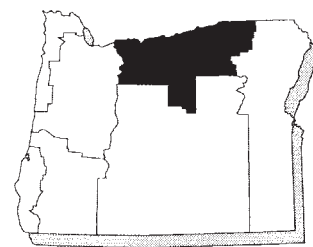


# Enterprise Budget

## Mustard (Conventional)

### Mid-Columbia Area 1998



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**EM 8746, December 1999**

This enterprise budget estimates the typical costs associated with dryland mustard production in the Mid-Columbia area of Oregon. 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 dryland mustard production; however, this does not represent the only production method. Assistance compiling this report was provided by area producers.

#### Cropping Pattern

This budget is based on a 3,000-acre farm with 500 acres in mustard, 1,500 acres in winter wheat, and 1,000 acres of fallow in any given year. Mustard yields range from 600-1,600 lb in the Mid-Columbia area. This budget uses 1,000 lb per acre.

#### Land

A land lease charge of 20 percent of gross income is included to represent the cost of leasing or owning land. Crop-share rental arrangements are common in the area; their terms are varied and difficult to generalize. However, you can easily modify this budget to represent a crop-share arrangement by multiplying the appropriate cost and return items by the tenant's percentage share. Record the results in the "Your Cost" column, then calculate new variable, fixed, and total costs of production.

#### Labor

General labor is hired to drive trucks during harvest at a rate of \$8 per hour. Operator labor is charged \$9 per hour. Both rates include workers' compensation, unemployment insurance, and other labor overhead expenses. All hired labor is treated as a cash, variable expense in this budget.

#### Capital

Interest on operating capital is 10.25 percent and treated as a cash expense. One-third of the cash expenses are borrowed for a 3-month period. Interest on intermediate and long-term capital is 11 percent and treated as a noncash opportunity cost to the owner.



#### Machinery and Equipment

The machinery and equipment used in the budget reflects the typical machinery complement of a 3,000-acre dryland farm in the Mid-Columbia area. A detailed breakdown of machinery values is shown in Table 1. Other machinery in Table 1 includes one set of older disc-type drills, trap wagon, disc, rotary hoe, and harrow. Estimated machinery cost calculations are in Table 2 and based on estimates from the American Society of Agricultural Engineers, assuming the machinery is half depreciated. Fuel costs are \$1.30 per gallon for gasoline and \$0.94 per gallon for off-road diesel fuel.

#### Operations

Fall tillage with a chisel plow is assumed. Spring field operations include a tillage-aid herbicide, a fertilizer application, and one cultivation. Mustard is seeded with a conventional drill. Nitrogen and sulfur fertilizer is applied preplant. Mustard is harvested using a combine and one grain truck. The mustard contract specifies FOB the farm. Hauling costs are for on-the-farm hauling.

#### Other

Miscellaneous charges are included to cover other labor costs (\$4.47 per acre); machinery (\$1 per acre); and accounting fees, office supplies, and other supplies (\$5 per acre). Note that this budget assumes no participation in government programs.

#### Results

The price received for mustard, \$0.11, is an average price. Variable production costs were \$64.00 per acre, giving a net return above variable costs of \$46.00. Total costs were \$129.10 per acre, leaving an annual net projected loss of -\$19.10 per acre when all costs are considered. A breakeven price of \$0.04 per lb would be required to cover all cash costs, and \$0.13 per lb to cover total costs.



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## EM 8746 Enterprise Budget

### ECONOMIC COSTS and RETURNS MID-COLUMBIA AREA

Mustard (Conventional) 500 acres harvested, 500 acres fallow (\$/harvested acre)

<u>GROSS INCOME Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>\$/Unit</u>	<u>Total</u>	<u>Your Returns</u>
Mustard	1,000	lb	0.11	110.00	_____
Total GROSS Income				110.00	_____
<u>VARIABLE COST Description</u>	<u>Labor</u>	<u>Machinery</u>	<u>Materials</u>	<u>Total</u>	<u>Your Cost</u>
Land Preparation					
Moldboard Plow	0.00	0.00	0.00	0.00	_____
Chisel Plow (0.67x)	0.93	2.16	0.00	3.09	_____
Cultivate (1x)	0.58	1.55	0.00	2.13	_____
Rod Weed	0.00	0.00	0.00	0.00	_____
Crop Production					
Fertilizer	0.58	1.11	16.15	17.84	_____
Nitrogen			60 lb x 0.24 = 16.15		
Sulfur			15 lb x 0.35 = 1.75		
Drill Seed (1x)	0.74	3.96	8.00	12.69	_____
Mustard Seed			8 lb x 1.00 = 8.00		
Herbicide, tillage aid	0.00	0.00	7.73	7.73	_____
Chemicals			1 ac x 3.38 = 3.38		
Custom Application			1 ac x 4.35 = 4.35		
Harvesting Operations					
Combine	0.79	1.90	0.00	2.69	_____
Hauling Mustard	1.62	2.19	0.00	3.81	_____
Other Charges					
Pickup & Truck Repairs, Fuel, & Lube	0.00	3.01	0.00	3.01	_____
Other Machinery	0.00	1.03	0.00	1.03	_____
Miscellaneous	4.47	1.00	5.00	10.47	_____
Interest: Operating Capital (10.25%, 3 months)	<u>0.00</u>	<u>0.00</u>	<u>0.54</u>	<u>0.54</u>	_____
Total VARIABLE COST	9.39	17.19	37.42	65.03	_____
GROSS INCOME minus VARIABLE COST				44.97	_____
<u>FIXED COST Description</u>		<u>Unit</u>		<u>Total</u>	<u>Your Cost</u>
CASH Cost					
Machinery & Equipment Insurance		acre		3.33	_____
Pickup & Trucks - Insurance		acre		0.29	_____
Conservation Practices		acre		0.30	_____
Total CASH Cost				3.92	_____
NONCASH Cost					
Machinery & Equipment Depreciation, Interest, & Housing		acre		31.61	_____
Pickup & Trucks - Depreciation, Interest, & Housing		acre		4.84	_____
Other Machinery - Depreciation & Interest		acre		2.74	_____
Land Charge		acre		22.00	_____
Total NONCASH Cost				61.19	_____
Total FIXED Cost				65.10	_____
Total of ALL Cost				130.13	_____
<b>NET PROJECTED RETURNS</b>				-20.13	_____

