



2010 Cost of Producing Native and Scotch Spearmint Under Rill and Center-Pivot Irrigation in Washington

WASHINGTON STATE UNIVERSITY EXTENSION FACT SHEET • FS026E

Preface

Production costs and returns vary greatly for any particular farm operation due to case-specific:

- Capital, labor, and management resources
- Type and size of machinery available
- Cultural practices
- Farm size
- Crop yields
- Input prices
- Commodity prices

Cost estimation also varies with the intended use of the enterprise budget itself. The information in this publication serves as a general guide for establishing and producing spearmint in Washington State. To avoid drawing unwarranted conclusions about any particular farm or group of farms, the reader is asked to closely examine the assumptions made and adjust the costs and/or returns as appropriate for the situation.

Introduction

Washington State is the nation's leading producer of spearmint oil in Native and Scotch varieties. In 2009, 13,800 acres of spearmint (8,500 Native and 5,300 Scotch) were grown in the state. This acreage yielded 1.318 million pounds of Native Spearmint oil and 752,000 pounds of Scotch Spearmint oil (U.S. Department of Agriculture, National Agricultural Statistics Service, Washington Field Office; see Table 1).

This study describes the 2010 costs of establishing and producing Native and Scotch Spearmint oil under rill and

center-pivot irrigation systems and estimates the prices required for an economically viable enterprise.

Study Objectives

The study objectives include estimating 1) the costs of equipment, materials, supplies, and labor required for establishing and producing Native and Scotch Spearmint oil under rill and center-pivot irrigation and 2) the prices and yields needed to establish and produce a profitable venture.

The data used in this study, including input prices, were obtained from a group of experienced mint growers in

Table 1. Washington Spearmint Oil Production by Variety and Year¹

Year	Spearmint Oil Production in 1,000 Pounds		
	Native	Scotch	Annual Total
2005	661	622	1,283
2006	980	518	1,498
2007	1,106	799	1,905
2008	1,158	638	1,796
2009	1,318	752	2,070
Five-year average	1,045	666	1,710

¹Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Washington Field Office

central Washington. Their production practices and requirements for equipment, supplies, and labor form the basis for the assumptions used in this study. This represents what this group of growers considers to be the latest developments in spearmint production methods. The values reported in this study represent what growers can anticipate as their average production cost during establishment and full production, if no unforeseen crop failures occur. However, crop loss should be periodically anticipated. Individual growers should use the blanks provided on the budget's right-hand column to estimate their own costs and returns.

The primary value of this report is in identifying typical practices and corresponding costs of a modern, well-managed spearmint field. This publication is not intended to provide recommendations about production practices. However, it describes current industry trends and, as such, can be helpful in estimating the physical and financial requirements of comparable plantings.

Budget Assumptions

1. The budget and production cost items are based on a 75-acre plot in a 300-acre spearmint field within a 1,000-acre farm. Out of the 75 acres, 5 acres are dedicated to roads, loading area, irrigation system, and so on. Therefore, the costs of establishment and full production are calculated for a 70-acre plot within a 280-acre spearmint field. (There are 4 plots in the field.)
2. The land is rented. Rent value is \$310 per acre for Native and Scotch Spearmint. No land taxes are considered.
3. Irrigation costs using a center-pivot system include \$120,000 in equipment per acre. Plus, labor costs total \$15 per acre, and electrical costs amount to \$28 per acre.
4. Irrigation costs using a rill system include \$6,500 in equipment per acre, and labor costs are estimated at \$75 per acre.
5. The annual irrigation water charge is \$75 per acre for both irrigation systems.
6. Native Spearmint has a six-year life, and Scotch Spearmint has a four-year life, including the establishment years.
7. For Native Spearmint, an estimated 74 pounds of oil per acre were produced during the establishment year. Annual production during each of the five production years is 160 pounds per acre (88 pounds during the July harvest and 72 pounds during the September harvest).
8. For Scotch Spearmint, an estimated 66 pounds of oil per acre were produced during the establishment year. Annual production during each of the three production years is 157 pounds per acre (94 pounds during the July harvest and 63 pounds during the September harvest).
9. Prices received are \$15 per pound for Native Spearmint oil and \$16 per pound for Scotch Spearmint oil.

