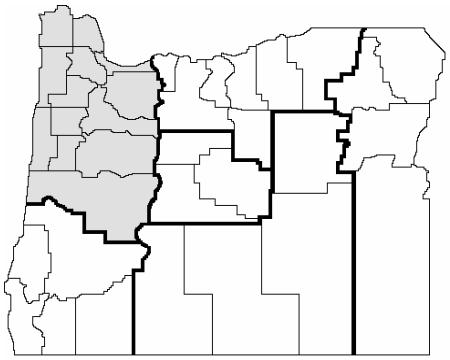
Enterprise Budget

Hazelnut, Willamette Valley Region

Jim Julian, Faculty Research Assistant, NWREC
Clark Seavert, Agricultural Economist, NWREC,
Jeff Olsen, Extension Horticulturist, Yamhill, Polk and Marion Counties,
Oregon State University



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This enterprise budget estimates the typical per-acre costs associated with eastern filbert blight resistant (EFB) hazelnut production in the Willamette Valley. It should be used as a guide to estimate your actual costs and does not represent any specific 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. Assistance provided by area producers and researchers is greatly appreciated.

Typical Orchard
The typical hazelnut orchard in the Willamette Valley consists of 100 acres planted with 108 trees per acre on 20 ft x 20 ft spacing. This budget is based on renewal of 20 acres planted with EFB resistant trees with an average production of 2,800 marketable pounds per acre at a price to the grower of $0.70 per pound

Land and Irrigation
The land is owned by the farmer and valued at $5,000 per acre. A $400 (8 percent) per acre lease rate is charged as a return on investment to the owner for his/her investment in the land, and property taxes of $5 per acre as fixed cash costs.

Labor
All labor is hired at a rate of $14 per hour which includes workers compensation, unemployment insurance, and other labor overhead expenses.

Capital
One-half of the cash expenses (operating capital) are borrowed for a 6 month period at 8.5 percent interest and are treated as a cash expense. Interest on machinery (8.5 percent) is treated as a non-cash opportunity cost to the owner. Establishment costs are funded by the operator at a charge of 10 percent and are also considered opportunity costs.

Machinery and Equipment
The machinery and equipment used in the budget reflect the typical machinery complement for a 100-acre hazelnut orchard in the Willamette Valley.

A detailed breakdown of machinery values is shown in Table 2. Estimated machinery costs are shown in Table 3, assuming straight line depreciation. The machinery costs are estimated based on the total farm use of the machinery. Table 4 shows the per acre labor, variable, and fixed costs for certain machinery operations in the field.

Gasoline costs $3.00 per gallon, and diesel costs $3.30 per gallon.

Operations
The cultural operations are listed approximately in the order in which they are performed. Both maintenance and production pruning are used in the orchard. A power lift is used in pruning 20 percent of the trees each year. The 75-hp 4wd tractor is used for air-blast spraying, flail mowing, orchard leveling, and harvest operations. The loader tractor is used for fertilizing, weed spraying, and brush raking.

This renewal planting is with EFB resistant trees therefore this budget does not include EFB control practices. If considering a non-resistant planting consult "Orchard Economics. The Costs and Returns of Establishing and Producing Hazelnuts in the Willamette Valley", EM 8748-E for costs associated with EFB control.

Break even Analysis
Tables 5 and 6 show returns per acre for cash and total costs at various yields and prices. Refer to table footnotes for interpretations.

OREGON STATE UNIVERSITY
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Table 1. Hazelnut production Willamette Valley Oregon, 2008, $/acre economic costs and returns

GROSS INCOME	Quantity	Unit	$/Unit	Total	Price/Lb
Hazelnuts	2,800	Pounds	$ 0.70	$ 1,960	$ 0.70
Total GROSS Income				1,960	0.70

