

# Enterprise Budget

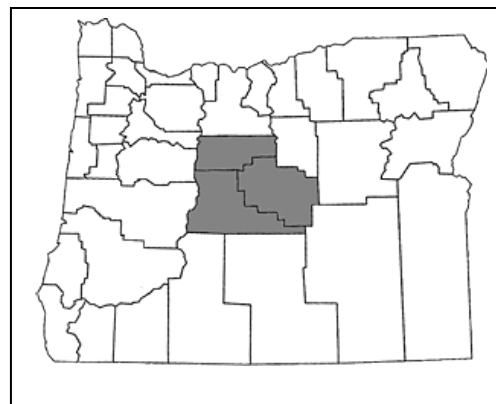
## Peppermint Leaf

### Central Oregon Region

Marvin Butler, Extension Crop Scientist

John Weber, Research Assistant

Oregon State University



This enterprise budget estimates the typical costs and returns of producing peppermint for tea leaf in the Madras area of central Oregon. The stand is assumed to have a 4-year life, including the establishment year. The cost of the establishment year is considered a cost of producing grass seed in the following 3 years, and thus it is amortized over the 3 following production years. While efforts were made to reflect common practices, it is not representative of any particular farm and should be used only as a guide to estimate actual costs. The major assumptions used in constructing this budget are discussed below. Assistance provided by area producers is greatly appreciated.

### Cropping Pattern

This budget is based on a typical 600-acre farm with 60 acres in production of peppermint leaf, 20 of which are in the first production year. This budget estimates per-acre costs and returns of a typical production year. The budget includes establishment year production costs for 1 acre, with a yield of 1,700 pounds per acre, and production year production costs for 1 acre, with a yield of 1850 pounds per acre. A summary of the estimated costs and returns per acre for the establishment year is shown in Table 1, and a summary of the estimated costs and returns per acre for a production year is shown in Table 2.

### Land and Irrigation

A land lease charge of \$120 per acre is included to represent the cost of

leasing or owning the land. The charge is based on the cost of a long-term lease for good-quality irrigated farmland. The field is sprinkler irrigated using a center pivot. A water charge of \$2.26 per acre-inch covers the cost of irrigation water and canal maintenance. Calculations are based on the North Unit Irrigation District rates for Deschutes River water rights. \$60 per acre covers interest and depreciation on the center pivot.

### Labor

Hand labor, irrigation labor, and rogue labor cost \$11.50 per hour, and operator labor costs \$15.00 per hour. All include worker's compensation, social security taxes, and other labor overhead expenses. Labor hours for machinery operation are calculated by multiplying 1.21 times machine hours to allow for machinery setup, movement, and adjustments.

### Capital

Opportunity costs of capital are charged at a rate of 8 percent for current, intermediate, and long-term capital provided by the owner.

### Operations

Cultural operations are listed in the budget in the approximate order in which they typically are performed.

Table 3 shows the cost of establishment year field operations with owned machinery, and the operations are summarized below. Land preparation and planting takes place in the fall. An application of lime may be

necessary on some fields but is not included in this budget. Land preparation includes disking and chisel plowing the field two times. Certified rootstock is planted in late fall. A semi load of roots typically plants between 5 and 8 acres. The cost of the roots is amortized over the 10-year average life of the plants. Pesticide applications are made as necessary.

In the spring rock is picked and the mint is harrowed. Again, pesticide applications are made as necessary. Fertilizer is applied later in the spring. There are nine irrigation sets, three of which are also used to apply fertilizer, for a total of 20.25 inches of water. The field is scouted and predator mites are applied in June. The field is rogued (hoeing out weeds) during the period requiring 9 hours of rogue labor. Harvest typically occurs in early August.

Table 4 shows the cost of a production year's field operations with owned machinery, and the operations are summarized below. Immediately following harvest of the prior year's crop, the stems are chopped and spread. The mint is irrigated six times by October, one of which is also used to apply herbicide, for 12.75 inches of water. A weed control application is made in November.

In the spring rock is picked and the mint is rolled. Pesticide applications are made as necessary. Fertilizer is applied later in the spring. There are nine irrigation sets, three of which are also used to apply fertilizer, for a total of 20.25 inches of water. The field is scouted and predator mites are applied in June. The field is rogued (hoeing out weeds) during the period requiring 9 hours of rogue labor. Harvest typically occurs in late July or early August.

