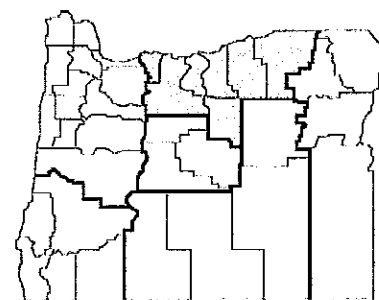


# Enterprise Budget

## Cherries, Sweet, Fresh Market, Standard Density, North Central Region

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**EM 8483, Revised March 2008**

This enterprise budget estimates the typical per-acre costs associated with standard density, fresh market sweet cherry production in Wasco County. It should be used as a guide to estimate actual costs and is not representative of any particular farm. The major assumptions used in constructing this budget are discussed below. An attempt has been made to report typical cultural practices used in standard density, fresh market sweet cherry production; however, this does not represent the only production method. Assistance provided by area producers and agribusinesses is greatly appreciated.

### Typical Farm

The typical sweet cherry orchard in Wasco County, as used in this budget, consists of 100 total productive acres. Bearing acres include 60 acres of mature, standard density, fresh market sweet cherries, 25 acres of high density, fresh market sweet cherries, 5 acres of mature, standard density, brine market sweet cherries, and approximately 10 percent, or 10 acres, of the orchard under establishment. It is assumed that this farm complies with the Integrated Fruit Production (IFP) program established by the Wasco County Fruit and Produce League. To review the IFP guidelines, please visit:  
[http://osu.orst.edu/dept/mcarec/ifp/ifp\\_guide\\_2000.html](http://osu.orst.edu/dept/mcarec/ifp/ifp_guide_2000.html).

### Land and Irrigation

This budget is based on 60 producing acres of standard-density, fresh market sweet cherries, with 136 trees per acre grafted onto Mazzard rootstock and planted on a 16- by 20-foot spacing. The trees are mature, ranging in age from 15 to 25 years. Average production is 12,000 pounds per acre at a gross price to the grower of \$.85 per pound. The land, with irrigation rights, is valued at \$5,000 per acre. Mature fruit trees and above ground improvements valued at \$5,000 per acre, with \$60 per acre property taxes. The sweet cherry orchard has a micro-irrigation system valued at \$1,000 per acre.

### Labor and Housing

General labor is hired at a rate of \$11.50 per hour; tractor drivers paid \$13 per hour, and harvest costs \$.25 per pound, all of which include worker's compensation, unemployment insurance, and other labor overhead expenses. Housing for summer labor is valued \$125,000 and has a productive life of 30 years. Each unit houses 5 people and there are 16 total units. Foreman housing is also provided year-round at no cost to the employee and is valued at \$600 per month. The foreman housing is treated as a non-cash opportunity cost to the owner. All labor and foreman housing charges are split equally across the 100 acres.

### Capital

Interest on operating capital (8.5 percent) is treated as a cash expense. One-half of the cash expenses are borrowed for a 6 month period. Interest on intermediate (8.5 percent) and long term capital (8 percent) is treated as a non-cash opportunity cost to the owner.

### Machinery and Equipment

The machinery and equipment used in the budget reflect the typical machinery complement of a 100-acre orchard in Wasco County. A detailed breakdown of machinery values is shown in Table 1. Estimated machinery costs are shown in Table 2. The machinery costs are estimated based on the total farm use of the machinery. Gasoline costs \$3.00 per gallon, and diesel costs \$3.30 per gallon. Table 3 shows the per acre labor, variable, and fixed costs for certain machinery operations in the orchard.

### Operations

The cultural operations are listed approximately in the order in which they are performed. A 70-hp tractor is used for shredding brush, mowing, flailing, and pulling the air-blast sprayer; it's also used during harvest. A 50-hp tractor is used to auger holes for new trees, spread fertilizer, spray weeds, apply gopher bait, and assist during harvest. An ATV is also used for weed spraying. Herbicides are applied to 30 percent of each acre as strips between trees.

### Other

An annual noncash fixed cost of \$1,866 is included to cover the expense of establishing the sweet cherry orchard. This charge is calculated based on the costs presented in *EM 8802, Orchard Economics: The Costs of Establishing and Producing High-Density and Standard-Density Sweet Cherries in Wasco County, March 2002*.

