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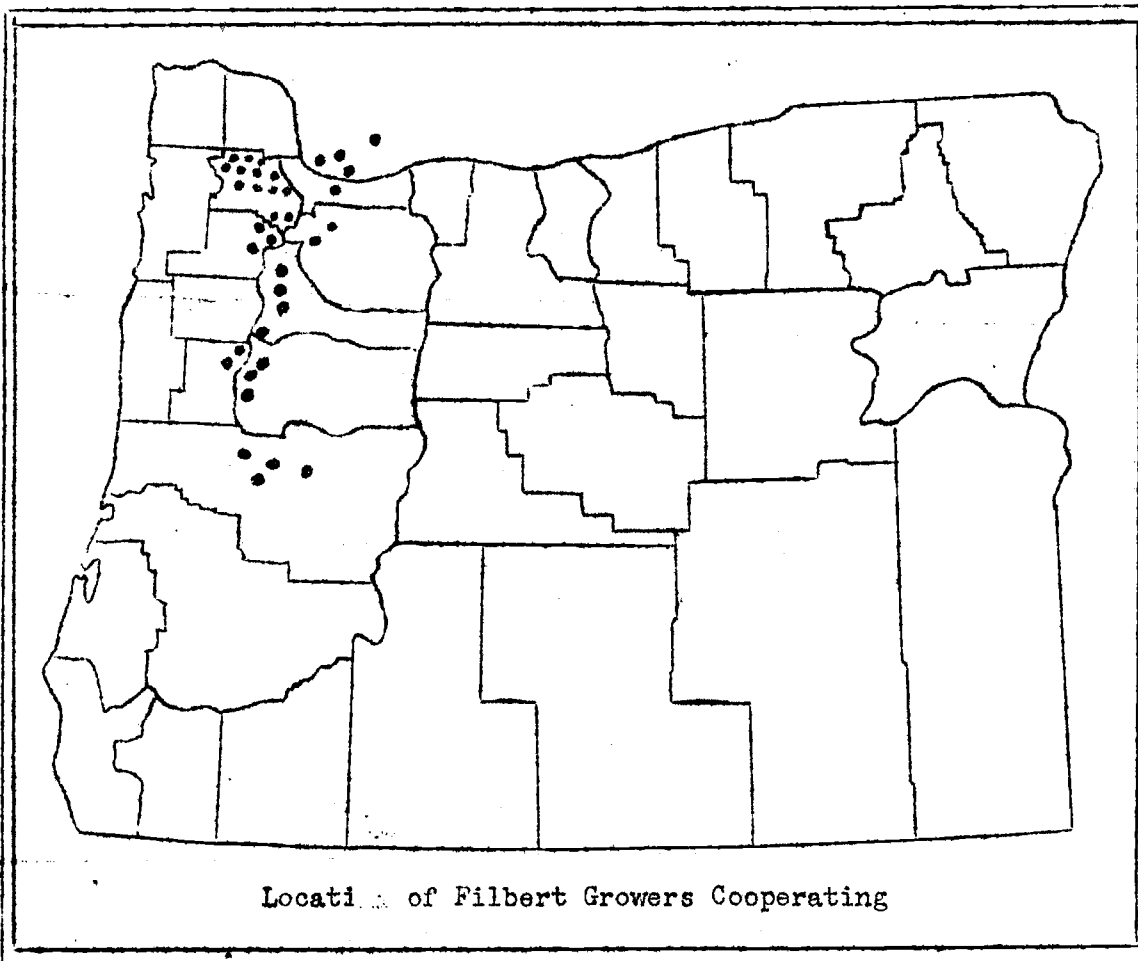
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COST OF PRODUCING FILBERTS IN OREGON
(For the year 1932)

Progress Report No. 1

By

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INTRODUCTION

The production of filberts on a commercial scale is among the newer of the farm enterprises practiced in this country. A few successful plantings of a commercial size were made as early as 1900, but the bulk of the plantings have been made during the last 15 years.

In the Mediterranean Basin the production of filberts has been a recognized industry for many years, and that region has been the chief source of supply of nuts consumed in the United States. The slowness with which this enterprise has spread from Europe to this country was due to the difficulty of finding conditions under which the filbert will thrive. Early plantings in the east did not prove successful probably due chiefly to the ravages of the Eastern Filbert Blight (*Corytospora anomala*) and for many years it did not appear that the filbert could be grown successfully on a commercial scale in the United States.