VARIABLE CASH COSTS	Description	Labor	Machinery	Materials	Total	Cost/Lb
Production Pruning	1.2 hours	16.80	15.94	0.00	32.74	0.012
Maintainance Pruning	1.5 hours	21.00	0.00	0.00	21.00	0.008
Brush Removal		3.40	4.67	0.00	8.07	0.003
Fertilizer - Urea		0.85	1.19	51.79	53.82	0.019
Potash		0.85	1.19	19.66	21.69	0.008
Lime		0.00	0.00	24.20	24.20	0.009
Herbicide Strip Spray	1.0 appl.	3.85	8.48	5.10	17.43	0.006
IPM Scouting		14.00	0.00	2.57	16.57	0.006
Nutrient Analysis		0.00	0.00	0.58	0.58	0.000
Sucker Control	4.0 appl.	10.27	14.36	9.50	34.13	0.012
Boron Spray	0.5 appl.	1.92	4.24	4.80	10.97	0.004
Filbertworm Spray	1.5 appl.	5.77	12.72	13.65	32.15	0.011
Flailing Orchard	3.0 times	10.19	17.89	0.00	28.08	0.010
Aphid/Leafroller Spray	0.25 appl.	0.96	2.12	4.16	7.24	0.003
Rodent Control		0.00	0.00	7.00	7.00	0.003
Leveling Orchard		2.26	3.75	0.00	6.02	0.002
Harvesting Costs						
Harvesting Nut		6.60	12.56	0.00	19.16	0.007
Sweeping Floor		8.88	10.00	0.00	18.88	0.007
Loading Totes		9.90	13.53	0.00	23.43	0.008
Washing & Drying Nuts	2800 Lbs	0.00	0.00	128.80	128.80	0.046
Pickup		0.00	40.50	0.00	40.50	0.014
Shop		0.00	0.00	6.92	6.92	0.002
Miscellaneous and Overhead		0.00	0.00	44.75	44.75	0.016
Interest: Operating Capital	6.0 mons	0.00	0.00	12.84	12.84	0.005
Total VARIABLE COSTS		117.51	163.15	336.30	616.95	0.220

FIXED CASH COSTS	Unit	Total	Cost/Lb
CASH Costs			
Machinery and Equipment Insurance	acre	7.54	0.003
Pickup Insurance	acre	9.99	0.004
Property Taxes	acre	5.00	0.002
Total CASH Costs		22.53	0.008
NON-CASH Costs			
Machinery and Equip - Deprec. & Interest	acre	191.61	0.068
Pickup - Depreciation & Interest	acre	30.19	0.011
Shop	acre	17.14	0.006
Land Interest Charge	acre	400.00	0.143
Amortized Establishment Costs	acre	$1,539.88	0.550
Total NON-CASH Costs		2,178.83	0.778
Total FIXED COSTS		2,201.36	0.786
Total of All Costs Per Acre		2,818.31	1.007
Net Projected Returns		(858.31)	(0.307)

Table 2. Machinery Cost Assumptions

Machine	Size	Market Value	Hours or *Miles* of Annual Use	Expected Life (yrs)	Salvage Value
Tractor	4 Wheel Dr 75hp, New	$ 30,000	238	10	8,861.52
Tractor and Loader	2 Wheel Dr 50hp, Older	12,000	193	10	3,544.61
Air-Blast Spray	500 Gallon Unit, PTO	18,000	62	20	938.19
Flail Chopper	10' Unit	5,000	73	10	884.21
Weed Sprayer w/Boom		1,000	92	15	96.01
Fertilizer Spreader	1,000 Pound	1,500	6	15	144.01
Pruning Power Lift		20,000	120	15	2,048.14
Filbert Harvester w/Cart		30,000	71	10	4,951.56
Sweeper		22,500	95	10	4,244.19
Brush Rake		900	24	20	46.91
Pickup	3/4 Ton 4X4	25,000	*12,000*	10	9,453.92
Leveling Blade		1,000	32	7	255.13
5th Wheel Trailer		6,000	N/A	20	312.73
Shop/Shed	40' x 80'	25,000	N/A	35	0.00