### Break even Analysis

Tables 4 and 5 show the returns per acre for cash and total costs at various yields and prices for a mature orchard. These returns do reflect the changes in harvesting costs with changes in yield. Refer to footnote below tables for interpretation of table contents.

**OREGON STATE UNIVERSITY**

**EXTENSION SERVICE**

**Full Production, Sweet Cherries, Standard Density, \$/acre economic costs and returns.**

<b>GROSS INCOME</b>	<b>Quantity</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>Total</b>	<b>Price/Lb</b>	<b>Your Income</b>
Sweet Cherries	12,000	Pounds	0.85	<u>10,200.00</u>	<u>0.85</u>	
<b>Total gross income</b>				<b>10,200.00</b>	<b>0.85</b>	

<b>VARIABLE CASH COSTS</b>	<b>Description</b>	<b>Labor</b>	<b>Machiney</b>	<b>Materials</b>	<b>Total</b>	<b>Cost/Lb</b>	<b>Your Cost</b>
Pruning trees	40.0 hours	\$460.00	\$0.00	\$0.00	\$460.00	\$0.038	
Tree Removal & Tree Replacement	1.0 hours	24.50	20.38	21.00	65.88	0.01	
Shredding Brush	1.0 x/acre	13.40	26.32	0.00	39.72	0.00	
Fertilizer (broadcast applied)	2.0 appl.	5.11	8.37	68.00	81.48	0.01	
Fertilizer (foliar applied)	1.0 x/acre	0.00	0.00	100.00	100.00	0.01	
Herbicide strip maintenance (.30x)	2.0 appl.	8.17	13.21	16.67	38.05	0.00	
ATV herbicide maintenance (.30x)	1.0 appl.	2.86	1.02	8.33	12.21	0.00	
Disease Control	5.0 appl.	33.51	87.58	120.00	241.09	0.02	
Insecticides, ground applied	1.0 appl.	6.70	17.52	127.50	151.72	0.01	
Insecticides, aerial applied	5.0 appl.	0.00	0.00	67.50	67.50	0.01	
Growth Regulators	1.0 x/acre	0.00	0.00	38.00	38.00	0.00	
Bee Rental	2.0 hives	0.00	0.00	72.00	72.00	0.01	
Mowing & Flailing Orchard Floor	4.0 times	44.42	87.48	0.00	131.89	0.01	
Rodent Control	1.0 hours	7.09	2.13	20.00	29.22	0.00	
Irrigation	3.5 hours	40.25	10.00	0.00	50.25	0.00	
Ladders, Pruning, & Picking Equip.	1.0 x/acre	0.00	18.38	0.00	18.38	0.00	
Harvesting Costs	6.0 hours	3,000.00	140.06	0.00	3,140.06	0.26	
Pickup, Truck & ATV	1.0 x/acre	0.00	106.16	0.00	106.16	0.01	
Housing Facilities	1.0 x/acre	0.00	0.00	33.02	33.02	0.00	
Miscellaneous and Overhead	1.0 x/acre	0.00	0.00	75.00	75.00	0.01	
Interest: Operating Capital	6.0 mons	<u>0.00</u>	<u>0.00</u>	<u>105.22</u>	<u>105.22</u>	<u>0.01</u>	
<b>Total variable costs</b>		<b>3,646.01</b>	<b>538.60</b>	<b>872.24</b>	<b>5,056.86</b>	<b>0.42</b>	

<b>FIXED CASH COSTS</b>	<b>Unit</b>	<b>Total</b>	<b>Cost/Lb</b>
Pickup, Truck & ATV Insurance	acre	20.57	0.00
Water Assessment	acre	175.00	0.01
Farm Foreman	acre	368.00	0.03
Helicopter - Remove water	acre	60.00	0.01
Property Insurance	acre	50.00	0.00
Property Taxes	acre	<u>60.00</u>	<u>0.01</u>
<b>Total cash costs</b>		<b>733.57</b>	<b>0.06</b>

