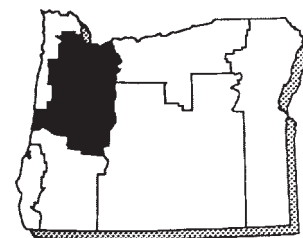


# Enterprise Budget

## Bush Beans, Willamette Valley Region



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**EM 8380, Revised August 1995**

This enterprise budget estimates the typical costs and returns associated with bush bean production in the Willamette Valley region. It should be used as a guide to estimating actual costs and is not representative of any particular farm. The major assumptions used in constructing this budget are discussed below. Assistance provided by area producers is greatly appreciated.

### Land

This budget is based on 100 acres of bush beans planted and harvested annually on a 500-acre row crop farm. A land lease charge of \$100 per acre is included to represent the cost of leasing or owning land. This budget reflects the typical practices associated with bush bean production in the Willamette Valley, but does not necessarily reflect the best or only method of production. Irrigation costs are based on the value of a good used system with a \$31 per acre per year repair and maintenance cost. The irrigation system is composed of "overhead" types of systems such as travelers, linear pivots, permanent big guns, wheel lines, and/or hand lines. Pumping expenses are based on an electricity charge of \$2.25 per inch of water applied during the growing season.

### Labor

All labor used in production is valued at \$7 per hour. This wage rate may be thought of as the net cost to growers for hired labor, who are paid a cash wage of \$5 per hour, with an additional \$2 per hour for payroll expenses (withholding taxes, record keeping, preparing W-2 forms, etc.).

### Capital

Opportunity costs of capital are charged at a rate of 10 percent for current and intermediate capital provided by the owner. Interest on operating capital is based on one-half of total variable costs. Operating capital interest is treated as a cash expense. Intermediate capital is assumed to be provided by the owner, so interest on this capital is treated as a noncash expense.

### Machinery and Equipment

The machinery and equipment used in the budget reflect the typical machinery complement of a 300-500 acre row crop farm in the Willamette Valley. A detailed breakdown of machinery values is shown in Table 1. August 1994 replacement costs are used, assuming the machinery is half depreciated. Estimated machinery costs are shown in Table 2. Costs per hour are calculated based upon whole farm machinery use. Costs per acre are calculated by multiplying costs per hour times the annual hours of use in bush bean production shown in Table 1.

### Operations

Operations are listed in the budget in the order they typically are performed. Preplant operations consist of eradicating the cover crop, incorporating a preplant herbicide, and applying a balanced fertilizer mix. Treated seed is planted at a rate of 100 pounds per acre. Growers use seeding rates of 8 to 12 seeds per foot in rows 15 to 30 inches apart, as required to fit available cultivating, spraying and harvesting equipment. The seedbed then is rolled, and a postplant herbicide is applied to control weeds.

After planting, the field receives an average of six 1.5 inch waterings and additional nitrogen to promote growth. Generally, two bloom sprays are needed to control insects. Weeds are controlled with a hoe or a spot sprayer.

The crop is harvested at a rate of 2 hours per acre and a yield of 6.5 tons per acre. Ten percent of the harvest is culled. One driver and two trucks are used to haul the crop to the cannery. After harvest, the field is disked, and a cover crop is planted. Lime is applied every fourth year, and a soil test is taken every other year.

### Budget

The bush bean budget estimates total variable cost at \$708.87 per acre and total fixed costs at \$307.73 per acre, resulting in \$1,016.60 per acre for total costs of production. The weighted average break-even price needed to cover variable costs is \$121.17 per ton, and to cover all costs is \$173.78 per ton, based on a net yield of 5.85 tons per acre.



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**EM 8380 Enterprise Budget**

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**ECONOMIC COSTS and RETURNS****Willamette Valley Region**

Bush Beans, 100 acres (\$/acre)

