8	9.5	100.0
1922	12.8	3.4	15.5	43.1	9.0	16.2	100.0
1923	7.2	2.1	11.2	49.1	13.3	17.1	100.0
1924	11.0	2.3	7.8	39.6	15.1	24.2	100.0
1925	7.6	2.5	7.4	52.5	9.4	20.6	100.0
Wtd. Aver.	9.2	2.7	10.5	49.4	10.8	17.4	100.0
Aver. 1920-22	10.6	3.3	12.5	50.6	9.0	14.0	100.0
Aver. 1923-25	7.9	2.3	9.0	48.7	12.2	19.9	100.0

* Exact period unknown. All data from the Pacific Fruit Express Co.
 District 1—Conn., Del., Dist. of Co., Me., Md., Mass., N. H., N. J., Penn., R. I., Vt.
 District 2—Ala., Fla., Ga., Miss., N. C., S. C., Tenn., Va., W. Va.
 District 4—Ill., Ia., Kan., Minn., Mo., Neb., N. D., S. D., Wis.
 District 5—Ariz., Ark., La., N. M., Okla., Tex.
 District 6—Calif., Colo., Nev., Mont., Ore., Utah., Wash., Wyoming, Idaho.

Table 11 shows that there has been a downward trend in the proportion of Idaho apples moving to middle-west, eastern, and southeastern districts and an upward trend in the proportion shipped to southwestern, mountain, and Pacific States.

Destinations of the Different Packs.

The data contained in Table 12 is not from Pacific Fruit Express records but is from the car records gathered in this survey.

Table 12—Destinations of the Different Packs (A) 1

Pack	Four Year Average Percent-Crop of 1923-1926							Total per cent
	Export per cent	Dist. 1 per cent	Dist. 2 per cent	Dist. 3 per cent	Dist. 4 per cent	Dist. 5 per cent	Dist. 6 per cent	
Boxes	20.3	(36.8)	2.9	9.0	18.8	7.0	5.2	100.0
Baskets	0	4.0	4.4	18.4	(55.3)	9.7	8.2	100.0
Bulk	0	1.2	1.4	7.9	23.7	(40.7)	25.1	100.0

1 (A) For definitions of the districts see footnote to Table 11.

The percentages in parentheses emphasize the conclusion that the higher the value per pound the further apples can be shipped profitably. The boxed apples move to the eastern seaboard and to export through New York. The basket apples are marketed nearer home, in the middle-west. Bulk apples are marketed still nearer home, in the southwest, mountain and Pacific states.

A detailed examination of the destinations of the different grades showed that the boxed apple grades, namely, extra fancy, extra fancy and fancy, and fancy, had the same destinations as boxed apples and that combination grade (mainly a basket grade) had the same destinations as basket apples (modified somewhat by bulk destinations). It was not thought worth while to present further material on this aspect of destinations.

An analysis of the destinations of the different varieties did not reveal any marked tendencies which could not be explained by the characteristics of pack destinations.

CAR-LOT EQUIVALENTS

Table 13 is based on the car records obtained in this survey and shows a four-year average number of baskets per car of 650. The four year average number of boxes per car was 738 and the four-year average number of pounds per bulk car was 31,390.

Table 13—Carload Equivalents

	Number of Baskets, of Boxes or lbs. per		1923		1924		1924		1926	
	Car	Per	Car	Bu.	Car	Bu.	Car	Bu.	Car	Bu.
	(A)	(B)	(C)	(D)	(C)	(D)	(C)	(D)	(C)	(D)
Baskets	650	650	3,350	2,177,500	1,342	872,300	4,514	2,934,100	2,383	1,548,950
Boxes	738	722	1,850	1,335,700	858	619,476	2,305	1,064,210	823	594,206
Bulk	31,390	697	1,735	1,209,295	23	16,031	666	464,202	471	328,287
TOTAL			6935	4,722,495	2,223	1,507,807	7,485	5,062,512	3,677	2,471,443

(A) A four year average, 1923-1926.