<b>FIXED NON-CASH COSTS</b>	<b>Unit</b>	<b>Total</b>	<b>Cost/Lb</b>
Machinery and Equip. Insurance, Depreciation & Interest	acre	325.14	0.03
Pickup, Truck & ATV Depreciation & Interest	acre	58.51	0.00
Housing Facilities	acre	91.67	0.01
Land Interest Charge	acre	400.00	0.03
Amortized Establishment Costs*	acre	<u>1,865.63</u>	<u>0.16</u>
<b>Total non-cash costs</b>		<b>2,740.94</b>	<b>0.23</b>
<b>Total fixed costs</b>		<b>3,474.51</b>	<b>0.29</b>

<b>Total of all costs per acre</b>	<b>\$ 8,531.38</b>	<b>\$ 0.711</b>
<b>Net projected returns</b>	<b>\$ 1,668.62</b>	<b>\$ 0.139</b>

\*Refer to Table 20, page 26 of EM 8802, Orchard Economics: Establishing and Producing Standard- and High-Density Sweet Cherries in Wasco County, March 2002

**Table 1. Machinery Cost Assumptions.**

<b>Machine</b>	<b>Size</b>	<b>Market Value</b>	<b>Hours or Miles of Annual Use</b>	<b>Expected Life (yrs)</b>	<b>Salvage Value</b>
Tractor	4 Wheel Dr 75hp, New	\$ 35,000	809	10	\$ 10,338
Tractor	2 Wheel Dr 50hp, Older	20,000	443	20	2,566
Air-Blast Spray	400 Gallon Unit, PTO	18,000	309	10	3,183
Flail Chopper	8' Unit	6,000	103	7	1,531
Mower	9' Unit	6,000	97	10	1,061
Weed Sprayer	100 Gallon Unit	2,000	63	15	192
Tank Sprayer for ATV	10' Unit	1,500	22	10	265
Fertilizer Spreader	20' Unit	2,300	20	20	120
Gopher Machine		1,200	10	20	63
Pickup	1/2 Ton 4X4, New	27,000	12,000	10	10,210
Truck	2 Ton, Used	18,000	3,500	20	2,710
ATV	4 Wheeler, New	5,500	3,000	5	2,465
Auger		1,700	50	20	89
Bin Trailer	2 Units	5,000	300	10	884
Front End Loader & Backforks		5,800	300	10	1,026
Ladders	80 Units	9,000	N/A	10	N/A
Picking Buckets	1600 Buckets	10,000	N/A	5	N/A
Pruning and Power Saws	2 Ch, 3PP, 3PS, 3HL, 1PL	3,000	N/A	3	N/A
Irrig. System, Standard Density	Micro-sprinklers, per acre	1,000	N/A	25	N/A
Housing Facilities	16 Units	125,000	N/A	30	0

**Table 2. Machinery Cost Calculations.**

<b>Machine</b>	<b>Size</b>	<b>--- Variable Costs ---</b>		<b>--- Fixed Costs ---</b>		<b>Total Cost</b>
		<b>Fuel &amp; Lube</b>	<b>Repairs &amp; Maint.</b>	<b>Depr. &amp; Interest</b>	<b>Insurance</b>	
----- Costs per Hour -----						
Tractor	4 Wheel Dr 75hp, New	\$22.77	\$0.85	\$5.43	\$0.25	\$29.30
Tractor	2 Wheel Dr 50hp, Older	18.98	1.24	4.13	0.23	24.58
Air-Blast Spray	400 Gallon Unit, PTO	0.00	10.36	7.70	0.21	18.26
Flail Chopper	8' Unit	0.00	1.91	9.30	0.22	11.42
Mower	9' Unit	0.00	2.70	8.18	0.22	11.10
Weed Sprayer	100 Gallon Unit	0.00	0.81	3.40	0.10	4.31
Tank Sprayer for ATV		0.00	0.39	9.02	0.24	9.65
Fertilizer Spreader		0.00	1.09	10.79	0.37	12.25
Gopher Machine		0.00	0.47	10.72	0.37	11.56
----- Costs per Mile -----						
Pickup	1/2 Ton 4X4, New	\$0.29	\$0.05	\$0.27	\$0.09	\$0.70
Truck	2 Ton, Used	0.58	0.57	0.47	0.27	1.89
ATV	4 Wheeler, New	0.83	0.02	0.32	0.01	1.18
----- Costs per Acre -----						
Auger		\$0.00	\$0.16	\$1.57	\$0.00	\$1.73
Bin Trailer	2 Units	0.00	3.96	6.62	0.00	10.58
Front End Loader & Backforks		0.00	4.60	7.68	0.00	12.27
Ladders	80 Units	0.00	5.40	12.83	0.00	18.23
Picking Buckets	1600 Buckets	0.00	6.00	24.25	0.00	30.25
Pruning and Power Saws	2 Ch, 3PP, 3PS, 3HL, 1PL	5.18	1.80	11.28	0.00	18.25
Irrig. System, Standard Density	Micro-sprinklers, per acre	0.00	10.00	82.50	0.00	92.50
Housing Facilities	16 Units	0.00	33.02	91.67	0.00	124.69

