

Cost of Establishing and Producing Sweet Cherries in Central Washington in 2007

FARM BUSINESS MANAGEMENT REPORTS



PREFACE

Enterprise costs and returns vary by location and over time for any particular farming operation. Variability stems from differences in the following:

- Capital, labor, and natural resources
- Type and size of machinery complement
- Cultural practices
- Size of farm enterprise
- Crop yields
- Input prices
- Commodity prices
- Management skill

Costs can also be calculated differently depending on the intended use of the cost estimate. The information in this publication serves as a general guide for establishing and producing sweet cherries in central Washington. To avoid drawing unwarranted conclusions for any particular farm or group of farms, the reader must closely examine the assumptions used. If they are not appropriate for the situation under consideration, adjustments in the costs and/or returns should be made.

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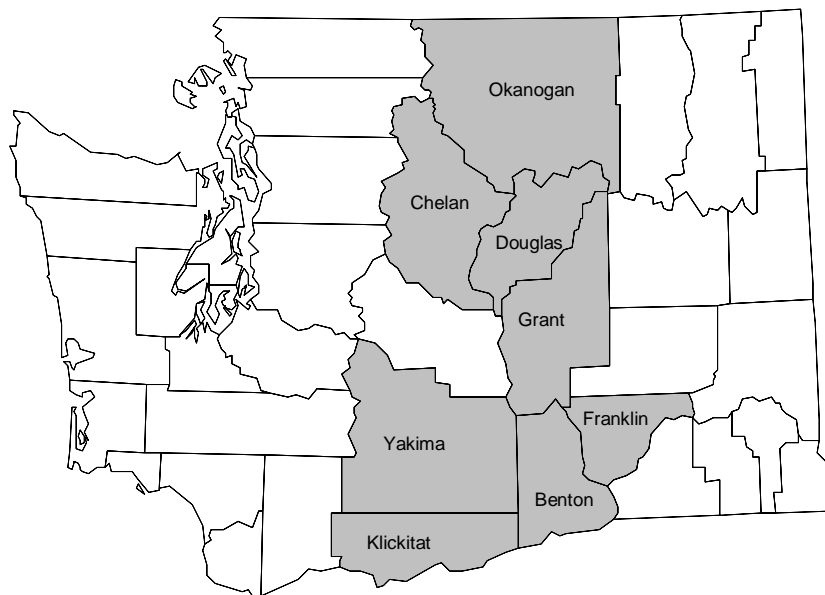
Cover photo by Allyson Leonhard.

COST OF ESTABLISHING AND PRODUCING SWEET CHERRIES IN CENTRAL WASHINGTON IN 2007

Herbert Hinman and Gwen-Alyn Hoheisel¹

Introduction

Sweet cherries are one of Washington State's major agricultural commodities. In 2005, sweet cherries ranked seventh in overall value of agricultural commodities produced in the state with a gross value of slightly over \$334.5 million. From 2001 to 2005, bearing sweet cherry acreage in the state increased from 24,000 to 29,000 acres. In terms of value per harvested acre, sweet cherries topped the list of crops in Washington State for 2005 with a value of \$11,535 per acre. Next in line were non-storage onions with a value of \$8,732 per acre and third were apples with a value of \$7,600 per harvested acre.² In 2006, the bearing sweet cherry acreage increased to 30,000 acres with a utilized value of slightly over \$290.6 million.³ The sweet cherry orchard acreage within the state is located almost entirely in the arid central region east of the Cascade Mountains. The central Washington counties (Okanogan, Chelan, Douglas, Grant, Yakima, Benton, Franklin, and Klickitat) account for 97.5% of the bearing acreage. In 2002, 25.2% of the state's bearing acreage was in Yakima County with 18.5, 15.5, and 12.8% being located in Chelan, Benton and Grant counties, respectively.⁴



**Central Washington
Primary Cherry Producing Counties**

¹ Extension Economist and Benton-Franklin County Area Extension Educator, respectively, Washington State University Extension.

² Washington Agricultural Statistics, 2005.

³ http://www.nass.usda.gov/Statistics_by_State/Washington/Historical_Data/fruit/chersw.pdf

⁴ 2002 Census of Agriculture

While sweet cherry production varies from year to year depending on the weather, Washington State ranks first in the nation, producing about 55% of the total U.S. crop.⁵ Although most Washington sweet cherries go to the fresh market, some tonnage is canned, brined or utilized in other ways. In 2006, 4.0% of Washington's sweet cherry crop was canned, 7.0% was brined, and 14.7% went to other uses.⁶ The dominant cultivar is Bing with smaller amounts of Lambert, Rainier, Van, and several new varieties entering the market.

As a result of the increasing acreage of sweet cherries in Washington State, there are basically two economic situations facing producers in the sweet cherry industry when it comes to evaluating the profitability of their crop. The first situation is that of established mature sweet cherry orchards. The second situation is that of establishing new sweet cherry orchards. In the latter situation, many new orchards are (or have been) established using a self-pollinating variety of sweet cherry on size controlling rootstock.

Before reviewing the results of this study there are several factors within the Washington sweet cherry industry to consider. The information used in this study was gathered from experienced sweet cherry growers with sizable plantings in central Washington. These growers represent the more progressive orchard managers in the state. Thus, the yield levels used in this study are those expected from these better managers and are higher than the average for the industry. The five-year average yield for the industry for 2002-2006 was 4.55 tons per acre while the average price received during this same time period was \$1,798 per ton or 89.9¢ per pound. However, in 2005, the average annual price for cherries reached an all time high of \$2,440 per ton or \$1.22 per pound.⁶

Fruit size has become increasingly important. High yields of small fruit are not profitable. Fifteen years ago, the industry moved to increase the minimum fruit size that could be shipped to the fresh market, and were successful with that change. The same issue is again being discussed by the industry, but for a larger minimum size. Big fruit can earn 50¢ or more per pound than small fruit at the FOB level and most of the increase in price goes to the grower.

The other factor to consider is the wide swing in prices through the season. The perishability of cherries means that they need to be shipped soon after harvest. Over the years, the result has been a market with a high starting price and a major drop as volume increases. Late in the season, as volume decreases, the price will start to rise again. Growers establishing an orchard which will harvest midseason will incur a high risk of failure due to almost yearly low midseason prices. This market risk may be even greater than the weather risk that is quite prevalent within the sweet cherry industry.

⁵ Washington State Agricultural Statistics, 2006

⁶ http://www.nass.usda.gov/Statistics_by_State/Washington/Historical_Data/fruit/chersw.pdf

Objectives and Limitations of the Study

The assumption is made that 10 acres of sweet cherries have been or are being planted into an existing orchard on 11 acres of land. For every 10 acres of cherries actually planted, it is assumed that approximately one acre is used for roads, windbreaks, buildings, and service areas. The objective of this study is to project what equipment, materials, supplies, and labor are required to establish such an orchard and maintain it as a mature orchard. A further objective of this study is to estimate what prices and yields must be obtained to make the establishment and production of sweet cherries a profitable venture.

Many factors can alter not only establishment and production costs, but also pack-out and returns. Due to the assumptions and sources of information used, the values reported in this publication represent what knowledgeable and skilled fruit growers might anticipate as their average cost and production over the life of the orchard **if nothing goes wrong**. It should be realized, however, that crop loss due to cold injury or rain should be periodically anticipated. Therefore, a few of the many other scenarios producers face in the real world are also examined in this publication.

We recommend that individual growers use the blanks provided on the right-hand column of many of the budget tables in this publication to estimate their own costs and returns. The primary value of a report of this kind is to identify the practices typical of a modern, well-managed sweet cherry orchard. While this publication is not intended to be a guide to production practices, it does indicate current trends, and should be helpful in estimating the physical and financial requirements of comparable plantings.

Sources of Information

The assumptions used in this study were obtained from a group of experienced sweet cherry growers with sizable plantings in central Washington. Their production practices and requirements for labor, equipment, and supplies are the basis for the assumptions used in this study and represent what this group of growers considers to be the latest developments. Central Washington suppliers provided information on current prices for machinery, equipment, custom operations, fertilizers, chemicals, and power.

Budget Assumptions

Since two different situations are evaluated in this publication, different assumptions exist for each situation. However, the following assumptions apply to both situations:

1. Each planting is 10 acres planted on 11 acres of land. Total life of each planting is estimated to be 25 years.
2. Irrigation water is available from a public irrigation district. Pressurized water is delivered to the orchard at a power and water cost of \$150 per acre.

3. Machinery and buildings are valued at costs incurred if the items were to be replaced. Items are valued at new or used replacement value depending on how they are typically replaced. While this may overstate current production costs, it provides an indication of the enterprise's ability to generate the earnings needed to replace depreciable assets. Continuing increases in prices mean that depreciation claimed on assets purchased prior to price advances understates the amount of capital required for asset replacement. When an enterprise is evaluated to determine its long-term viability, it is important to consider its ability to replace depreciable assets on a replaceable cost basis.
4. Land is valued at \$4,200 per acre with land taxes of \$100 per acre. An 8% return to land is desired, in addition to any appreciation in land values.
5. Interest is 8.5%.
6. Labor and management charges are listed here and include all benefits, such as social security, labor and industries, etc.:

Foreman	\$ 22.00/hour
Tractor drivers & crew leaders	12.00/hour
Casual labor	9.00/hour

Summary of Results for Older Mature Cherry Orchards

There are several different variety and planting patterns of economically viable mature cherry orchards in central Washington, 10 years old and older. However, the most typical mature cherry orchard is of the Bing variety having pollenizer trees mixed within. The Bing orchard is generally configured to have approximately 136 trees per acre, producing approximately 5.5 tons of cherries and 1 ton of Vans in years when weather problems do not cause a decrease in production. In addition to the general assumptions listed above, assumptions specific to the older mature cherry orchards are the following:

1. The sweet cherries are on Mazzard or Mahaleb rootstock.
2. The trees are planted 20 feet x 16 feet, or 136 trees per acre. The main variety, Bing sweet cherries, consists of 121 trees. The remaining 15 trees in the acre are Van pollenizers. The trees are trained into 3-leader trees.
3. A permanent under-tree sprinkler system with a sprinkler setting of 32 x 20 feet was installed at a cost of \$1,500 per acre.
4. The wind machine was purchased and installed in the spring of establishment year 4 for \$16,000. This wind machine provides services for 11 acres. An alarm and thermometer system was installed at a cost of \$205 per acre.

5. The holding pond for irrigation and frost control purposes was established for use in year 5 of the establishment years at a cost of \$500 per acre.
6. Prices received by the producer are \$1.00/pound (\$2,000/ton) for Bings and 50¢/pound (\$1,000/ton) for Vans, assuming the cherries are 11.5 row or larger and at least 40% are 10.5 row or larger. These prices reflect the returns from all cherries (fresh, canned, and briners).

Table 1 presents a per acre summary of the costs involved in producing sweet cherries in a mature orchard 10 years old or older.

As shown in Table 1, the total variable cost of producing sweet cherries in an older mature cherry orchard, under the given assumptions, is \$6,495, with the total cost of production being \$9,364. Given a yield of 5.5 tons per acre of Bing cherries valued at \$2,000/ton and 1 ton of Van cherries valued at \$1,000/ton, per acre receipts minus variable cost are \$5,505.

Receipts minus total cost, which represent returns to management and risk, are \$2,636.

Receipts:	\$12,000
Variable Cost:	<u>6,495</u>
Receipts minus	
Variable Cost:	5,505
Fixed Cost:	<u>2,869</u>
Returns to Management	
and Risk:	\$ 2,636

The amortized establishment cost shown in Table 1 is taken from that calculated in Extension Bulletin 1877, *Cost of Establishing and Producing Sweet Cherries in Central Washington in 1998*, which estimated the cost of establishing a similar cherry orchard in 1998. Establishment costs and the calculation of the amortized establishment cost figure are more fully discussed in the following section on new orchards established on size-controlling rootstock.

In the case of a mature cherry orchard that is purchased, the purchase price minus the present value of the estimated terminal value of the orchard would need to be amortized over the life of the orchard. For instance, in the above situation, if a 10-year old cherry orchard currently sells for \$13,000 per producing acre and is expected to sell for \$4,000 per producing acre at the end of 15 years, at 8.5% interest, the annual amortized cost of purchase over the 15-year period would equal \$1,423.78. This is the combined annual interest and principal payment on the investment over the 15 years. Thus, whatever amortized cost one should use will have an effect on value given to fixed costs and total costs.

Table 1. Cost of Producing Sweet Cherries from an Older Mature Sweet Cherry Orchard (136 trees) in Central Washington.

	\$
Variable Costs:	
Non-Harvest Costs:	
Fertilizer	66.20
Chemicals	269.86
Beehives	90.00
Helicopter Drying	120.00
Casual Labor	310.50
Fulltime Labor	646.44
Supervisor Labor	209.00
Irrigation & Elect. Charge	150.00
Equipment Repairs[1]	213.85
Fuel & Lube[1]	250.58
Operating Interest	123.32
Total Non-Harvest Costs:	2,449.75
Harvest Costs:[2]	
Picking	2,925.00
Custom Hauling	78.00
Supervision & Checking	140.40
Fulltime Labor	238.68
Equipment Repairs[1]	44.16
Fuel & Lube[1]	45.41
Operating Interest	73.78
Total Harvest Costs:	3,545.43
Overhead[3]	500.00
Total Variable Costs:	6,495.18
Fixed Costs:[3]	
Equipment Replacement[1]	404.97
Equipment Interest[1]	358.23
Equipment Insurance[1]	25.21
Equipment Taxes[1]	51.98
Land Taxes	100.00
Interest on Land	336.00
Amortized Estab. Cost[4]	1,592.61
Total Fixed Costs:	2,869.00
Total Costs	9,364.18

[1] Includes machinery, wind machine, irrigation system, and buildings.

[2] Assumes 6.5 tons per acre.

[3] Shared between non-harvest and harvest cost.

[4] Calculated in Extension Bulletin 1877, Cost of Establishing and Producing Sweet Cherries in Central Washington, 1998.

Price and Yield Analysis

As stated from the beginning, this study represents what knowledgeable fruit growers might anticipate from plantings of sweet cherries over their productive life **if nothing goes wrong**. However, crop loss due to cold injury or rain should be periodically anticipated, as noted above. It is currently estimated that within every five-year period, one or two serious yield reductions will occur due to adverse weather conditions. In addition, the prices received for cherries may be less or more than assumed in this study. Table 2 shows the average cost per ton of yield at different yield levels with and without the amortized establishment cost of \$1,593 being included.

Table 2. Average Cost per Ton of Producing Sweet Cherries at Different Yield Levels from an Older Mature Sweet Cherry Orchard (136 trees) in Central Washington.

Yield Level (Tons)	Average Cost Excluding Establishment Cost \$	Average Cost Including Establishment Cost \$
4.0	1,603	2,341
4.5	1,485	2,081
5.0	1,391	1,873
5.5	1,314	1,703
6.0	1,250	1,561
6.5	1,196	1,441
7.0	1,149	1,338
7.5	1,109	1,249
8.0	1,073	1,171
8.5	1,042	1,102
9.0	1,015	1,040

Table 3 shows the returns per acre from an older mature sweet cherry orchard approximated at different price and yield levels.

Table 3. Returns per Acre from an Older Mature Sweet Cherry Orchard (136 trees) in Central Washington at Different Price and Yield Levels.

	Price/Ton	\$	\$	\$	\$	\$	\$	\$
	Bings:	1,200	1,400	1,600	1,800	2,000	2,200	2,400
	Vans:	600	700	800	900	1,000	1,100	1,200
	Yield (Tons)							
Bing:	4.50	-2,831	-1,849	-867	115	1,097	2,079	3,061
Van:	0.82							
Bing:	5.00	-2,497	-1,406	-315	776	1,867	2,958	4,049
Van:	0.91							
Bing:	5.50	-1,831	-964	236	1,436	2,636	3,836	5,036
Van:	1.00							
Bing:	6.00	-1,498	-522	787	2,096	3,405	4,714	6,023
Van:	1.09							
Bing:	6.50	-1,165	-80	1,338	2,756	4,174	5,592	7,010
Van:	1.18							
Bing:	7.00	-1,165	362	1,889	3,416	4,943	6,470	7,997
Van:	1.27							

The detailed results of this study of older mature cherry orchards regarding the schedule of operations and the amounts and prices of material and services used are presented in Appendix I. A detailed explanation of the information presented in the Appendices is given in the section "Detailed Results" on page 16.

