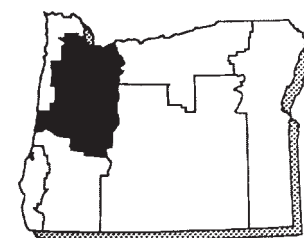




# Enterprise Budget

## Hazelnut, Willamette Valley Region

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**EM 8556, Revised September 1999**

This enterprise budget estimates the typical costs associated with hazelnut production in the Willamette Valley. 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 hazelnut production; however, this does not represent the only production method. The assistance provided by hazelnut producers and researchers in developing this budget is greatly appreciated.

### Land

This budget is based on 100 bearing acres of mature Barcelona hazelnut trees with 108 trees per acre. This study represents production at 2,300 merchantable pounds per acre. The land is owned, valued at \$5,000 per acre with \$5 per acre property taxes.

### Labor

General labor and owner labor are valued at a rate of \$12 per hour. This figure includes worker's compensation, unemployment insurance, and other labor overhead expenses. All labor is treated as a cash, variable expense on this budget.

### Capital

Interest on operating funds is charged at an interest rate of 9.5 percent and treated as a cash expense. Interest on machinery (9.5 percent), land (7 percent), and funds for orchard establishment (8 percent) are 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 hazelnut orchard in the Willamette Valley. A detailed breakdown of machinery values is shown in Table 1. Estimated machinery costs shown in Table 2 are based on estimates from the American Society of Agricultural Engineers. Machinery is assumed to be half depreciated. Gasoline costs \$1.35 per gallon, and diesel fuel costs \$0.97 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. Both maintenance and production pruning are used in the planting. A power lift is used in pruning 20 percent of the trees each year. The 75-horsepower 4-wheel-drive tractor is used mainly for spraying, flailing, leveling blade, and harvester operations. The loader tractor is used for fertilizing, weed spraying, brush raking, and at harvest to move and load totes.

The fertilizer program is comprised of: the urea form of nitrogen applied at an annual rate of 2 pounds per tree with an application time of 5 acres per hour, a foliar boron spray applied every other year, a potassium application applied at the rate of 7 pounds per tree every 7 years, and a lime application of two tons per acre applied every 5 years.

The integrated pest management program included 1.5 sprays for filbertworm and a spray every fourth year for aphids and/or leafrollers. The cost of filbertworm trapping was included. The costs of making spray applications for Eastern Filbert Blight control are listed separately in Table 4. The time assumed to spray the 100 acres is 28 hours.

Herbicides used for strip maintenance are applied to one-third of each acre. This assumes that one-third of the orchard is vegetation-free strips between trees. The boom sprayer is used for both grass and sucker control. There are 4 sucker sprays per year accounted for, and three orchard floor flailings.

Harvest time is 15 acres per day with the entire harvest operation covering the planting 1.5 times to ensure maximum yield.

### Break-even Analysis

Total gross income is \$1,035 per acre based on a price of \$0.45 per lb and 2,300 lb per acre of clean, dried hazelnuts being sold. Total variable cost is \$359.04 per acre, and return over variable cost is \$675.96 per acre. The gross income minus the variable and fixed cash costs is \$659.29. Total fixed cost is \$980.65 per acre, and total cost is \$1,339.69 per acre. The net projected return is -\$304.69 per acre. In the short run, producers may forego payment of some fixed costs as long as they are able to pay all variable costs of production. However, over the long run all production costs must be paid. Growers should analyze their own costs and returns to determine the profitability of specific hazelnut orchards.



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### ECONOMIC COSTS and RETURNS Willamette Valley Region Hazelnut Production (100 acres, \$/acre)

<u>GROSS INCOME Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>\$/Unit</u>	<u>Total</u>	<u>Your Income</u>
Hazelnut	2,300	lb	\$0.45	\$1,035.00	_____
Total GROSS Income				1,035.00	_____
<u>VARIABLE COST Description</u>	<u>Labor</u>	<u>Machinery</u>	<u>Materials</u>	<u>Total</u>	<u>Your Cost</u>
Production Pruning	14.40	0.00	0.00	14.40	_____
Maintenance Pruning	18.00	0.00	0.00	18.00	_____
Brush Removal	0.29	1.42	0.00	1.71	_____
Fertilizer	0.07	0.38	11.34	11.79	_____
Potash	0.07	0.38	9.61	10.06	_____
Lime	0.00	0.00	18.40	18.40	_____
Herbicide Strip Spray	3.30	4.06	2.70	10.06	_____
IPM Scouting	12.00	0.00	1.95	13.95	_____
Nutrient Analysis	0.00	0.00	0.25	0.25	_____
Sucker Control	0.88	4.54	14.71	20.13	_____
Boron Spray	1.65	2.03	4.00	7.68	_____
Filbertworm Spray	4.95	6.09	23.09	34.13	_____
Flailing Orchard	8.73	5.98	0.00	14.72	_____
Aphid/Leafroller Spray	0.82	1.02	6.52	8.36	_____
Rodent Control	0.00	0.00	3.00	3.00	_____
Leveling Orchard	1.94	1.22	0.00	3.16	_____
Harvesting Costs					
Sweeping Floor	5.66	5.35	0.00	11.00	_____
Harvesting Nuts	7.61	4.50	0.00	12.12	_____
Loading Trees	8.48	4.06	0.00	12.54	_____
Wash & Dry Nuts	0.00	0.00	69.00	69.00	_____
Pickup	0.00	25.83	0.00	25.83	_____
Shop	0.00	0.00	5.00	5.00	_____
Miscellaneous and Overhead	0.00	0.00	26.02	26.02	_____
Operating Capital Interest	0.00	0.00	7.73	7.73	_____
Total VARIABLE COST	88.87	66.85	203.32	359.04	_____
GROSS INCOME minus VARIABLE COST				675.96	_____
<u>FIXED COST Description</u>		<u>Unit</u>		<u>Total</u>	<u>Your Cost</u>
CASH Cost					
Machinery & Equipment Insurance		acre		9.17	_____
Pickup Insurance		acre		2.50	_____
Property Taxes		acre		5.00	_____
Total CASH Cost				16.67	_____
GROSS INCOME minus VARIABLE AND FIXED CASH COSTS				659.29	_____
NONCASH Cost					
Machinery & Equipment–Depreciation & Interest		acre		163.20	_____
Pickup–Depreciation & Interest		acre		30.08	_____
Shop		acre		19.02	_____
Land Interest Charge		acre		350.00	_____
Amortized Establishment Costs		acre		401.69	_____
Total NONCASH Cost				963.48	_____
Total FIXED Cost				980.65	_____
Total of ALL Cost Per Acre				1,339.69	_____
<b>NET PROJECTED RETURNS</b>				-304.69	_____