<u>GROSS INCOME Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>\$/Unit</u>	<u>Total</u>	<u>Your Returns</u>
Bush Beans #1 & 2 (50%)	3.25	tons	258.00	838.50	_____
Bush Beans #3 & 4 (40%)	2.60	tons	120.00	<u>312.00</u>	_____
Total GROSS Income				1,150.50	_____
<u>VARIABLE COST Description</u>	<u>Labor</u>	<u>Machinery</u>	<u>Materials</u>	<u>Total</u>	<u>Your Cost</u>
<b>PREPLANT</b>					
Spray Cover Crop	0.54	1.00	8.25	9.79	_____
Herbicide	1.5 pt x 5.50 = 8.25				
Chisel	2.42	6.17	0.00	8.59	_____
Disk	0.94	2.32	0.00	3.26	_____
Rototill	1.06	3.14	0.00	4.20	_____
Level Field	0.89	1.47	0.00	2.36	_____
Preplant Herbicide	0.54	1.46	39.04	41.04	_____
Herbicide	2 qt x 16.65 = 33.30				
Herbicide	1.5 pt x 3.825 = 5.74				
Incorporate Herbicide	1.41	1.89	0.00	3.30	_____
Preplant Fertilizer	1.17	1.56	31.37	34.09	_____
Nitrogen (urea)	109 lb x 0.112 = 12.20				
Phosphorus	128 lb x 0.115 = 14.72				
Potash	43 lb x 0.084 = 3.61				
Sulphur	33 lb x 0.025 = 0.82				
Incorporate Fertilizer	1.41	2.31	0.00	<u>3.72</u>	_____
Total PREPLANT				110.34	_____
<b>PLANTING</b>					
Planting	2.82	3.20	146.35	152.37	_____
Seed Green Bean	100 lb x 1.28 = 128.00				
Fungicide	1 pt x 18.35 = 18.35				
Roll Seed Bed	1.41	1.42	0.00	2.83	_____
Postplant Herbicide	0.54	1.00	12.09	13.63	_____
Fungicide	1.5 pt x 8.06 = 12.09				
Total PLANTING				<u>168.83</u>	_____
<b>PREHARVEST</b>					
Fertilize	1.17	1.56	7.28	10.01	_____
Nitrogen (urea)	65 lb x 0.112 = 7.28				
Bloom Spray - 1	0.54	1.00	27.11	28.65	_____
Pesticide	1 lb x 21.80 = 21.80				
Pesticide	1.25 lb x 4.25 = 5.31				
Bloom Spray - 2	0.54	1.07	2.81	4.42	_____
Pesticide	0.75 lb x 3.75 = 2.81				

## EM 8380 Enterprise Budget

### ECONOMIC COSTS and RETURNS

#### Willamette Valley Region

Bush Beans, 100 acres (\$/acre)

<u>VARIABLE COST Description</u>	<u>Labor</u>	<u>Machinery</u>	<u>Materials</u>	<u>Total</u>	<u>Your Cost</u>
Spot Spray	0.35	0.27	0.24	0.86	_____
Herbicide           0.05 appl x 4.80 = 0.03					
Irrigation	42.00	0.00	51.25	93.25	_____
Irg. Maint. Reprs.   1 ac x 31.00 = 31.00					
Electricity           9 in x 2.25 = 20.25					
Total PREHARVEST				137.19	_____
HARVEST					
Harvest	14.00	138.90	0.00	152.90	_____
Haul Beans	14.46	22.72	0.00	37.18	_____
Total HARVEST				190.08	_____
POSTHARVEST					
Custom Liming	0.00	0.00	10.50	10.50	_____
Disk	1.41	3.48	0.00	4.89	_____
Soil Test	0.00	0.00	10.50	10.50	_____
Plant Cover Crop	1.41	1.80	12.50	15.71	_____
Seed, Cover Crop   1 ac x 12.50 = 12.50					
ATV	7.00	2.20	0.00	9.20	_____
Pickup	114.00	3.86	0.00	17.86	_____
Total POSTHARVEST				68.66	_____
Operating Capital Interest	0.00	0.00	33.76	33.76	_____
Total VARIABLE COST				708.87	_____
GROSS INCOME minus VARIABLE COST				441.63	_____
<u>FIXED COST Description</u>	<u>Unit</u>	<u>Total</u>	<u>Your Cost</u>		
CASH Cost					
Irrigation System Fixed	acre	21.25	_____		
Machinery & Equipment Insurance	acre	11.03	_____		
Land Lease	acre	100.00	_____		
Total CASH Cost		132.28	_____		
NONCASH Cost					
Machinery & Equipment Depreciation & Interest	acre	175.45	_____		
Total NONCASH Cost		175.45	_____		
Total FIXED Cost		307.73	_____		
Total of ALL Cost		1,016.60	_____		
<b>NET PROJECTED RETURNS</b>				133.90	_____
Break-even Price, Total Variable Cost				\$121.17 per ton	_____
Break-even Price, Total Cost				\$173.78 per ton	_____

