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THE COST OF PRODUCING PEACHES IN UTAH COUNTY, 1947

by

Arnold Taylor

A thesis submitted in partial fulfillment
of the requirements for the degree

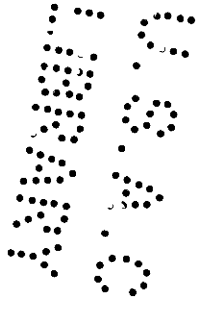
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MASTER OF SCIENCE

in

Agricultural Economics

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COST OF PRODUCING PEACHES IN UTAH COUNTY, 1947

Introduction

Peach production in Utah County is an important farm enterprise. In 1944, 342,525 bushels were produced, valued at $685,050. This was 5.5 percent of the total value of all agricultural products sold or used in the home for the year 1944. In value and acreage the peach crop leads all other fruit crops produced in Utah County.

Utah County is the most important peach producing area in the state. It contained 28 percent of the total farms reporting peach orchards, 44.7 percent of all peach trees, and 40.6 percent of the number of bushels harvested in the state for the year 1944 1/.

In 1938 the varieties of peach trees in Utah County in order of tree number were as follows: Elberta first, J. H. Hale second and Early Elberta third. Varieties of lesser importance included Late Crawford, Heath Cling, Rochester, Greensboro and others 2/.

The peach is a perishable farm commodity, and must be marketed within a short period of time. Canning factories provide a market for a small portion of the crop, but the major part must be marketed as fresh fruit through peddling from door to door, through the fruit and vegetable department of the grocery stores, through selling at roadside stands usually operated by the producer, or through out-of-state shipments usually handled by producers' marketing associations or produce brokers operating in the area.

1/ U. S. Census of Agriculture. 1945. Utah and Nevada. Vol. I. Part 31.

2/ A. L. Wilson and A. L. Stark. The fruit tree situation in Utah. Utah Agr. Exp. Sta. Bul. 279. 1938.

Utah peaches in out-of-state trade go into Idaho, California, Arizona, Kansas, Nebraska, Oklahoma, Missouri, and Iowa. In some years a few peaches get into markets in Minnesota, Wisconsin, and Illinois. Utah peaches are competing on these markets with peaches from central and northern California, Colorado, Idaho, Arkansas, Illinois, and Indiana 3/.

On the local markets Utah peaches find competition with peaches from Idaho, California, and Colorado. With this competition of peaches for markets, it is very necessary that producers keep fully abreast with all new methods and practices and be able to tell where their business can be made more efficient and profitable.

Review of Literature

Until the present there has not been a major study made of the cost of producing peaches in Utah County. There have been numerous studies conducted in other areas, but with various objectives. A study was made on the cost of producing peaches in Washington, Weber, and Box Elder Counties in 1947. Fifty-five farms were surveyed in which the main emphasis was placed on yields, size of peach orchards, cost per acre, cost per bushel, and labor requirements. Elbertas accounted for 80 percent of the acreage included in the study 4/.

A survey of cost of producing peaches was made in Michigan in 1943. An average of 67 hours per acre was spent in caring for the peach orchard up to picking time. The average yield for 1943 was 92 bushels an acre. A cost of $2.20 per bushel was reported which included the cost up through

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3/ W. P. Thomas and George T. Blanch. Marketing fruits and vegetables in Utah. Utah Agr. Exp. Sta. Bul. 316. March 1945.

4/ Wells M. Allred. Cost of producing peaches in Washington, Weber, and Box Elder Counties, 1947. Thesis. December 1947.

picking and hauling. These cost figures were based on a 74-bushel per acre average 5/.

A comparative study was made in Arkansas in 1925 between the Highlands and Ozard foothill district. The cost before packing was 50 cents for the former and 59 cents per bushel for the latter. A net return of $100 per acre was reported in the Highlands area, while the Ozard area reported $87 per acre 6/.

A study of producing and marketing peaches was conducted in South Carolina in 1925. The cost figures were released for two areas of the state. In the MaBee area a total cost of production of $139 per acre was reported, while in the Greenville area the cost was $174 per acre. The bushel cost up to the time peaches were ready for shipment was about 91 cents in the former and $1.08 in the latter area. Cost figures were for dryland peaches as irrigation was not necessary to produce a crop 7/.

A review of the study in western New York in 1936 revealed that the orchards average 5.6 acres of peach trees per orchard, the Elbertas accounting for 96 percent of the peach crop. Of the farms included in the survey, an average yield of slightly less than 120 bushels per acre was reported with an average cost of 67.3 cents per bushel. Of the total cost of production, 42 percent was for labor 8/.

An analysis of peach marketing was made at the University of Arkansas in 1944. The Elberta was the leading variety, accounting for 83 percent

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5/ K. T. Wright and Stanley Johnston. Peach and cherry cost in Michigan. Michigan State College Cir. Bul. 201. June 1946.

6/ C. O. Brannen. Production cost and market distribution of Arkansas peaches. Univ. of Arkansas Agr. Exp. Sta. Bul. 207. June 1926.

7/ Ward C. Jensen. Economics of producing and marketing South Carolina peaches. Clemson Agr. College, South Carolina Agr. Exp. Sta. Bul. 239. June 1927.

8/ Herrell F. DeGraff. The peach enterprise in western New York. Cornell Univ. Agr. Exp. Sta. Bul. 710. January 1939.

of the total crop, while Fair Beauty and Early Rose had a total of 15 percent and 2 percent, respectively. The average yield was 79 bushels per acre. Truck shippers handled about 72 percent of the peach crop and rail shippers 28 percent 9/.

The findings from the review of literature on production and marketing cost in other areas show that their objectives vary and that production in other areas differs from our local conditions. Since Utah County differs from other areas as to distance from markets, time of marketing, size of orchards, family labor availability, and productivity of orchards, the studies made years ago and in other areas are of little value when applied to this area and the present conditions. These other studies have been used to determine the economic problems and culture practices of other areas and methods used in analysis and solution of problems presented.

Method of Study

The farm survey method of study was used to obtain the data reported herein. Cooperating growers were interviewed, and a record of the year's operations of the peach enterprises was taken in detail. The data were recorded on special survey schedules designed to assist in recording the information on the size and composition of the farm, cost data, production items, receipts, cultural practices associated with the peach enterprise, and other related data 10/.

9/ John W. White and Otis T. Osgood. Peach marketing practice in the Nashville-Highland district of Arkansas in 1940. Univ. of Arkansas Agr. Exp. Sta. Bul. 452. June 1944.

10/ For details of the schedule, see Appendix I.

The information thus recorded was that reported by the producers. Receipts and cost items were checked against the records of the farmers' marketing associations where such records were available.

In selecting the farms to be studied, care was taken to obtain a fair sample of farms in the representative peach producing areas in Utah County. Records were obtained from farmers of all degrees of success in the enterprise, representing Utah County peach growers as to location, varieties, size of acreage, etc. Only enterprises of 100 or more bearing trees were included in the study. This number of trees was chosen so as to eliminate the backyard orchard and to have enough trees to challenge the interest of the producer. A total of 48 records was taken, which furnishes a fair sample of the peach producers there.

Appraisal of Year 1947

The 1947 growing season was favorable for the production of peaches in Utah County. Of the number of growers contacted, few reported any serious amount of injury from frost, insects, or storm. There were no late frosts reported in the spring or early frosts in the fall. The production of peaches for 1947 in the State of Utah was 933,000 bushels according to preliminary data released by the Bureau of Agricultural Economics 11/.