10. Interest on operating loans is assumed to be 7 percent. Return on alternative investment is also assumed to be 7 percent and represents the opportunity cost of investments in machinery and irrigation equipment.

Summary of Results

The complete detailed budget information is presented in four sets of tables as follows:

NR tables. Native Spearmint grown under rill irrigation

NCP tables. Native Spearmint grown under center-pivot irrigation

SR tables. Scotch Spearmint grown under rill irrigation

SCP tables. Scotch Spearmint grown under center-pivot irrigation

The production cost estimates given in this study provide a snapshot of the ever-changing economic conditions affecting spearmint production. Given the assumptions, the estimated total cost for a full crop of Native Spearmint under rill irrigation is \$2,483 per acre as shown in Table 2NR; for a full crop of Native Spearmint under center-pivot irrigation, the estimated total cost is \$2,660 per acre as shown in Table 2NCP. Estimated total costs for a full crop of Scotch Spearmint under rill irrigation is \$2,404 per acre as shown in Table 2SR, while total costs for a full crop of Scotch Spearmint under center-pivot irrigation is \$2,585 as shown in Table 2SCP. The estimates include such variable costs as application of herbicides, fertilizers, insecticides, and fungicides; irrigation; weeding; border spraying; harvesting and processing; market assessment; and residue disposal. Estimates also include such fixed costs as depreciation on capital, overhead, and interest to account for the cost of using the field's assets for spearmint production as opposed to alternative activities.

The following analysis is based on the cost-of-production study conducted by Hinman (2001). Assuming the production practices described in this publication, the two remaining factors that affect net returns to growers are annual yield and prices received. Four breakeven price levels are needed for different levels of cost recovery for producing spearmint; see Tables 3NR, 3NCP, 3SR, and 3SCP. The first price level covers total variable costs, or costs that occur only if the crop is produced. A price below this level indicates that the crop is uneconomical to produce even in the short run. The second price level includes total variable costs plus machinery insurance, machinery taxes, and land rent. This level indicates the operation's viability in the short run. The third breakeven price level includes total cash costs plus machinery depreciation. This level represents economic viability in the long run. The fourth breakeven price level represents the price the grower must receive to cover all cash expenses and to obtain additional returns on labor and operating capital (including capital invested in land and machinery). If growers receive returns higher than this

price, then they will cover all cash and opportunity costs and have positive returns on risk, which is not included as a production cost.

Tables 4NR, 4NCP, 4SR, and 4SCP present alternative production and price scenarios, representing prices needed to cover all cash expenses and to obtain additional returns on labor and operating capital. Different combinations of price and yield levels suggest that years in which both prices and yields are high likely result in positive returns.

Most budget values given in Tables 2NR, 2NCP, 2SR, and 2SCP are based on comprehensive underlying information, included in an Excel® spreadsheet version of the Native and Scotch Spearmint budgets and available at http://extecon.wsu.edu/pages/Enterprise_Budgets. For example, supporting information for Native Spearmint under rill irrigation is included in the Excel file “Native under rill.xls.” In this file, the reader can find details of the data used to create establishment budgets, information on creating full production budgets, machinery and building requirements, and hourly machinery use and activity cost (including machinery depreciation; interest; housing, taxes, and insurance; labor; repair; and fueling and lubrication).

Similar information for Native Spearmint under center-pivot irrigation, Scotch Spearmint under rill irrigation, and Scotch Spearmint under center-pivot irrigation can be found in the Excel files “Native under center pivot.xls,” “Scotch under rill.xls,” and “Scotch under center pivot.xls,” respectively. Growers can use the spreadsheet as a starting point for collecting and analyzing cost data to make informed decisions about cost structures for a spearmint field being established and in full production.