Summary of Results for Cherry Orchards Established on Size-Controlling Rootstock

Planted acreage of cherry orchards has increased over the last several years. Approximately 80% of the new orchards are (or have been) established using a self-pollinating variety of sweet cherry on size-controlling rootstock. Orchards planted to size-controlling rootstock are expected to come into full production by the sixth leaf. During this period, many different varieties, planting spacings, and planting systems have been introduced. However, in addition to the general assumptions previously listed, the most typical situation at this time also has the following assumptions:

1. The trees are planted on an open field suitable for machine planting.
2. The trees are planted 10 feet x 16 feet, or 272 trees per acre. Since the variety being used is self-pollinating, no pollenizer trees are needed. The trees are trained into 3-leader trees.
3. A dual system consisting of drip irrigation and a permanent under-tree sprinkler system with a sprinkler setting of 32 x 20 was installed at a cost of \$3,150 per acre. The tubes for the drip irrigation cost \$600 per acre with a 10 year life, and the filter cost was \$400 per acre with a 25 year life. The under-tree sprinkler system was installed at a cost of \$2,150 per acre.
4. A self starting, propane fueled wind machine was purchased and installed for use in year 3 of the establishment period at a cost of \$24,000.
5. The holding pond for irrigation and frost control purposes was established for use in year 3 of the establishment period at a cost of \$900 per acre.
6. Yields, assuming planting on good ground and no crop loss during the establishment years due to adverse weather and nothing goes wrong, are the following:

Year 3	1.5 tons/acre
Year 4	5.5 tons/acre
Year 5	7.5 tons/acre
Mature	9.0 tons/acre

7. Price received by the farmers is \$1.00/pound (\$2,000/ton).

Gross Returns Per Acre

Year 3	\$ 3,000
Year 4	\$11,000
Year 5	\$15,000
Mature	\$18,000

Table 4 presents the estimated annual capital requirements in land, irrigation system, operating expenses, and new equipment purchased as a direct consequence of adding 10 acres of cherries (on 11 acres of land) to an existing orchard operation. Since the 10-acre planting of cherries was added to an existing orchard, most field equipment, buildings, and vehicles required to operate this additional 10 acres are likely to be on hand already. Therefore, the only equipment purchases listed as a direct result of orchard expansion are the irrigation system, holding pond, wind machine, alarm and thermometers. Where the situation differs from the above assumptions, adjustments in the figures presented in Table 4 may be necessary. It was assumed all items were purchased the year they are first used. Of course, the actual timing of the capital outlays will vary, depending on how the various assets are financed.

Table 4. Summary of Capital Requirements per Year for Establishing 10 Acres of Sweet Cherries on Size-Controlling Rootstock in Central Washington [1].

	Year 1	Year 2	Year 3	Year 4	Year 5
	\$	\$	\$	\$	\$
Requirements:					
Land (11 acres)	46,200				
Irrigation System	31,500				
Equipment[2]		33,000			
Operating Expenses[3]	53,952	25,149	43,850	61,390	72,546
Gross Requirements	131,652	58,149	43,850	61,390	72,546
Receipts[4]			30,000	110,000	150,000
Net Requirements	131,652	58,149	13,850	-48,610	-77,454

[1] Does not include interest on investment.

[2] One wind machine and a holding pond in year 3. Any other field equipment that may be purchased as a result of this additional 10 acres of cherries being added to the existing orchard is not listed.

[3] Includes variable costs, land taxes, and prorated taxes and insurance on machinery, buildings and irrigation equipment.

[4] See assumptions 5 and 6 on the previous page.

Where Table 4 presents a summary of the cash requirements over the first 5 years of establishment, Table 5 presents a per acre summary of the costs involved during the 5-year period needed to fully establish the orchard. The establishment costs are categorized as to variable, fixed, and total costs. While variable cost essentially reflects cash input costs incurred and used the year of purchase (trees being the exception), fixed costs reflect the cost of inputs that are purchased, or already owned, that have a life of more than one year. Therefore, some of the up-front cash costs, such as land, the irrigation system, and the wind machine, are allocated over the life of the cherry orchard and do not show as a one-year cost obligation as shown in Table 4.

After year 5, the assumption is made that the orchard is fully established. At this point it is assumed that the orchard has 20 more years of productive life with an average annual yield of 9 tons per acre. Over these remaining years, the orchard must pay back the \$5,522 net cost per acre incurred in establishing this orchard. Thus, assuming an 8.5% interest rate and a 20-year payback period, the mature orchard has an amortized establishment cost of \$583.52 per acre per year that must be recovered.

Table 5. Per Acre Cost of Establishing a Sweet Cherry Orchard on Size Controlling Rootstock.

	Year 1	Year 2	Year 3	Year 4	Year 5
	\$	\$	\$	\$	\$
Variable Costs:					
Non-Harvest Costs:					
Soil Preparation	122.00				
Trees	2720.00	60.00	40.00	30.00	
Planting Trees	110.80				
Companion Seed	26.25				
Paint	5.10		13.60		
Fertilizer	90.15	48.20	52.40	62.00	66.20
Chemicals	363.65	145.84	249.48	294.23	295.12
Mouse Control	15.00	15.00	15.00		
Rented Equipment	95.00	10.00	10.00		
Clips and String		45.00	45.00	45.00	
Beehives			45.00	45.00	90.00
Thinning, etc.					150.00
Helicopter Drying			120.00	120.00	120.00
Casual Labor	91.80	648.00	946.53	369.00	274.50
Fulltime Labor	356.88	307.80	348.58	490.32	526.44
Supervisor Labor	121.00	121.00	209.00	209.00	209.00
Irrigation & Elect. Charge	150.00	150.00	150.00	150.00	150.00
Equipment Repairs[1]	115.23	121.28	227.43	232.66	235.35
Fuel & Lube[1]	107.31	113.89	223.98	225.96	226.82
Operating Interest	268.19	95.59	131.28	120.28	120.78
Total Non-Harvest Costs:	4,758.36	1,881.60	2,827.28	2,393.45	2,464.21
Harvest Costs:[2]					
Picking			675.00	2475.00	3375.00
Custom Hauling			18.00	66.00	90.00
Supervision & Checking			32.40	118.80	162.00
Fulltime Labor			110.05	253.44	275.40
Equipment Repairs[1]			10.24	37.46	51.06
Fuel & Lube[1]			10.49	38.34	52.27
Operating Interest			17.03	62.16	85.12
Total Harvest Costs:	0.00	0.00	873.21	3,051.20	4,090.85
Overhead[3]	500.00	500.00	500.00	500.00	500.00
Total Variable Costs:	5,258.36	2,381.60	4,200.49	5,944.65	7,055.06

Table 5. Continued

	Year 1	Year 2	Year 3	Year 4	Year 5
	\$	\$	\$	\$	\$
Fixed Costs:[3]					
Equipment Replacement[1]	279.54	268.78	416.08	470.52	500.92
Equipment Interest[1]	231.69	219.28	400.77	435.55	454.12
Equipment Insurance[1]	16.29	15.42	28.21	30.66	31.98
Equipment Taxes[1]	20.52	17.89	56.29	63.65	67.59
Land Taxes	100.00	100.00	100.00	100.00	100.00
Interest on Land	336.00	336.00	336.00	336.00	336.00
Interest on Establishment Cost		530.57	859.52	1148.27	938.23
Total Fixed Costs:	984.04	1,487.94	2,196.87	2,584.65	2,428.84
Total Costs	6,242.40	3,869.54	6,397.36	8,529.30	9,483.90
Value of Production			3,000.00	11,000.00	15,000.00
Net Cost	6,242.40	3,869.54	3,397.36	-2,470.70	-5,516.10
Accumulated Cost	6,242.40	10,111.94	13,509.30	11,038.60	5,522.50

[1] Includes machinery, wind machine, irrigation system, and buildings.

[2] Assumes 1.5 tons per acre in Year 3, 5.5 tons per acre in Year 4, and 7.5 tons per acre in Year 5.

[3] Shared between non-harvest and harvest cost.

Table 6 presents a summary of the per acre costs involved in producing sweet cherries in a mature cherry orchard.

As shown in Table 6, the total variable cost of producing sweet cherries in a mature cherry orchard, under the given assumptions, is \$7,873, with the total cost of production being \$9,980. Given a yield of 9 tons per acre and a price of \$2,000 per ton for the cherries produced, per acre receipts minus variable cost are \$10,127.

Receipts minus total cost, which represent returns to management and risk, are \$8,020.

Receipts:	\$18,000
Variable Cost:	<u>7,873</u>
Receipts minus	
Variable Cost:	10,127
Fixed Cost:	<u>2,107</u>
Returns to Management	
and Risk:	\$ 8,020

Table 6. Cost of Producing Sweet Cherries from a Mature Sweet Cherry Orchard on Size Controlling Rootstock in Central Washington.

	\$
Variable Costs:	
Non-Harvest Costs:	
Fertilizer	66.20
Chemicals	295.12
Beehives	90.00
Thinning, etc.	150.00
Helicopter Drying	120.00
Casual Labor	274.50
Fulltime Labor	526.44
Supervisor Labor	209.00
Irrigation & Elect. Charge	150.00
Equipment Repairs[1]	235.36
Fuel & Lube[1]	226.82
Operating Interest	120.78
Total Non-Harvest Costs:	2,464.22
Harvest Costs:[2]	
Picking	4,050.00
Custom Hauling	108.00
Supervision & Checking	194.40
Fulltime Labor	330.48
Equipment Repairs[1]	61.22
Fuel & Lube[1]	62.68
Operating Interest	102.15
Total Harvest Costs:	4,908.93
Overhead[3]	500.00
Total Variable Costs:	7,873.15
Fixed Costs:[3]	
Equipment Replacement[1]	518.78
Equipment Interest[1]	465.74
Equipment Insurance[1]	32.79
Equipment Taxes[1]	70.04
Land Taxes	100.00
Interest on Land	336.00
Amortized Estab. Cost	583.52
Total Fixed Costs:	2,106.87
Total Costs	9,980.02

[1] Includes machinery, wind machine, irrigation system, and buildings.

[2] Assumes 9.0 tons per acre.

[3] Shared between non-harvest and harvest cost.

Price and Yield Analysis

Due to the assumptions and sources of information used, the values reported in this publication represent what knowledgeable and skilled fruit growers might anticipate as their average cost and production over the life of their orchard **if nothing goes wrong**. However, crop loss due to cold injury or rain should be periodically anticipated. Over a five-year period, it is generally anticipated by producers that a serious crop loss will occur during one or two years due to adverse weather conditions. In addition, prices received by producers may be less (or more) than those assumed in the above analysis.

Table 7 shows the average cost per ton of yield at different yield levels with and without the amortized establishment cost of \$583.52 included.

Table 7. Average Cost per Ton of Producing Sweet Cherries at Different Yield Levels from a Mature Sweet Cherry Orchard (272 trees) on Size-Controlling Rootstock in Central Washington.

Yield Level (Tons)	Average Cost Excluding Establishment Cost \$	Average Cost Including Establishment Cost \$
5.0	1,443	1,560
5.5	1,361	1,467
6.0	1,293	1,391
6.5	1,236	1,326
7.0	1,187	1,270
7.5	1,144	1,222
8.0	1,106	1,179
8.5	1,073	1,142
9.0	1,044	1,109
9.5	1,018	1,079
10.0	994	1,053

In Table 8, it is assumed that during the establishment years the anticipated yields and prices were received. The net establishment costs are \$5,522 as shown in Table 5 above. Table 8 shows the return per acre estimated for the mature orchard under varying price and yield levels, assuming the establishment years produced according to the given assumptions.

Table 8. Returns Per Acre From a Mature Sweet Cherry Orchard (272 trees) on Size Controlling Rootstock in Central Washington at Different Price and Yield Levels (No Freeze-Out During Establishment Years).

Price/Ton	\$	\$	\$	\$	\$	\$	\$
	1,200	1,400	1,600	1,800	2,000	2,200	2,400
Yield (Tons)							
2.00	-3,762	-3,362	-2,962	-2,562	-2,162	-1,762	-1,362
3.00	-3,107	-2,507	-1,907	-1,307	-707	-107	493
4.00	-2,453	-1,653	-853	-53	747	1,547	2,347
5.00	-1,798	-798	202	1,202	2,202	3,202	4,202
6.00	-1,144	56	1,256	2,456	3,656	4,856	6,056
7.00	-489	911	2,311	3,711	5,111	6,511	7,911
8.00	165	1,765	3,365	4,965	6,565	8,165	9,765
9.00	820	2,620	4,420	6,220	8,020	9,820	11,620
10.00	1,475	3,475	5,475	7,475	9,475	11,475	13,475

Using the Crop Profitability Analysis (CPA) Program to Analyze Different Price and Yield Scenarios

So many different types of scenarios as to price and yields over the years can occur due to freeze, rain, hail, birds, and market conditions that it is not possible to cover even a small sample of these scenarios in this bulletin. However, growers can use the Crop Profitability Analysis (CPA) program developed by Oregon State University, Washington State University, and the University of California at Davis. CPA is a Windows-based program designed to help agricultural producers in making long-run cropping decisions. CPA is designed to use data from annual budgets as input and generate financial analyses of the potential economic performance of perennial crops such as tree fruit, nut, berry, and wine grapes under numerous different long-run scenarios. The CPA program can be obtained as a free download at

<http://oregonstate.edu/oain>

Click on the [Agtools for Management Risk](#) link, and download CPA along with the companion Budget Editor program. Both programs are fully documented. In addition, the data from this bulletin for the establishment and production of sweet cherries on size-controlling rootstock can also be downloaded by clicking on [Washington](#) under "Ready-to-use budget files for CPA and ECL," and then clicking on [Cherry budgets](#). The budget files are listed under "Size Controlling Rootstock." All assumptions as to prices received, yields obtained, or input items, amounts, and costs can be readily changed

using Budget Editor and CPA to modify the budgets provided so the user can develop a set of annual budgets that most fit his/her situation.

CPA generates three reports for each plan analyzed. “Net Returns and Present Value by Year” gives the net returns and net present value by year and the total net returns and total net present value for each plan along with the annual equivalent.

“Accumulated Net Returns” shows the annual returns, annual cost, net returns, and accumulated net returns for each plan. It calculates the number of years the returns are greater than costs, the year returns are greater than total costs of previous years, and the total cash costs to establish. “Net Present Value Profile” calculates the net present value and the annual equivalent at various interest rates for the base plan and the comparison plan. It also calculates the beginning and ending investment values and the internal rate of return for each plan. CPA also graphs the net returns by year, accumulated net returns by year, the net present value at varying discount rates, and the annual equivalent at varying discount rates.

It is recommended by the authors that before investing in any long-run perennial crop, that the potential investor use the CPA program to fully analyze the potential investment under varying price and yield scenarios to help decide if the potential investment is likely to be economical feasible or not.

Detailed Results

The detailed estimated costs for the 10-year-old (or older) orchard, and that for each year of establishment, plus the mature orchard (for those orchards established on size-controlling rootstock) are shown in Appendices I and II, respectively. In each of the two appendices, there are three tables that detail the results of each year analyzed for the given situation. For instance, in Appendix I, the detailed cost results for sweet cherries produced in cherry orchards 10 years old or older, only one year of analysis is covered. In Appendix II, the detailed cost results for sweet cherries established and produced on size-controlling rootstock, six years are covered in the analysis.