The production of 933,000 bushels was 33.3 percent above the 1946 production of 700,000 bushels, and the 1947 crop was 46.7 percent above the 1936-45 average of 636,000 bushels. The weather during the ripening period was favorable to the growers, with only 15 days during the months of August and September with any precipitation, leaving 24 days of

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11/ Crops and Markets. Bur. of Agr. Econ. U. S. D. A. October 1, 1947. p. 48.

clear weather, 27 days of partly cloudy, and 10 days of cloudy weather 12/. As far as peach production was concerned in relation to weather conditions, a good quality fruit should have been produced with other things being equal.

Purposes of Study

The purposes of the study were: (1) to determine the cost of producing peaches in Utah County, (2) to analyze the items making up the cost, and (3) to determine what methods of production were associated with success in the peach industry.

Presentation of Analysis

The presentation of analysis is as follows: (1) Description of the orchards and farms surveyed, including soil management practices, capital investment in peach enterprise, range in size of acreage of peaches; (2) Analysis and explanation of cost and labor requirements; (3) Receipts and net return; (4) Analysis of factors influencing success in peach production which will include size of farm, value of orchard per acre, size of peach enterprise, yield per acre, man hours per acre, method of sales, use of fertilizers, and costs per acre.

Description of Orchards and Farms Surveyed for Utah County

A total of 48 orchards was surveyed in the rural areas of Pleasant Grove, Orem, and North Provo, where the greatest concentration of peach producers was found. The peach orchards surveyed ranged from 0.75 acres to 17 acres, with an average of 5.09 acres of trees per orchard. The

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12/ Climatological Data. U. S. D. C. Weather Bureau. Vol. XLIX. Salt Lake City, Utah. August and September 1947.

average capital investment was $4,428 per orchard, or $869 per acre. The yield ranged from 31 to 500 bushels per acre, with an average of 1.17 bushels per bearing tree. There was an average of 110 bearing trees per acre in the orchards included in the survey.

The operators contacted in the survey reported a total capital investment of $24,939 per farm. This included land, equipment, and farm buildings, of which $15,925 was for land alone. The total acreage per farm varied from 1.25 to 120, with an average of 24 acres per farm. The acreage of fruit on the farms varied from 1 to 75 acres, with an average of 16.04 acres of fruit per farm. The average acreage of peach orchard was 5.09 per farm.

All of the orchards surveyed were located on the bench lands and foothills of the Wasatch Mountains of Utah County. The type of soil most commonly found was a sandy clay loam with a gravel sub-surface. The location of orchards on the upper slopes of bench lands furnishes good air drainage and tends to minimize injuries from late spring frosts.

The practice of applying some barnyard manure when available or a combination of barnyard manure and commercial fertilizer or commercial fertilizer alone was followed by most growers. A majority of the operators reported that they followed the practice of growing a cover crop in the summer. Many of the operators classified weeds as a cover crop. It was the practice with the majority of the growers to disk the cover crop under in the fall of the year. From 12 to 25 applications of water were applied to the orchards during the growing season. A systematic program was practiced by most producers in replacing old, worn-out, and diseased trees with young stock.

The varieties of peach trees on farms in the study included Elbertas, J. H. Hale, Rochester, Late Crawford, Heath Cling, Greensboro, and other varieties of less popularity. There were 128.5 acres of Elbertas compared to 116 acres of other varieties. Elbertas account for 63 percent of all the peach trees included in the study (table 1). There were 114 bearing trees per acre for Elbertas and 104 trees for other varieties.

Table 1. Varieties of peach trees in orchards studied, Utah County, 1947

Varieties	Total acreage	Acres peach trees per farm	Bearing trees per farm
	acres	acres	number
Elbertas	128.5	2.68	114
Other varieties	116.0	2.41	104
Total	244.5	5.09	110

Analysis and Explanation of Cost Items

The cost items included in this study were summarized under four cost classifications. These were man labor, power, material, and overhead cost. Man labor made up 41.9 percent of the total cost. Power cost was responsible for 11.3 percent of cost of producing peaches. Cost of horse power was 0.3 percent, tractor cost 7.6 percent, and the cost for trucks was 3.4 percent. Material cost amounted to 35 cents per bushel, or 19 percent of the total cost. Overhead cost accounted for 27.8 percent of the total cost. The overhead cost was $83.43 per acre, or 52 cents per bushel (table 2).

Man Labor

Man labor was grouped into 3 classifications for purposes of analysis. These classes were maintenance, handling, and marketing

Table 2. Cost of producing peaches, Utah County, 1947

Items of cost	Costs		Percent of total
	Per acre	Per bushel	
	dollars	cents	percent
Man labor			
Operator and family	61.62	38	20.5
Hired	64.29	40	21.4
Sub-total	125.91	78	41.9
Power			
Horses	.96	1	0.3
Tractor	22.91	14	7.6
Truck	10.10	6	3.4
Sub-total	33.97	21	11.3
Material			
Barnyard manure	3.28	2	1.1
Commercial fertilizer	6.83	4	2.3
Containers	40.97	26	13.7
Sprays	4.96	3	1.7
Other	.61	—	0.2
Sub-total	56.65	35	19.0
Overhead			
Interest on money in crop	1.96	1	0.7
Interest on capital investment	46.35	29	15.4
Building and equipment repairs and depreciation	4.41	3	1.5
Depreciation on trees	17.99	11	6.0
Taxes	11.51	7	3.8
Other	1.21	1	0.4
Sub-total	83.43	52	27.8
Total	299.96	186	100.0

operations. Operations included in the maintenance process were applying fertilizer, pruning, disposing of brush, mowing, hoeing around the trees, discing, harrowing, irrigating, spraying, and miscellaneous items concerned with caring for and maintaining the orchard. Handling operations included thinning the peaches, propping the branches, scattering the baskets, and hauling the fruit to the farm packing house or assembling it at a central place prior to the selling process. The operations of sorting and grading, selling the fruit at the farm by the operators, and hauling the fruit to market when sale required delivery or when fruit was delivered to some central packing plant completed the marketing process.

An average of 55.6 hours per acre was required for maintenance operations. This was 40 percent of the total time required to care for an acre of peaches. Pruning and disposing of brush required more time than any item in this classification, averaging 28 hours per acre. Irrigating ranked second with a total of 13.2 hours per acre. Other operations required the following amounts of time: discing and harrowing, 4.1 hours; spreading manure, 3.5 hours and commercial fertilizer, 1.4 hours; spraying 3.1 hours; mowing, 0.5 hours; cover crops, 0.5 hours; plowing, 0.1 hour; hoeing, 0.1 hours; and miscellaneous items, 1.1 hours per acre.

Of the average time required to grow an acre of peaches, 63.5 hours were spent in the handling operations. This was 45.5 percent of the total time required to produce an acre of peaches. Picking required more time per acre than any other single operation. The average time spent per acre for picking was 32.8 hours, or 23.5 percent of all time spent in caring for an acre of peaches. A total of 23.5 hours was spent

in the thinning operation, while hauling to packing house required 4.6 hours, scattering baskets, 2.2 hours, and propping, 0.4 hours per acre.

Marketing operations on an acre basis required 20.3 hours, or 14.5 percent of all the time spent. Some of the operators who sold their peaches orchard-run spent little or no time in the marketing process. Those who graded and put out a fancy pack of fruit or peddled it had a considerable amount of time involved in the marketing operations. There was an average of 14.7 hours spent in the sorting and grading operation, which was 10.5 percent of the total time required to produce and market an acre of peaches. Hauling to market and selling operations required an average of 3.9 and 1.7 hours per acre, respectively (table 3).