Concluding Remarks

This manuscript presents a description of current industry practices and average industry costs. It is not the intention of this publication to recommend practices or to describe costs representing a specific enterprise. This budget provides a guide to help derive budgets for individual enterprises. As such, to use this study, one should fully comprehend the procedures and assumptions and interpret the results accordingly.

References

- Hinman, H. 2001. Cost of Producing Native and Scotch Spearmint Under Rill and Side-Roll Irrigation Central Washington. Washington State University Extension, EB1745E. http://extecon.wsu.edu/pages/Enterprise_Budgets
- U.S. Department of Agriculture National Agricultural Statistics Service, Washington Field Office. 2010. Specialty Commodities Historic Data, Spearmint 1959–2009. http://www.nass.usda.gov/Statistics_by_State/Washington/Historic_Data/specialty/spearmint.pdf

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Table 2NR. Cost Per Acre of Establishing and Producing Native Spearmint Under Rill Irrigation

	Establishing Year	Full Production Years 2-6	Your Costs
Estimated Production (pounds of oil per acre)	74	160	_____
Estimated Price (per pound)	15	15	_____
Total Returns (per acre)	1,110.00	2,400.00	_____
Variable Costs (per acre)			
<u>Establishment</u>			
Soil Preparation (includes labor for disk, rip, chisel plow, and roll harrow)	33.00	—	_____
Planting (costs of plants and labor)	400.00	—	_____
<u>Field Activities (cost of chemical and application)</u>			
Herbicide Application	105.50	190.60	_____
Fertilizing	308.53	327.46	_____
Insecticide and Fungicide Application	20.50	68.95	_____
Irrigation and Polyacrylamide (PAM) Application	177.02	160.26	_____
Weeding	35.00	—	_____
Cultivating, Ditching, and Harrowing (labor only)	14.40	9.60	_____
Field Border Spraying	12.00	12.00	_____
<u>Harvest</u>			
Custom Harvesting and Processing	333.00	720.00	_____
Market Assessment	11.10	24.00	_____
Residue Disposal	20.00	40.00	_____
<u>Maintenance and Repairs</u>			
Machinery Repair	54.29	54.29	_____
Machinery Fueling and Lubrication	95.62	95.62	_____
<u>Other Variable Costs</u>			
Crop Insurance	14.00	14.00	_____
Overhead (3% of variable costs)	49.02	51.50	_____
Total Variable Costs	1,682.98	1,768.28	_____
Fixed Costs (per acre)			
Machine Depreciation	101.19	101.19	_____
Machine Interest	62.51	62.51	_____
Machine Housing, Insurance, and Taxes	15.77	15.77	_____
Land Rent	310.00	310.00	_____
Management Charge	100.00	100.00	_____
Prorated First-Year Loss	—	283.51	_____
Total Fixed Costs	589.46	872.97	_____
Total Cost (per acre)	2,272.44	2,641.25	_____
Net First-Year Loss	(1,162.44)		_____
Second-Year Revenue		(241.25)	_____

Table 2NCP. Cost Per Acre of Establishing and Producing Native Spearmint Under Center-Pivot Irrigation