In each situation, for each year analyzed, the “Schedule of Operations and Estimated Cost per Acre...” table outlines the schedule of field operations and per acre cost by calendar month, the type of machinery and labor used, and the hours used per acre. The costs of field operations are divided into two categories—fixed and variable. Fixed costs include annual cost of machinery, building, irrigation equipment, and land ownership. Variable costs include such costs as those associated with operating machinery, hiring labor, and purchasing services and materials. Total cost is the sum of fixed costs and variable costs.

Machinery, building, and irrigation system fixed costs include depreciation, interest on the average investment, property taxes, and insurance. These costs are incurred whether or not a crop is grown. Per hour fixed costs for machinery were determined by dividing the total annual fixed cost per machine by the annual hours of machinery use for the representative farm. Machinery fixed costs for a specific field operation were determined by multiplying the machine hours per acre times the machinery fixed per hour cost figure (see Tables 13 and 33). Fixed costs per acre for the machine shed and

shop, shop tools, wind machine, and irrigation system were determined by dividing the total annual fixed cost by the number of acres served by the particular asset.

Land fixed cost includes taxes and an 8% return on the purchase price of the land. This cost represents the minimum return the owner-operator desires on his/her original investment in land, apart from appreciation of land value. As used in this publication, the land cost is termed an opportunity cost to indicate that it is not an out-of-pocket expense, but rather a return that is foregone by the producer as a result of investing in this enterprise.

For the analysis of establishing orchards using size-controlling rootstock, beginning with year 2, a fixed cost of 8.5% of the previous year's accumulated establishment cost is charged against the investment. This cost represents the interest being paid on the investment in the cherry orchard, or returns foregone by investing in the cherry orchard rather than in an alternative investment that would give immediate returns. In the mature orchard, the net investment in the cherry orchard accumulated over the 5-year establishment period (\$5,522) is amortized over a 20-year period at 8.5% interest, totaling \$583.52 per year.

Variable costs vary with the number of acres farmed or with the enterprise. These costs include fuel, oil, repairs, fertilizer, chemicals, custom work, overhead (cost of upper management, utilities, legal and accounting fees, etc.), and interest (8.5%) on operating capital. Casual labor and machinery operating labor were also included as variable costs.

In the "Schedule of Operations and Estimated Cost per Acre..." table, figures representing the cost of services and/or materials utilized by operation are shown in their respective columns. The second table of the series, "Materials and/or Services Applied Per Acre by Operation," presents by year, month, and operation, the services and/or materials that went into the calculation of these figures for each respective "Schedule of Operations and Estimated Cost per Acre..." table.

The third table of the series, "Itemized Cost Per Acre..." presents an itemized list of the costs in each respective "Schedule of Operations and Estimated Cost per Acre..." table. Most items are self-explanatory or have been explained previously. However, "Machinery Interest" warrants additional explanation.⁷ These values represent opportunity costs (returns that are foregone by investment in a given machinery, building, and irrigation complement rather than in alternative investments) or interest paid to finance the given machinery, building, and irrigation complement, or both. The 8.5% interest charge made against the average value of these items over their respective lives represents total interest costs. These interest costs are fixed costs, and per hour and per acre allocations were calculated in the manner previously described for building, irrigation, and machinery fixed cost.

⁷ Machinery interest includes interest on the machine shed and shop, wind machine, and the irrigation system.

Concluding Note

Because of the procedures and assumptions used in this study, the results should be used with care. The authors recognize that the situations outlined are not characteristic of all orchard or farm operations. For example, economies are gained by adding acreage onto an existing farm operation. Conversely, added costs can be anticipated when the planting represents a separate business enterprise.

It is essential that this publication be used merely as a **guide** in determining establishment and mature orchard maintenance costs, and that considerable judgment be exercised in generalizing cost estimates to situations differing from those outlined above. Moreover, this publication is not specifically intended as a guide to planting and production practices. Rather, it draws on the current technology used in the area.

APPENDIX I

**Detailed Cost and Production
Practice Information for
Sweet Cherries Produced in Cherry Orchards
Ten Years Old or Older**

TABLE 9. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR MAINTAINING AN OLDER MATURE (136 TREES PER ACRE) SWEET CHERRY ORCHARD IN CENTRAL WASHINGTON

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST
							FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.		
FALL SPRAY	70HP-WT, BLAST SPRAYER	NOV	2006	.33	.40	4.99	4.24	4.80	.00	20.35	2.29	31.68	36.66
FERTILIZE	70HP-WT, FERTILIZER SPREADER	NOV	2006	.50	.55	4.60	3.83	6.60	.00	41.25	4.03	55.71	60.30
PRUNE	HAND LABOR, PRUNING TOOLS	FEB	2007	.00	38.00	5.79	.00	370.50	.00	.00	21.00	391.49	397.28
PRUNE	LONG HANDLE CHAINSAW	FEB	2007	5.00	5.00	21.35	24.12	60.00	.00	.00	4.77	88.89	110.23
BRUSH REMOVAL	CHAINSAW USED TO CUT UP BRUSH	FEB	2007	5.00	5.00	9.15	15.12	60.00	.00	.00	4.26	79.38	88.52
BRUSH REMOVAL	70HP-WT, TRAILER	FEB	2007	2.00	4.00	12.43	13.03	36.00	.00	.00	2.78	51.80	64.23
BRUSH REMOVAL	70HP-WT, BRUSH WINDROWER	FEB	2007	.50	.55	6.46	4.25	6.60	.00	.00	.62	11.47	17.93
BRUSH REMOVAL	70HP-WT, 9' ROTARY MOWER	FEB	2007	.50	.55	4.45	4.18	6.60	.00	.00	.61	11.39	15.84
DORMANT SPRAY	70HP-WT, BLAST SPRAYER	MAR	2007	.33	.40	4.99	4.24	4.80	.00	38.15	2.34	49.53	54.51
RENT BEE HIVES	TWO BEE HIVE PER ACRE	APR	2007	.00	.00	.00	.00	.00	90.00	.00	3.83	93.83	93.83
PETAL FALL SPRAY	70HP-WT, BLAST SPRAYER	APR	2007	.33	.40	4.99	4.24	4.80	.00	10.20	.82	20.05	25.04
FROST CONTROL	WIND MACHINE, ALARMS & THERM.	APR	2007	.00	4.00	160.11	133.50	88.00	.00	.00	9.41	230.91	391.02
IRRIG/FROST CONT	UNDERTREE SPRINKLER IRRIG. SYS	SEA	2007	.00	10.00	231.58	80.00	120.00	150.00	.00	14.88	364.88	596.45
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	MAY	2007	.67	.74	5.96	5.60	8.88	.00	.00	.51	15.00	20.96
FRT FLY/MILDEW	70HP-WT, BLAST SPRAYER	MAY	2007	.33	.40	4.99	4.24	4.80	.00	44.34	1.89	55.27	60.25
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	MAY	2007	.40	.48	2.41	4.59	5.76	.00	9.94	.72	21.00	23.41
MILDEW SPRAY	70HP-WT, BLAST SPRAYER	MAY	2007	.33	.40	4.99	4.24	4.80	.00	21.84	1.09	31.97	36.96
GA SPRAY	70HP-WT, BLAST SPRAYER	MAY	2007	.33	.40	4.99	4.24	4.80	.00	21.00	1.06	31.10	36.09
FRT FLY/MILDEW	70HP-WT, BLAST SPRAYER	JUN	2007	.33	.40	4.99	4.24	4.80	.00	39.54	1.38	49.95	54.94
DRY CHERRIES	HELICOPTER	JUN	2007	.00	.00	.00	.00	.00	120.00	.00	3.40	123.40	123.40
FRT FLY SPRAY	ATV W/SPRAYER	JUN	2007	.20	.24	.89	.39	2.88	.00	16.20	.55	20.02	20.91
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	JUN	2007	.67	.74	5.96	5.60	8.88	.00	.00	.41	14.89	20.85
FRT FLY SPRAY2	ATV W/SPRAYER	JUN	2007	.20	.24	.89	.39	2.88	.00	16.20	.55	20.02	20.91
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	JUL	2007	.40	.48	2.41	4.59	5.76	.00	9.94	.43	20.71	23.12
HARVEST	PICKING (6.5 TONS PER ACRE)	JUL	2007	.00	.00	39.63	11.38	.00	2925.00	.00	62.40	2998.77	3038.41
HARVEST	70HP-WT, BIN TRAILER	JUL	2007	5.53	13.26	30.65	36.45	159.12	.00	.00	4.16	199.72	230.38
HARVEST	SUPERVISION & CHECKING	JUL	2007	.00	11.70	.00	.00	140.40	.00	.00	2.98	143.38	143.38
HARVEST	FORKLIFT	JUL	2007	5.53	6.63	72.23	41.74	79.56	.00	.00	2.58	123.88	196.10
HARVEST	CUSTOM HAUL FRUIT TO WAREHOUSE	JUL	2007	.00	.00	.00	.00	.00	78.00	.00	1.66	79.66	79.66
MILDEW SPY (2X)	70HP-WT, BLAST SPRAYER	JUL	2007	.67	.74	10.12	8.60	8.88	.00	18.00	.75	36.24	46.36
CLEANUP SPRAY	70HP-WT, 100-GAL SPRAYER	JUL	2007	.33	.40	4.99	4.24	4.80	.00	1.26	.22	10.52	15.50
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	AUG	2007	.67	.74	5.96	5.60	8.88	.00	.00	.21	14.69	20.65
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	SEP	2007	.67	.74	5.96	5.60	8.88	.00	.00	.10	14.59	20.55
MILDEW SPRAY	70HP-WT, BLAST SPRAYER	OCT	2007	.33	.40	4.99	4.24	4.80	.00	17.28	.00	26.32	31.30
APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	2007	.40	.48	2.41	4.59	5.76	.00	9.94	.00	20.28	22.69
GOPHER CONTROL	HAND LABOR	ANN	2007	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42
MISC USE	MANAGEMENT PICKUP	ANN	2007	5.00	.00	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09
MISC USE	CREW PICKUP	ANN	2007	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60
MISC USE	4-WHEEL ATV	ANN	2007	5.00	5.50	11.81	9.68	66.00	.00	.00	3.22	78.90	90.71
MISC USE	MACHINE SHED AND SHOP	ANN	2007	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71

TABLE 9. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR MAINTAINING AN OLDER MATURE (136 TREES PER ACRE)SWEET CHERRY ORCHARD IN
CENTRAL WASHINGTON (CONTINUED)

VARIABLE COST													

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.	TOTAL VARIABLE COST	TOTAL COST

MISC USE	SHOP TOOLS	ANN	2007	.00	.00	\$ 18.18	\$.00	\$.00	\$.00	\$.00	\$.00	\$.00	\$ 18.18
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	2007	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25
TAXES	LAND	ANN	2007	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00
LAND COST	INTEREST ON LAND	ANN	2007	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00
AMORTIZED COST	AMORTIZED NET ESTABLISHMT COST	ANN	2007	.00	.00	1592.61	.00	.00	.00	.00	.00	.00	1592.61

TOTAL PER ACRE				49.98	129.46	2869.00	554.01	1545.02	3863.00	336.05	197.10	6495.18	9364.18

**TABLE 10. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY OPERATION
– OLDER MATURE ORCHARD.**

Month	Operation	Material and/or Service
Fall	Spray	12 Lbs. Copper Sulfate @ \$1.40/Lb. 1 Pint Nu-Film @ \$3.55/Pt.
Fall	Fertilize	75 Lbs. Nitrogen @ \$0.55/Lb.
Mar.	Dormant Spray	4 Gal. Superior Oil @ \$4.50/Gal. 4 Pt. Lorsban 4E @ \$3.00/Pt. 1 Gal. Zinc Chelate @ \$8.15/Gal.
Apr.	Rent Beehives	2 Beehives @ \$45.00/Hive
Apr.	Petal Fall Spray	5 Lbs. Solubor @ \$0.60/Lb. 10 Lbs. Wettable Sulfur @ \$0.72/Lb.
Sea.	Irrigate/Frost Control	Irrigation/Electrical Charge @ \$150/Acre
May	Fruit Fly/Mildew Spray	6 Ozs. Provado @ \$2.39/Oz. 12 Ozs. Procure @ \$2.50/Oz.
May	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8 Ozs. Surfactant @ \$0.106/Oz.
May	Mildew Spray	12 Ozs. Pristine @ \$1.82/Oz.
May	GA Spray	14 Ozs. ProGibb 4% @ \$1.50/Oz.
June	Fruit Fly/Mildew Spray	7 Ozs. Quintec @ \$3.74/Oz. 4 Pts. Sevin 4F @ \$3.34/Pt.
June	Dry Cherries	Helicopter @ \$120/Acre
June	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8 Ozs. Surfactant @ \$0.106/Oz.
July	Harvest	Pick 6.5 Tons of Fruit @ \$0.225/Lb.
July	Harvest	Haul 6.5 Tons of Fruit @ \$12/Ton

TABLE 10. CONTINUED.

Month	Operation	Material and/or Service
July	Mildew Spray (2X)	2 Gal. Superior Oil ea. Application @ \$4.50/Gal.
July	Clean-up Spray	6 Oz. Sevin 4F @ \$0.21/Oz.
Oct.	Mildew Spray	6 Gal. of Lime & Sulfur @ 2.88/Gal.
Oct.	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8 Ozs. Surfactant @ \$0.106/Oz.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Overhead	\$500/Acre

TABLE 11. ITEMIZED COST PER ACRE FOR MAINTAINING AN OLDER MATURE
(136 TREES PER ACRE) SWEET CHERRY ORCHARD IN CENTRAL
WASHINGTON

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
NITROGEN-ACTUAL	LB.	.55	75.00	41.25	_____
COPPER SULFATE	LB.	1.40	12.00	16.80	_____
NU-FILM	PINT	3.55	1.00	3.55	_____
SUPERIOR OIL	GAL.	4.50	8.00	36.00	_____
ZINC CHELATE	GAL.	8.15	1.00	8.15	_____
LORSBAN 4E	PINT	3.00	4.00	12.00	_____
SOLUBOR 25.5%	LB.	.60	5.00	3.00	_____
WETTABLE SULFUR	LB.	.72	10.00	7.20	_____
PROGIBB 4%	OZ.	1.50	14.00	21.00	_____
PRISTINE	OZ.	1.82	12.00	21.84	_____
PROVADO	OZ.	2.39	6.00	14.34	_____
PROCURE	OZ.	2.50	12.00	30.00	_____
ROUNDUP ORIG. MAX	QT.	9.09	3.00	27.27	_____
SURFACTANT	OZ.	.11	24.00	2.55	_____
GF-120 NF BAIT	OZ.	.81	40.00	32.40	_____
QUINTEC	OZ.	3.74	7.00	26.18	_____
SEVIN 4F	PINT	3.34	4.00	13.36	_____
SEVIN 4F	OZ.	.21	6.00	1.26	_____
LIME & SULFUR	GAL.	2.88	6.00	17.28	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
RENT BEE HIVES	HIVE	45.00	2.00	90.00	_____
HELICOPTER DRYING	ACRE	120.00	1.00	120.00	_____
CASUAL LABOR	HOURL	9.00	34.50	310.50	_____
FULLTIME LABOR	HOURL	12.00	85.46	1025.52	_____
SUPERVISOR LABOR	HOURL	22.00	9.50	209.00	_____
PICK PIECE RATE	LB.	.23	13000.00	2925.00	_____
CUSTOM HAULING	TON	12.00	6.50	78.00	_____
MACHINERY REPAIRS	ACRE	258.02	1.00	258.02	_____
MACHINE FUEL/LUBE	ACRE	295.99	1.00	295.99	_____
INTEREST ON OP. CAP.	ACRE	197.10	1.00	197.10	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				6495.18	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	404.97	1.00	404.97	_____
MACHINE INTEREST*	ACRE	358.23	1.00	358.23	_____
MACHINE INSURANCE*	ACRE	25.21	1.00	25.21	_____
MACHINE TAXES*	ACRE	51.98	1.00	51.98	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____
INTEREST ON LAND	ACRE	336.00	1.00	336.00	_____
AMORTIZED ESTB. COST	ACRE	1592.61	1.00	1592.61	_____

TOTAL FIXED COST				2869.00	_____

TOTAL COST				9364.18	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

**THE ANNUAL AMORTIZED NET ESTABLISHMENT COST IS TAKEN FROM THAT
CALCULATED IN THE EXTENSION BULLETIN COST OF ESTABLISHING AND
PRODUCING SWEET CHERRIES IN CENTRAL WASHINGTON IN 1998.