Table 3. Machinery Cost Calculations

		--- Variable Costs ---		--- Fixed Costs ---		
Machine	Size	Fuel & Lube	Repairs & Maint.	Depr. & Interest	Insurance	Total Cost
		---------- Costs per Hour ----------				
Tractor	4 Wheel Dr 75hp, New	$ 22.77	$ 0.21	$ 15.84	$ 0.74	$ 39.56
Tractor and Loader	2 Wheel Dr 50hp, Older	18.98	0.16	7.82	0.36	27.32
Air-Blast Spray	500 Gallon Unit, PTO	0.00	7.87	26.80	0.92	35.58
Flail Chopper	10' Unit	0.00	1.60	9.09	0.24	10.93
Weed Sprayer w/Boom		0.00	0.45	1.17	0.04	1.65
Fertilizer Spreader	1,000 Pound	0.00	0.46	26.42	0.81	27.70
Pruning Power Lift		7.59	5.69	17.78	0.83	31.89
Filbert Harvester w/Cart		0.00	3.65	56.44	1.48	61.57
Sweeper		11.39	4.37	31.12	1.26	48.14
Brush Rake		0.00	0.11	3.42	0.12	3.65
		---------- Costs per Mile ----------				
Pickup	3/4 Ton 4X4	$ 0.29	$ 0.05	$ 0.25	$ 0.08	$ 0.67
		---------- Costs per Acre ----------				
Leveling Blade		$0.00	$ 0.03	$ 1.60	$0.00	$ 1.63
5th Wheel Trailer		0.00	1.40	5.55	0.00	6.95
Shop/Shed	40' x 80'	0.00	6.92	17.14	0.00	24.06

Table 4. Estimated Cost of Each Operation with Power-Unit.

Operation	Tractor	Miles per Hr	Acres per Hr	Labor Cost per Acre	-- Machine Costs -- Variable Cost per Acre	Fixed Cost per Acre	Total Cost per Acre
Filbert Harvester w/Cart	4WD 75hp	1.25	2.12	$6.60	$12.56	$35.11	$54.27
Sweeper	Self-Propelled	1.6	1.58	8.88	10.00	20.55	39.43
Brush Rake	2WD 50hp	2.0	4.12	3.40	4.67	2.84	10.91
Air-Blast Spray	4WD 75hp	3.0	3.64	3.85	8.48	12.18	24.51
Flail Chopper	4WD 75hp	4.0	4.12	3.40	5.96	6.29	15.65
Weed Sprayer w/Boom	2WD 50hp	6.0	5.46	2.57	3.59	1.72	7.88
Fertilizer Spreader	2WD 50hp	8.0	16.49	0.85	1.19	2.15	4.19

Table 5. Estimated per acre returns over cash costs at varying yields and prices.

Price per lb	---------- Pounds per Acre ---------- 1,600	2,000	2,400	2,800	3,200	3,600	4,000
$ 0.25	(184)	(103)	(21)	61	142	224	305
$ 0.40	56	197	339	481	622	764	905
$ 0.55	296	497	699	901	1,102	1,304	1,505
$ 0.70	536	797	1,059	1,321	1,582	1,844	2,105
$ 0.85	776	1,097	1,419	1,741	2,062	2,384	2,705
$ 1.00	1,016	1,397	1,779	2,161	2,542	2,924	3,305
$ 1.15	1,256	1,697	2,139	2,581	3,022	3,464	3,905

Table 6. Estimated per acre returns over total economic costs at varying yields and prices.

Price per lb	---------- Pounds per Acre ---------- 1,600	2,000	2,400	2,800	3,200	3,600	4,000
$ 0.25	$ (2,363)	$ (2,282)	$ (2,200)	$ (2,118)	$ (2,037)	$ (1,955)	$ (1,874)
$ 0.40	$ (2,123)	$ (1,982)	$ (1,840)	$ (1,698)	$ (1,557)	$ (1,415)	$ (1,274)
$ 0.55	$ (1,883)	$ (1,682)	$ (1,480)	$ (1,278)	$ (1,077)	$ (875)	$ (674)
$ 0.70	$ (1,643)	$ (1,382)	$ (1,120)	$ (858)	$ (597)	$ (335)	$ (74)
$ 0.85	$ (1,403)	$ (1,082)	$ (760)	$ (438)	$ (117)	$ 205	$ 526
$ 1.00	$ (1,163)	$ (782)	$ (400)	$ (18)	$ 363	$ 745	$ 1,126
$ 1.15	$ (923)	$ (482)	$ (40)	$ 402	$ 843	$ 1,285	$ 1,726

[1] Table 5 estimates the returns over cash costs per acre based on varying yields and prices. In this budget, a grower should expect $1,321, based upon a yield of 2,800 pounds at $0.70 per pound. At this yield, breakeven occurs at approximately $0.25 per pound for cash costs.

[2] Table 6 estimates the returns over total economic costs per acre based on varying yields and prices. In this budget a grower should expect -$858, based on 2,800 pounds at $0.70 per pound. At this yield, breakeven occurs at approximately $1.15 per pound for total costs.