At present filbert growing is confined almost exclusively to the states of Oregon and Washington. According to the 1930 census these two states contain 98% of the filbert* trees found in the United States. Of the two states, Oregon alone contains 83% of all the filbert trees listed in the census. These two states seem to offer climatic conditions suited

Acknowledgments: The authors wish to express their appreciation to the growers participating in this study for the fine cooperation received, and to the North Pacific Nut Growers' Association, the Eugene Fruit Growers' Association, the Oregon Nut Growers', Inc., and the Washington Nut Growers' Cooperative for generous assistance in securing information pertaining to filbert grades and prices. The authors also wish to thank Professor H. D. Scudder, Economist in Charge, Department of Farm Management, for assistance with the field work and for many helpful suggestions.

*The census lists the filbert as a hazelnut.

to successful filbert growing. So far no disease or insect pests have become serious on bearing orchards. Satisfactory yields are generally obtained in most Western Oregon and Washington localities where proved varieties, including pollenizers, are planted on deep, fertile, well drained soils. The quality of nut produced is generally considered superior to the European filbert.

The annual consumption of filberts in the United States has declined steadily during the past five years (1928-1932). In 1928 the available supply of filberts in the United States (imports + production) was approximately 25,500,000 pounds (unshelled basis), but for each succeeding year this supply has been less and by 1932 it had decreased to 13,000,000 pounds. This decline in consumption has been about 6% heavier for unshelled than for shelled filberts. Over the five-year period the average supply of filberts appears to have been equivalent to approximately 18,000,000 pounds of unshelled nuts. Of this amount 17,500,000 pounds, or 97.2%, were imported. Slightly over half of this total amount consists of filbert meats (shelled filberts), as compared to the other half which was still unshelled when bought by the consumer.

The reduced consumption of filberts has been met by decreasing the imports. Domestic production, instead of decreasing, has increased from about 200,000 pounds in 1928 to about 1,000,000 in 1932, an increase of 500%. This increase in production as well as the decrease in consumption reduced the 1932 filbert imports to 50% of what they were in 1928. For 1932 the imports of unshelled filberts were about 5,700,000 pounds, and the imports of filbert meats (computed to their equivalent in unshelled nuts), amounted to about 6,300,000 pounds. It would appear, therefore, that in 1932 the supply of unshelled nuts (imports plus the domestic production) amounted to about 6,700,000 pounds, and the supply of filbert

meats was equivalent to 6,300,000 pounds of unshelled nuts, or a total of about 13,000,000 pounds.

The probable consumption of filberts during future years is an open question. Probably much of the decline in consumption during the period 1928 to 1932 has been due to the severe general depression. Factors such as tariffs, money exchange rates, advertising, purchasing power of the consumer, increasing competition from other nuts such as walnuts, pecans, almonds, etc., and other factors will undoubtedly influence the future consumption of filberts. Whether this influence is for greater or less consumption than in the past will depend on the particular combinations of conditions existing. However, even though consumption trends are rather obscured, it may be desirable to consider somewhat the past consumption during a normal period (1910-1914) and during a "boom" period (1925-1929). For the five-year period just prior to the World War (1910-1914) the consumption averaged about 13,500,000 pounds (unshelled basis) and for the five-year period prior to the present depression (1925-1929) consumption averaged about 23,500,000 pounds (unshelled basis). The gross consumption in 1932 was about half of the peak period of 1925-1929, and slightly less than the pre-war figure. The per capita consumption in 1932 was but 55% of the average per capita consumption from 1925-1929, and 74% of the pre-war consumption.

The 1930 census lists 225,609 bearing and 341,873 non-bearing filbert trees for the states of Oregon and Washington. With a planting rate of 104 trees per acre (which was the average rate used by the co-operators in this study) these trees would provide 5456 acres of filberts. With only 40% of this acreage listed as bearing the outlook for the future

is for a large increase in tonnage. Furthermore, since the census was taken, plantings have increased by substantial amounts each year, so that at present (January, 1934) the acreage of filberts planted is probably close to 7000 acres. While considerable of this planting is in small non-commercial tracts, the output of which is largely for home or local neighborhood use, nevertheless it is quite apparent that the domestic production is well on the way toward catching up with the demand for unshelled nuts. Particularly is this true if consumption stays at the low figure of 6,700,000 pounds which existed in 1932. As these two figures (demand and domestic supply) come closer together, increased competition for markets with lower prices for all grades of filberts and the transfer of the poorer grades to the lower priced cracking stock would appear very probable.