TABLE 12. MACHINERY AND BUILDING COMPLEMENT FOR OLDER MATURE ORCHARD.

Machine Name	Purchase Price (\$)	Years of Use	Salvage Value (\$)	Annual Repair Cost (\$)	Annual Hours of Use	Gallons of Fuel Use Per Hour
70HP-Wheel Tract.	26,400	15	5,500	1,320	800	1.5 Diesel
4WD-ATV	6,600	10	1,650	165	400	.5 Gas
Pickup, Mgt.	27,500	8	11,000	550	400	2.0 Gas
Pickup, Crew	11,000	8	2,200	700	600	2.0 Gas
100 Gal. Sprayer	2,200	10	550	825	150	
400 Gal. Blast Sprayer	15,400	10	3,080	1,375	200	
ATV Spray Tank	300	5	0	0	35	
Fertilizer Spreader	2,200	15	220	85	50	
Forklift	16,500	15	3,300	550	150	1.5 Propane
Trailer	2,200	20	0	55	100	
Bin Trailer	3,850	10	550	220	350	
Brush Windrower	3,025	10	550	120	50	
9' Rotary Mower	5,000	10	550	360	150	
Long Handle Chainsaw	770	2	0	330	100	.5 Gas
Regular Chainsaw	330	2	0	150	100	.5 Gas
Pruning Tools	50	4	0	0	100	
Hand Saw	17	4	0	0	25	
Ladder	140	10	0	14	200	
Picking Equipment	35	3	0	0	100	
30 Lb. Lugs	3	5	0	0	10	
Machine Shed & Shop	45,000	30	0	100	80 acres	
Shop Tools	12,000	15	0	0	80 acres	
Wind Machine	16,000	25	4,000	300	40 hours 10 acres	10.0 Propane
Alarm & Thermometers	205	10	0	0	1 acre	
Irrigation System	2,150	25	0	30	1 acre	
Holding Pond	500	20	0	50	1 acre	

TABLE 13. HOURLY AND PER ACRE MACHINERY COSTS FOR MAINTAINING AN OLDER MATURE (136 TREES PER ACRE) SWEET CHERRY ORCHARD IN CENTRAL WASHINGTON

		YEARS							TOTAL		FUEL	TOTAL	
	PURCHASE	TO	ANNUAL	DEPREC-	INTER-	INSUR-			FIXED		AND	VARIABLE	TOTAL
MACHINERY	PRICE	TRADE	HOURS	IATION	EST	ANCE	TAXES	HOUSING	COST	REPAIR	LUBE	COST	COST

	\$								-COST PER HOUR-				
70HP-WHEEL TRAC.	26,400.00	15	800	1.74	1.69	.12	.36	.00	3.91	1.65	4.31	5.96	9.88
PICKUP, MANAGEMT	27,500.00	8	400	5.16	4.09	.29	.87	.00	10.40	1.38	6.10	7.47	17.87
4-WHEEL ATV	6,600.00	10	400	1.24	.88	.06	.19	.00	2.36	.41	1.52	1.94	4.30
100 GAL SPRAYER	2,200.00	10	150	1.10	.78	.06	.17	.00	2.10	5.50	.00	5.50	7.60
FERT. SPREADER	2,200.00	15	50	2.64	2.06	.15	.44	.00	5.28	1.70	.00	1.70	6.98
FORKLIFT	16,500.00	15	150	5.87	5.61	.40	1.19	.00	13.06	3.67	3.88	7.55	20.61
TRAILER	2,200.00	20	100	1.10	.94	.07	.20	.00	2.30	.55	.00	.55	2.85
LADDER	140.00	10	200	.07	.03	.00	.01	.00	.11	.07	.00	.07	.18
REGULAR CHAINSAW	330.00	2	100	1.65	.14	.01	.03	.00	1.83	1.50	1.52	3.02	4.85
BRUSH WINDROWER	3,025.00	10	50	4.95	3.04	.21	.64	.00	8.85	2.40	.00	2.40	11.25
PRUNING TOOLS	50.00	4	100	.13	.02	.00	.00	.00	.15	.00	.00	.00	.15
PICKING EQUIPMT	35.00	3	100	.12	.01	.00	.00	.00	.14	.00	.00	.00	.14
PICKUP, CREW	11,000.00	8	600	1.83	.94	.07	.20	.00	3.03	1.17	6.10	7.26	10.29
HAND SAW	17.00	4	25	.17	.00	.00	.00	.00	.17	.00	.00	.00	.17
9' ROTARY MOWER	5,000.00	10	150	2.97	1.57	.11	.33	.00	4.98	2.40	.00	2.40	7.38
BIN TRAILER	3,850.00	10	350	.94	.53	.04	.11	.00	1.63	.63	.00	.63	2.26
30 LB. LUGS	3.00	5	10	.06	.00	.00	.00	.00	.06	.00	.00	.00	.06
LG HNDL CHAINSAW	770.00	2	100	3.85	.33	.02	.07	.00	4.27	3.30	1.52	4.82	9.09
ATV SPRAY TANK	300.00	5	35	1.71	.36	.00	.00	.00	2.08	.00	.00	.00	2.08

	\$		ACRES						-COST PER ACRE-				
			COVERED										
MACH SHED & SHOP	45,000.00	30	80	18.75	23.91	1.69	5.06	.00	49.41	1.25	.00	1.25	50.66
SHOP TOOLS	12,000.00	15	80	10.00	6.38	.45	1.35	.00	18.18	.00	.00	.00	18.18
WIND MACHINE	16,000.00	25	10	48.00	85.00	6.00	18.00	.00	157.00	30.00	103.50	133.50	290.50
ALARM & THERMOM.	205.00	10	10	2.05	.87	.00	.18	.00	3.11	.00	.00	.00	3.11
HOLDING POND	500.00	20	1	25.00	21.25	1.50	.00	.00	47.75	50.00	.00	50.00	97.75
IRRIGATION SYSTEM	2,150.00	25	1	86.00	91.38	6.45	.00	.00	183.83	30.00	.00	30.00	213.83

APPENDIX II

Detailed Cost and Production

Practice Information for

Establishing and Producing Self-Pollinating

Sweet Cherries on Size-Controlling Rootstock

TABLE 14. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING A HIGH DENSITY (272 TREES) SWEET CHERRY ORCHARD USING SIZE-CONTROLLING ROOTSTOCK, CENTRAL WASHINGTON - YEAR 1

VARIABLE COST													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS					TOTAL VARIABLE COST	TOTAL COST
							LABOR	SERVICE	MATER.	INTER.			
						\$	\$	\$	\$	\$	\$	\$	\$
SOIL SAMPLE	CUSTOM HIRE	FALL	0	.00	.00	.00	.00	.00	12.00	.00	.94	12.94	12.94
RIP GROUND	CUSTOM HIRE	FALL	0	.00	.00	.00	.00	.00	110.00	.00	8.57	118.57	118.57
FUMIGATE	PORTABLE HANDLINES (LABOR, ETC.)	FALL	0	.00	.00	.00	.00	.00	70.00	304.50	29.18	403.68	403.68
BROADCAST FERT.	70HP-WT, RENTED SPREADER	FALL	0	.50	.60	1.96	2.98	7.20	5.00	73.65	6.92	95.75	97.71
DISK	70HP-WT, 9'DISK	FALL	0	.50	.55	14.03	5.38	6.60	.00	.00	.93	12.91	26.95
DISK	70HP-WT, 9'DISK	FEB	1	.50	.55	14.03	5.38	6.60	.00	.00	.68	12.66	26.69
LAYOUT & STAKE	70HP-WT, MARKER	FEB	1	.25	.50	.98	1.49	5.40	.00	2.00	.50	9.39	10.37
PLANT TREES	CUSTOM HIRE	FEB	1	.00	.00	.00	.00	.00	108.80	2720.00	160.30	2989.10	2989.10
IRRIGATE (40 IN)	DUAL IRRIGATION SYSTEM	SEA	1	.00	10.00	308.53	70.00	120.00	150.00	.00	14.45	354.45	662.98
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	APR	1	.40	.48	2.41	4.59	5.76	.00	28.59	1.65	40.58	42.99
PAINT/SUCKER REM	(INCL. TRAINING) HAND LABOR	MAY	1	.00	5.00	.00	.00	45.00	.00	5.10	1.77	51.87	51.87
APPLY NITROGEN	THROUGH IRRIGATION SYSTEM	APR-JUN	1	.00	.00	.00	.00	.00	10.00	16.50	.94	27.44	27.44
DISK	70HP-WT, 9' DISK	JUN	1	.50	.55	14.03	5.38	6.60	.00	.00	.34	12.32	26.36
APPLY HERBICIDE	70HP-WT, 100 GAL. SPRAYER	JUN	1	.40	.48	2.41	4.59	5.76	.00	10.15	.58	21.07	23.48
WEED AROUND TREE	HAND LABOR	JUL	1	.00	3.00	.00	.00	27.00	.00	.00	.57	27.57	27.57
DISK	70HP-WT, 9' DISK	AUG	1	.50	.55	14.03	5.38	6.60	.00	.00	.17	12.15	26.19
ROTOTILL	70HP-WT, 6' ROTOTILLER	AUG	1	1.00	1.10	17.11	7.06	13.20	.00	.00	.29	20.55	37.66
PLANT COVER CROP	70HP-WT, RENTED GRASS SEEDER	SEP	1	.50	.60	1.96	2.98	7.20	10.00	26.25	.33	46.76	48.72
APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	1	.40	.48	2.41	4.59	5.76	.00	19.79	.00	30.13	32.54
GOPHER CONTROL	HAND LABOR	ANN	1	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42
MOUSE CONTROL	APPLICATION AND MATERIAL COSTS	ANN	1	.00	.00	.00	.00	.00	15.00	.00	.64	15.64	15.64
MISC USE	MANAGEMENT PICKUP	ANN	1	5.00	5.50	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09
MISC USE	CREW PICKUP	ANN	1	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60
MISC USE	4-WHEEL ATV	ANN	1	5.00	5.50	11.81	9.68	66.00	.00	.00	3.22	78.90	90.71
MISC USE	MACHINE SHED AND SHOP	ANN	1	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71
MISC USE	SHOP TOOLS	ANN	1	.00	.00	18.18	.00	.00	.00	.00	.00	.00	18.18
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	1	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25
TAXES	LAND	ANN	1	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00
LAND COST	INTEREST ON LAND	ANN	1	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00
TOTAL PER ACRE				22.95	45.44	984.03	222.54	569.68	990.80	3207.15	268.19	5258.36	6242.39

**TABLE 15. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY
OPERATION, SIZE-CONTROLLING ROOTSTOCK - YEAR 1.**

Month	Operation	Material and/or Service
Fall	Soil Sample	Custom Hire @ \$12/Acre
Fall	Rip Ground	Custom Hire @ \$110/Acre
Fall	Fumigate	70 Gal. Vapam @ \$4.35/Gal. Portable Handlines & Labor @ \$70/Acre
Fall	Broadcast Fertilizer	Rented Spreader @ \$5.00/Acre 120 Lbs. Nitrogen @ \$0.55/Lb. 15 Lbs. Borate 46 @ \$0.51/Lb.
Feb.	Layout & Stake	20 Stakes @ \$0.10/Stake
Feb.	Plant Trees (includes heading the tree)	Custom Hire @ \$0.40/Tree 272 Trees @ \$10.00/Tree
Sea.	Irrigate	Irrigation/Electrical Charge @ \$150/Acre
Apr.	Apply Herbicide	0.6 Gal. Prowl @ \$30.74/Gal. 2 Pts. Gramoxone @ \$4.40/Pt. 0.5 Pt. LI-700 @ \$2.69/Pt.
May	Paint Trees & Sucker Removal	0.6 Gal. Paint @ \$8.50/Gal.
Apr. – June	Fertigate	30 Lbs. Nitrogen @ \$0.55 Lb.
June	Apply Herbicide	2 Pts. Gramoxone @ \$4.40/Pt. 0.5 Pt. LI-700 @ \$2.69/Pt.
Sept.	Plant Cover Crop	Rented Grass Seeder @ \$10/Acre 15 Lbs. Companion Grass Seed @ \$1.75/Lb.
Oct.	Apply Herbicide	0.6 Gal. Prowl @ \$30.74/Gal. 0.5 Pt. LI-700 @ \$2.69/Pt.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Mouse Control	Application & Material Cost @ \$15Acre
Ann.	Overhead	\$500/Acre

TABLE 16. ITEMIZED COST PER ACRE ESTABLISHING A HIGH DENSITY
(272 TREES) SWEET CHERRY ORCHARD USING SIZE-CONTROLLING
ROOTSTOCK, CENTRAL WASHINGTON - YEAR 1.

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
SOIL SAMPLE	ACRE	12.00	1.00	12.00	_____
CUSTOM RIPPING	ACRE	110.00	1.00	110.00	_____
STAKES	STAK	.10	20.00	2.00	_____
PLANT TREES	TREE	.40	272.00	108.80	_____
TREES	TREE	10.00	272.00	2720.00	_____
VAPAM	GAL.	4.35	70.00	304.50	_____
PROWL 3.3	GAL.	30.74	1.20	36.88	_____
GRAMOXONE	PINT	4.40	4.00	17.60	_____
LI-700	PINT	2.69	1.50	4.04	_____
NITROGEN-ACTUAL	LB.	.55	150.00	82.50	_____
BORATE-46 15.0%	LB.	.51	15.00	7.65	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
COMPANION SEED	LB.	1.75	15.00	26.25	_____
MOUSE CONTROL	ACRE	15.00	1.00	15.00	_____
PAINT	GAL.	8.50	.60	5.10	_____
PORTABLE HANDLINE	ACRE	70.00	1.00	70.00	_____
INJECTOR PUMP	ACRE	10.00	1.00	10.00	_____
RENTED GRASS SEEDER	ACRE	10.00	1.00	10.00	_____
RENTAL FERT. SPREADER	ACRE	5.00	1.00	5.00	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
CASUAL LABOR	HOURL	9.00	10.20	91.80	_____
FULLTIME LABOE	HOURL	12.00	29.74	356.88	_____
SUPERVISOR LABOR	HOURL	22.00	5.50	121.00	_____
MACHINERY REPAIRS	ACRE	115.23	1.00	115.23	_____
MACHINE FUEL/LUBE	ACRE	107.31	1.00	107.31	_____
INTEREST ON OP. CAP.	ACRE	268.19	1.00	268.19	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				5258.36	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	279.54	1.00	279.54	_____
MACHINE INTEREST*	ACRE	231.69	1.00	222.69	_____
MACHINE INSURANCE*	ACRE	16.29	1.00	16.29	_____
MACHINE TAXES*	ACRE	20.52	1.00	20.52	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____
INTEREST ON LAND	ACRE	336.00	1.00	336.00	_____

TOTAL FIXED COST				984.03	_____
TOTAL COST				6242.39	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

TABLE 17. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING A HIGH DENSITY (272 TREES) CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK IN CENTRAL WASHINGTON - YEAR 2