	Establishing Year	Full Production Years 2-6	Your Costs
Estimated Production (pounds of oil per acre)	74	160	
Estimated Price (per pound)	15	15	
Total Returns (per acre)	1,110.00	2,400.00	
Variable Costs (per acre)			
<u>Establishment</u>			
Soil Preparation (includes labor for disk, rip, chisel plow, and roll harrow)	33.00	—	
Planting (costs of plants and labor)	400.00	—	
<u>Field Activities (cost of chemical and application)</u>			
Harrowing	3.60	—	
Herbicide Application	130.86	180.65	
Fertilizing	303.78	256.46	
Fertigation	—	137.38	
Insecticide and Fungicide Application	15.50	68.95	
Irrigation (labor, electricity, and water charge)	118.00	118.00	
Weeding	35.00	10.00	
Field Border Spraying	12.00	12.00	
<u>Harvest</u>			
Custom Harvesting and Processing	333.00	720.00	
Market Assessment	11.10	24.00	
Residue Disposal	20.00	40.00	
<u>Maintenance and Repairs</u>			
Machinery Repair	44.02	44.02	
Machinery Fueling and Lubrication	85.58	85.58	
<u>Other Variable Costs</u>			
Crop Insurance	14.00	14.00	
Overhead (3% of variable costs)	46.78	51.33	
Total Variable Costs	1,606.22	1,762.35	
Fixed Costs (per acre)			
Machine Depreciation	102.20	102.20	
Machine Interest	82.86	82.86	
Machine Housing, Insurance, and Taxes	12.97	12.97	
Land Rent	310.00	310.00	
Management Charge	100.00	100.00	
Prorated First-Year Loss	—	269.32	
Total Fixed Costs	608.03	877.35	
Total Cost (per acre)	2,214.25	2,639.70	
Net First-Year Loss	(1,104.25)		
Second-Year Revenue		(239.70)	

Table 2SR. Cost Per Acre of Establishing and Producing Scotch Spearmint Under Rill Irrigation

	Establishing Year	Full Production Years 2-4	Your Costs
Estimated Production (pounds of oil per acre)	66	157	
Estimated Price (per pound)	16	16	
Total Returns (per acre)	1,056.00	2,512.00	
Variable Costs (per acre)			
<u>Establishment</u>			
Soil Preparation (includes labor for disk, rip, chisel plow, and roll harrow)	33.00	—	
Fumigation	154.00	—	
Planting (costs of plants and labor)	600.00	—	
<u>Field Activities (cost of chemical and application)</u>			
Harrowing	14.63	—	
Root Boar Control	—	37.95	
Herbicide Application	143.73	98.41	
Fertilizing	266.28	226.44	
Insecticide, Fungicide, and Nematicide Application	60.55	236.71	
Irrigation and Polyacrylamide (PAM) Application	166.00	150.00	
Weeding	35.00	—	
Cultivating and Ditching	43.90	67.67	
Field Border Spraying	12.00	12.00	
<u>Harvest</u>			
Custom Harvesting and Processing	297.00	706.50	
Market Assessment	9.90	23.55	
Residue Disposal	20.00	40.00	
<u>Maintenance and Repairs</u>			
Machinery Repair	54.29	54.29	
Machinery Fueling and Lubrication	95.62	95.62	
<u>Other Variable Costs</u>			
Crop Insurance	14.00	14.00	
Overhead (3% of variable costs)	60.60	52.89	
Total Variable Costs	2,080.51	1,816.04	
Fixed Costs (per acre)			
Machine Depreciation	101.19	101.19	
Machine Interest	62.51	62.51	
Machine Housing, Insurance, and Taxes	15.77	15.77	
Land Rent	310.00	310.00	
Management Charge	100.00	100.00	
Prorated First-Year Loss	—	615.01	
Total Fixed Costs	589.46	1,204.47	
Total Cost (per acre)	2,669.97	3,020.51	
Net First-Year Loss	(1,613.97)		
Second-Year Revenue		(508.51)	

Table 2SCP. Cost Per Acre of Establishing and Producing Scotch Spearmint Under Center-Pivot Irrigation