It is believed that the filbert enterprise is now at a stage where foresight can probably be of great value. Future profits, it is believed, will depend largely on the costs at which filberts can be produced. Planting will and probably should continue to go ahead, but it is believed that these future orchards, as well as those now planted, must be able to produce filberts at a low cost if they are to meet competition successfully.

PURPOSE OF THIS STUDY

At the request and with the cooperation of the Oregon filbert growers, the Oregon Experiment Station and the Bureau of Plant Industry of the United States Department of Agriculture are conducting this study to determine:

1. The cost of producing filberts.
2. Factors which have a major effect on the cost of producing filberts.
3. The cost of bringing a planting of Filberts to bearing age.
4. Practical and economical method of bringing filbert plantings to bearing age.

METHOD AND EXTENT OF THE STUDY

This investigation is being conducted by the survey method. To date the study has been concerned only with the cost of producing filberts and the factors that affect this cost. In this phase of the study only groves 6 or more years of age were considered. The acreage of filberts of this age which are planted in tracts of commercial size and operated as orchard units is rather limited. Consequently no selection of cooperators was necessary for nearly all available groves were included in the study. In soliciting cooperation only a few groves of 5 acres or less were considered, due to the difficulty of obtaining accurate labor and equipment records on these small tracts.

The areas covered in this study are shown by the map on the cover page. Of the 36 growers cooperating in this study to date, 32 are located in the Willamette Valley, Oregon, and 4 are located in Clark and Skamania counties, Washington. These filbert growers are operating 450 acres of

bearing and 174 acres of non-bearing filberts. Complete cost records were obtained on 436 acres of the bearing groves and these records furnish the data from which the facts presented in this report are derived.

Field work on this study will be continued during the winter and spring months of 1933-1934. Not only will cost records covering the 1933 filbert crop be obtained, but also it is contemplated that the study will be expanded to include collection of data on the cost of bringing a planting of filberts to bearing age. All figures and statements in this report are tentative and subject to revision in following reports.

THE FILBERT FARM ACREAGE

The filbert enterprise is almost always found as a unit in a diversified system of farming. For convenience these farms will be called "filbert farms" in this report even though only a portion of the farm income is from this enterprise. The acreage distribution on the average filbert farm is shown in Table 1.

Table 1. DISTRIBUTION OF ACREAGE ON FILBERT FARMS
(Averages for 36 farms. Filbert cost study, 1932)

Item	Average acres per farm	Percentage of total acreage
Bearing filberts	12.5	12.3%
Non-bearing filberts	4.8	4.7
Other fruits and nuts	12.8	12.5
Other crops	30.5	29.9
TOTAL TILLED LAND	60.6	59.4
Pasture and waste	41.6	40.6
TOTAL ACRES	102.2	100.0%

The average filbert farm contains 102 acres. About 60% of this area is tilled land. Of the tilled area 28% is in filberts and 21% is in other fruit, hence approximately half the tilled area is in fruit and

nuts and half is devoted to general crops.

Variation in Size of Filbert Farms. The extreme variation in size between farms included in this study was from 5 to 390 acres. The bulk of the farms however ranged from 21 to 60 acres in size (Table 2). Farms of less than 20 acres were in the minority for while many of these have a few filberts but few have 5 or more acres of bearing trees and consequently but few of these smaller places were included. Of the farms larger than 101 acres in size, 6 contained over 200 acres.

TABLE 2.. VARIATION IN SIZE OF FILBERT FARMS
(Filbert cost study, 1932)

Size	Number of farms	Average size of farm	Average acres of filberts*	Percentage of crop land in filberts
20 acres and less	5	12.1	6.2	51.3
21 - 60 acres	11	41.3	16.4	45.8
61 - 100 acres	11	85.3	23.0	36.7
101 acres and more	9	247.2	17.8	15.4
ALL FARMS	36	102.2	17.3	28.6

* Bearing and non-bearing.