VARIABLE COST													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL, LUBE, & REPAIRS					TOTAL	TOTAL COST
						FIXED COST	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST		
						\$	\$	\$	\$	\$	\$	\$	\$
FERTILIZE	70HP-WT, FERTILIZER SPREADER	FALL	1	.50	.55	4.60	3.83	6.60	.00	27.50	2.96	40.89	45.48
SPRAY	70HP-WT, BLAST SPRAYER	FALL	1	.33	.40	5.04	4.28	4.80	.00	5.09	1.10	15.27	20.31
REPLANT 6 TREES	70HP-WT, BACKFORK	FEB	2	1.35	1.50	5.49	8.25	18.00	.00	60.00	4.89	91.13	96.63
BRANCH PROMOTION	HAND LABOR	FEB	2	.00	23.00	.00	.00	207.00	.00	.00	11.73	218.73	218.73
TREE TRAINING	HAND LABOR, PROMALIN	MAR	2	.00	22.00	.00	.00	198.00	.00	75.00	13.54	286.54	286.54
IRRIGATE (40 IN)	DUAL IRRIGATION SYSTEM	SEA	2	.00	10.00	308.53	70.00	120.00	150.00	.00	14.45	354.45	662.98
APPLY NITROGEN	THROUGH IRRIGATION SYSTEM	APR-JUN	2	.00	.00	.00	.00	.00	10.00	16.50	.94	27.44	27.44
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	MAY	2	.67	.74	5.96	5.60	8.88	.00	.00	.51	15.00	20.96
MILDEW SPRAY	70HP-WT, BLAST SPRAYER	MAY	2	.33	.40	5.04	4.28	4.80	.00	7.20	.58	16.86	21.89
SEL & REM SHOOTS	HAND LABOR AND PRUNING TOOLS	MAY	2	.00	5.00	.76	.00	45.00	.00	.00	1.59	46.59	47.35
APPLY HERBICIDE	70HP-WT, 100 GAL. SPRAYER	JUN	2	.40	.48	2.41	4.59	5.76	.00	9.94	.57	20.86	23.26
MILDEW SPRAY	70HP-WT, BLAST SPRAYER	JUN	2	.33	.40	5.04	4.28	4.80	.00	20.00	.82	29.90	34.94
MOW ORCHARD	70HP-WT, 9' MOWER	JUL	2	.67	.74	5.96	5.60	8.88	.00	.00	.31	14.79	20.75
TREE TRAINING	HAND LABOR, CLIPS & STRING	JUL	2	.00	20.00	.00	.00	180.00	.00	45.00	4.78	229.78	229.78
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	AUG	2	.67	.74	5.96	5.60	8.88	.00	.00	.21	14.69	20.65
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	AUG	2	.40	.48	2.41	4.59	5.76	.00	9.94	.29	20.57	22.98
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	OCT	2	.67	.74	5.96	5.60	8.88	.00	.00	.00	14.48	20.44
APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	2	.40	.48	2.41	4.59	5.76	.00	22.23	.00	32.58	34.98
GOPHER CONTROL	HAND LABOR	ANN	2	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42
MOUSE CONTROL	APPLICATION & MATERIAL COST	ANN	2	.00	.00	.00	.00	.00	15.00	.00	.64	15.64	15.64
MISC USE	MANAGEMENT PICKUP	ANN	2	5.00	5.50	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09
MISC USE	CREW PICKUP	ANN	2	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60
MISC USE	4-WHEEL ATV	ANN	2	5.70	.00	13.46	11.04	.00	.00	.00	.47	11.51	24.97
MISC USE	MACHINE SHED AND SHOP	ANN	2	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71
MISC USE	SHOP TOOLS	ANN	2	.00	.00	18.18	.00	.00	.00	.00	.00	.00	18.18
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	2	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25
TAXES	LAND	ANN	2	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00
LAND COST	INTEREST ON LAND	ANN	2	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00
INTEREST COST	INTEREST ON 1ST YR ESTAB COST	ANN	2	.00	.00	530.57	.00	.00	.00	.00	.00	.00	530.57
TOTAL PER ACRE				24.93	103.15	1487.92	235.18	1076.80	675.00	299.03	95.59	2381.60	3869.52

**TABLE 18. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY
OPERATION, SIZE-CONTROLLING ROOTSTOCK - YEAR 2.**

Month	Operation	Material and/or Service
Fall	Broadcast Fertilizer	50 Lbs. Nitrogen @ \$0.55/Lb.
Fall	Spray	3 Lbs. Copper Sulfate @ \$1.40/Lb. 0.25 Pint Nu-Film @ \$3.55/Pt.
Feb.	Replant 6 Trees	6 Trees @ \$10.00/Tree
Mar.	Tree Training	Promalin @ \$75/Acre
Apr. – June	Fertigate	30 Lbs. Nitrogen @ \$0.55/Lb.
Sea.	Irrigate	Irrigation/Electrical Charge @ \$150/Acre
May	Mildew Spray	10 Lbs. Wettable Sulfur @ \$0.72/Lb.
June	Apply Herbicide	1.0 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
June	Mildew Spray	8.0 Ozs. Procure @ \$2.50/Oz.
July	Tree Training	Clips & String @ \$45/Acre
Aug.	Apply Herbicide	1.0 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
Oct.	Apply Herbicide	1.0 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz. 0.4 Gal. Prowl @ \$30.74/Gal.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Mouse Control	Application & Material Cost @ \$15/Acre
Ann.	Overhead	\$500/Acre

TABLE 19. ITEMIZED COST PER ACRE FOR ESTABLISHING A HIGH DENSITY
(272 TREES) CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK
IN CENTRAL WASHINGTON - YEAR 2

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
TREES	TREE	10.00	6.00	60.00	_____
NITROGEN-ACTUAL	LB.	.55	80.00	44.00	_____
COPPER SULFATE	LB.	1.40	3.00	4.20	_____
NU-FILM	PINT	3.55	.25	.89	_____
PROMALIN	ACRE	75.00	1.00	75.00	_____
WETTABLE SULFUR	LB.	.72	10.00	7.20	_____
PROCURE	OZ.	2.50	8.00	20.00	_____
ROUNDUP ORIGINAL MAX	QT.	9.09	3.00	27.27	_____
SURFACTANT	OZ.	.11	24.00	2.55	_____
PROWL 3.3	GAL.	30.74	.40	12.30	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
MOUSE CONTROL	ACRE	15.00	1.00	15.00	_____
CLIPS & STRING	ACRE	45.00	1.00	45.00	_____
INJECTOR PUMP	ACRE	10.00	1.00	10.00	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
SUPERVISOR LABOR	HOURL	22.00	5.50	121.00	_____
FULLTIME LABOR	HOURL	12.00	25.65	307.80	_____
CASUAL LABOR	HOURL	9.00	72.00	648.00	_____
MACHINERY REPAIRS	ACRE	121.28	1.00	121.28	_____
MACHINE FUEL/LUBE	ACRE	113.89	1.00	113.89	_____
INTEREST ON OP. CAP.	ACRE	95.59	1.00	95.59	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				2381.60	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	268.78	1.00	268.78	_____
MACHINE INTEREST*	ACRE	219.28	1.00	219.28	_____
MACHINE INSURANCE*	ACRE	15.42	1.00	15.42	_____
MACHINE TAXES*	ACRE	17.89	1.00	17.89	_____
INTEREST ON LAND	ACRE	336.00	1.00	336.00	_____
INTER. ON ESTAB. COST	ACRE	530.57	1.00	530.57	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____

TOTAL FIXED COST				1487.92	_____
TOTAL COST				3869.52	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

TABLE 20. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING A HIGH DENSITY (272 TREES) CHERRY ORCHARD ON SIZE-
CONTROLLING ROOTSTOCK IN CENTRAL WASHINGTON - YEAR 3

VARIABLE COST													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST						TOTAL VARIABLE COST	TOTAL COST
							FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.		
FERTILIZE	70HP-WT, FERTILIZER SPREADER	FALL	2	.50	.55	\$ 4.60	\$ 3.83	\$ 6.60	\$.00	\$ 27.50	\$ 2.96	\$ 40.89	\$ 45.48
SPRAY	70HP-WT, BLAST SPRAYER	FALL	2	.33	.40	5.04	4.28	4.80	.00	10.17	1.50	20.75	25.79
REPLANT 4 TREES	70HP-WT, BACKFORK	FEB	3	1.00	1.10	4.07	6.11	13.20	.00	40.00	3.36	62.67	66.74
BRANCH PROMOTION	HAND LABOR	FEB	3	.00	46.00	.00	.00	414.00	.00	.00	23.46	437.46	437.46
TREE TRAINING	HAND LABOR, PROMALIN	MAR	3	.00	16.67	.00	.00	150.03	.00	50.00	9.92	209.95	209.95
FROST CONTROL	WIND MACHINE	APR	3	1.00	4.00	233.33	143.50	88.00	.00	.00	9.84	241.34	474.66
FROST CONT/IRRIG	DUAL IRRIGATION SYSTEM	SEA	3	.00	10.00	393.58	120.00	120.00	150.00	.00	16.58	406.58	800.16
PETAL SPRAY	70HP-WT, BLAST SPRAYER	APR	3	.33	.40	4.99	4.24	4.80	.00	10.20	.82	20.05	25.04
RENT BEE HIVES	ONE HIVE PER ACRE	APR	3	.00	.00	.00	.00	.00	45.00	.00	1.91	46.91	46.91
APPLY NITROGEN	THROUGH IRRIGATION SYSTEM	APR-JUN	3	.00	.00	.00	.00	.00	10.00	16.50	.94	27.44	27.44
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	MAY	3	.67	.74	5.96	5.60	8.88	.00	.00	.51	15.00	20.96
PAINT/REM SHOOTS	HAND LABOR, PAINT & PRUNE TOOL	MAY	3	.00	5.50	.76	.00	49.50	.00	13.60	2.23	65.33	66.10
MILDEW/FRT FLY	70HP-WT, BLAST SPRAYER	MAY	3	.33	.40	4.99	4.24	4.80	.00	21.00	1.06	31.10	36.09
GA SPRAY	70HP-WT, BLAST SPRAYER	MAY	3	.33	.40	4.99	4.24	4.80	.00	33.26	1.50	43.79	48.78
APPLY HERBICIDE	70HP-WT, 100 GAL. SPRAYER	JUN	3	.40	.48	2.41	4.59	5.76	.00	9.94	.57	20.86	23.26
MILDEW/FRUIT FLY	70HP-WT, BLAST SPRAYER	JUN	3	.33	.40	4.99	4.24	4.80	.00	29.66	1.10	39.79	44.77
DRY CHERRIES	HELICOPTER	JUN	3	.00	.00	.00	.00	.00	120.00	.00	3.40	123.40	123.40
FRT FLY SPRAY	ATV W/SPRAYER	JUN	3	.20	.24	.89	.39	2.88	.00	12.15	.44	15.85	16.74
MOW ORCHARD	70HP-WT, 9' MOWER	JUN	3	.67	.74	5.96	5.60	8.88	.00	.00	.41	14.89	20.85
FRUIT FLY SPRAY	ATV W/SPRAYER	JUL	3	.20	.24	.89	.39	2.88	.00	12.15	.33	15.74	16.63
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	JUL	3	.40	.48	2.41	4.59	5.76	.00	9.94	.43	20.71	23.12
HARVEST	PICKING (1.5 TONS PER ACRE)	JUL	3	.00	.00	9.15	2.63	.00	675.00	.00	14.40	692.02	701.17
HARVEST	70HP-WT, BIN TRAILER	JUL	3	1.28	3.06	7.09	8.44	36.72	.00	.00	.96	46.12	53.21
HARVEST	SUPERVISION & CHECKING	JUL	3	.00	2.70	.00	.00	32.40	.00	.00	.69	33.09	33.09
HARVEST	FORKLIFT	JUL	3	1.28	1.53	16.72	9.66	18.36	.00	.00	.60	28.62	45.33
HARVEST	CUSTOM HAUL TO WAREHOUSE	JUL	3	.00	.00	.00	.00	.00	18.00	.00	.38	18.38	18.38
MILDEW SPRAY 2X	70HP-WT, BLAST SPRAYER	JUL	3	.67	.80	10.12	8.60	9.60	.00	18.00	.77	36.97	47.09
TREE TRAINING	HAND LABOR, CLIPS & STRING	JUL	3	.00	35.00	.00	.00	315.00	.00	45.00	7.65	367.65	367.65
CLEAN-UP SPRAY	70HP-WT, BLAST SPRAYER	JUL	3	.33	.40	4.99	4.24	4.80	.00	1.26	.22	10.52	15.50
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	AUG	3	.67	.74	5.96	5.60	8.88	.00	.00	.21	14.69	20.65
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	SEP	3	.67	.74	5.96	5.60	8.88	.00	.00	.10	14.59	20.55
MILDEW SPRAY	70HP-WT BLAST SPRAYER	OCT	3	.33	.40	4.99	4.24	4.80	.00	17.28	.00	26.32	31.30
APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	3	.40	.48	2.41	4.59	5.76	.00	22.23	.00	32.58	34.98
GOPHER CONTROL	HAND LABOR	ANN	3	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42
MOUSE CONTROL	APPLICATION & MATERIAL COST	ANN	3	.00	.00	.00	.00	.00	15.00	.00	.64	15.64	15.64
MISC USE	MANAGEMENT PICKUP	ANN	3	5.00	5.50	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09
MISC USE	CREW PICKUP	ANN	3	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60
MISC USE	4-WHEEL ATV	ANN	3	5.00	5.50	11.81	9.68	66.00	.00	.00	3.22	78.90	90.71
MISC USE	MACHINE SHED AND SHOP	ANN	3	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71
MISC USE	SHOP TOOLS	ANN	3	.00	.00	18.18	.00	.00	.00	.00	.00	.00	18.18
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	3	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25
TAXES	LAND	ANN	3	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00
LAND COST	INTEREST ON LAND	ANN	3	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00
INTEREST COST	INTEREST ON ESTABLISHMET COST	ANN	3	.00	.00	859.52	.00	.00	.00	.00	.00	.00	859.52
TOTAL PER ACRE				29.82	155.59	2196.87	472.15	1646.54	1633.03	400.46	148.30	4200.49	6397.36

**TABLE 21. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY
OPERATION, SIZE-CONTROLLING ROOTSTOCK - YEAR 3.**

Month	Operation	Material and/or Service
Fall	Broadcast Fertilizer	50 Lbs. Nitrogen @ \$0.55/Lb.
Fall	Spray	6 Lbs. Copper Sulfate @ \$1.40/Lb. 0.5 Pint Nu-Film @ \$3.55/Lb.
Feb.	Replant 4 Trees	4 Trees @ \$10.00/Tree
Mar.	Tree Training	Promalin @ \$50/Acre
Sea.	Irrigate	Irrigation/Electrical Charge @ \$150/Acre
Apr. – June	Fertigate	30 Lbs. Nitrogen @ \$0.55/Lb.
Apr.	Petal Fall Spray	5 Lbs. Solubor @ \$.60/Lb. 10 Lbs. Wettable Sulfur @ \$.72/Lb.
Apr.	Rent Beehive	1 Beehive @ \$45.00/Hive
May	GA Spray	14 Ozs. ProGibb 4% @ \$1.50/Oz.
May	Paint Trees & Sucker Removal	1.6 Gals. Paint @ \$8.50/Gal.
May	Fruit Fly/Mildew Spray	4.5 Ozs. Provado @ \$2.39/Oz. 9.0 Ozs. Procure @ \$2.50/Oz.
June	Apply Herbicide	1.0 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
June	Fruit Fly/Mildew Spray	5.25 Ozs. Quintec @ \$3.74/Oz. 3.0 Pints Sevin 4F @ \$3.34/Pint
June	Dry Cherries	Helicopter @ \$120/acre
June	Fruit Fly Spray	15 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Fruit Fly Spray	15 Ozs. GF-120 NF Bait @ \$0.81/Oz
July	Apply Herbicide	1.0 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
July	Harvest	Pick 1.5 Tons of Fruit @ \$0.225/Lb.
July	Harvest	Haul 1.5 Tons of Fruit @ \$12/Ton

TABLE 21. CONTINUED - YEAR 3.

