Costs of Asparagus Production in Western Michigan
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COSTS OF ASPARAGUS PRODUCTION IN WESTERN MICHIGAN

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By Myron Kelsey and Archibald Johnson[1]

THIS COST EVALUATION of asparagus production in western Michigan is an update and projection of costs developed from small group discussions with asparagus growers in prior years. Growers described common growing and harvesting practices used by average asparagus growers of the area. They agreed upon the size of asparagus acreage, equipment, and cultural practices generally used by an average asparagus grower.

These figures do not reflect the average cost of asparagus production for all growers because costs vary considerably from farm to farm.

The data can help a grower develop his costs and better evaluate his farm situation. Each of the appropriate tables in this report includes a "Your Farm Cost" column for a grower to note costs for a particular operation. Where his costs cannot be determined, the grower may wish to adjust and substitute the study data.

The data assume equipment and labor available for a hypothetical farm of 100 acres of diversified tree fruit, including 40 acres of asparagus. However, the data in Table 1 are presented for 10 acres of asparagus, since it may be easier for a grower to visualize many of the resource inputs on this basis. Per-acre costs, as shown in Tables 2 through 5 can be determined from Table 1, by dividing by 10.

This full-time labor classification includes the working time of the operator and regular hired help devoted to asparagus. Operator labor is not considered a cash expense by producers; but to allow for differences in the proportion of work performed by regular hired help, which is a cash expense, or the operator, both have been included at the $4.00 per hour rate. As a result, producers who do a major portion of the work may have a lower cash labor cost than the figures indicate. Part-time labor was charged at the minimum wage rate of $2.90 per hour and full time labor at $3.50 per hour. Employee's share of Social Security is 6.13% and the proposed worker's compensation rate of 6.9% gives an effective wage of $4.00 and $3.31 per hour.

Some major factors considered in the computation of equipment costs are initial cost, salvage value, years of life, annual usage, repair costs, insurance, interest and operating expenses such as gas and oil. The operating costs for each piece of equipment are charged to the crop in Table 1 on the basis of direct hourly use of the equipment.

Variable costs are those that change directly with increases or decreases in the acreage of asparagus or yield with harvesting cost. Examples of costs which vary with acreage are spray material, fertilizer, hired labor, and machinery operating costs. Costs that vary directly with harvest yields are harvest hours and machinery time.

Variable costs incurred in asparagus production are categorized by labor, machinery and materials in Table 2. The details of hours and type of labor, machinery used and hours of use, and kinds and amounts of material used by operation are shown in Table 1. If a grower's costs for particular items are substantially higher than those shown, he may need to analyze those components closely to see if they can be reduced. A high cost for a particular component may be justified if it contributes to a sufficiently high yield or improved quality.

Nearly all commercial units use a small gasoline-powered vehicle which provides a riding capacity for four or five harvest workers as they snap the asparagus spears by hand. The spears are carried on the harvest vehicle to the end of the row where they are dumped into a bulk box which is moved by a tractor lift. These variable costs of harvesting are included in Table 3. Labor is the major cost. Therefore, good labor management should enhance the profit picture. In most cases, there will be some higher or lower costs for some items associated with higher or lower yields.

The overhead or fixed cost for asparagus production (Table 4) includes allocation of machinery overhead on the basis of the proportion of total farm use in asparagus, interest on investment, depreciation of initial investment in asparagus crowns, and property taxes. The fixed costs of machinery are allocated to

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Table 1. Growing operations and related variable costs for 10 acres of asparagus production in Michigan - 1979