The filbert plantings averaged larger on that group of farms ranging in size between 61 and 100 acres. The very large farms, as a whole, had only moderate sized plantings, and on the smaller farms the size of planting was limited by the small acreage of tillable land available, for but few growers choose to plant all of their tillable land to this one crop.

Filberts are not as intensive a crop as many of the fruits, nor are they likely to yield a high gross income per acre except where very high yields are obtained. Therefore, on the small farm where very intensive crops and high income per acre are necessary in order to utilize the labor available and to return enough income for a living, it would appear that other enterprises such as berries, vegetables, potatoes, etc., might prove

more desirable than filberts.

INVESTMENT REQUIREMENTS OF THE BEARING FILBERT ENTERPRISE

The average investment for the bearing filbert enterprise is shown in Table 3. Of the total investment, 98% is for the bearing grove itself (land and trees). The remaining 2% includes all tools and machinery used in the care of the orchard or the harvesting of the crop, and all buildings used in housing this machinery, or for drying the nuts. Permanent dryers for drying the filberts were not found on the farms included in the study, although a few growers had devised temporary arrangements for this purpose, so it was impossible to segregate out any definite investment for drying equipment.

TABLE 3. THE FILBERT ENTERPRISE INVESTMENT
(Bearing orchards only, 1932)

Investment item	Investment per farm	Investment per acre	Percentage of total investment
Bearing orchard	\$ 7892	\$ 652	98.0%
Tractor	113	9	1.3
Other Mach. & Equip.	47	4	.6
Buildings	9	1	.1
TOTAL INVESTMENT	\$ 8061	\$ 666	100.0%

The investment in land and trees represents the cooperator's careful estimate of the market price (January 1932) for orchards of similar age and quality in his community, while the investment in buildings and equipment represents their present depreciated value. Most of the machinery and buildings used for the bearing filberts are also used to some extent by other farm enterprises, and where so used the investment charge to filberts represents only the actual amount of use by this enterprise.

It appears probable that in many cases the operator's estimate of the bearing filbert orchard value is greater than the cost of growing this

orchard. However, even though a bearing grove could be developed for less than this value, it would be necessary to wait at least 6 years to achieve this purpose, and many growers would pay a substantial sum to avoid this delay. As previously stated, to determine the cost of growing a filbert orchard to bearing age is one of the objectives of this study and data pertaining to this objective will be collected during 1954. Analysis of these data should indicate the relationship between the actual cost and the estimated value of the bearing filbert grove.

THE COST OF PRODUCTION

The average cost of producing the 1952 filbert crop grown on the orchards included in this study was \$54.25 per acre and 13.7¢ per pound (Table 4). Of this cost 38.7% was operating cost, and 61.3% was for interest at 5% on the average filbert investment.

Operating Costs. Of the total operating cost, somewhat over half, to be exact 57%, was for man labor. This item includes all labor hired or contracted and also the work of the operator or any members of his family. On the average, on each acre, the operator put in 21.2 hours of labor which was valued at 22.6¢ per hour; members of his family put in 5.5 hours of labor which was valued at 16.9¢ per hour, and 10.9 hours of labor costing 22.8¢ per hour was hired. In addition there was a cost of \$3.72 per acre for work contracted, chiefly harvesting, hauling, drying and cultivation. The contract labor charge includes, in addition to the labor used, a charge for the use of machinery and power wherever these were used in performing the work contracted. Of the total man labor cost per acre \$6.18 or 52% was for non-harvest operations. This portion would be more for lighter yielding and less for heavier yielding orchards.

Horse labor amounting to 13.3 hours per acre and costing \$1.80 per acre accounts for about 9% of the operating cost. Except where hired all

TABLE 4. THE COST OF PRODUCING FILBERTS
(1932 crop)

36 orchards, 436 acres, producing 172,542 pounds of nuts

Average acres bearing filberts per orchard 12.1; average yield per acre 396** pounds; average number of trees per acre 104; average age of trees, 9 years.