	Establishing Year	Full Production Years 2-4	Your Costs
Estimated Production (pounds of oil per acre)	66	157	_____
Estimated Price (per pound)	16	16	_____
Total Returns (per acre)	1,056.00	2,512.00	_____
Variable Costs (per acre)			
<u>Establishment</u>			
Soil Preparation (includes labor for disk, rip, chisel plow, and roll harrow)	33.00	—	_____
Fumigation	119.00	—	_____
Planting (costs of plants and labor)	600.00	—	_____
<u>Field Activities (cost of chemical and application)</u>			
Harrowing	3.60	—	_____
Root Boar Control	—	41.95	_____
Herbicide Application	118.00	108.76	_____
Fertilizing	238.41	346.71	_____
Fertigation	47.13	—	_____
Insecticide, Fungicide, and Nematicide Application	154.90	318.31	_____
Irrigation (labor, electricity, and water charge)	118.00	118.00	_____
Weeding	35.00	—	_____
Field Border Spraying	12.00	12.00	_____
<u>Harvest</u>			
Custom Harvesting and Processing	297.00	706.50	_____
Market Assessment	9.90	23.55	_____
Residue Disposal	20.00	40.00	_____
<u>Maintenance and Repairs</u>			
Machinery Repair	44.02	44.02	_____
Machinery Fueling and Lubrication	85.58	85.58	_____
<u>Other Variable Costs</u>			
Crop Insurance	14.00	14.00	_____
Overhead (3% of variable costs)	58.49	55.78	_____
Total Variable Costs	2,008.01	1,915.16	_____
Fixed Costs (per acre)			
Machine Depreciation	102.20	102.20	_____
Machine Interest	82.86	82.86	_____
Machine Housing, Insurance, and Taxes	12.97	12.97	_____
Land Rent	310.00	310.00	_____
Management Charge	100.00	100.00	_____
Prorated First-Year Loss	—	594.46	_____
Total Fixed Costs	608.03	1,202.49	_____
Total Cost (per acre)	2,616.05	3,117.65	_____
Net First-Year Loss	(1,560.05)		_____
Second-Year Revenue		(605.65)	_____

Table 3NR. Breakeven Selling Prices Per Pound of Native Spearmint Oil Produced Under Rill Irrigation ^[1]

	Cost Per Acre	Your Cost	Breakeven Price (per pound)	Your Cost (per pound)
1. Total Variable Cost	1,768.28	_____	11.05 ^[2]	_____
2. Total Cash Costs	2,094.05	_____	13.09 ^[3]	_____
Total Variable Cost	1,768.28	_____		_____
Machinery Insurance and Taxes	15.77	_____		_____
Land Rent	310.00	_____		_____
3. Total Cash Cost and Depreciation	2,195.23	_____	13.72 ^[4]	_____
Total Cash Costs	2,094.05	_____		_____
Machinery Depreciation	101.19	_____		_____
4. Total Cost	2,641.25	_____	16.51 ^[5]	_____
Total Cash Cost and Depreciation	2,195.23	_____		_____
Machinery Interest	62.51	_____		_____
Management	100.00	_____		_____
Prorated First-Year Loss	283.51	_____		_____

^[1] Assumes a production of 160 pounds of Native Spearmint oil.

^[2] If price is below this level, the crop is uneconomical to produce.

^[3] Price allows producer to stay in business in the short run.

^[4] Price allows producer to stay in business in the long run.

^[5] Price covers all cash and opportunity costs.

Table 3NCP. Breakeven Selling Prices Per Pound of Native Spearmint Oil Produced Under Center-Pivot Irrigation ^[1]

	Cost Per Acre	Your Cost	Breakeven Price (per pound)	Your Cost (per pound)
1. Total Variable Cost	1,762.35	_____	11.01 ^[2]	_____
2. Total Cash Costs	2,085.32	_____	13.03 ^[3]	_____
Total Variable Cost	1,762.35	_____		_____
Machinery Insurance and Taxes	12.97	_____		_____
Land Rent	310.00	_____		_____
3. Total Cash Cost and Depreciation	2,187.52	_____	13.67 ^[4]	_____
Total Cash Costs	2,085.32	_____		_____
Machinery Depreciation	102.20	_____		_____
4. Total Cost	2,639.70	_____	16.50 ^[5]	_____
Total Cash Cost and Depreciation	2,187.52	_____		_____
Machinery Interest	82.86	_____		_____
Management	100.00	_____		_____
Prorated First-Year Loss	269.32	_____		_____

^[1] Assumes a production of 160 pounds of Native Spearmint oil.