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Table 1. Machinery Cost Assumptions

Machine	Size	Market Value	Miles of Annual Value	Hours or Expected Life (yrs)
Tractor	4-Wheel-Dr 75-hp, New	\$30,000	238	10
Tractor and Loader	2-Wheel-Dr 50-hp, Older	12,000	193	10
Air-Blast Sprayer	500-Gallon Unit, PTO	18,000	62	20
Flail Chopper	10' Unit	5,000	73	10
Weed Sprayer w/ Boom		1,000	92	15
Fertilizer Spreader	1,000#	1,500	6	15
Pruning Power Lift		11,000	300	15
Filbert Harvester w/ Cart		30,000	71	10
Sweeper		22,500	95	10
Brush Rake		900	24	20
Pickup	3/4 Ton 4X4	25,000	12,000	10
Leveling Blade		1,000	N/A	7
5th-Wheel Trailer		6,000	N/A	20
Shop/Shed	40' x 80'	25,000	N/A	35

Table 2. Machinery & Equipment Cost Calculations

Machine	Size	— Variable —		— Fixed —		Total Cost
		Fuel & Lube	Repair & Maint.	Depr. & Interest	Insurance	
<b>Costs per Hour</b>						
Tractor	4-Wheel-Dr 75-hp, New	\$6.69	\$0.21	\$15.87	\$1.14	\$23.91
Tractor and Loader	2-Wheel-Dr 50-hp, Older	5.58	0.16	7.83	0.56	14.13
Air-Blast Spray	500-Gallon Unit, PTO	0.00	7.87	28.17	1.75	37.78
Flail Chopper	10' Unit	0.00	1.31	9.45	0.41	11.17
Weed Sprayer w/ Boom		0.00	0.45	1.21	0.07	1.73
Fertilizer Spreader		0.00	0.46	27.50	1.48	29.45
Pruning Power Lift		2.23	3.41	4.08	0.22	9.94
Filbert Harvester w/ Cart		0.00	4.44	56.72	2.55	63.71
Sweeper		3.35	3.75	31.60	1.42	40.12
Brush Rake		0.00	0.11	3.61	0.22	3.95
<b>Costs per Mile</b>						
<b>Pickup</b>	<b>3/4 Ton 4X4</b>	<b>0.16</b>	<b>0.06</b>	<b>0.25</b>	<b>0.02</b>	<b>0.49</b>
<b>Costs per Acre</b>						
Leveling Blade		0.00	0.10	1.90	0.00	2.00
5th-Wheel Trailer		0.00	0.60	5.85	0.00	6.45
Shop/Shed	40' x 80'	0.00	5.00	19.02	0.00	24.02

## EM 8556 Enterprise Budget

**Table 3. Estimated Cost of Each Operation with Power-Unit**

Operation	Tractor	Miles Per Hour	Acres Per Hour	Labor Costs Per Acre	Machine Costs		Total Cost per Acre
					Variable Cost per Acre	Fixed Cost per Acre	
Filbert Harvester w/ Cart	4WD 75 hp	1.25	2.12	\$5.66	\$5.35	\$35.95	\$46.96
Sweeper	Self-Propelled	1.60	1.58	7.61	4.50	20.95	33.07
Brush Rake	2WD 50 hp	2.00	4.12	0.29	1.42	2.97	4.68
Air-Blast Spray	4WD 75 hp	3.00	3.64	3.30	4.06	12.90	20.26
Flail Chopper	4WD 75 hp	4.00	4.12	2.91	1.99	6.52	11.42
Weed Sprayer w/ Boom	2WD 50 hp	6.00	5.46	0.22	1.13	1.77	3.13
Fertilizer Spreader	2WD 50 hp	8.00	16.49	0.07	0.38	2.27	2.72

**Table 4. Eastern Filbert Blight Spray Costs**

Material	Cost	Unit	Rate/Acre	Unit	Material Cost/Acre
Bravo	\$61.56	gallon	4	pint	\$30.78
Rubigan	81.83	quart	4 to 8	fl oz	10.24 to 20.48
Kocide DF	2.81	pound	16 to 24	pound	44.96 to 67.44
No-Cop 50DF	2.31	pound	16 to 24	pound	36.80 to 55.20
Bordeaux	7.20	pound	24-24-400	gallon	28.80
Orbit	108.00	quart	5 to 8	oz	16.88 to 27.04



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