Operator and family labor constituted 49 percent of the total labor cost, and hired labor made up the remaining 51 percent. The cost of operator and family labor was calculated at a rate the same as if they were employed elsewhere, or at the same rate the operator would have to pay to get the work done (table 4). In nearly all cases the operators reported a wage scale comparable to that being paid workers in the steel factories and other places of employment located in the county. The operator and family labor averaged 94 cents an hour, and hired labor averaged 87 cents, with a total average for labor of 90 cents an hour for the group. Total labor cost averaged $125.46 per acre and 78 cents per bushel.

Power Cost

Power cost included tractor, truck and horse power cost. Horse and tractor power cost covered about the same operations. Spreading fertilizers, plowing, mowing, discing, harrowing, and minor miscellaneous

Table 3. Man hours of labor per acre spent in peach production Utah County, 1947

Operations	Man hours per acre	Percent of total
	hours	percent
Maintenance		
Fertilizers		
Manure	3.5	2.5
Commercial	1.4	1.0
Pruning and disposal of brush	28.0	20.1
Plowing	0.1	0.1
Mowing	0.5	0.4
Hoeing	0.1	0.1
Discing and harrowing	4.1	2.9
Irrigating	13.2	9.5
Spraying	3.1	2.2
Cover crops	0.5	0.4
Miscellaneous	1.1	0.8
Total maintenance	55.6	40.0
Handling		
Thinning	23.5	16.8
Propping	0.4	0.3
Scattering baskets	2.2	1.6
Picking	32.8	23.5
Hauling to packing house	4.6	3.3
Total handling	63.5	45.5
Marketing		
Sorting and grading	14.7	10.5
Hauling to market	3.9	2.8
Selling	1.7	1.2
Total marketing	20.3	14.5
Total	139.4	100.0

operations were some of the tasks completed by the use of horse and tractor power. The use of a truck was mostly applied to the following operations: hauling of spray guns, scattering baskets, hauling fruit to packing house and to market. The actual cost was recorded for hired tractors, trucks and horses. Horse cost averaged 28 cents an hour, while tractor cost averaged $1.76, and truck cost was $1.41 an hour (table 4). The operator determined the rate for his own power equipment on the basis of what he could obtain doing similar work elsewhere or what he would have to pay someone else for the use of their motorized equipment. The rate applied on a team of horses was the same rate a farmer could receive for hire of his team or what he would have to pay someone else for use of their team.

Table 4. Selected cost rates in peach production
Utah County, 1947

Factors	Cost per hour	Factors	Cost per hour
	dollars		dollars
Man hours		Power	
Operator and family	.94	Horse	.28
Hired	.87	Tractor	1.76
		Truck	1.41
Total	.90		

Material Cost

Material cost is composed of cost of fertilizers, containers, sprays, and other such items used in a year's operations. Manure was valued at one dollar in the barnyard. The cost of applying the manure appears under labor and power cost. Fifty percent of the current year's value of manure applied was charged against the 1947 peach crop, 30 percent

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of the value of the 1946 application of manure was considered a cost item for this year's crop, and 20 percent of the value of the 1945 application of manure was charged to this year's peach harvest. Other methods could have been devised in figuring the cost of manure, but this method represents as reasonable an approach to the problem as is known to the author since experiments have shown that about this ratio of residual value occurs from applications of manure. Existing evidence shows that a part of any one year's application of manure remains in the soil more than one year; thus, the cost should be charged against the crop receiving the benefits. The enumerators obtained a record of the amount of manure applied in 1947 and the two years previous to assist in calculating this cost item.

Opinions vary concerning the amount of available plant food that remains in the ground for use by crops after one year's application of commercial fertilizer. Most agree that the amount left depends to a great extent on the method of application. For lack of any better method, all of the cost of commercial fertilizer applied during the current year was charged against the current crop.

The cost of containers was small where the operator sold the fruit but kept the baskets and lugs for further use. Where the growers sold peaches plus containers, this involved a larger item of expense. The total cost of containers was recorded when they were sold with the peaches, while depreciation and replacement cost was recorded for the ones retained in orchard cost.

The total cost of the spray materials was recorded as an expense to this year's crop. Other less commonly used materials were considered as miscellaneous items and charged against the current year's operations.

Overhead Cost

Overhead cost included interest on money in the crop, interest on capital investment, buildings and equipment repairs and depreciation, depreciation on trees, tax expense, and other costs consisting of fees, telephone, insurance, family car expense associated with the peach enterprise, and other miscellaneous items. Interest of 5 percent per annum was charged against the peach enterprise on money invested in the current year's crop. This cost was calculated on all expenditures for material items and on all labor performed during the year. The length of time interest was charged extended from the time the expenditures occured until the money for the peaches was received in the fall. In determining the interest charged on labor expenditures, the various operations were grouped into maintenance and handling. Maintenance operations included spreading of fertilizers, plowing, disking, harrowing, spraying and irrigating, while handling operations consisted of thinning, propping of branches, picking, and hauling to packing house. An average of four months was allowed for interest charged on the labor involved in the maintenance work and two months for handling operations.

Capital investment included the values of peach trees, land, water, machinery, equipment and buildings used in the peach enterprise. Interest at 5 percent per year was charged against capital investment. Interest charged on money in the crop and on capital investment is justified on the basis that if the operator had borrowed the money representing these items he would have paid an interest charge. Or, if the money tied up in peaches had been invested otherwise, the operator would expect to receive interest commensurate with the risks.

The expense of depreciation and repair was figured on all horse-drawn equipment, fruit graders, picking bags, ladders, and buildings used in the production of peaches. The portion of repairs and depreciation on such items charged against the peach enterprise was determined on the basis of the percent of time used and the amount of wear resulting from being used on the peach enterprise. Repairs and depreciation were not reported on motorized machinery and equipment. A charge of an hourly rate covered such cost.

Orchard depreciation was obtained by calculating the difference between the operator's report of the value of his land per acre with the peach trees and his report of what the same acre of land was worth without the trees. To the difference between the two values was added the cost per acre of removing trees from the land. The sum was then divided by the farmer's estimate of the productive life of peach trees in his locality. This was the expenditure recorded for orchard depreciation. The reported value of land was the productive value as farm land.

Tax cost included the tax on land and the assessments for drainage and water chargeable to the peach enterprise. The tax on land was determined by the ratio of the value of land and improvements used in connection with the peach enterprise to the value of the farm as a whole. The cost of water and drainage was calculated as a ratio of the amount actually delivered to the peach orchard to the total cost of water and drainage. Expense for fees, telephone, insurance, family car, and other such items connected with the peach enterprise was handled in the same manner. The portion of the expense representing these items was reported for the percent of time they were used in connection with the peach enterprise.

Receipts and Net Return

Total receipts were obtained by multiplying the total number of bushels by the price received per bushel. The amounts used in the home or given away were valued at the same rate the individual operator received for the same grade of fruit when marketed. Many of the peaches were sold in containers, the cost of which was actually included in the receipts. The net return was not affected by the sale of containers as their cost was charged against the peach crop. Total receipts averaged $278 per acre and $1.72 per bushel (table 5).