^[2] If price is below this level, the crop is uneconomical to produce.

^[3] Price allows producer to stay in business in the short run.

^[4] Price allows producer to stay in business in the long run.

^[5] Price covers all cash and opportunity costs.

Table 3SR. Breakeven Selling Prices Per Pound of Scotch Spearmint Oil Produced Under Rill Irrigation^[1]

	Cost Per Acre	Your Cost	Breakeven Price (per pound)	Your Cost (per pound)
1. Total Variable Cost	1,816.04	_____	11.57 ^[2]	_____
2. Total Cash Costs	2,141.81	_____	13.64 ^[3]	_____
Total Variable Cost	1,816.04	_____		_____
Machinery Insurance and Taxes	15.77	_____		_____
Land Rent	310.00	_____		_____
3. Total Cash Cost and Depreciation	2,243.00	_____	14.29 ^[4]	_____
Total Cash Costs	2,141.81	_____		_____
Machinery Depreciation	101.19	_____		_____
4. Total Cost	3,020.51	_____	19.24 ^[5]	_____
Total Cash Cost and Depreciation	2,243.00	_____		_____
Machinery Interest	62.51	_____		_____
Management	100.00	_____		_____
Prorated First-Year Loss	615.01	_____		_____

^[1] Assumes a production of 157 pounds of Scotch Spearmint oil.

^[2] If price is below this level, the crop is uneconomical to produce.

^[3] Price allows producer to stay in business in the short run.

^[4] Price allows producer to stay in business in the long run.

^[5] Price covers all cash and opportunity costs.

Table 3SCP. Breakeven Selling Prices Per Pound of Scotch Spearmint Oil Produced Under Center-Pivot Irrigation^[1]

	Cost Per Acre	Your Cost	Breakeven Price (per pound)	Your Cost (per pound)
1. Total Variable Cost	1,915.16	_____	12.20 ^[2]	_____
2. Total Cash Costs	2,238.13	_____	14.26 ^[3]	_____
Total Variable Cost	1,915.16	_____		_____
Machinery Insurance and Taxes	12.97	_____		_____
Land Rent	310.00	_____		_____
3. Total Cash Cost and Depreciation	2,340.33	_____	14.91 ^[4]	_____
Total Cash Costs	2,238.13	_____		_____
Machinery Depreciation	102.20	_____		_____
4. Total Cost	3,117.65	_____	19.86 ^[5]	_____
Total Cash Cost and Depreciation	2,340.33	_____		_____
Machinery Interest	82.86	_____		_____
Management	100.00	_____		_____
Prorated First-Year Loss	594.46	_____		_____

^[1] Assumes a production of 157 pounds of Scotch Spearmint oil.

^[2] If price is below this level, the crop is uneconomical to produce.

^[3] Price allows producer to stay in business in the short run.

^[4] Price allows producer to stay in business in the long run.

^[5] Price covers all cash and opportunity costs.

Table 4NR. Estimated Net Returns Per Acre at Various Price and Yield of Native Spearmint Under Rill Irrigation in a Full Production Year

Yield (pounds per acre)	Price (per pound)				
	13.00	14.00	15.00	16.00	17.00
130	(807.56)	(677.56)	(547.56)	(417.56)	(287.56)
135	(766.51)	(631.51)	(496.51)	(361.51)	(226.51)
140	(725.46)	(585.46)	(445.46)	(305.46)	(165.46)
145	(684.41)	(539.41)	(394.41)	(249.41)	(104.41)
150	(643.35)	(493.35)	(343.35)	(193.35)	(43.35)
155	(602.30)	(447.30)	(292.30)	(137.30)	17.70
160	(561.25)	(401.25)	(241.25)	(81.25)	78.75
165	(520.20)	(355.20)	(190.20)	(25.20)	139.80
170	(479.14)	(309.14)	(139.14)	30.86	200.86
175	(438.09)	(263.09)	(88.09)	86.91	261.91
Overhead	3%				