Operation	Labor			Machinery				Materials		Total Cost Per 10 Acres	Your Farm Cost
	Labor Hr. Per 10 Acres	Wage Rate	Cost	Equipment Used	Hours of Use	Cost Per Hour of Use	Cost	Item	Cost Per 10 Acres		
Fall											
Soil test	2	$4.00	$ 8.00					2 tests @ $4.00	$ 8.00	$ 16.00	_____
Lime	--	--	--					5 T, $13.00 applied	65.00	65.00	_____
Weed spray	8	4.00	32.00	Tractor (40 HP)	8	$ 2.21	$17.68	Roundup, 2 qt @$13/qt.	260.00	312.72	_____
				Weed sprayer	8	.38	3.04				
Plow	6	4.00	24.00	Tractor (60 HP)	6	2.95	17.70			45.00	_____
				Plow	6	.55	3.30				
Disc & Drag	6	4.00	24.00	Tractor (60 HP)	6	2.95	17.70			45.72	_____
				Disc	6	.55	3.30				
				Drag	6	.12	.72				
Seeding rye	4	4.00	16.00	Tractor (40 HP)	4	2.21	8.84	Rye--2 bu. @ $30.00/bu.	60.00	734.02	_____
				Fert. spreader	4	.70	2.80	500# 18-46-0 @$169/T.	422.50		
				Drag	4	.12	.48	300# 0-0-60 @$120/T.	180.00		
	8	4.00	32.00	Truck	60 mi.	.19	11.40				
Interest on prior to planting year costs ($1,218.46 X 8% X 3/4 year)									73.11	73.11	
Total			$136.00				$86.96		$1068.61	$1291.57	

Asparagus (continued)

Operation	Labor Hr. Per 10 Acres	Wage Rate	Labor Cost	Machinery Equipment Used	Hours of Use	Cost Per Hour of Use	Machinery Cost	Materials Item	Materials Cost Per 10 Acres	Total Cost Per 10 Acres	Your Farm Cost
Planting Year											
Fertilize	4	$4.00	$ 16.00	Tractor (40 HP)	4	$2.21	$ 8.84	100# Am. Nitrate @$145/T.	$ 72.50	$107.94	
				Spreader	4	.70	2.80				
	1	4.00	4.00	Truck	20 mi	.19/mi	3.80				
Plow	6	4.00	24.00	Tractor (60 HP)	6	2.95	17.70			45.72	
				Plow	6	.55	3.30				
				Drag	6	.12	.72				
Planting	4	4.00	16.00	Tractor (60 HP)	4	2.95	11.80	12,000 rows @$25/1000	3,000.00	3,427.20	
- farrow	120	3.31	397.20	Plow	4	.55	2.20				
Cultivate 2x	10	4.00	40.00	Tractor (40 HP)	4	2.21	8.84			49.96	
				Cultivator	4	.28	1.12				
Weed spray	4	4.00	16.00	Tractor (40 HP)	4	2.21	8.84	Amibes 2# (active)@$6/#	120.00	146.36	
				Sprayer	4	.38	1.52				
Spraying 6x	15	4.00	60.00	Tractor (40 HP)	15	2.21	33.15	Sevin 1#/A @$1.48/#	88.80	231.15	
				Sprayer	15	.38	5.70	Maneb 1#/A @$1.45/# (3 sprays)	43.50		
Interest on planting year costs ($4008.33 X 8% X 1/2 year) + interest on prior to planting year ($1291.57 + 8%)									263.67	263.67	
Totals - Planting Year			$573.20				$110.33		$3588.47	$4272.00	
Normal Operating Year											
Mow	2.5	$4.00	$ 10.00	Tractor (40 HP)	2.5	$2.21	$ 5.53			$ 19.78	
				Rotary Mower	2.5	1.70	4.25				
Fertilize	4	4.00	16.00	Tractor (40 HP)	4	2.21	8.84	200# 0-48-0 @$120/T.	$120.00	390.64	
				Spreader	4	.70	2.80	300# 0-0-60 @$132/T.	198.00		
				NH_3 spreader				50# NH_3 @$180/T.	45.00		
Management	50	4.00	200.00	Pickup truck	750 mi.	.12 mi	90.00			290.00	
Weed sprayer	4	4.00	16.00	Tractor (40 HP)	4	2.21	8.84	1-1/4# Karmex @$3.00/#	37.50	63.86	
				Sprayer	4	.38	1.52				
Spray - 6x	15	4.00	60.00	Tractor (40 HP)	15	2.21	33.15	Sevin 1#/A @ $1.48/#	88.80	231.15	
				Weed sprayer	15	.38	5.70	Maneb 1#/A @ $1.45/# (3 sprays)	43.50		
Interest on operating year ($995.43 X 8% X 1/4 year)									19.91	19.91	
Totals Normal Year			$302.00				$160.63		$552.71	$1015.34	

(Continued from page 1)

asparagus on the basis of hours of use on asparagus relative to the total hours of use of the equipment on the farm. Fixed costs on machinery include depreciation, interest on investment, insurance and housing costs (interest, insurance and housing equal 9.7 percent of average value.)