## **Machinery and Equipment**

The machinery complement is sufficient for producing peppermint leaf. A detailed breakdown of machinery values and costs used in this budget is shown in Table 5. The machinery costs are estimated. Fixed costs for machinery and equipment include the cost of interest and depreciation.

## **Other**

A miscellaneous charge of \$30 per acre is included to cover general insurance, tools, office supplies, and other expenses. A pickup and ATV are utilized for hauling supplies, checking irrigation, and other activities related to peppermint leaf production.

The total establishment cost of \$1565.21 per acre is partially offset by a first-year harvest of 1,700 lbs. of leaf per acre. The remaining \$86.21 must be recovered during the 3 additional production years. At 8 percent interest an annual payment of \$33.45 will repay this amount, plus interest, in three years.

Total variable cost for the establishment year is \$909.26, and the break-even price over variable costs is \$0.54 per lb. The total of all costs for the establishment year is \$1,565.21, with a break-even price over total costs of \$0.92 per lb.

Total variable cost for a production year is \$808.87, and the break-even price over variable costs is \$0.44 per lb. The total of all costs for the production year is \$1,370.11, with a break-even price over total costs of \$0.74 per lb.

Table 1. Peppermint leaf establishment year: Summary of estimated costs per acre.

Item	Unit	Price	Quantity	Amount	Your Farm
		\$		\$	
<b>INCOME</b>					
Peppermint Leaf	Pound	0.87	1700.00	1479.00	
<b>TOTAL INCOME</b>				<b>1479.00</b>	
<b>VARIABLE COSTS</b>					
Herbicides	Acre	69.23	1.00	69.23	
Fertilizer	Acre	203.59	1.00	203.59	
Other	Acre	85.00	1.00	85.00	
Custom Applications	Acre	28.00	1.00	28.00	
Mint Roots Certified	Acre	12.00	1.00	12.00	
Water	Acre	49.11	1.00	49.11	
Hand Labor	Hour	11.50	2.68	30.82	
Irrigation Labor	Hour	11.50	1.00	11.50	
Operator Labor	Hour	15.00	6.46	96.83	
Roguing Labor	Hour	11.50	11.20	128.80	
Diesel Fuel	Gal	2.85	19.86	56.63	
Gasoline	Gal	3.00	0.6734	2.02	
Repair & Maintenance	Acre	100.85	1.00	100.85	
Interest on Operating Capital	Acre	34.88	1.00	34.88	
<b>TOTAL VARIABLE COSTS</b>				<b>909.26</b>	
<b>INCOME ABOVE VARIABLE COSTS</b>				<b>569.74</b>	
<b>FIXED COSTS</b>					
Implements	Acre	45.15	1.00	45.15	
Tractors	Acre	51.81	1.00	51.81	
Self-propelled Equipment	Acre	310.30	1.00	310.30	
Trucks	Acre	5.69	1.00	5.69	
Pickups & Miscellaneous Exp.	Acre	63.00	1.00	63.00	
Land Costs	Acre	120.00	1.00	120.00	
Irrigation Systems	Acre	60.00	1.00	60.00	
<b>TOTAL FIXED COSTS</b>				<b>655.95</b>	
<b>TOTAL OF ALL COSTS</b>				<b>1565.21</b>	
<b>NET INCOME</b>				<b>-86.21</b>	

Table 2. Peppermint leaf production year: Summary of estimated costs per acre.

Item	Unit	Price \$	Quantity	Amount \$	Your Farm
<b>INCOME</b>					
Peppermint Leaf	Pound	0.87	1850.00	1609.50	
<b>TOTAL INCOME</b>				<b>1609.50</b>	
<b>VARIABLE COSTS</b>					
Herbicides	Acre	116.91	1.00	116.91	
Fertilizer	Acre	203.59	1.00	203.59	
Other	Acre	85.24	1.00	85.24	
Custom Applications	Acre	28.00	1.00	28.00	
Water	Acre	74.51	1.00	74.51	
Hand Labor	Hour	11.50	0.60	6.90	
Irrigation Labor	Hour	11.50	1.50	17.25	
Operator Labor	Hour	15.00	3.69	55.37	
Roguing Labor	Hour	11.50	11.20	128.80	
Diesel Fuel	Gal	2.85	8.36	23.84	
Gasoline	Gal	3.00	1.04	3.11	
Repair & Maintenance	Acre	63.15	1.00	63.15	
Interest on Operating Capital	Acre	2.20	1.00	2.20	
<b>TOTAL VARIABLE COSTS</b>				<b>808.87</b>	
<b>INCOME ABOVE VARIABLE COSTS</b>				<b>800.63</b>	
<b>FIXED COSTS</b>					
Implements	Acre	2.36	1.00	2.36	
Tractors	Acre	5.84	1.00	5.84	
Self-propelled Equipment	Acre	270.90	1.00	270.90	
Trucks	Acre	5.69	1.00	5.69	
Pickups & Miscellaneous Exp.	Acre	63.00	1.00	63.00	
Land Costs	Acre	120.00	1.00	120.00	
Irrigation Systems	Acre	60.00	1.00	60.00	
Establishment Year	Acre	33.45	1.00	33.45	
<b>TOTAL FIXED COSTS</b>				<b>561.24</b>	
<b>TOTAL OF ALL COSTS</b>				<b>1370.11</b>	
<b>NET INCOME</b>				<b>239.39</b>	