Cost item	Cost per acre	Cost per pound of nuts	Percentage of total cost
Hired man-labor (10.9 hours per acre)	\$ 2.48	.6¢	4.6%
Operator's labor (21.2 hours per acre)	4.90	1.2	8.8
Unpaid family labor (5.3 hrs. per acre)	.89	.2	1.6
Contract labor	3.72	1.0	6.9
TOTAL MAN LABOR	\$11.89	3.0¢	21.9%
HORSE LABOR (13.3 hours per acre)	\$ 1.90	.4¢	3.4%
Taxes	2.46	.6	4.5
Tractor operation	1.21	.3	2.2
Fertilizer (manure)	.98	.2	1.8
Cover crop seed	.26	.1	.5
Use of auto or truck	.27	.1	.5
Miscellaneous	.26	.1	.5
TOTAL GENERAL EXPENSE	\$ 5.44	1.4¢	10.0%
Depreciation on tractor	\$ 1.27	.3	2.4
Depreciation on other mach. & equip.	.50	.2	.9
Depreciation on buildings	.08	*	.1
TOTAL DEPRECIATION	\$ 1.85	.5¢	3.4%
TOTAL OPERATION COST	\$20.98	5.3¢	38.7%
Interest on bearing orchard investment	32.58	8.3	60.1
Interest on tractor investment	.47	.1	.9
Interest on other mach. & equip. invest.	.18	*	.3
Interest on building investment	.04	*	*
TOTAL INTEREST (@ 5%)	\$33.27	8.4¢	61.3%
TOTAL COST	\$54.25	13.7¢	100.0%

** The 1932 filbert yield per acre was below normal.

* Less than one-tenth cent per pound.

horse labor was charged at 13¢* per horse hour. Hired horse labor was charged at actual cost.

The largest single operating cost, aside from labor, is taxes which amount to \$2.46 per acre. This item and others, such as tractor operation, fertilizer and cover crop seed have been grouped together and classified as general expense (Table 4). The total general expense amounts to \$5.44 per acre and accounts for about one-fourth of the total operating expense. In comparing the per acre costs for the different items in this group of costs it must be remembered that these costs are averages for the entire acreage included in the study. Except for taxes, which every grower pays, no single item in this group of costs was incurred on every acre, for many growers do not use a tractor, auto or truck in operating their filbert enterprise and only part of the growers followed the practice of fertilizing or cover-cropping. The average cost per acre shown in Table 4 for the items of the general cost group indicates the relative importance of these expenditures, but does not indicate, for example, the cost of fertilizing an acre or the cost of cover crop seed for an acre.

The remaining portion of the operating cost is covered by the charge for depreciation. Over a period of years machinery and buildings wear out and must be replaced. It is only proper, therefore, to charge a part of this depreciation to each year's crop. This charge amounts to \$1.85 per acre or slightly less than 10% of the operating cost. Although not a large annual charge, this allowance accumulated over long periods will replace the buildings and machinery used in operating the filbert enterprise. No charge was made for tree depreciation for so far as is known the filbert will live and bear for many years. The present bearing orchards are for

*Oregon Experiment Station Bulletin 250 - Cost of Horse Labor on Oregon Farms.

the most part not yet in full bearing and may be expected to increase rather than decrease in value and productivity.

Interest Costs. Interest at 5% on the bearing filbert investment amounts to \$33.27 per acre, 8.4% per pound and accounts for 61.3% of the total cost of production. The bulk of this interest charge is for interest on the bearing grove itself. The investment on which this interest charge is made is discussed on pages 8 and 9.

CASH AND NON-CASH COSTS OF PRODUCING FILBERTS

Of the total 1932 production cost, only \$10.67 per acre, or 19.7%, is cash or out-of-pocket cost (Table 5). The remaining portion of the total cost is for such items as the labor of the operator and unpaid members of his family, farm horse labor, depreciation, and interest. The operating cost (total cost less interest) is about equally divided between cash and non-cash expense.