**Table 3. Estimated Cost of Each Operation with Power-Unit for a 20' Between Row Orchard.****-- Machine Costs --**

Operation	Tractor	Miles per Hr	Acres per Hr	Labor Cost per Acre	Variable Cost per Acre	Fixed Cost per Acre	Total Cost per Acre
Air-Blast Spray	4 Wheel Dr 75hp, New	2.00	1.94	\$6.70	\$17.52	\$7.00	\$31.22
Flail Chopper	4 Wheel Dr 75hp, New	2.00	0.97	13.40	26.32	15.67	55.39
Mower	4 Wheel Dr 75hp, New	3.00	3.09	4.21	8.52	4.55	17.27
Weed Sprayer	2 Wheel Dr 50hp, Older	3.50	3.18	4.09	6.61	2.47	13.16
Tank Sprayer for ATV	ATV	5.00	4.55	2.86	1.02	2.40	6.28
Fertilizer Spreader	2 Wheel Dr 50hp, Older	3.00	5.09	2.55	4.19	3.05	9.79
Gopher Machine	2 Wheel Dr 50hp, Older	2.50	4.85	2.68	4.27	3.19	10.13

**Table 4. Estimated Per Acre Returns Over Cash Costs at Varying Yields and Prices<sup>1</sup>.**

Price per Lb	Lbs per Acre						
	6,000	8,000	10,000	12,000	14,000	16,000	18,000
\$ 0.55	\$ (920)	\$ (344)	\$ 233	\$ 810	\$ 1,386	\$ 1,963	\$ 2,540
\$ 0.65	(320)	456	1,233	2,010	2,786	3,563	4,340
\$ 0.75	280	1,256	2,233	3,210	4,186	5,163	6,140
\$ 0.85	880	2,056	3,233	4,410	5,586	6,763	7,940
\$ 0.95	1,480	2,856	4,233	5,610	6,986	8,363	9,740
\$ 1.05	2,080	3,656	5,233	6,810	8,386	9,963	11,540
\$ 1.15	2,680	4,456	6,233	8,010	9,786	11,563	13,340

**Table 5. Estimated Per Acre Returns Over Total Economic Costs at Varying Yields and Prices<sup>2</sup>.**

Price per Lb	Lbs per Acre						
	6,000	8,000	10,000	12,000	14,000	16,000	18,000
\$ 0.55	\$ (3,661)	\$ (3,085)	\$ (2,508)	\$ (1,931)	\$ (1,355)	\$ (778)	\$ (201)
\$ 0.65	(3,061)	(2,285)	(1,508)	(731)	45	822	1,599
\$ 0.75	(2,461)	(1,485)	(508)	469	1,445	2,422	3,399
\$ 0.85	(1,861)	(685)	492	1,669	2,845	4,022	5,199
\$ 0.95	(1,261)	115	1,492	2,869	4,245	5,622	6,999
\$ 1.05	(661)	915	2,492	4,069	5,645	7,222	8,799
\$ 1.15	(61)	1,715	3,492	5,269	7,045	8,822	10,599

<sup>1</sup>Table 4 estimates the returns over cash costs per acre based on varying yields and prices for a full producing orchard. In this budget a grower should expect \$4,410, based on a per acre yield of 12,000 pounds at \$0.85 per pound. At this price, as yields increase the returns to a grower increase as well and conversely, returns decrease as yields decrease.

<sup>2</sup>Table 5 estimates the returns over total economic costs per acre based on varying yields and prices for a full producing orchard. In this budget a grower should expect \$1,669, based on a yield of 12,000 pounds at \$0.85 per pound.