Month	Operation	Material and/or Service
July	Mildew Spray (2X)	2.0 Gal. Superior Oil ea. Spray @ \$4.50/Gal.
July	Tree Training	Clips & String @ \$45/Acre
July	Clean-up Spray	6 Oz. Sevin 4F @ \$0.21/Oz.
Oct.	Mildew Spray	6 Gal. of Lime & Sulfur @ \$2.88/Gal.
Oct.	Apply Herbicide	1.0 Qt. Roundup Original Max @ \$9.09/Q 0.4 Gal. Prowl @ \$30.74/Gal. 8.0 Ozs. Surfactant @ \$0.106/Oz.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Mouse Control	Application & Material Cost @ \$15/Acre
Ann.	Overhead	\$500/Acre

TABLE 22. ITEMIZED COST PER ACRE FOR ESTABLISHING A HIGH DENSITY
(272 TREES)CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK
IN CENTRAL WASHINGTON - YEAR 3

		PRICE OR		VALUE OR	YOUR
	UNIT	COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
TREES	TREE	10.00	4.00	40.00	_____
NITROGEN-ACTUAL	LB.	.55	80.00	44.00	_____
COPPER SULFATE	LB.	1.40	6.00	8.40	_____
NU-FILM	PINT	3.55	.50	1.77	_____
PROMALIN	ACRE	50.00	1.00	50.00	_____
PROVADO	OZ.	2.39	4.50	10.76	_____
PROCURE	OZ.	2.50	9.00	22.50	_____
PROGIBB 4%	OZ.	1.50	14.00	21.00	_____
SOLUBOR 25.5%	LB.	.60	5.00	3.00	_____
WETTABLE SULFUR	LB.	.72	10.00	7.20	_____
ROUNDUP ORIGINAL MAX	QT.	9.09	3.00	27.27	_____
SURFACTANT	OZ.	.11	24.00	2.55	_____
GF-120 NF BAIT	OZ.	.81	30.00	24.30	_____
QUINTEC	OZ.	3.74	5.25	19.64	_____
SEVIN 4F	PINT	3.34	3.00	10.02	_____
SEVIN 4F	OZ.	.21	6.00	1.26	_____
SUPERIOR OIL	GAL.	4.50	4.00	18.00	_____
LIME & SULFUR	GAL.	2.88	6.00	17.28	_____
PROWL 3.3	GAL.	30.74	.40	12.30	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
HELICOPTER DRYING	ACRE	120.00	1.00	120.00	_____
MOUSE CONTROL	ACRE	15.00	1.00	15.00	_____
RENT BEE HIVES	HIVE	45.00	1.00	45.00	_____
PAINT	GAL.	8.50	1.60	13.60	_____
INJECTOR PUMP	ACRE	10.00	1.00	10.00	_____
CUSTOM HAULING	TON	12.00	1.50	18.00	_____
CLIPS & STRING	ACRE	45.00	1.00	45.00	_____
PICK PIECE RATE	LB.	.23	3000.00	675.00	_____
CASUAL LABOR	HOURL	9.00	105.17	946.53	_____
FULLTIME LABOR	HOURL	12.00	40.92	491.04	_____
SUPERVISOR LABOR	HOURL	22.00	9.50	209.00	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
MACHINERY REPAIRS	ACRE	237.67	1.00	237.67	_____
MACHINE FUEL/LUBE	ACRE	234.47	1.00	234.47	_____
INTEREST ON OP. CAP.	ACRE	148.31	1.00	148.31	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				4200.49	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	416.08	1.00	416.08	_____
MACHINE INTEREST*	ACRE	400.77	1.00	400.77	_____
MACHINE INSURANCE*	ACRE	28.21	1.00	28.21	_____
MACHINE TAXES*	ACRE	56.29	1.00	56.29	_____
INTEREST ON LAND	ACRE	336.00	1.00	336.00	_____
ESTAB COST INTEREST	ACRE	.09	10112.00	859.52	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____

TOTAL FIXED COST				2196.87	_____
TOTAL COST				6397.36	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

TABLE 23. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE ESTABLISHING A HIGH DENSITY (272 TREES) SWEET CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK IN CENTRAL WASHINGTON, YEAR 4.

		VARIABLE COST												
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.	TOTAL VARIABLE COST	TOTAL COST	
						\$	\$	\$	\$	\$	\$	\$	\$	
FALL SPRAY	70HP-WT, BLAST SPRAYER	FALL	3	.33	.40	4.99	4.24	4.80	.00	15.26	1.89	26.19	31.18	
FERTILIZE	70HP-WT, FERTILIZER SPREADER	FALL	3	.50	.55	4.60	3.83	6.60	.00	41.25	4.03	55.71	60.30	
PRUNE	HAND LABOR, PRUNING TOOLS	FEB	4	.00	20.00	3.04	.00	195.00	.00	.00	11.05	206.05	209.10	
REPLANT 3 TREES	70HP-WT, BACKFORK	FEB	4	.80	.88	3.25	4.89	10.56	.00	30.00	2.58	48.02	51.28	
TRAIN TREES	HAND LABOR, CLIPS & STRING	MAR	4	.00	30.00	.00	.00	288.00	.00	45.00	16.51	349.51	349.51	
DORMANT SPRAY	70HP-WT, BLAST SPRAYER	MAR	4	.33	.40	4.99	4.24	4.80	.00	38.15	2.34	49.53	54.51	
RENT BEE HIVES	ONE BEE HIVE PER ACRE	APR	4	.00	.00	.00	.00	.00	45.00	.00	1.91	46.91	46.91	
PETAL FALL SPRAY	70HP-WT, BLAST SPRAYER	APR	4	.33	.40	4.99	4.24	4.80	.00	10.20	.82	20.05	25.04	
FROST CONTROL	WIND MACHINE	APR	4	.00	4.00	233.33	143.50	88.00	.00	.00	9.84	241.34	474.66	
FROST CONT/IRRIG	DUAL IRRIGATION SYSTEM	SEA	4	.00	10.00	393.58	120.00	120.00	150.00	.00	16.58	406.58	800.16	
TRP/FT FLY/MILDW	70HP-WT, BLAST SPRAYER	MAY	4	.33	.40	4.99	4.24	4.80	.00	45.72	1.94	56.70	61.68	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	MAY	4	.67	.74	5.96	5.60	8.88	.00	.00	.51	15.00	20.96	
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	MAY	4	.40	.48	2.41	4.59	5.76	.00	9.94	.72	21.00	23.41	
TRP/FT FLY/MILDW	70HP-WT, BLAST SPRAYER	MAY	4	.33	.40	4.99	4.24	4.80	.00	45.72	1.94	56.70	61.68	
GA SPRAY	70HP-WT, BLAST SPRAYER	MAY	4	.33	.40	4.99	4.24	4.80	.00	21.00	1.06	31.10	36.09	
FRT FLY/MILDEW	70HP-WT, BLAST SPRAYER	JUN	4	.33	.40	4.99	4.24	4.80	.00	39.54	1.38	49.95	54.94	
DRY CHERRIES	HELICOPTER	JUN	4	.00	.00	.00	.00	.00	120.00	.00	3.40	123.40	123.40	
FRT FLY SPRAY	ATV W/SPRAYER	JUN	4	.20	.24	.89	.39	2.88	.00	16.20	.55	20.02	20.91	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	JUN	4	.67	.74	5.96	5.60	8.88	.00	.00	.41	14.89	20.85	
FRT FLY SPRAY	ATV W/SPRAYER	JUL	4	.20	.24	.89	.39	2.88	.00	16.20	.41	19.88	20.77	
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	JUL	4	.40	.48	2.41	4.59	5.76	.00	9.94	.43	20.71	23.12	
HARVEST	PICKING (5.5 TONS PER ACRE)	JUL	4	.00	.00	33.54	9.63	.00	2475.00	.00	52.80	2537.42	2570.96	
HARVEST	70HP-WT, BIN TRAILER	JUL	4	4.68	11.22	25.94	30.85	134.64	.00	.00	3.52	169.00	194.94	
HARVEST	SUPERVISION & CHECKING	JUL	4	.00	9.90	.00	.00	118.80	.00	.00	2.52	121.32	121.32	
HARVEST	FORKLIFT	JUL	4	4.68	5.61	61.12	35.32	67.32	.00	.00	2.18	104.83	165.95	
HARVEST	CUSTOM HAUL FRUIT TO WAREHOUSE	JUL	4	.00	.00	.00	.00	.00	66.00	.00	1.40	67.40	67.40	
MILDEW SPY (2X)	70HP-WT, BLAST SPRAYER	JUL	4	.67	.74	10.12	8.60	8.88	.00	18.00	.75	36.24	46.36	
CLEANUP SPRAY	70HP-WT, BLAST SPRAYER	JUL	4	.33	.40	4.99	4.24	4.80	.00	1.26	.22	10.52	15.50	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	AUG	4	.67	.74	5.96	5.60	8.88	.00	.00	.21	14.69	20.65	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	SEP	4	.67	.74	5.96	5.60	8.88	.00	.00	.10	14.59	20.55	
MILDEW SPRAY	70HP-WT, BLAST SPRAYER	OCT	4	.33	.40	4.99	4.24	4.80	.00	17.28	.00	26.32	31.30	
APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	4	.40	.48	2.41	4.59	5.76	.00	9.94	.00	20.28	22.69	
GOPHER CONTROL	HAND LABOR	ANN	4	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42	
MISC USE	MANAGEMENT PICKUP	ANN	4	5.00	5.50	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09	
MISC USE	CREW PICKUP	ANN	4	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60	
MISC USE	4-WHEEL ATV	ANN	4	5.00	5.50	11.81	9.68	66.00	.00	.00	3.22	78.90	90.71	
MISC USE	MACHINE SHED AND SHOP	ANN	4	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71	
MISC USE	SHOP TOOLS	ANN	4	.00	.00	18.18	.00	.00	.00	.00	.00	.00	18.18	
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	4	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25	
TAXES	LAND	ANN	4	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00	
INTEREST COST	INTEREST ON ESTABLISHMENT COST	ANN	4	.00	.00	1148.27	.00	.00	.00	.00	.00	.00	1148.27	
LAND COST	INTEREST ON LAND	ANN	4	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00	
TOTAL PER ACRE				56.08	122.38	2584.65	534.43	1305.56	3491.00	431.23	182.44	5944.65	8529.30	

**TABLE 24. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY
OPERATION, SIZE-CONTROLLING ROOTSTOCK - YEAR 4.**

Month	Operation	Material and/or Service
Fall	Spray	9 Lbs. Copper Sulfate @ \$1.40/Lb. .75 Pint Nu-Film @ \$3.55/Pt.
Fall	Broadcast Fertilizer	75 Lbs. Nitrogen @ \$0.55/Lb.
Feb.	Replant 3 Trees	3 Trees @ \$10.00/Tree
Mar.	Tree Training	Clips & String @ \$45/acre
Mar.	Dormant Spray	4 Gal. Superior Oil @ \$4.50/Gal. 4 Pt. Lorsban @ \$3.00/Pt. 1 Gal. Zinc Chelate @ \$8.15/Gal.
Apr.	Rent Beehive	1 Beehive @ \$45.00/Hive
Apr.	Petal Fall Spray	5 Lbs. Solubor @ \$0.60/Lb. 10 Lbs. Wettable Sulfur @ \$0.72/Lb.
Sea.	Irrigate	Irrigation/Electrical Charge @ \$150/Acre
May	Thrips/Frt Fly/Mildew Spray	6 Ozs. Success @ \$3.98/Oz. 12 Ozs. Pristine @ \$1.82/Oz.
May	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
May	Thrips/Frt Fly/Mildew Spray	6 Ozs. Success @ \$3.98/Oz. 12 Ozs. Pristine @ \$1.82/Oz.
May	GA Spray	14 Ozs. ProGibb 4% @ \$1.50/Oz.
June	Frt Fly/Mildew Spray	7 Ozs. Quintec @ \$3.74/Oz. 4 Pts. Sevin 4F @ \$3.34/Pt.
June	Dry Cherries	Helicopter @ \$120/Acre
June	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.

TABLE 24. CONTINUED – YEAR 4

Month	Operation	Material and/or Service
July	Harvest	Pick 5.5 Tons of Fruit @ \$.225/Lb.
July	Harvest	Haul 5.5 Tons of Fruit @ \$12/Ton
July	Mildew Spray (2X)	2 Gal. Superior Oil ea. Application @ \$4.50/Gal.
July	Clean-up Spray	6 Oz. Sevin 4F @ \$0.21/Oz.
Oct.	Mildew Spray	6 Gal. of Lime & Sulfur @ \$2.88/Gal.
Oct.	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Overhead	\$500/Acre

TABLE 25. ITEMIZED COST PER ACRE FOR ESTABLISHING A HIGH DENSITY
(272 TREES) SWEET CHERRY ORCHARD ON SIZE-CONTROLLING
ROOTSTOCK IN CENTRAL WASHINGTON, YEAR 4.

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
TREES	TREE	10.00	3.00	30.00	_____
NITROGEN-ACTUAL	LB.	.55	75.00	41.25	_____
COPPER SULFATE	LB.	1.40	9.00	12.60	_____
NU-FILM	PINT	3.55	.75	2.66	_____
SUPERIOR OIL	GAL.	4.50	8.00	36.00	_____
ZINC CHELATE	GAL.	8.15	1.00	8.15	_____
LORSBAN 4E	PINT	3.00	4.00	12.00	_____
SOLUBOR 25.5%	LB.	.60	5.00	3.00	_____
WETTABLE SULFUR	LB.	.72	10.00	7.20	_____
SUCCESS	OZ.	3.98	12.00	47.76	_____
PRISTINE	OZ.	1.82	24.00	43.68	_____
PROGIBB 4%	OZ.	1.50	14.00	21.00	_____
ROUNDUP ORIGINAL MAX	QT.	9.09	3.00	27.27	_____
SURFACTANT	OZ.	.11	24.00	2.55	_____
QUINTEC	OZ.	3.74	7.00	26.18	_____
SEVIN 4F	PINT	3.34	4.00	13.36	_____
SEVIN 4F	OZ.	.21	6.00	1.26	_____
GF-120 NF BAIT	OZ.	.81	40.00	32.40	_____
LIME & SULFUR	GAL.	2.88	6.00	17.28	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
RENT BEE HIVES	HIVE	45.00	1.00	45.00	_____
CLIPS & STRING	ACRE	45.00	1.00	45.00	_____
HELICOPTER DRYING	ACRE	120.00	1.00	120.00	_____
CASUAL LABOR	HOURL	9.00	41.00	369.00	_____
FULLTIME LABOR	HOURL	12.00	71.88	862.56	_____
SUPERVISOR LABOR	HOURL	22.00	9.50	209.00	_____
PICK PIECE RATE	LB.	.23	11000.00	2475.00	_____
CUSTOM HAULING	TON	12.00	5.50	66.00	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
MACHINERY REPAIRS	ACRE	270.12	1.00	270.12	_____
MACHINE FUEL/LUBE	ACRE	264.30	1.00	264.30	_____
INTEREST ON OP. CAP.	ACRE	182.44	1.00	182.44	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				5944.65	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	470.52	1.00	470.52	_____
MACHINE INTEREST*	ACRE	435.55	1.00	435.55	_____
MACHINE INSURANCE*	ACRE	30.66	1.00	30.66	_____
MACHINE TAXES*	ACRE	63.65	1.00	63.65	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____
INTEREST ON LAND	ACRE	336.00	1.00	336.00	_____
INTER.ON ESTAB. COST	ACRE	.09	13509.00	1148.27	_____

TOTAL FIXED COST				2584.65	_____

TOTAL COST				8529.30	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

TABLE 26. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR ESTABLISHING A HIGH DENSITY (272 TREES) SWEET CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK IN CENTRAL WASHINGTON - YEAR 5