Table 5. Net return from peach production on 48 farms Utah County, 1947

Items	Per bushel	Per acre
	dollars	dollars
Total receipts	1.72	278
Total cost	1.86	300
Net return	-.14	-22

The net return was arrived at by subtracting total cost from total receipts. On individual enterprises the net return ranged from a -$275 to $205 per acre, or -$1.66 to 95 cents per bushel. An average net return for the whole group of enterprises included in the study was -$22 per acre, or -14 cents per bushel.

Returns to Capital Investment and to Labor

The cost of producing peaches as presented above included a charge of 5 percent for the capital invested in the peach enterprise. The capital charges thus amounted to $46 per acre or $.29 per bushel. The

return to the capital investment has been calculated by arriving at a cost of production excluding a charge for capital investment. From the total cost of $300 the charge for capital investment of 5 percent, amounting to $46, has been deducted leaving a cost of production exclusive of capital investment charge of $254.

When this is subtracted from the total receipts of $275 per acre, a return to land of $24 results. For an investment in the peach enterprise of $869 per acre, the return to capital investment was 2.8 percent. On the other hand, if the $24 per acre return to capital was capitalized at 5 percent, the value of the peach orchards and equipment per acre would be $480 (table 6).

Table 6. Return to capital invested

	Per acre	Per bushel
	dollars	dollars
Total cost	299.96	1.86
Less charge for capital investment	46.35	.29
Cost	253.61	1.57
Total receipts	278.00	1.72
Less total cost	254.00	1.57
Return to capital invested	24.00	.15
Percent return to capital	2.8	2.8
Net return capitalized at 5 percent	480.00	

When total cost less labor cost was figured, the cost was $174.05 per acre or $1.08 per bushel. On this basis return to labor was $104 per acre or 40 cents per bushel (table 7). When figured on the basis of return to labor, the amount of labor spent per acre would be worth

75 cents an hour. When the cost of hired labor is subtracted from the returns to labor, the return to operator and family labor was $40 per acre or 24 cents per bushel. Based on this return to the operator and his family the return for their labor applied in the production of peaches would be 60 cents an hour.

Table 7. Return to labor

Item	Per acre	Per bushel
	dollars	dollars
Total cost	299.66	1.86
Less total cost of labor	125.91	.78
Total cost less labor	174.05	1.08
Receipts	278.00	1.72
Cost less labor	174.00	1.08
Return to labor	104.00	.64
Return to labor per hour	.75	.75
Less hired labor cost	64.00	.40
Return to operator and family	40.00	.24
Return per hour to operator and family	.75	.75

Analysis of Factors Influencing Cost of and Return to the Peach Enterprise

To assist in an analysis of factors associated with cost, return, and other factors of the peach enterprise and to find what combinations of factors are associated together, a method of sorting was used for analysis in which an attempt was made to hold the influence of individual factors constant but to allow others to vary. While it was not intended that all variations among the variable factors were to be attributed to the use or intensity of the constant factor, the amount or lack of

association between factors could be noted. Size of farm, size of peach enterprise, value of orchard land per acre, yield per acre, man hours per acre, method of sales, use of fertilizer, and cost per bushel were the factors used in a system of sorting for classification and analysis of data in the study. These individual factors were tabulated and used as a basis of comparison to the other factors associated with the production of peaches. The records were grouped into high, medium, and low, or into other similar classifications, for ease of analysis.

Size of Farm

The records were sorted on the basis of size and the variation in other factors noted. Acreage per farm was used as the measurement of farm size. Other measures could have been used, such as acres of orchard, number of trees, size of peach crop produced, or the hours of man work expended in the peach enterprise. Acreage was chosen because it seems to have been the most acceptable and is the most universally used indication of size.

The farms were classified into three groups: farms with less than 20 acres per farm, farms with 20 to 39 acres, and farms with 40 acres and over. This particular breakdown was chosen because the farms in Utah County tend to concentrate in three different sizes around the midpoints of the classes described above.

There were 24 enterprises included in the first group, which made up 50 percent of the farms included in the survey. The average acreage for this group was 8.9 acres, indicating that the production of peaches is associated with small farms in Utah County as measured in terms of acres. Seventeen farms were in the middle group with an average of 29

acres per farm. The largest farms had an average of 63.2 acres per farm, with 7 farms included in this group (table 8).

Table 8. Relation of size of farm to other factors in peach production, Utah County, 1947

Interval	Average acres per farm	No. records	Prod. 1/ hours per acre	Yield per acre	Cost per acre
	acres	number	hours	bushels	dollars
Less than 20 acres per farm	8.9	24	132	189	320
20 to 39 acres per farm	29.0	17	128	165	311
40 acres & over per farm	63.2	7	99	136	271
Total	24.0	48	119	161	300

1/ Production hours included all operations up to where fruit was assembled at some local point on farm ready for shipment.

There tended to be some association between size of farm and the amount of man hours spent per acre in the production of peaches. As the size of the farm increased from 8.9 to 63.2 acres, the number of hours spent per acre decreased from 132 to 99. The middle group with an average acreage of 29 acres spent 128 man hours in the process of producing peaches. The low number of hours spent on the larger farms may mean that the operations were performed more efficiently, or that some operations performed by the smaller operators were omitted by the large operators, or that the smaller yields obtained by the larger operators required less time per acre.

When the records were sorted on the basis of size of farms, it was found that the farms in the small acreage group had the highest peach yields, averaging 189 bushels per acre, while those farms in the

middle group had an average yield of 165 bushels per acre, and the largest farms reported yields of 136 bushels per acre. The larger yields received by the smaller farms might be attributed to the availability of family labor. On a family size farm with the average size family, there would be more family labor available per acre with which to care for the peach orchards for the smaller farms than the larger farms.

The cost per acre decreased as the size of the farm increased. Cost for the smallest group was $320 per acre, $311 for the medium group, and $271 per acre for the largest group of farms. This may mean that the operations on the larger farm were done more efficiently and at a lower cost or that fewer operations were performed, which accounted for the lower cost per acre for the larger farms.

Size of Enterprise

Size of enterprise was measured by total number of acres of peach trees per farm. Other factors could be used for measurement of size, but acreage is probably the most common, and was the basis used. Acres of peach trees per farm were used as the basis of a sort to determine what association it might have with other factors such as man hours, yield, cost, receipts, and net return per acre. The records were classified into three groups: those with 3 acres or less, those with 4 to 6 acres, and those with 7 acres or more per enterprise.

There were 18 enterprises included in the first group, with an average of 1.76 acres of peach trees per farm. The middle group consisted of 17 units, with an average of 4.85 acres. The last group averaged 10 acres per orchard with 13 operators included in this group.

Yields for the 3 groups were 158 bushels for the first group, 224 bushels for the second group, and 127 bushels per acre for the last

group. The average yield for all the enterprises included in the study was 161 bushels per acre (table 9). Other factors besides size of enterprise are reflected in the yields reported for the groups of farms in this sort. There was no particular association between size of enterprise and yields.

Table 9. Relation of size of enterprise to other factors in peach production, Utah County, 1947

Interval	Average acres of peaches per farm	No. records	Prod. man hrs. per acre	Yields per acre	Receipt per acre	Cost per acre	Net return per acre
	acres	number	hours	bushels	dollars	dollars	dollars
0-3 acres per farm	1.76	18	113	158	242	273	-31
4-6 acres per farm	4.85	17	163	224	396	384	12
7 acres & over per farm	10.00	13	93	127	215	264	-49
Total	5.09	48	119	161	278	300	-22

There was no consistent association between size of enterprise and cost, receipt, or net return. Cost for the smallest size group was $273, with receipts of $242, leaving a net return of a negative $31 per acre. The cost for the second group of enterprises was $384 per acre, with receipts of $396. Net return was $12 per acre for this group. The third group had a cost of $264, and receipts of $215, resulting in a negative net return of $49.