(B) Based on Column (A) and upon the assumption that a bushel basket contains 45 lbs. of apples, a box 44 pounds and that a bushel of apples weighs 45 lbs.

(C) Total cars from Table 3 times the per cent in each pack from Table 7.

(D) equals (B) x (C).

If the average number of bushels per car (all packs combined) is desired it may be found in table 14. This does not vary much from year to year and averages about 675 bushels per car.

Table 14—Bushels Per Car (all packs combined)

Crop of	Total Cars*	Total Bushels**	Bushels Per Car
1923	6,935	4,722,495	681
1924	2,223	1,507,807	678
1925	7,485	5,062,512	676
1926	3,677	2,471,443	672

* From Table 3.

** From Table 13.

In translating baskets, boxes, and bulk cars into bushels it was assumed that a bushel of apples weighs 45 pounds net, that a bushel basket contains a bushel or basket of apples and that a box contains 44 pounds.

Appendix No. 1.

Average Price to Producer (1) by Grade and by Variety
1923-1926

(\$ per Bushel) (A)

	Extra Fancy	Extra Fancy and Fancy	Fancy	Combination	Weighted Average Price All Grades (B)
1923					
Jonathans	.77	.58	.74	.62	.63
Rome Beauty	.79	.80	.63	.59	.62
Winesaps			.61	.81	.81
Delicious	1.48	1.05	1.01	1.10	1.11
Others	.92		.64	.59	.61
Wtd. Aver. (C)	.86	.68	.68	.65	.66
1924					
Jonathans	1.44		1.17	.88	.95
Rome Beauty	1.55		.89	.89	.96
Winesaps				1.33	1.33
Delicious	2.65		2.36	2.10	2.20
Others	1.21	1.40	1.34	.98	1.05
Wtd. Aver. (C)	1.47	1.40	1.12	1.00	1.06
1925					
Jonathans	1.28	1.15	1.12	1.00	1.02
Rome Beauty	1.32	1.20	1.09	.94	.96
Winesaps			1.68	.93	.95
Delicious	1.95	1.40	1.66	1.54	1.55
Others	1.03	1.03	.72	.92	.92
Wtd. Aver. (C)	1.27	1.14	1.11	.99	1.01
1926					
Jonathans	1.08		.91	.71	.74
Rome Beauty	.93	.71	.69	.53	.56
Winesaps				.64	.64
Delicious	1.61	1.38	1.39	1.25	1.29
Others	.69	.40	.42	.58	.58
Wtd. Aver. (C)	.92	.58	.69	.63	.65

(A) One Bushel of apples is assumed to weigh 45 pounds.

(B) The weight used is proportional to the number of cars of each variety in the given year as shown in Table 9.

(C) The weight used is proportional to the number of cars of each variety of the given grade. (Table 5 times Table 9.)

(1) For definition of this price see page 5.

Appendix No. II.

Yearly Average Price to Producer (1) by Pack
and Variety

	Average Price per Bushel of Combination Grade				
	Jonathan	Rome Beauty	Winesap	Delicious	Others
1923					
Baskets	\$.67	\$.66	\$.73	\$1.08	\$.71
Boxes	.70	.91	1.05	1.30	
Bulk	.42	.48	.47		.43
Wtd. Aver. (A)	.62	.59	.81	1.10	.59
1924					
Baskets	.88	.89	1.33	2.10	.98
Boxes					.96
Bulk					
Wtd. Aver. (A)	.88	.89	1.33	2.10	.98
1925					
Baskets	1.04	.98	.96	1.54	.98
Boxes	1.18	.96	.90	1.51	1.10
Bulk	.66	.72	.58		.59
Wtd. Aver. (A)	1.00	.94	.93	1.54	.92
1926					
Baskets	.73	.55	.65	1.24	.59
Boxes	.91	.63		1.38	.66
Bulk	.49	.43	.45		.56
Wtd. Aver. (A)	.71	.53	.64	1.25	.59

(A) The weights used are proportional to the percentage of each variety of combination grade in the given pack in the given year.

(1) For definition of this price see page 5.