	VARIABLE COST													
	OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS				TOTAL VARIABLE COST	TOTAL COST	
								LABOR	SERVICE	MATER.	INTER.			
							\$	\$	\$	\$	\$	\$	\$	
42	FALL SPRAY	70HP-WT, BLAST SPRAYER	FALL	4	.33	.40	4.99	4.24	4.80	.00	20.35	2.29	31.68	36.66
	FERTILIZE	70HP-WT, FERTILIZER SPREADER	FALL	4	.50	.55	4.60	3.83	6.60	.00	41.25	4.03	55.71	60.33
	PRUNE	HAND LABOR, PRUNING TOOLS	FEB	5	.00	38.00	5.79	.00	370.50	.00	.00	21.00	391.49	397.28
	BRUSH REMOVAL	70HP-WT, BRUSH WINDROWER	FEB	5	.50	.55	6.46	4.25	6.60	.00	.00	.62	11.47	17.93
	BRUSH REMOVAL	70HP-WT, 9' ROTARY MOWER	FEB	5	.50	.55	4.45	4.18	6.60	.00	.00	.61	11.39	15.84
	DORMANT SPRAY	70HP-WT, BLAST SPRAYER	MAR	5	.33	.40	4.99	4.24	4.80	.00	38.15	2.34	49.53	54.51
	CROP LOAD ADJMT.	THIN CROP BY VARIOUS METHODS	MAR-APR	5	.00	.00	.00	.00	.00	150.00	.00	6.38	156.37	156.37
	RENT BEE HIVES	TWO BEE HIVE PER ACRE	APR	5	.00	.00	.00	.00	.00	90.00	.00	3.83	93.83	93.83
	PETAL FALL SPRAY	70HP-WT, BLAST SPRAYER	APR	5	.33	.40	4.99	4.24	4.80	.00	10.20	.82	20.05	25.04
	FROST CONTROL	WIND MACHINE	APR	5	.00	4.00	233.33	143.50	88.00	.00	.00	9.84	241.34	474.66
	FROST CONT/IRRIG	DUAL IRRIGATION SYSTEM	SEA	5	.00	10.00	393.58	120.00	120.00	150.00	.00	16.58	406.58	800.16
	MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	MAY	5	.67	.74	5.96	5.60	8.88	.00	.00	.51	15.00	20.96
	TRP/FT FLY/MILDW	70HP-WT, BLAST SPRAYER	MAY	5	.33	.40	4.99	4.24	4.80	.00	45.72	1.94	56.70	61.68
	APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	MAY	5	.40	.48	2.41	4.59	5.76	.00	9.94	.72	21.00	23.41
	TRP/FT FLY/MILDW	70HP-WT, BLAST SPRAYER	MAY	5	.33	.40	4.99	4.24	4.80	.00	45.72	1.94	56.70	61.68
	GA SPRAY	70HP-WT, BLAST SPRAYER	MAY	5	.33	.40	4.99	4.24	4.80	.00	21.00	1.06	31.10	36.09
	FRT FLY/MILDEW	70HP-WT, BLAST SPRAYER	JUN	5	.33	.40	4.99	4.24	4.80	.00	39.54	1.38	49.95	54.94
	DRY CHERRIES	HELICOPTER	JUN	5	.00	.00	.00	.00	.00	120.00	.00	3.40	123.40	123.40
	FRT FLY SPRAY	ATV W/SPRAYER	JUN	5	.20	.24	.89	.39	2.88	.00	16.20	.55	20.02	20.91
	MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	JUN	5	.67	.74	5.96	5.60	8.88	.00	.00	.41	14.89	20.85
	FRT FLY SPRAY	ATV W/SPRAYER	JUL	5	.20	.24	.89	.39	2.88	.00	16.20	.41	19.88	20.77
	APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	JUL	5	.40	.48	2.41	4.59	5.76	.00	9.94	.43	20.71	23.12
	HARVEST	PICKING (7.5 TONS PER ACRE)	JUL	5	.00	.00	45.73	13.13	.00	3375.00	.00	72.00	3460.12	3505.85
	HARVEST	70HP-WT, BIN TRAILER	JUL	5	6.38	15.30	35.36	42.05	183.60	.00	.00	4.80	230.45	265.81
	HARVEST	SUPERVISION & CHECKING	JUL	5	.00	13.50	.00	.00	162.00	.00	.00	3.44	165.44	165.44
	HARVEST	FORKLIFT	JUL	5	6.38	7.65	83.33	48.16	91.80	.00	.00	2.97	142.93	226.26
	HARVEST	CUSTOM HAUL FRUIT TO WAREHOUSE	JUL	5	.00	.00	.00	.00	.00	90.00	.00	1.91	91.91	91.91
	MILDEW SPY (2X)	70HP-WT, BLAST SPRAYER	JUL	5	.67	.74	10.12	8.60	8.88	.00	18.00	.75	36.24	46.36
	CLEANUP SPRAY	70HP-WT, 100-GAL SPRAYER	JUL	5	.33	.40	4.99	4.24	4.80	.00	1.26	.22	10.52	15.50
	MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	AUG	5	.67	.74	5.96	5.60	8.88	.00	.00	.21	14.69	20.65
	MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	SEP	5	.67	.74	5.96	5.60	8.88	.00	.00	.10	14.59	20.55
	MILDEW SPRAY	70HP-WT, BLAST SPRAYER	OCT	5	.33	.40	4.99	4.24	4.80	.00	17.28	.00	26.32	31.30
	APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	5	.40	.48	2.41	4.59	5.76	.00	9.94	.00	20.28	22.69
	GOPHER CONTROL	HAND LABOR	ANN	5	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42
	MISC USE	MANAGEMENT PICKUP	ANN	5	5.00	5.50	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09
	MISC USE	CREW PICKUP	ANN	5	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60
MISC USE	4-WHEEL ATV	ANN	5	5.00	5.50	11.81	9.68	66.00	.00	.00	3.22	78.90	90.71	
MISC USE	MACHINE SHED AND SHOP	ANN	5	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71	
MISC USE	SHOP TOOLS	ANN	5	.00	.00	18.18	.00	.00	.00	.00	.00	.00	18.18	
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	5	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25	
TAXES	LAND	ANN	5	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00	
LAND COST	INTEREST ON LAND	ANN	5	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00	
INTEREST COST	INTEREST ON ESTABLISHMENT COST	ANN	5	.00	.00	938.23	.00	.00	.00	.00	.00	.00	938.23	
TOTAL PER ACRE					39.68	120.32	2428.84	565.51	1447.34	4475.00	361.31	205.90	7055.06	9483.90

TABLE 27. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY OPERATION, SIZE-CONTROLLING ROOTSTOCK - YEAR 5.

Month	Operation	Material and/or Service
Fall	Spray	12 Lbs. Copper Sulfate @ \$1.40/Lb. 1.0 Pint Nu-Film @ \$3.55/Pt.
Fall	Broadcast Fertilizer	75 Lbs. Nitrogen @ \$0.55/Lb.
Mar.	Dormant Spray	4 Gal. Superior Oil @ \$4.50/Gal. 4 Pt. Lorsban @ \$3.00/Pt. 1 Gal. Zinc Chelate @ \$8.15/Gal.
Mar.	Crop Load Adjustment	Thinning, etc. @ \$150/Acre
Apr.	Rent Beehive	1 Beehive @ \$45.00/Hive
Apr.	Petal Fall Spray	5 Lbs. Solubor @ \$0.60/Lb. 10 Lbs. Wettable Sulfur @ \$0.72/Lb.
Sea.	Irrigate	Irrigation/Electrical Charge @ \$150/Acre
May	Thrips/Frt Fly/Mildew Spray	6 Ozs. Success @ \$3.98/Oz. 12 Ozs. Pristine @ \$1.82/Oz.
May	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$.106/Oz.
May	Thrips/Frt Fly/Mildew Spray	6 Ozs. Success @ \$3.98/Oz. 12 Ozs. Pristine @ \$1.82/Oz.
May	GA Spray	14 Ozs. ProGibb 4% @ \$1.50/Oz.
June	Frt Fly/Mildew Spray	7 Ozs. Quintec @ \$3.74/Oz. 4 Pts. Sevin 4F @ \$3.34/Pt.
June	Dry Cherries	Helicopter @ \$120/Acre
June	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$.81/Oz.
July	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$.81/Oz.
July	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$.106/Oz.

TABLE 27. CONTINUED – YEAR 5

Month	Operation	Material and/or Service
July	Harvest	Pick 7.5 Tons of Fruit @ \$.225/Lb.
July	Harvest	Haul 7.5 Tons of Fruit @ \$12/Ton
July	Mildew Spray (2X)	2 Gal. Superior Oil ea. Application @ \$4.50/Gal.
July	Clean-up Spray	6 Oz. Sevin 4F @ \$0.21/Oz.
Oct.	Mildew Spray	6 Gal. of Lime & Sulfur @ \$2.88/Gal.
Oct.	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Overhead	\$500/Acre

TABLE 28. ITEMIZED COST PER ACRE FOR ESTABLISHING A HIGH DENSITY
(272 TREES) SWEET CHERRY ORCHARD ON SIZE-CONTROLLING
ROOTSTOCK IN CENTRAL WASHINGTON - YEAR 5

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
NITROGEN-ACTUAL	LB.	.55	75.00	41.25	_____
COPPER SULFATE	LB.	1.40	12.00	16.80	_____
NU-FILM	PINT	3.55	1.00	3.55	_____
SUPERIOR OIL	GAL.	4.50	8.00	36.00	_____
ZINC CHELATE	GAL.	8.15	1.00	8.15	_____
LORSBAN 4E	PINT	3.00	4.00	12.00	_____
SOLUBOR 25.5%	LB.	.60	5.00	3.00	_____
WETTABLE SULFUR	LB.	.72	10.00	7.20	_____
SUCCESS	OZ.	3.98	12.00	47.76	_____
PRISTINE	OZ.	1.82	24.00	43.68	_____
PROGIBB 4%	OZ.	1.50	14.00	21.00	_____
ROUNDUP ORIGINAL MAX	QT.	9.09	3.00	27.27	_____
SURFACTANT	OZ.	.11	24.00	2.55	_____
GF-120 NF BAIT	OZ.	.81	40.00	32.40	_____
QUINTEC	OZ.	3.74	7.00	26.18	_____
SEVIN 4F	PINT	3.34	4.00	13.36	_____
SEVIN 4F	OZ.	.21	6.00	1.26	_____
LIME & SULFUR	GAL.	2.88	6.00	17.28	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
THINNING, ETC.	ACRE	150.00	1.00	150.00	_____
RENT BEE HIVES	HIVE	45.00	2.00	90.00	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
HELICOPTER DRYING	ACRE	120.00	1.00	120.00	_____
PICK PIECE RATE	LB.	.23	15000.00	3375.00	_____
CUSTOM HAULING	TON	12.00	7.50	90.00	_____
CASUAL LABOR	HOURL	9.00	30.50	274.50	_____
FULLTIME LABOR	HOURL	12.00	80.32	963.84	_____
SUPERVISOR LABOR	HOURL	22.00	9.50	209.00	_____
MACHINERY REPAIRS	ACRE	286.42	1.00	286.42	_____
MACHINE FUEL/LUBE	ACRE	279.09	1.00	279.09	_____
INTEREST ON OP. CAP.	ACRE	205.90	1.00	205.90	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				7055.06	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	500.92	1.00	500.92	_____
MACHINE INTEREST*	ACRE	454.12	1.00	454.12	_____
MACHINE INSURANCE*	ACRE	31.98	1.00	31.98	_____
MACHINE TAXES*	ACRE	67.59	1.00	67.59	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____
INTER. ON LAND	ACRE	336.00	1.00	336.00	_____
INTER. ON ESTAB. COST	ACRE	.09	11038.00	938.23	_____

TOTAL FIXED COST				2428.84	_____

TOTAL COST				9483.90	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

TABLE 29. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR A HIGH DENSITY (272 TREES) SWEET CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK IN CENTRAL WASHINGTON - MATURE YEARS

VARIABLE COST														
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST						TOTAL VARIABLE COST	TOTAL COST	
							FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.			
FALL SPRAY	70HP-WT, BLAST SPRAYER	FALL	5	.33	.40	4.99	4.24	4.80	.00	\$	20.35	2.29	31.68	36.66
FERTILIZE	70HP-WT, FERTILIZER SPREADER	FALL	5	.50	.55	4.60	3.83	6.60	.00	41.25	4.03	55.71	60.30	
PRUNE	HAND LABOR, PRUNING TOOLS	FEB	6	.00	38.00	5.79	.00	370.50	.00	.00	21.00	391.49	397.28	
BRUSH REMOVAL	70HP-WT, BRUSH WINDROWER	FEB	6	.50	.55	6.46	4.25	6.60	.00	.00	.62	11.47	17.93	
BRUSH REMOVAL	70HP-WT, 9' ROTARY MOWER	FEB	6	.50	.55	4.45	4.18	6.60	.00	.00	.61	11.39	15.84	
DORMANT SPRAY	70HP-WT, BLAST SPRAYER	MAR	6	.33	.40	4.99	4.24	4.80	.00	38.15	2.34	49.53	54.51	
CROP LOAD ADJMT.	THIN CROP BY VARIOUS METHODS	MAR-APR	6	.00	.00	.00	.00	.00	150.00	.00	6.38	156.37	156.37	
RENT BEE HIVES	TWO BEE HIVE PER ACRE	APR	6	.00	.00	.00	.00	.00	90.00	.00	3.83	93.83	93.83	
PETAL FALL SPRAY	70HP-WT, BLAST SPRAYER	APR	6	.33	.40	4.99	4.24	4.80	.00	10.20	.82	20.05	25.04	
FROST CONTROL	WIND MACHINE	APR	6	.00	4.00	233.33	143.50	88.00	.00	.00	9.84	241.34	474.66	
FROST CONT/IRRIG	DUAL IRRIGATION SYSTEM	SEA	6	.00	10.00	393.58	120.00	120.00	150.00	.00	16.58	406.58	800.16	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	MAY	6	.67	.74	5.96	5.60	8.88	.00	.00	.51	15.00	20.96	
TRP/FT FLY/MILDW	70HP-WT, BLAST SPRAYER	MAY	6	.33	.40	4.99	4.24	4.80	.00	45.72	1.94	56.70	61.68	
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	MAY	6	.40	.48	2.41	4.59	5.76	.00	9.94	.72	21.00	23.41	
TRP/FT FLY/MILDW	70HP-WT, BLAST SPRAYER	MAY	6	.33	.40	4.99	4.24	4.80	.00	45.72	1.94	56.70	61.68	
GA SPRAY	70HP-WT, BLAST SPRAYER	MAY	6	.33	.40	4.99	4.24	4.80	.00	21.00	1.06	31.10	36.09	
FRT FLY/MILDEW	70HP-WT, BLAST SPRAYER	JUN	6	.33	.40	4.99	4.24	4.80	.00	39.54	1.38	49.95	54.94	
DRY CHERRIES	HELICOPTER	JUN	6	.00	.00	.00	.00	.00	120.00	.00	3.40	123.40	123.40	
FRT FLY SPRAY	ATV W/SPRAYER	JUN	6	.20	.24	.89	.39	2.88	.00	16.20	.55	20.02	20.91	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	JUN	6	.67	.74	5.96	5.60	8.88	.00	.00	.41	14.89	20.85	
FRT FLY SPRAY	ATV W/SPRAYER	JUL	6	.20	.24	.89	.39	2.88	.00	16.20	.41	19.88	20.77	
APPLY HERBICIDE	70HP-WT, 100-GAL SPRAYER	JUL	6	.40	.48	2.41	4.59	5.76	.00	9.94	.43	20.71	23.12	
HARVEST	PICKING (9.0 TONS PER ACRE)	JUL	6	.00	.00	54.88	15.75	.00	4050.00	.00	86.40	4152.15	4207.02	
HARVEST	70HP-WT, BIN TRAILER	JUL	6	7.65	18.36	42.40	50.42	220.32	.00	.00	5.75	276.49	318.90	
HARVEST	SUPERVISION & CHECKING	JUL	6	.00	16.20	.00	.00	194.40	.00	.00	4.13	198.53	198.53	
HARVEST	FORKLIFT	JUL	6	7.65	9.18	99.91	57.74	110.16	.00	.00	3.57	171.47	271.38	
HARVEST	CUSTOM HAUL FRUIT TO WAREHOUSE	JUL	6	.00	.00	.00	.00	.00	108.00	.00	2.30	110.30	110.30	
MILDEW SPY (2X)	70HP-WT, BLAST SPRAYER	JUL	6	.67	.74	10.12	8.60	8.88	.00	18.00	.75	36.24	46.36	
CLEANUP SPRAY	70HP-WT, 100-GAL SPRAYER	JUL	6	.33	.40	4.99	4.24	4.80	.00	1.26	.22	10.52	15.50	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	AUG	6	.67	.74	5.96	5.60	8.88	.00	.00	.21	14.69	20.65	
MOW ORCHARD	70HP-WT, 9' ROTARY MOWER	SEP	6	.67	.74	5.96	5.60	8.88	.00	.00	.10	14.59	20.55	
MILDEW SPRAY	70HP-WT, BLAST SPRAYER	OCT	6	.33	.40	4.99	4.24	4.80	.00	17.28	.00	26.32	31.30	
APPLY HERBICIDE	70HP-WT, 100 GAL SPRAYER	OCT	6	.40	.48	2.41	4.59	5.76	.00	9.94	.00	20.28	22.69	
GOPHER CONTROL	HAND LABOR	ANN	6	.00	2.00	.00	.00	18.00	.00	.63	.79	19.42	19.42	
MISC USE	MANAGEMENT PICKUP	ANN	6	5.00	5.50	52.01	37.35	121.00	.00	.00	6.73	165.08	217.09	
MISC USE	CREW PICKUP	ANN	6	7.50	8.00	22.74	54.46	96.00	.00	.00	6.39	156.86	179.60	
MISC USE	4-WHEEL ATV	ANN	6	5.00	5.50	11.81	9.68	66.00	.00	.00	3.22	78.90	90.71	
MISC USE	MACHINE SHED AND SHOP	ANN	6	.00	.00	49.41	1.25	.00	.00	.00	.05	1.30	50.71	
MISC USE	SHOP TOOLS	ANN	6	.00	.00	18.18	.00	.00	.00	.00	.00	.00	18.18	
OVERHEAD	UTILITIES, LEGAL, ACCTNG, ETC.	ANN	6	.00	.00	.00	.00	.00	500.00	.00	21.25	521.25	521.25	
TAXES	LAND	ANN	6	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00	
LAND COST	INTEREST ON LAND	ANN	6	.00	.00	336.00	.00	.00	.00	.00	.00	.00	336.00	
AMORT ESTAB COST	AMORT ESTAB COST (20 YR, 8.5%)	ANN	6	.00	.00	451.28	.00	.00	.00	.00	.00	.00	451.28	
TOTAL PER ACRE				42.22	127.61	1974.65	586.09	1534.82	5168.00	361.31	222.92	7873.14	9847.79	