**EM 8746 Enterprise Budget**

**Table 1. Machinery Cost Assumptions**

<b>Machine</b>	<b>Size</b>	<b>Current Market Value</b>	<b>Hours or Miles of Annual Use</b>	<b>Expected Life (yrs)</b>
Tractor, Crawler	Crawler Tractor	\$159,000	925	20
Combine	30' Hillside	222,000	175	10
Moldboard Plow	10-16"	25,000	131	20
Chisel Plow	25'	15,000	138	15
Cultivate	40'	21,000	193	15
Field Sprayer	60'	20,000	81	15
Rod Weed	48'	19,200	202	15
Grain Drills	36'	34,600	180	15
Pickup	3/4-ton 4x4, new	27,000	14,000	10
Truck	2-ton	49,000	3,000	20
Truck	2-ton, older	18,000	2,400	10
Other Machinery		15,000	N/A	10

**Table 2. Machinery Cost Calculations**

<b>Machine</b>	<b>Size</b>	<b>Variable</b>		<b>Fixed</b>		<b>Total Cost</b>
		<b>Fuel &amp; Lube</b>	<b>Repair &amp; Maint.</b>	<b>Depr. &amp; Interest</b>	<b>Insurance</b>	
<b>Cost per Hour</b>						
Tractor, Crawler	Crawler Tractor	\$6.69	\$8.83	\$18.17	\$1.55	\$35.03
Combine	30' Hillside	5.41	16.39	187.51	11.44	220.75
Moldboard Plow	10-16"	0.00	15.65	20.32	1.15	37.12
Chisel Plow	25'	0.00	5.62	12.77	0.65	19.04
Cultivate	40'	0.00	8.68	12.77	0.65	22.11
Field Sprayer	60'	0.00	8.69	29.64	1.48	39.82
Rod Weed	48'	0.00	8.98	11.17	0.57	20.72
Grain Drills	36'	0.00	33.02	22.65	1.15	56.83
<b>Costs per Mile</b>						
Pickup	3/4-ton 4x4, new	0.15	0.08	0.25	0.02	0.49
Truck	2-ton	0.30	0.82	1.38	0.07	2.57
Truck	2-ton, older	0.30	0.12	0.86	0.03	1.31
<b>Costs per Acre</b>						
Other Machinery		0.00	1.03	2.74	1.21	4.98

## EM 8746 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	
Combine	N/A	4.5	11.46	\$0.79	1.90	17.37	\$20.05
Moldboard Plow	Crawler	4.0	5.04	1.78	6.14	8.17	16.09
Chisel Plow	Crawler	4.0	9.70	0.93	2.16	3.42	6.50
Cultivate	Crawler	4.0	15.52	0.58	1.55	2.14	4.26
Field Sprayer	Crawler	4.0	24.73	0.32	0.97	2.06	3.35
Rod Weed	Crawler	4.0	19.78	0.45	1.23	1.59	3.27
Grain Drills	Crawler	4.0	12.22	0.74	3.96	3.56	8.25

**Table 4. Estimated per-Acre Returns Over Cash Costs at Varying Yields and Prices**

Price per lb	Pounds per Acre						
	700	800	900	1,000	1,100	1,200	1,300
\$ 0.08	-\$12.94	-\$4.94	\$3.06	\$11.06	\$19.06	\$27.06	\$35.06
\$ 0.09	-5.94	3.06	12.06	21.06	30.06	39.06	48.06
\$ 0.10	1.06	11.06	21.06	31.06	41.06	51.06	61.06
\$ 0.11	8.06	19.06	30.06	41.06	52.06	63.06	74.06
\$ 0.12	15.06	27.06	39.06	51.06	63.06	75.06	87.06
\$ 0.13	22.06	35.06	48.06	61.06	74.06	87.06	100.06
\$ 0.14	29.06	43.06	57.06	71.06	85.06	99.06	113.06

**Table 5. Estimated per-Acre Returns Over Total Costs at Varying Yields and Prices**

Price per lb	Pounds per Acre						
	700	800	900	1,000	1,100	1,200	1,300
\$ 0.08	-\$74.13	-\$66.13	-\$58.13	-\$50.13	-\$42.13	-\$34.13	-\$26.13
\$ 0.09	-67.13	-58.13	-49.13	-40.13	-31.13	-22.13	-13.13
\$ 0.10	-60.13	-50.13	-40.13	-30.13	-20.13	-10.13	-0.13
\$ 0.11	-53.13	-42.13	-31.13	-20.13	-9.13	1.87	12.87
\$ 0.12	-46.13	-34.13	-22.13	-10.13	1.87	13.87	25.87
\$ 0.13	-39.13	-26.13	-13.13	-0.13	12.87	25.87	38.87
\$ 0.14	-32.13	-18.13	-4.13	9.87	23.87	37.87	51.87

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