A grower should evaluate his own farm situation and decide whether fixed costs should be considered as part of the total cost for his decision-making purposes. For instance, overhead is a fixed cost to the owner of an asparagus acreage but a variable cost for the operator, if rented.

Per-acre yields are very important factors in determining production costs per cwt. of asparagus. (Table 5). Variable costs per cwt. are based on the fact that preharvest costs per acre, such as spraying and fertilization do not vary greatly regardless of the yield obtained.

Table 2. Variable Costs Per Acre of Growing Asparagus in Michigan in 1979

Operation	Labor	Machinery	Materials	Total	Your farm
Fall (prior to planting years)					
Soil test	$ .80		$ .80	$ 1.60	
Lime			6.50	6.50	
Weed spray	3.20	$ 2.07	26.00	31.27	
Plow	2.40	2.10		4.50	
Disc and drag	2.40	2.17		4.57	
Seeding rye	4.80	2.35	66.25	73.40	
Interest			7.31	7.31	
Total	$13.60	$ 8.69	$106.86	$129.15	
Planting year					
Fertilize	$ 2.00	$ 1.53	$ 7.25	$ 10.78	
Plow	2.40	2.18		4.58	
Planting	41.32	1.40	300.00	342.72	
Cultivate	4.00	1.00		5.00	
Weed	1.60	1.04	12.00	14.64	
Spray	6.00	3.88	13.23	23.11	
Interest			26.37	26.37	
Total planting year	$57.32	$11.03	$358.85	$427.20	
Normal growing year					
Mow	$ 1.00	$ .98		$ 1.98	
Fertilize	1.60	1.16	$ 36.30	39.06	
Management	20.00	9.00		29.00	
Weed spraying	1.60	1.04	3.75	6.39	
Spraying	6.00	3.88	13.23	23.11	
Interest			1.99	1.99	
Total normal year	$30.20	$16.06	$ 55.27	$101.53	

Table 3. Variable Harvest Costs for 1 Acre of Asparagus (1979).

	Hours	Rate	Total cost	Your farm
Labor				
Full time	9	$4.00	$ 36.00	
Hourly	34	3.31	112.50	
Equipment				
Tractor	1	2.21	2.21	
Cart	7.2	1.80	12.96	
Lift	1	1.04	1.04	
Truck	20 mi	.19/mi	3.80	
Total			$168.51	
Cost per pound			$ .12	

Table 4. Asparagus Overhead Costs Per Acre in Michigan (1979).

Cost item	Totals	Your farm
Equipment	$ 17.90	
Interest on land ($800 @ 5%)	40.00	
Taxes	15.00	
Interest on average value of establishment costs [($556.35 + 2 year overhead [$145.80] @ 8%) ÷ 2]	28.09	
Depreciation of establishment costs ($556.35 + [2 × $145.80] ÷ 10)	$84.79	
TOTAL	$185.78	

Table 5 — Effect of Yield on Costs for 1 Acre of Asparagus in Michigan (1979).

Harvest yield	Variable growing	Variable harvest	Total variable	Your farm	Overhead	Total
Lb per acre			---------- cents per pound ----------			
1000	10.1	12.0	22.1		18.6	40.7
1200	8.4	12.0	20.4		15.5	35.9
1400	7.3	12.0	19.3		13.3	32.6
1600	6.3	12.0	18.3		11.6	29.9
1800	5.6	12.0	17.6		10.3	27.9
2000	5.1	12.0	17.1		9.3	26.4

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