The class which includes 4 to 6 acres of peach trees per enterprise was the most profitable. This group spent the most man hours per acre, obtained the highest yields, had the highest cost and receipt, and was the only group that had a positive net return.

Size of enterprise has no particular bearing on the factors associated with peach production. The labor requirements and per unit cost were about the same per acre for a 1-acre unit as for a 10-acre unit. The efficiency factors of labor and cost were about the same regardless of size of enterprise.

Value of Orchard per Acre

In dealing with value of orchard land, the tendency is to capitalize net return into land value, and since the more productive land is usually the most profitable, one would expect such land to have the highest value. A sort on the basis of value of orchard land was made to determine what relation the value of the orchard might have with various other factors connected with peach production.

There seemed to be no particular association between value and size of orchard. The orchards valued at $600 or less per acre were approximately the same size as those valued at $901 and over per acre (table 10). The 8 enterprises included in the middle class, which ranged in value from $601 to $900 per acre had the smallest average acreage of 3.19 acres per farm. The farms in the class of $600 and less per acre averaged 5.03 acres per farm, while those farms in the $901 and over group had an average of 5.68 acres. Thus, it may be concluded that value of orchard land had no significant association with size of enterprise.

There tends to be some association between land value and yields obtained. The clarity of this association is not definitely pointed out in the difference between the last two groups in this sort. The group with the lowest value had the smallest yield. A yield of 133 bushels per acre was reported for the first group, while those in the second group had yields of 201 bushels per acre. The last group reported yields

of 184 bushels per acre. Though the difference in the yield of the last two groups is probably not significant, a significant difference is noted between these and the yield of the lowest valued farms. Under normal expectation one would expect yields to increase as the price of the land increases, but the value placed on the higher valued land seems to be an over-valuation.

Table 10. Relation of value of orchards per acre to other factors in peach production, Utah County, 1947

Interval	Average value of orchards per acre	No. records	Size of peach orchard	Yield per acre	Net return per acre
	dollars	number	acres	bushels	dollars
0 to $600 per acre	469	13	5.03	133	4
601 to 900 per acre	775	8	3.19	201	-2
901 and over per acre	1,033	27	5.68	184	-38
Total	869	48	5.09	161	-22

Net return decreased from $4 per acre for the group of $600 per acre and less to a minus $38 for the highest valued orchards of $901 and over per acre. A net return of minus $2 was reported for the middle class, with values of $601 to $900 per acre. The net return shows that the values of the orchards were values other than those justified by the productivity of the land for agricultural use. Land values recorded in some cases included alternative uses for building sites and the farmer's estimates of the effect future developments near his property might have on his land.

Yield Per Acre

Yield obtained is a measure of success. If a producer is to be

successful, he must combine all factors in a favorable ratio in order to obtain a high yield per acre. A system of sorting was used in which yield was held constant to determine what association it might have with other factors of production and the net return. There were four groups made of the records on the basis of yield; 8 operators had yields of 100 bushels or less; 12 operators had yields from 101 to 149 bushels, 12 operators had yields from 150 to 199 bushels, and 16 operators obtained yields of 200 bushels or over per acre (table 11).

Table 11. Relation of yield to other factors in peach production, Utah County, 1947

Interval	Ave. yield per acre	No. records	Acres of peaches per farm	Prod. man hrs. per acre	Marketing man hrs. per acre	Cost per bu.	Receipt per bu.	Net return per bu.
	Bu.	No.	acres	Hrs.	Hrs.	Dol.	Dol.	Dol.
100 bu. or less per acre	77	8	7.22	70	5	2.52	1.17	-1.35
101 to 149 bu. per acre	119	12	5.65	94	12	2.04	1.56	-.48
150 to 199 bu. per acre	175	12	3.83	130	28	1.88	1.61	-.27
200 bu. & over per acre	260	16	4.56	174	30	1.58	1.76	.18
Total	161	48	5.09	199	20	1.86	1.72	-.14

There was no consistent variation in the average size of orchards when records were sorted on the basis of yield. The lowest yielding group had the largest acreage of 7.22 acres of peach trees per farm. The second group had an average of 5.65 acres, while the third group reported 3.83 acres per farm. The highest yielding group had an average acreage of 4.56 acres per farm. From the above figures, no certain size enterprise obtained the highest yield, and yield had no direct association with size.

There tended to be a direct association between yield and the number of man hours spent per acre. As the yield per acre increased, the number of man hours spent in the production of peaches increased. The first group spent an average of 70 hours per acre in the productive process. The second group spent 94 man hours per acre, while the third group spent an average of 130 man hours. The last group reported spending 174 man hours per acre in the process of producing peaches. The same upward trend was found with the number of hours spent in the marketing of the fruit, increasing consistently from 5 hours in the lowest yielding group to 30 hours per acre in the highest yielding group. The number of hours spent in the production and marketing processes can partly be accounted for in that as larger yields per acre are obtained, more hours are required for maintenance, handling, and marketing operations.

Receipt per bushel increased from $1.17 for the group with 100 bushels or less per acre to $1.76 for the highest yielding group of 200 bushels or more. The group with 101 to 149 bushels received an average of $1.56 for their peaches, while the group with 150 to 199 bushels per acre received receipts per bushel of $1.61. From the limited amount of information on quality of fruit, no explanation can be given for this fluctuation in receipts when records were sorted on the basis of yield per acre.

In peach production, costs, except those dealing with thinning, picking, propping, and the marketing process, are relatively the same regardless of yields. Per bushel cost was largest when yields were low because fewer bushels were available to bear the cost. The low yielding group had a high cost of $2.52 per bushel and a low net return

of negative $1.35 compared to the lowest cost of the high yielding group of $1.58 and a high net return of 18 cents per bushel. The second group reported cost of $2.04 and a net return of a negative 48 cents per bushel, while the third group had cost of $1.88 and a net return of a minus 27 cents per bushel. This demonstrates the effect of high yields in reducing per unit cost on enterprises with a high portion of fixed costs. It indicates that high yields are one of the more important factors associated with success in the peach industry and low yields are most likely accompanied with lower net returns.

Man Labor per Acre

A sort of the records on the basis of man hours spent per acre in the production of peaches was used to determine what association man hours might have with size, yield, cost, and net return. The records were divided into four groups for analysis. There were 19 producers who reported having spent 89 man hours or less per acre. The second group, which spent 90 to 114 hours per acre, consisted of 8 peach units. There were 11 producers who spent from 115 to 159 man hours per acre. Ten operators spent 160 man hours or more per acre in the production of peaches, which constituted the last group (table 12).

The number of hours spent per acre had no particular association with the size of enterprise, as was previously shown. The operators who spent an average of 69 hours per acre had an average of 5.42 acres of peach trees per farm, while the operators who spent 240 hours per acre averaged 4.32 acres per farm. An average of 4.16 and 5.91 acres was reported for the two groups of operators who spent an average of 101 and 136 hours per acre in the productive process, respectively.