## EM 8380 Enterprise Budget

**Table 1. Machinery Cost Assumptions**

<b>Machine</b>	<b>Size</b>	<b>List Price</b>	<b>Current Market Value</b>	<b>Salvage Value</b>	<b>Useful Life</b>	<b>Remaining Life</b>	<b>Annual Use For Enterprise</b>
Tractor	100 hp	\$44,000	\$35,200	\$13,200	15,000 hr	7,500 hr	31.43 hr
Tractor	125 hp	49,000	39,200	14,700	15,000 hr	7,500 hr	48.24 hr
Tractor	160 hp	70,000	56,000	21,000	8,000 hr	4,000 hr	38.24 hr
Tractor	35 hp	15,000	9,750	4,500	6,000 hr	3,000 hr	23.07 hr
Tractor	50 hp	13,500	8,100	2,700	8,000 hr	4,000 hr	114.36 hr
Tractor	4 wd 200 hp	85,000	68,000	25,500	8,000 hr	4,000 hr	13.75 hr
Bean Harvester		75,000	45,000	7,500	3,500 hr	1,750 hr	200 hr
Disk	18 ft	7,500	4,500	750	3,500 hr	1,750 hr	27.78 hr
Dixon Harrow	16 ft	7,500	4,125	750	1,000 hr	500 hr	10.53 hr
Drill	12 ft	10,000	5,500	1,000	2,500 hr	1,250 hr	16.67 hr
Fertilizer Spreader	3 ton	5,400	2,970	540	1,500 hr	750 hr	33.34 hr
Field Cultivator	15 ft	600	360	120	3,000 hr	1,500 hr	16.67 hr
Planter	4 row	3,800	2,200	380	2,500 hr	1,250 hr	33.33 hr
Roller Harrow	16 ft	5,200	2,860	520	3,000 hr	1,500 hr	33.34 hr
Roterra	20 ft	5,500	3,300	550	3,000 hr	1,500 hr	12.50 hr
Spray Tank/Boom	200 gal	9,000	4,950	900	3,500 hr	1,750 hr	38.45 hr
U-Chisel	10 ft	11,500	6,900	1,150	3,000 hr	1,500 hr	28.57 hr
Water Tank	1,000 gal	5,000	2,750	500	3,500 hr	1,750 hr	38.45 hr
Spot Sprayer		250	115	25	500 hr	250 hr	25.00 hr
ATV		4,000	2,800	800	4,500 mi	2,200 mi	525 mi
Farm Truck	10 ton	31,500	20,475	4,725	40,000 mi	20,000 mi	450 mi
Farm Truck	12 ton	33,500	21,775	5,025	40,000 mi	20,000 mi	450 mi
Pickup Truck		15,000	8,250	1,500	100,000 mi	50,000 mi	1,000 mi

## EM 8380 Enterprise Budget

Table 2. Machinery Cost Calculations

Machine	Size	Costs per Hour or Mile				Total Cost	Hours or Miles per Acre	Costs per Acre		
		Variable		Fixed				Variable	Fixed	Total
		Fuel & Lube	Repair & Maint.	Depr. & Interest	Insurance					
Tractor	100 hp	\$5.87	\$5.27	\$38.95	\$2.35	\$52.44	0.314 hr	\$3.49	\$12.97	\$16.46
Tractor	125 hp	7.34	5.89	26.02	1.57	40.82	0.482 hr	6.37	13.30	19.67
Tractor	160 hp	9.40	6.17	46.47	2.80	64.84	0.382 hr	5.94	18.82	24.76
Tractor	35 hp	3.00	1.14	12.43	0.85	17.42	0.231 hr	0.95	3.07	4.02
Tractor	50 hp	4.28	1.22	1.94	0.14	7.58	1.144 hr	6.29	2.38	8.67
Tractor	4wd 200 hp	11.75	7.43	150.47	9.07	178.72	0.138 hr	2.64	22.02	24.66
Bean Harvester		13.57	55.87	45.65	2.00	117.09	2.00 hr	138.88	95.30	234.18
Disk	18 ft	0.00	4.25	4.35	0.32	8.92	0.279 hr	1.18	1.30	2.48
Dixon Harrow	16 ft	0.00	2.92	13.29	0.83	17.04	0.105 hr	0.30	1.48	1.78
Drill	12 ft	0.00	5.10	11.82	0.73	17.65	0.167 hr	0.85	2.09	2.94
Fert Spreader	3 ton	0.00	2.42	1.90	0.18	4.50	0.333 hr	0.80	0.69	1.49
Field Cultivator	15 ft	0.00	0.32	0.52	0.04	0.88	0.167 hr	0.05	0.09	0.14
Planter	4 row	0.00	1.96	2.43	0.15	4.54	0.333 hr	0.65	0.86	1.51
Roller Harrow	16 ft	0.00	2.82	2.55	0.19	5.56	0.333 hr	0.93	0.92	1.85
Roterra	20 ft	0.00	2.96	6.87	0.51	10.34	0.125 hr	0.37	0.92	1.29
Spray Tank/Boom	200 gal	0.00	5.77	3.99	0.25	10.01	0.385 hr	2.22	1.63	3.85
U-Chisel	10 ft	0.00	6.24	6.75	0.46	13.45	0.286 hr	1.78	2.06	3.84
Water Tank	1,000 gal	0.00	3.20	2.27	0.14	5.61	0.385 hr	1.23	0.92	2.15
Spot Sprayer		0.00	0.64	0.62	0.02	1.28	0.250 hr	0.16	0.16	0.32
ATV		0.07	0.37	0.60	0.19	1.23	5.25 mi	2.31	4.14	6.45
Farm Truck	10 ton	0.52	2.00	1.74	0.19	4.45	4.50 mi	11.34	8.68	20.02
Farm Truck	12 ton	0.53	2.00	1.85	0.19	4.57	4.50 mi	11.38	9.18	20.56
Pickup Truck		0.05	0.34	0.30	0.05	0.74	10.00 mi	3.90	3.50	7.40
Total								\$204.01	\$206.48	\$410.49

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