Table 4NCP. Estimated Net Returns Per Acre at Various Price and Yield of Native Spearmint Under Center-Pivot Irrigation in a Full Production Year

Yield (pounds per acre)	Price (per pound)				
	13.00	14.00	15.00	16.00	17.00
130	(806.02)	(676.02)	(546.02)	(416.02)	(286.02)
135	(764.96)	(629.96)	(494.96)	(359.96)	(224.96)
140	(723.91)	(583.91)	(443.91)	(303.91)	(163.91)
145	(682.86)	(537.86)	(392.86)	(247.86)	(102.86)
150	(641.81)	(491.81)	(341.81)	(191.81)	(41.81)
155	(600.75)	(445.75)	(290.75)	(135.75)	19.25
160	(559.70)	(399.70)	(239.70)	(79.70)	80.30
165	(518.65)	(353.65)	(188.65)	(23.65)	141.35
170	(477.60)	(307.60)	(137.60)	32.40	202.40
175	(436.54)	(261.54)	(86.54)	88.46	263.46
Overhead	3%				

Table 4SR. Estimated Net Returns Per Acre at Various Price and Yield of Scotch Spearmint Under Rill Irrigation in a Full Production Year

Yield (pounds per acre)	Price (per pound)					
	14.00	15.00	16.00	17.00	18.00	19.00
137	(1,006.72)	(869.72)	(732.72)	(595.72)	(458.72)	(321.72)
142	(960.67)	(818.67)	(676.67)	(534.67)	(392.67)	(250.67)
147	(914.62)	(767.62)	(620.62)	(473.62)	(326.62)	(179.62)
152	(868.57)	(716.57)	(564.57)	(412.57)	(260.57)	(108.57)
157	(822.51)	(665.51)	(508.51)	(351.51)	(194.51)	(37.51)
162	(776.46)	(614.46)	(452.46)	(290.46)	(128.46)	33.54
167	(730.41)	(563.41)	(396.41)	(229.41)	(62.41)	104.59
172	(684.36)	(512.36)	(340.36)	(168.36)	3.64	175.64
177	(638.30)	(461.30)	(284.30)	(107.30)	69.70	246.70
Overhead	3%					

Table 4SCP. Estimated Net Returns Per Acre at Various Price and Yield of Scotch Spearmint Under Center-Pivot Irrigation in a Full Production Year

Yield (pounds per acre)	Price (per pound)					
	14.00	15.00	16.00	17.00	18.00	19.00
137	(1,103.86)	(966.86)	(829.86)	(692.86)	(555.86)	(418.86)
142	(1,057.81)	(915.81)	(773.81)	(631.81)	(489.81)	(347.81)
147	(1,011.76)	(864.76)	(717.76)	(570.76)	(423.76)	(276.76)
152	(965.71)	(813.71)	(661.71)	(509.71)	(357.71)	(205.71)
157	(919.65)	(762.65)	(605.65)	(448.65)	(291.65)	(134.65)
162	(873.60)	(711.60)	(549.60)	(387.60)	(225.60)	(63.60)
167	(827.55)	(660.55)	(493.55)	(326.55)	(159.55)	7.45
172	(781.50)	(609.50)	(437.50)	(265.50)	(93.50)	78.50
177	(735.44)	(558.44)	(381.44)	(204.44)	(27.44)	149.56
Overhead	3%					



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Photo courtesy of Richard Old, XID Services, Inc., Bugwood.org.

Use pesticides with care. Apply them only to plants, animals, or sites as listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

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