Table 3. Peppermint establishment year: Estimated per-acre resource costs for field operations.

Operation	Perf. Rate	Times Over	Month	Power Unit Cost		Equipment Cost		Labor		Operating Input	Total Cost
	Hours/acre			Variable	Fixed	Variable	Fixed	Hours	\$	\$	\$
Irrigation	---	1	Sept	0.24	0.13	---	---	0.13	1.61	7.89	9.87
Disk Field	0.100	2	Oct	8.61	7.08	3.12	10.14	0.26	3.99	---	32.94
Chisel Field	0.200	2	Oct	13.19	9.65	1.25	4.87	0.53	7.99	---	36.95
Cultipack Field	0.150	2	Oct	10.88	7.96	0.18	0.88	0.43	6.59	---	26.49
Plant Mint Roots	0.500	1	Nov	26.89	58.46	2.51	27.36	3.18	39.40	12.00	174.87
Cultipack Field	0.150	1	Nov	5.44	3.98	0.09	0.44	0.21	3.29	---	13.24
Weed Control	---	1	Nov	---	---	---	---	---	---	61.62	61.62
Weed Control	---	1	Feb	---	---	---	---	---	---	27.61	27.61
Pick Rock	---	1	Mar	---	---	---	---	2.20	25.30	---	25.30
Flex Harrow Field	0.080	2	Apr	4.80	5.15	0.35	1.46	0.21	3.19	---	14.95
Fertilize Field	---	1	May	---	---	---	---	---	---	166.44	166.44
Irrigation/Fertilize	---	3	May- June	---	---	---	---	0.30	3.45	73.89	77.34
Scouting	---	1	June	---	---	---	---	---	---	16.00	16.00
Insect Control	---	1	June	---	---	---	---	---	---	24.00	24.00
Irrigation	---	6	June-July	1.41	0.80	---	---	0.83	9.66	57.48	69.35
Roguing	---	3	May-July	---	---	---	---	9.00	103.50	---	103.50
Swath Mint Field	0.080	1	July	3.07	8.19	---	---	1.09	16.44	---	27.70
Combine Mint Field	1.000	1	Aug	77.38	260.71	---	---	2.21	33.15	---	366.24

Table 4. Peppermint production year: Estimated per-acre resource costs for field operations.

Operation	Perf. Rate	Times Over	Month	Power Unit Cost		Equipment Cost		Labor		Operating Input	Total Cost
	Hours/acre			Variable	Fixed	Variable	Fixed	Hours	\$	\$	\$
Chop & Spread Stems	0.100	1	Aug	2.73	2.92	0.45	1.75	0.12	1.82	---	9.67
Irrigation/Weed Control	---	1	Aug	0.24	0.13	---	---	0.13	1.61	19.75	21.73
Irrigation	---	5	Oct	1.18	0.67	---	---	0.69	8.05	40.48	50.38
Weed Control	---	1	Nov	---	---	---	---	---	---	74.93	74.93
Weed Control	---	1	Feb	---	---	---	---	---	---	48.64	48.64
Pick Rock	---	1	Mar	--	---	---	---	2.20	25.30	---	25.30
Roll Mint	0.100	1	Apr	2.73	2.92	0.11	0.61	0.12	1.82	---	8.19
Fertilize Field	---	1	May	---	---	---	---	---	---	166.44	166.44
Irrigation/Fertilize	---	3	May- June	0.71	0.40	---	---	0.41	4.83	69.44	75.38
Scouting	---	1	June	---	---	---	---	---	---	16.00	16.00
Insect Control	---	1	June	---	---	---	---	---	---	24.00	24.00
Irrigation	---	6	June-July	1.41	0.80	---	---	0.83	9.66	48.57	58.23
Roguing	---	3	May-July	---	---	---	---	9.00	103.50	---	103.50
Swath Mint Field	0.080	1	July	3.07	8.19	---	---	1.09	16.44	---	27.70
Combine Mint Field	1.000	1	Aug	77.38	260.71	---	---	2.21	33.15	---	366.24