Table 12. Relationship of number of man hours spent in the productive process to other factors in peach production Utah County, 1947

Number of hours	Prod. hours per acre	No. records	Acres of peaches per farm	Yield per acre	Cost per acre
	hours	number	acres	bushels	dollars
Less than 90 man hours	69	19	5.42	136	224
90 to 114 man hours	101	8	4.16	110	247
115 to 159 man hours	136	11	5.91	195	314
160 and over man hours	240	10	4.32	268	520
Total	119	48	5.09	161	300

The results of this sort show that the operators who spent less than 89 hours per acre had an average yield of 136 bushels and a cost of $224. The net return was $10 per acre for this group. The operators spending from 90 to 114 hours per acre had a yield of 110 bushels, with cost of $247 and a net return of a negative $60 per acre. The operators reporting 115 to 159 hours being spent per acre had an average yield of 195 bushels, cost that averaged $314, and a net return of a minus $12 per acre. The last group of operators who spent 160 hours or more per acre had an acreage yield of 268 bushels. The cost for this group was $520, and the net return was a minus $58 per acre.

These associations show that as the number of man hours spent per acre in the productive process increased the yields also increased. The cost increased as the number of hours and yields increased per acre. The number of hours spent per acre and the yields per acre were closely associated and reflected in the higher costs, where yields were higher, due primarily to the greater labor expense. As the number of man hours increased per acre, the cost would be expected to increase since labor makes up about 50 percent of the costs in the production of peaches.

Method of Sale

The higher net return received by some producers may be attributed to method of disposal of their fruit. Method of sale was used as a basis for sorting the records to determine what association this might have with receipts, cost, and net return. The method employed to sell the fruit after it is in existence should have no effect on the cost of production, but some methods of disposal required more time than others and may have an influence on the price received per unit.

Producers were grouped into 4 classes according to method of disposal. Those classified in the group designated as "associations" included those producers whose crop was sold through an association that was owned and operated by producers. The group designated as "truckers" contained those producers who sold to truckers who usually called at the orchard for the peaches. The producers who sold their own fruit directly to the consumer by house to house calls or by roadside stand were included in a group classified as "peddlers". An unclassified group included those producers who sold to canners or used some other method of disposal not included in the above classifications.

Each enterprise was placed in one of the categories listed above if 50 percent or more of the peaches were sold in any one manner. The operators who sold less than 50 percent by any one of these methods were placed in the unclassified group.

The results of the sort show that the small producers were mostly classified in the peddler and unclassified groups. The average acreage per farm for these two groups was 3.48 and 3.72 acres, respectively. The producers who sold through associations had an average of 6.23 acres per farm, while those operators classified in the trucker group had an average of 5.21 acres per farm.

The differences in number of hours spent in the marketing process among the various methods used were insignificant since each group spent about the same number of hours per acre. An average of 24 hours was spent in the marketing process by producers in the group classified "association", while the members of the "trucker" group reported 13 hours per acre. The group who peddled their crop spent an average of 18 hours in the marketing process, while an average of 22 hours was spent per acre by the unclassified group.

The 24 farmers who marketed most of their peaches through associations had costs averaging $347 per acre, receipts of $303, and a net return of a negative $44 per acre. There were 13 producers who used the market outlet provided by truckers. The average cost for this group was $270, with a receipt of $232, and a net return of a minus $38 per acre. Twenty-two operators were included in the unclassified group. Their cost was $302 per acre. They had a receipt of $272 and a net return of a negative $39 per acre. There were 18 operators who peddled more than 50 percent of their crop of peaches. The cost for this group of enterprises was $263 per acre, with a receipt of $302 and per acre net return of $47. This was the only group with a positive net return (table 13).

Most of the peaches of the growers who sold to associations were shipped out-of-state. Nearly all the fruit produced by the other three groups was marketed on the local market.

The fact that a stronger demand existed on the local market may be due to the fact that 55.5 percent of the fruit marketed in the study went through associations and was shipped out-of-state, leaving the local market free to other producers. This may also be interpreted to

Table 13. Relationship of method of sales to cost and net return in producing peaches in Utah County, 1947

Methods	No. records	Acres of peaches per farm	Hours spent in marketing	Receipts per acre	Cost per acre	Net return per acre
	number	acres	hours	dollars	dollars	dollars
Associations	23	6.23	24	303	347	-44
Truckers	7	5.21	13	232	270	-38
Unclassified	8	3.77	22	272	302	-30
Peddlers	10	3.48	18	310	263	47
Total	48	5.09	20	278	300	-22

mean that peddling is the more profitable method of selling peaches under certain conditions. This should not be interpreted to mean that all the producers in Utah County should market their fruit locally. As the amount sold on the local market increased, the market would soon become inferior in price to out-of-state markets. The superiority of the local market for 1947 existed because enough fruit was marketed out of the state that a relatively good local market could be maintained.

Use of Fertilizer

Fertilizers are generally applied with the thought to increase yield and to improve the quality of the fruit; consequently the application of fertilizers should have some bearing on yield. Yields obtained and amount and kind of fertilizer applied are closely associated.

The records were sorted on the basis of type and combination of types of fertilizers used to determine what influence fertilizers have on yields. There were 4 classifications made in this sort on the basis of amount, kind, and combination of fertilizers used. Those producers who used both barnyard manure and commercial fertilizers in the study accounted for 42 percent of the farms surveyed. Twenty-five percent of

the producers used only manure, and 14 percent of the operators reported applying commercial fertilizer only. There were 19 percent of the producers who did not apply any fertilizer.

The group that did not apply any fertilizers had the smallest yield per acre. A yield of 130 bushels per acre was reported for this group compared to the higher yields of 165 bushels, 211 bushels, and 170 bushels of the other groups which applied some other fertilizer treatment (table 14). From the standpoint of yields there is a definite advantage in the practice of applying fertilizers. There was not sufficient information obtained to determine which fertilizer was the best and in what combination the fertilizer should be applied to obtain the best yields. This is not a study on fertilizers and their application, and should not be interpreted as such.

Table 14. Use of fertilizers in peach production
Utah County, 1947

Classes	No. records	Amount of manure applied per acre	Amount of commercial fertilizers applied per acre	Yields per acre
	number	tons	pounds	bushels
Manure only	12	4.51		211
Both manure and commercial fertilizers	20	4.29	402	170
Commercial fertilizer only	7		178	165
No fertilizers	9			130
Total	48			161

Cost per Bushel

To assist in further understanding the combination of successful factors in peach production, a sort was made on the success of peach enterprise being measured by cost per bushel. Records were divided into 3 groups: the least one-third, medium one-third, and the upper one-third. There were 16 enterprises included in each classification (table 15).

Table 15. Relation of factors with records grouped according to cost per bushel in peach production Utah County, 1947

	Ave. cost per bushel	No. records	Acres peaches per farm	Yield per acre	Ave. total man hrs. per acre	Receipts per bu.	Return per bu.
	Dol.	No.	acres	Bu.	Hrs.	Dol.	Dol.
Least cost	1.38	16	4.0	219	126	1.66	.28
Medium cost	1.85	16	5.3	179	166	1.71	-.14
High cost	2.56	16	6.1	120	145	1.60	-.96
Total	1.86	48	5.1	161	139	1.72	-.14

The one-third of the producers with the least cost combination of factors had an average cost of $1.38 per bushel. An average of 4 acres of peach trees per farm was reported for this group. Receipts were $1.66 per bushel, with a net return of 28 cents. A total of 126 hours was spent in the production of an acre of peaches with an average yield of 219 bushels.

The medium cost combination group reported an average cost of $1.85 per bushel. The average size of the enterprise for this group was 5.3 acres. Receipts averaged $1.71 per bushel, while the net return was a

negative 14 cents per bushel. A yield of 179 bushels was obtained when an average of 166 hours was spent in producing an acre of peaches.