**TABLE 30. MATERIALS AND/OR SERVICES APPLIED PER ACRE BY
OPERATION, SIZE-CONTROLLING ROOTSTOCK – MATURE YEARS.**

Month	Operation	Material and/or Service
Fall	Spray	12 Lbs. Copper Sulfate @ \$1.40/Lb. 1.0 Pint Nu-Film @ \$3.55/Pt.
Fall	Broadcast Fertilizer	75 Lbs. Nitrogen @ \$0.55/Lb.
Mar.	Dormant Spray	4 Gal. Superior Oil @ \$4.50/Gal. 4 Pt. Lorsban @ \$3.00/Pt. 1 Gal. Zinc Chelate @ \$8.15/Gal.
Mar.	Crop Load Adjustment	Thinning, etc. @ \$150/Acre
Apr.	Rent Beehive	1 Beehive @ \$45.00/Hive
Apr.	Petal Fall Spray	5 Lbs. Solubor @ \$0.60/Lb. 10 Lbs. Wettable Sulfur @ \$.72/Lb.
Sea.	Irrigate	Irrigation/Electrical Charge @ \$150/Acre
May	Thrips/Frt Fly/Mildew Spray	6 Ozs. Success @ \$3.98/Oz. 12 Ozs. Pristine @ \$1.82/Oz.
May	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
May	Thrips/Frt Fly/Mildew Spray	6 Ozs. Success @ \$3.98/Oz. 12 Ozs. Pristine @ \$1.82/Oz.
May	GA Spray	14 Ozs. ProGibb 4% @ \$1.50/Oz.
June	Frt Fly/Mildew Spray	7 Ozs. Quintec @ \$3.74/Oz. 4 Pts. Sevin 4F @ \$3.34/Pt.
June	Dry Cherries	Helicopter @ \$120/Acre
June	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Fruit Fly Spray	20 Ozs. GF-120 NF Bait @ \$0.81/Oz.
July	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.

TABLE 30. CONTINUED - MATURE YEARS

Month	Operation	Material and/or Service
July	Harvest	Pick 9.0 Tons of Fruit @ \$0.225/Lb.
July	Harvest	Haul 9.0 Tons of Fruit @ \$12/Ton
July	Mildew Spray (2X)	2 Gal. Superior Oil ea. Application @ \$4.50/Gal.
July	Clean-up Spray	6 Oz. Sevin 4F @ \$0.21/Oz.
Oct.	Mildew Spray	6 Gal. of Lime & Sulfur @ \$2.88/Gal.
Oct.	Apply Herbicide	1 Qt. Roundup Original Max @ \$9.09/Qt. 8.0 Ozs. Surfactant @ \$0.106/Oz.
Ann.	Gopher Control	10 Tablets of Gastoxin @ \$0.063/Tablet
Ann.	Overhead	\$500/Acre

TABLE 31. ITEMIZED COST PER ACRE FOR A HIGH DENSITY (272 TREES)
SWEET CHERRY ORCHARD ON SIZE-CONTROLLING ROOTSTOCK IN
CENTRAL WASHINGTON - MATURE YEARS

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM

VARIABLE COSTS		\$		\$	
NITROGEN-ACTUAL	LB.	.55	75.00	41.25	_____
COPPER SULFATE	LB.	1.40	12.00	16.80	_____
NU-FILM	PINT	3.55	1.00	3.55	_____
SUPERIOR OIL	GAL.	4.50	8.00	36.00	_____
ZINC CHELATE	GAL.	8.15	1.00	8.15	_____
LORSBAN 4E	PINT	3.00	4.00	12.00	_____
SOLUBOR 25.5%	LB.	.60	5.00	3.00	_____
WETTABLE SULFUR	LB.	.72	10.00	7.20	_____
SUCCESS	OZ.	3.98	12.00	47.76	_____
PRISTINE	OZ.	1.82	24.00	43.68	_____
PROGIBB 4%	OZ.	1.50	14.00	21.00	_____
ROUNDUP ORIGINAL MAX	QT.	9.09	3.00	27.27	_____
SURFACTANT	OZ.	.11	24.00	2.55	_____
GF-120 NF BAIT	OZ.	.81	40.00	32.40	_____
QUINTEC	OZ.	3.74	7.00	26.18	_____
SEVIN 4F	PINT	3.34	4.00	13.36	_____
SEVIN 4F	OZ.	.21	6.00	1.26	_____
LIME & SULFUR	GAL.	2.88	6.00	17.28	_____
GASTOXIN	TAB.	.06	10.00	.63	_____
THINNING, ETC.	ACRE	150.00	1.00	150.00	_____
RENT BEE HIVES	HIVE	45.00	2.00	90.00	_____
IRRIG/ELECT CHARGE	ACRE	150.00	1.00	150.00	_____
HELICOPTER DRYING	ACRE	120.00	1.00	120.00	_____
CUSTOM HAULING	TON	12.00	9.00	108.00	_____
PICK PIECE RATE	LB.	.23	18000.00	4050.00	_____
CASUAL LABOR	HOURL	9.00	30.50	274.50	_____
FULLTIME LABOR	HOURL	12.00	87.61	1051.32	_____
SUPERVISOR LABOR	HOURL	22.00	9.50	209.00	_____
MACHINERY REPAIRS	ACRE	296.60	1.00	296.60	_____
MACHINE FUEL/LUBE	ACRE	289.50	1.00	289.50	_____
INTEREST ON OP. CAP.	ACRE	222.93	1.00	222.93	_____
OVERHEAD	ACRE	500.00	1.00	500.00	_____

TOTAL VARIABLE COST				7873.15	_____
FIXED COSTS		\$		\$	
MACHINE DEPRECIATION*	ACRE	518.78	1.00	518.78	_____
MACHINE INTEREST*	ACRE	465.74	1.00	465.74	_____
MACHINE INSURANCE*	ACRE	32.79	1.00	32.79	_____
MACHINE TAXES*	ACRE	70.04	1.00	70.04	_____
INTEREST ON LAND	ACRE	336.00	1.00	336.00	_____
LAND TAXES	ACRE	100.00	1.00	100.00	_____
AMORTIZED ESTB COST	ACRE	451.28	1.00	451.28	_____

TOTAL FIXED COST				1974.65	_____
TOTAL COST				9847.80	_____

*INCLUDES MACHINE SHED AND SHOP, SHOP TOOLS, AND IRRIGATION SYSTEM.

TABLE 32. MACHINERY AND BUILDING DATA FOR ESTABLISHING A SWEET CHERRY ORCHARD.

Machine Name	Purchase Price (\$)	Years of Use	Salvage Value (\$)	Annual Repair Cost (\$)	Annual Hours of Use	Gallons of Fuel Use Per Hour
70HP-Wheel Tract.	26,400	15	5,500	1,320	800	1.5 Diesel
4WD-ATV	6,600	10	1,650	165	400	.5 Gas
Pickup, Mgt.	27,500	8	11,000	550	400	2.0 Gas
Pickup, Crew	11,000	8	2,200	700	600	2.0 Gas
100 Gal. Sprayer	2,200	10	550	825	150	
400 Gal. Blast Sprayer	15,400	10	3,080	1,375	200	
ATV Spray Tank	300	5	0	0	35	
Fertilizer Spreader	2,200	15	220	85	50	
Forklift	16,500	15	3,300	550	150	1.5 Propane
Trailer	2,200	20	0	55	100	
Bin Trailer	3,850	10	550	220	350	
Backfork	220	20	0	20	150	
Brush Windrower	3,025	10	550	120	50	
6' Rototiller	5,500	15	550	55	50	
9' Disk	10,100	15	1,320	240	50	
9' Rotary Mower	5,000	10	550	360	150	
Long Hdl Chainsaw	770	2	0	330	100	.5 Gas
Reg. Chainsaw	330	2	0	150	100	.5 Gas
Pruning Tools	50	4	0	0	100	
Hand Saw	17	4	0	0	25	
Ladder	140	10	0	14	200	
Picking Equipment	35	3	0	0	100	
30 Lb. Lugs	3	5	0	0	10	
Machine Shed & Shop	45,000	30	0	100	80 acres	
Shop Tools	12,000	15	0	0	80 acres	
Wind Machine	24,000	25	4,500	400	40 hours 10 acres	10.0 Propane
Alarm & Thermometers	225	10	0	0	1 acre	
Irrigation System	2,500	25	0	50	1 acre	
Irrigation Drip Tubes	600	10	0	20	1 acre	
Holding Pond	900	25	0	50	1 acre	

TABLE 33. HOURLY AND PER ACRE MACHINERY COSTS FOR ESTABLISHING A HIGH DENSITY (272 TREES) SWEET CHERRY ORCHARD ON SIZE-
CONTROLLING ROOTSTOCK IN CENTRAL WASHINGTON

MACHINERY	PURCHASE PRICE	YEARS		ANNUAL HOURS	DEPREC- IATION	INTER- EST	INSUR- ANCE	TAXES	HOUSING	TOTAL FIXED COST	REPAIR	FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST
		TO	TRADE											
	\$													
70HP-WHEEL TRACTOR	26,400.00	15		800	1.74	1.69	.12	.36	.00	3.91	1.65	4.31	5.96	9.88
4-WHEEL ATV	6,600.00	10		400	1.24	.88	.06	.19	.00	2.36	.41	1.52	1.94	4.30
PICKUP, MANAGEMENT	27,500.00	8		400	5.16	4.09	.29	.87	.00	10.40	1.38	6.10	7.47	17.87
PICKUP, CREW	11,000.00	8		600	1.83	.94	.07	.20	.00	3.03	1.17	6.10	7.26	10.29
100 GAL SPRAYER	2,200.00	10		150	1.10	.78	.06	.17	.00	2.10	5.50	.00	5.50	7.60
PTO BLAST SPRAYER	15,400.00	10		200	6.16	3.93	.28	.83	.00	11.20	6.88	.00	6.88	18.07
ATV SPRAY TANK	300.00	5		35	1.71	.36	.00	.00	.00	2.08	.00	.00	.00	2.08
FERTILIZER SPREADER	2,200.00	15		50	2.64	2.06	.15	.44	.00	5.28	1.70	.00	1.70	6.98
FORKLIFT	16,500.00	15		150	5.87	5.61	.40	1.19	.00	13.06	3.67	.00	3.67	16.73
TRAILER	2,200.00	20		100	1.10	.94	.07	.20	.00	2.30	.55	.00	.55	2.85
BIN TRAILER	3,850.00	10		350	.94	.53	.04	.11	.00	1.63	.63	.00	.63	2.26
BACKFORK	220.00	20		150	.07	.06	.00	.01	.00	.15	.15	.00	.15	.30
BRUSH WINDROWER	3,025.00	10		50	4.95	3.04	.21	.64	.00	8.85	2.40	.00	2.40	11.25
6' ROTOTILLER	5,500.00	15		50	6.60	5.14	.36	1.09	.00	13.19	1.10	.00	1.10	14.29
9' DISK	10,100.00	15		50	11.71	9.71	.69	2.06	.00	24.15	4.80	.00	4.80	28.95
9' ROTARY MOWER	5,000.00	10		150	2.97	1.57	.11	.33	.00	4.98	2.40	.00	2.40	7.38
LONG HANDLE CHAINSAW	770.00	2		100	3.85	.33	.02	.07	.00	4.27	3.30	1.52	4.82	9.09
REGULAR CHAINSAW	330.00	2		100	1.65	.14	.01	.03	.00	1.83	1.50	1.52	3.02	4.85
PRUNING TOOLS	50.00	4		100	.13	.02	.00	.00	.00	.15	.00	.00	.00	.15
HAND SAW	17.00	4		25	.17	.00	.00	.00	.00	.17	.00	.00	.00	.17
LADDER	140.00	10		200	.07	.03	.00	.01	.00	.11	.07	.00	.07	.18
PICKING EQUIPMENT	35.00	3		100	.12	.01	.00	.00	.00	.14	.00	.00	.00	.14
30 LB. LUGS	3.00	5		10	.06	.00	.00	.00	.00	.06	.00	.00	.00	.06
				ACRES										
	\$			COVERED										
MACH SHED & SHOP	45,000.00	30		80	18.75	23.91	1.69	5.06	.00	49.41	1.25	.00	1.25	50.66
SHOP TOOLS	12,000.00	15		80	10.00	6.38	.45	1.35	.00	18.18	.00	.00	.00	18.18
WIND MACHINE	24,000.00	25		10	78.00	121.13	8.55	25.65	.00	233.33	40.00	103.50	143.50	376.83
ALARM & THERMOMETERS	225.00	10		10	2.25	.96	.00	.00	.00	3.21	.00	.00	.00	3.21
IRRIGATION SYSTEM	2,550.00	25		1	102.00	108.38	7.65	.00	.00	218.03	50.00	.00	50.00	268.03
DRIP TUBES	600.00	10		1	60.00	25.50	1.80	.00	.00	87.30	20.00	.00	20.00	107.30
HOLDING POND	900.00	25		1	36.00	38.25	2.70	8.10	.00	85.05	50.00	.00	50.00	135.05

Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

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