TABLE 5. CASH AND NON-CASH COSTS OF PRODUCING FILBERTS
(1932 crop)

Cost item	Cash cost		Non-cash cost	
	Per acre	Percentage of total cost	Per acre	Percentage of total cost
Hired and contract labor	\$ 6.20	11.5%	\$ -	-
Operator's and family labor	-	-	5.69	10.4%
Horse labor	.01	*	1.79	3.4
TOTAL MAN & HORSE LABOR	\$ 6.21	11.5%	\$ 7.48	13.8%
Taxes	2.46	4.5	-	-
Cover crop seed & fertilizer	.26	.5	.98	1.8
Tractor operation	1.21	2.2	-	-
Use of auto or truck	.27	.5	-	-
Miscellaneous	.26	.5	-	-
TOTAL MISCELLANEOUS	\$ 4.46	8.2%	\$.98	1.8%
DEPRECIATION	-	-	\$ 1.85	3.4%
TOTAL OPERATING EXPENSE	\$10.67	19.7%	\$10.31	19.0%
INTEREST (at 5%)	-	-	\$33.27	61.3%
TOTAL COST	\$10.67	19.7%	\$43.58	80.3%
COST PER POUND		2.7¢		11.0¢

* Less than one-tenth.

Any segregation of costs into cash and non-cash groups is more or less arbitrary. Some costs such as taxes, materials, and hired or contract labor are definitely cash costs. They are the costs the producer must pay in cash each year. The so-called non-cash costs, on the other hand, could really be termed deferred costs for in any one year or perhaps for several years, part or all of these costs may be "put off" for future payment. Some of these costs such as the depreciation allowance for replacing machinery may be deferred for a long time; other costs such as capital earnings or operator's wages with which to buy food, clothing and repairs on the family car must be met sooner. Eventually, if the farmer continues in business, all of these costs must be met in one way or another.

VARIATION IN THE COST OF PRODUCING FILBERTS

Considerable variation in production costs was found among the growers cooperating. Extreme variations in cost per pound ranged from a low of 5.7¢ to a high of 30.0¢. The spread between these two extremes is 24.3¢. It is found, however, that the costs for 50% of the groves are between 4¢ above and 4¢ below average.

TABLE 6. VARIATION IN COST OF PRODUCING FILBERTS
(1932 crop)

Variation in total cost per pound	Average cost per pound	Number of farms	Percentage of total farms	Cumulative percentage of total farms	Operating cost per pound
Less than 9¢	7.7¢	7	19.4	19.4	4.1¢
9 - 13¢	10.4	10	27.8	47.2	3.4
13 - 17¢	14.4	8	22.2	69.4	6.1
17 - 21¢	19.8	6	16.7	86.1	6.7
21¢ and over	25.4	5	13.9	100.0	10.8
TOTAL	13.7¢	36	100.0	100.0	5.3¢

That filberts can be produced at a low cost by a substantial group of growers is shown in Table 6. The lowest cost group, consisting of 19.4%

of all the farms included in the study, were producing filberts at an average total cost of 7.7¢ per pound and at an operating cost of 4.1¢ per pound. If the next group (the 9-13¢ group) is added to this very low cost group it is found that 47.2% of all the farms are accounted for. The average total cost for this large group, almost half the farms, is but 9.6¢ per pound and the operating cost is only 3.6¢ per pound.

It is but natural to wonder why costs of 17 to 30¢ per pound are necessary when so many produce for far less, yet the fact remains that in 1932 practically a third of the filbert growers cooperating were producing at a cost of 17¢ or more per pound. For the past few seasons the field-run price has not been sufficient to cover costs as high as 17¢ per pound. There are three reasons why growers with such high costs can continue to operate; (1) the filbert farms are as a rule well diversified and losses can often be absorbed by other more profitable crops; (2) even with the recent low prices many growers have been able to meet their cash costs and the non-cash or deferred costs have been accumulating; (3) there is some variation in cost from year to year on the same farm and an occasional good crop (which almost always means a low cost) enables the enterprise to exist for awhile longer.

It is obvious that an unprofitable farm enterprise, especially one on a well diversified farm, can be carried along for some time before it is necessary to admit failure. Eventually, however, failure will be forced and in the meantime much effort and money is wasted. It is believed that in many instances growers with high costs can lower these costs by emulating the successful low-cost orchards, of which there are many examples. It is also believed that a still greater opportunity for attaining low costs lies in the grasp of growers planting new orchards, for these growers can avoid

the planting mistakes of the past which often are responsible for the high costs that prevail now.

A major purpose of this study is to point out factors responsible for high and low costs, so that growers can take cognizance of these.

THE EFFECT OF YIELD PER ACRE ON PRODUCTION COSTS

The outstanding factor affecting production cost per pound is the yield per acre. From year to year on the same orchard many costs such as taxes, interest, depreciation and pre-harvest labor amount to about the same per acre regardless of the crop harvested. With large crops, the cost of these items per pound of filberts produced is materially reduced.