An average cost of $2.56 per bushel was reported by the one-third of the producers with the highest cost. Enterprises in the high cost group had an average of 6.1 acres of peach trees per farm. Receipts were $1.60 per bushel, with a negative net return of 96 cents for the group. An average of 145 hours was spent per acre in all operations of production obtaining a yield of 120 bushels.

In comparing these three cost groups together, a more favorable relation existed between labor, cost, yield and net return for the least cost group than the other two. There was no significant difference in the receipts received per bushel or the number of man hours spent per acre. Net return per bushel is a good measure of success of the peach grower, and yields obtained per acre were the deciding factor for the greater success of the least cost group over the other two groups.

Summary

1. A total of 48 farms was included in the survey made in Utah County in 1947. The farms had an average capital investment of $24,939 per farm and an average of 24 acres of land. The acreage of fruit on the farms varied from 1 to 75 acres, with an average of 16.04 acres of fruit per farm.

2. The average capital investment in the peach enterprise was $4,428 per orchard, or $869 per acre. The range in the acreage of peach trees was .75 to 17 acres, with an average of 5.09 acres per orchard.

3. The average cost per acre was $299.96, or $1.86 per bushel. Man labor accounted for 41.9 percent of the total cost; power cost, 11.3 percent; material cost, 19 percent; and overhead cost, 27.8 percent.

4. Wages for man labor averaged 94 cents for operator and family and 87 cents an hour for hired labor. An average of 90 cents an hour was reported for both family and hired labor.

5. A total of 139.4 hours per acre was spent in the operations of production of peaches. Maintenance operations accounted for 40 percent of the total time spent per acre, handling operations 45.5 percent, and marketing operations required 14.5 percent of the total time spent per acre.

6. Total receipts averaged $278 per acre, or $1.72 per bushel.

7. The average net return for the 48 enterprises surveyed was a minus $22 per acre, or a loss of 14 cents per bushel.

8. When the records were sorted on the basis of size of farm, it was found that the smaller farms had the highest peach yields.

9. Size of enterprise had no particular bearing on the factors associated with the production of peaches. The efficiency factors of labor and cost are about the same regardless of size of enterprise.

10. Producers with high yields are most likely to operate with low unit costs. The producers who obtained yields less than 100 bushels per acre had costs that averaged $2.52 per bushel, while those with a yield of 200 bushels or more per acre had costs of $1.58 per bushel.

11. The producers who peddled their fruit received the highest net return. The fact that some operators could effectively sell this way was probably made possible by most of the peach producers disposing of their crop through other market channels.

12. When the records were sorted on the basis of the use of fertilizers per acre, the results definitely showed that there is an advantage in the practice of applying fertilizers.

13. The least cost producers had the highest yields, which was the main factor in that a higher net return was received by this group than the other higher cost groups.

Conclusion

In the analyses made of the factors associated with the success of the peach enterprises, yields had more bearing on success than any other factor. A close association existed between man labor and yields. The extent to which the extra hours of man labor resulted in better yields per acre or the expenditure of more labor resulted in better yields is not known. Cost and net return likewise had a close association with yields. With success depending so much upon yields obtained, all producers should adopt all the new and proven methods of culture that will help them improve their yield in order to gain some degree of success.

As noted in the review of literature, a recent study of cost of producing peaches in Washington County and the Weber-Box Elder area was made by Wells M. Allred. While the differences between the areas included in the study by Mr. Allred and the present study in Utah County make direct comparisons invalid, the results in some cannections can be noted.

The study made by Mr.Allred reports a net return of $43 per acre or $.23 per bushel as compared with a net return in Utah County of -$22 per acre or -$.14 per bushel. The primary cause of this difference would appear to be the yield per acre received as Mr. Allred's study reported an average yield of 190 bushels per acre as compared to 161 bushels for the Utah County study. Difference in cost per acre for the two studies was only $10, but receipts per acre, which reflects the yield, were $333 for the former study as compared with $278 per acre for the latter study. Likewise, even though the cost per acre was

insignificantly different, the cost per bushel varied $.33, from $1.53 in the area with greater yields to $1.86 in Utah County where smaller yields were obtained.

The value of land and other capital investments in Utah County was $96 per acre greater than that in the areas studied by Mr. Allred, although the Utah County yields were smaller. In relative terms this suggests an over-valuation of Utah County peach land, but the difference would be relatively insignificant as a cost factor. The nearness to the local consuming center would perhaps justify some difference in land values even for agricultural production.

The average net return for the 48 farms included in the study was a negative $22 per acre, or a minus 14 cents per bushel. The net return received by the peach producers was probably not very favorable in relation to the net profits received by other farm enterprises.

The peach crop of Utah County was marketed through several market channels, all having a bearing on the success of the industry. The peach crop of 1947 was disposed of through producers marketing associations, truckers, house to house peddling, canners, and through roadside stands. In 1947 the local market was somewhat superior to the out-of-state markets so far as price per bushel was concerned. This was probably made possible because 55.5 percent of the peaches included in the study were shipped to out-of-state markets by producers' marketing associations.

The results of the study indicated that yield was one of the most important factors affecting success of the peach enterprise and that fertilization was influential in increasing yield per acre. This may suggest that increased attention in research and experimentation needs to be given to the use of various kinds of fertilizers, the application

of different amounts, the methods of application including the timing of the application or applications, and similar considerations. The effects of fertilization on the ripening of the fruit, the color, keeping qualities, and other such items might be studied. It is recognized that some work is being conducted along these lines, but since yields are of paramount importance and fertilization is so closely associated with greater yields, increased emphasis could profitably be directed along this line.

An experiment was conducted by A. L. Stark and D. W. Thorne on two peach orchards, one in the same area that this study was conducted, covering the years 1940 to 1944. The difference in yields between the various types of fertilizer treatments used was not significant, but the yields obtained on plots where fertilizer was applied definitely showed an advantage in applying some type of fertilizer over the yields on the plots where no fertilizers were applied. The following was concluded from this experiment: "The average peach yields were greatest in both orchards with the combined nitrogen and phosphorus fertilizer treatment, but there was no consistent difference in yields from nitrogen plus phosphate, nitrogen alone or farm manure treatments. Nitrogen alone and manure ranked second and third respectively, however, in relation to average yields. Yields were not significantly affected by cover crop practice, although the average yields were slightly higher with the combination cultivation and weeds practice".

Labor costs constitute about 46 percent of the total costs of producing peaches. Therefore, if costs are to be greatly reduced, labor costs would furnish a possible avenue where savings could be made.

The level of costs will change with economic conditions, but the composition of costs will remain about the same as long as methods of culture are unchanged. The total cost of the 48 farms surveyed in Utah County consisted of man labor cost, which was 41.9 percent of the total cost; power cost, which was responsible for 11.3 percent of all cost of producing peaches; material cost, which accounted for 19 percent; and overhead cost, which was 27.8 percent of the total cost. These ratios of cost items are likely to remain the same until different methods of production are introduced.