Table 5. Self-propelled machines, tractors, and implements: Estimated performance rating, useful life, annual use, purchase price, repair cost, fuel consumption rating, and direct and fixed cost per hour and acre.

Item Name	Size	Purchase Price	Annual Use	Useful Life	Fuel Use	Perf. Rate	Variable Cost		Fixed Cost		Total Cost	
		\$	Hours	Years	Gallons/ hour	Hours/ acre	\$/hour	\$/acre	\$/hour	\$/acre	\$/hour	\$/acre
Combine w/ pickup	14 ft	280,000	100	20	7.59	0.500	---	48.46	---	136.47	---	184.93
Swather	12 ft	126,000	120	20	4.04	0.300	---	16.77	---	30.70	---	47.48
ATV	20 hp	6,000	200	10	1.38	0.033	---	0.69	---	0.13	---	0.82
2wd Cab tractor	130 hp	90,000	400	20	6.57	---	44.97	---	21.93	---	66.90	---
2wd tractor	50 hp	40,000	200	20	2.7	---	30.69	---	19.05	---	49.75	---
2wd tractor	80 hp	90,000	300	20	4.3	---	42.25	---	29.24	---	71.49	---
4wd Cab tractor	180 hp	165,000	500	20	9.1	---	54.13	---	32.16	---	86.30	---
Tractor w/ Loader	80 hp	89,000	100	25	1	---	35.65	---	80.93	---	116.58	---
Bedder bar	12 ft	3,500	100	10	---	0.2	---	8.59	---	6.78	---	15.38
Carrot roller	4 row	3,000	20	20	---	0.16	---	5.15	---	5.37	---	10.54
Chisel	10 ft	12,500	100	20	---	0.2	---	10.51	---	6.81	---	17.34
Cultimulcher	12 ft	12,000	100	20	---	0.1	---	5.68	---	3.35	---	9.04
Cultipacker	12 ft	3,000	100	20	---	0.15	---	8.25	---	3.72	---	11.98
Disk	15 ft	26,000	50	20	---	0.1	---	6.5	---	7.25	---	13.76
Drip Tape Installer	4 row	1	1	1	---	0.8	---	33.81	---	24.24	---	58.06
Electric thinner	4 row	3,800	20	10	---	1	---	32.59	---	44.74	---	77.34
Fertilizer sidedress	10 ft	1	100	1	---	0.25	---	10.56	---	7.31	---	17.87
Flail Mower	15 ft	18,000	100	20	---	0.1	---	3.51	---	3.65	---	7.18
Flamer	30 ft	18,000	50	20	---	0.16	---	6.92	---	8.65	---	15.59
Flex harrow	20 ft	10,000	100	25	---	0.08	---	2.87	---	2.24	---	5.12
Land leveler	20 ft	18,000	25	20	---	0.16	---	10.07	---	14.72	---	24.81
Mint planter	16 ft	12,000	20	25	---	0.5	---	37.14	---	41.36	---	78.51
Mint Rake	12 ft	5,000	20	20	---	0.01	---	0.33	---	0.43	---	0.77
Paper roller	10 ft	3,000	20	20	---	0.5	---	16.09	---	16.83	---	32.93
Pasture harrow	12 ft	1,600	100	20	---	0.08	---	3.41	---	2.45	---	5.87
Precision planter	20 ft	9,800	75	20	---	0.2	---	8.02	---	6.35	---	14.37
Roller	20 ft	9,000	200	10	---	0.1	---	4.33	---	3.52	---	7.87
Rolling cultivator	20 ft	6,500	50	20	---	0.25	---	10.88	---	10.47	---	21.36
Row sprayer	12.5 ft	13,000	75	20	---	0.2	---	9.66	---	9.21	---	18.89
Tool bar w/shovels	20 ft	6,500	50	25	---	0.2	---	6.91	---	6.17	---	13.09