TABLE 7. THE EFFECT OF YIELD PER ACRE ON THE COST OF PRODUCING FILBERTS (1932 crop)

	No. of farms	Average yield per acre pounds	Average total cost per pound	Average operating cost per pound
Below 250 pounds	5	212	20.5¢	9.1¢
250 - 400 pounds	16	331	15.8	6.1
400 - 550 pounds	6	483	11.5	4.0
550 lbs. and over	9	755	9.5	3.6
ALL FARMS	36	396	13.7¢	5.3¢

The effect of yield on the production cost of filberts is shown in Table 7. A group of five farms with yields of less than 250 pounds per acre had an average total cost of 20.5¢ per pound, and an average operating cost of 9.1¢ per pound. As contrasted to this low-yielding, high-cost group of farms there were nine farms yielding 550 or more pounds per acre, and producing filberts at a total cost of 9.5¢ per pound, and at an operating cost of but 3.6¢ per pound.

The 1932 filbert yields were as a whole below what is considered normal. Certainly they were far below the yield for the season just past

(1933). With higher yields even lower costs than those shown for the highest yielding group will undoubtedly be found, but it is probable that but little change will occur in the relationship between high and low-yielding groups.

OTHER FACTORS AFFECTING COST

This report is preliminary in nature, for the study is no more than well started. It is believed, therefore, that aside from the effect of yield on cost, which is very obvious, that the facts at hand do not justify further discussion of factors responsible for low and high costs. Such a discussion will be given in the final report which will include data from at least two crop years.

For those growers planting new orchards it may suffice to say that probable yields should be given close attention and that factors such as soils, varieties, pollenizers, etc., which are known to influence yield, should be given fullest attention. Proper planning of the orchard before planting appears to be of primary importance in obtaining good yield, for after the orchard is once planted it is often costly, if not impossible, to correct mistakes which if not corrected will result in low yields and high costs.

INDIVIDUAL COST REPORT

The last page of this report is devoted to a table comparing costs for each individual orchard with costs for the average, the 20% low cost and the 20% high cost orchards. By comparing costs, shown in the column entitled YOUR FARM, with the average costs for all farms and with the costs for the lowest and highest cost farms, possibilities for cost reductions may be shown. For example, if the pre-harvest man labor for YOUR FARM is higher than for the average farm, it is probable that it

could be reduced.

The column YOUR FARM is filled out only on the one copy returned to the individual grower cooperating. This is the only instance in the entire study where the grower's name is ever used in connection with any of the facts or figures presented and this confidential copy goes only to the grower concerned.

OREGON EXPERIMENT STATION AND
U. S. DEPARTMENT OF AGRICULTURE COOPERATING

Filbert Production Cost Study

INDIVIDUAL COST REPORT FOR 1932 CROP
(Confidential)*

Orchard of _____

Address _____

Cost Item	Average Cost Per Acre		
	20% High Cost Farms	20% Low Cost Farms	Average of YOUR All Farms FARM
Pre-Harvest Man Labor	\$ 8.68	\$ 6.10	\$ 6.18
Harvest Man Labor	5.36	12.12	5.71
Horse Labor	4.35	1.76	1.80
TOTAL MAN AND HORSE LABOR	18.39	19.98	13.69
Taxes	3.58	2.49	2.46
Fertilizer	1.63	--	.98
Tractor Operation	.53	1.63	1.22
Cover Crop Seed	.01	.15	.26
Auto and Truck Use	.39	.27	.27
Other Miscellaneous Cost	.46	.09	.25
TOTAL GENERAL EXPENSE	6.60	4.63	5.44
TOTAL DEPRECIATION	.89	1.61	1.85
TOTAL OPERATING EXPENSE	25.88	26.22	20.98
TOTAL INTEREST	38.43	22.32	33.27
TOTAL COST	\$64.31	\$48.54	\$54.25
Average Yield Per Acre	276 lbs.	632 lbs.	396 lbs.
TOTAL COST PER POUND	23.3¢	7.7¢	13.7¢
CASH COST PER POUND	3.9¢	2.6¢	2.7¢

*This is the only copy of any analysis sheet that bears your name.