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1954

19__

(Crop Year PEACH ENTERPRISE SURVEY (Record Number)

Utah Agricultural Experiment Station
Department of Agricultural Economics

Operator _____ Community _____ P. O. _____

Location _____

Acres in peaches ____ Value per acre $____ Total value $_____

Other fruit ____ Value per acre $____ Total value $_____

Other cultivated acres ____ Value per acre $____ Total value $_____

Total cultivated land ____ acres

Acres other land ____ Value per acre $____ Total value $_____

Total acres ____ Total value all land $_____

Total value of capital in:

Farm buildings $ ____ Amount charged to peaches $_____

Farm equipment $ ____ Amount charged to peaches $_____

Livestock inc. horses $ ____

Total farm value $ ____ Total capital charged to peaches $_____

(Crop Production)

Crop	Age	No. trees		Acres	Yield	Total product	Value of orchard	
		Bearing	Non-bearing				Per acre	Total
1.								
2.								
3.								
4.								
	XXXX	XXXXXX	XXXXX					
	XXX XXXX	XXXXXX	XXXXXX					
	XXXX	XXXXXX	XXXXX					
	XXXX	XXXXXX	XXXXXX				XXXXX	XXXXXX
	XXXX	XXXXXX	XXXXX				XXXXX	XXXXXX
	XXXX	XXXXXX	XXXXX				XXXXX	XXXXXX
	XXXX	XXXXXXX	XXXXX				XXXXX	XXXXXXX
	XXXX	XXXXXX	XXXXXX				XXXXX	XXXXXX
TOTAL	XXXX						XXXXX	

LIVESTOCK

Kind	Avg. No.	Value Avg.	Value Total	Kind	Avg. No.	Value Avg.	Value Total
Horses				Hogs			
Dairy Cows				Hens			
Beef Cattle				Turkeys			
Sheep				Total	XXXX	XXXX	

MACHINERY AND BUILDINGS

Kind	Age	Beg. value	Repairs	Dep.	End. value	Avg. value	Charged to peaches percent	value	repairs	deprec
Sprayer										
Grader										
Ladders										
Picking equip.										
Spreade r										
Plow										
Harrow										
Disk										
Level										
Ditcher										
Cultivators										
Wagons										
All other *	XXX						XXXX			
Total	XXXX						XXXX			
Machine Shed										
Packing Shed										
All other Blg.**										
Total Blg.	XXX						XXX			

* Includes, tractor, truck, motors, etc.
** Includes, house, barns, coops, etc.

OPERATIONS PERFORMED BY OPERATOR AND FAMILY LABOR

Operator	No. op.	Man H	Man R	Man Amt.	Horse H	Horse R	Horse Amt.	Tractor H	Tractor R	Tractor Amt.	Truck H	Truck R	Truck Amt.	Total operator & family
Maintenance:														
Fert. Manure														
Commercial														
Pruning														
Disposal of Brush														
Plowing														
Mowing														
Hoeing														
Discing & Harrowing														
Irrigating														
Spraying														
Cover Crops														
Misc.														
Total Maintenance														
Handling Costs:														
Thinning														
Propping														
Scattering Boxes														
Picking														
Hauling to packing house														
Sorting & Grading														
Packing														
Total Handling														
Marketing Costs:														
Storage														
Hauling to market														
Selling														
Misc.														
Total Marketing														
Total Operator & Family														

Convert children's labor to man hours on following scale: 16 & over equals 1 man, 15-16 equals 7/8, 14-15 equals 3/4, 13-14 equals 5/8, 12-13 equals $\frac{1}{2}$, 11-12 equals $\frac{1}{4}$.

OPERATIONS PERFORMED BY HIRED LABOR

Operation	No. op.	Man			Horse			Tractor			Truck			Total	Total labor & power
		H	R	Amt.	H	R	Amt	H	R	Amt.	H	R	Amt.		
Maintenance:															
Fert. Manure															
Commercial															
Pruning															
Disposal of Brush															
Plowing															
Mowing															
Hoeing															
Discing & Harrowing															
Irrigating															
Spraying															
Cover Crops															
Misc.															
Total Maintenance															
Handling Costs:															
Thinning															
Propping															
Scattering Boxes															
Picking															
Hauling to packing house															
Sorting & Grading															
Packing															
Total Handling															
Marketing Costs:															
Storage															
Hauling to market															
Selling															
Misc.															
Total Marketing															
Total Hired															
Total Operator & Family															
Grand Total															

PEACH SALES

Variety	Grade	Am't (Bu.)	Price per unit	Total received	To Whom Sold	Location
			$	$		

PEACH SUMMARY AND EXPENSE

MATERIAL COSTS

Item	Time	Quant.	Price	Cost
Fertilizers:				
Barnyard				
Commercial				
Bu. Boxes				
Baskets				
Lug Boxes				
Picking Boxes				
Spray				
Packing Material				
Total	XXX	XXX	XXX	

FIXED OVERHEAD CHARGES

Int. on Money in crop	
Int. on Capital	
Blg. Upkeep and Dep.	
Equip. Rep. and Dep.	
Dep. on Trees	
Taxes: Land	
Water and Drainage	
Fees	
Insurance	
Family Car	
Telephone	
Total	

INTEREST ON MONEY IN CROP

Item	Am't.	Time	Int.
Maintenance Costs			
Handling Costs			
Fertilizers			
Containers			
Spray			
Misc.			
Total	XXXX	XXXX	

SUMMARY

Total Received	
Material Costs	
Overhead Costs	
Operator & Family Labor Costs	
Hired Labor, Labor Costs	
Operators' Power Costs	
Hired Power Costs	
Total Costs	
Net Returns to Enterprise	
Number of Acres	
Number of Bushels	
Total Received Per Acre	
Net Returns Per Acre	
Total Received Per Bu.	
Net Returns Per Bu.	
Total Man Hours	
Man Hours Per Acre	

1. Number of years farming _____

2. Number of years experience producing peaches _____

3. Membership in farmers' organization:

   Fruit marketing cooperative _____ (Name)

   Farm Bureau? _____ (Yes) _____ (No) Other marketing cooperatives _____ (Number)

4. Is a system of removal and replacement of trees practiced? _____ (Yes) _____ (No)

5. In the past 6 years, how many years was the crop damaged by frost, insects, or hail an appreciable amount? (Show in percent.)

Item	1947	1946	1945	1944	1943	1942
Frost						
Insects						
Desease						
Storm						

6. What was the acreage of peaches on this farm in 1940 _____ 1935 _____

7. Future plans for enterprise are to: Increase _____ acres Decrease _____ ac.

   Remain same _____

8. What is the estimated productive life of a peach tree? _____

9. What was the market value of this orchard per acre in 1945 _____

   1940 _____ 1935 _____ 1930 _____

10. Describe soil type and management practice carried on in this orchard _____

11. Amount of manure applied per acre 1946 _____ 1945 _____ 1940 _____

    Amount of commercial fertilizer 1946 _____ 1945 _____ 1940 _____

12. Do you receive greater profits from the sale of graded_____ or ungraded_____fruit?

13. What percent of the customers that you sell to are steady repeat customers?

_____ %

14. What percent of the customers ask for graded fruit?_____

15. What percent of the customers ask for graded fruit of uniform size_____ %

16. Can Utah peaches successfully compete with out-of-state peaches?_____ (Yes)

_____ (No)

17. Should something be done to promote greater consumption of peaches locally?

_____ (Yes) _____ (No) _____ (What)

_____

18. What needed changes do you see in the marketing of the crop?_____

_____

_____

_____

19. Is roadside selling of peaches worthwhile?_____

_____

_____

20. Are patrons of roadside fruit stands satisfied with the product?_____

_____

_____

21. Cost of growing orchard_____

_____

_____

Value of peach orchard land minus trees _____ per acre. Cost of removing stumps _____ per acre.

_____ (Date) _____ (Enumerator) _____ (Checked by)