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Michigan State University Extension Service

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COST OF PRODUCING BLUEBERRIES IN SOUTHWESTERN MICHIGAN



By Myron P. Kelsey,¹ Theodore M. Thomas,² W. Conard Search³ and Uta Kniese⁴

This cost evaluation of blueberry production in southwestern Michigan is a projection of costs developed through small group discussions with blueberry growers. Growers described common growing and harvesting practices used by average growers in the area. They agreed on the size of blueberry acreage, equipment and cultural practices generally used by an average grower.

These figures do not reflect the average cost of blueberry production for all growers in the state because costs vary considerably by area in the state and from farm to farm. The data can, however, help you develop your costs and better evaluate your farm situation. Each of the appropriate tables in this report includes a "Your farm" column for you to note your costs for particular operations in the total blueberry enterprise. For operations where you cannot determine your costs, you may wish to adjust and substitute the study data.

The assembled data assume that equipment and labor are available for a hypothetical farm of 80 acres of blueberries. However, the data in Table 1 are presented for 10 acres because it may be easier for you to visualize many of the resource inputs on this basis.

LABOR COSTS

The full-time labor classification includes the working time of the operator and regular hired help devoted to blueberries. Operator labor is not considered a cash expense. But, to allow for differences in the proportion of work performed by regular hired help, which is a cash expense, or by the operator, both have been included at the \$10 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.

EQUIPMENT COSTS

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, which include gas and oil and repairs for each piece of equipment, are charged to the crop in Table 1 on the basis of hours of use of the equipment.

The details of hours and types of labor, machinery used and hours of use, and kinds and amounts of materials used by operation are shown in Table 1. If your costs for particular items are substantially higher than those shown, you may need to analyze those components closely to see if

you can reduce them. A high cost for a particular component may be justified if it contributes to a sufficiently higher yield or improved quality.

VARIABLE COSTS

Variable costs are those that change directly with increases or decreases in the acreage of blueberries. Examples of such costs are spray material, fertilizer, hired labor and machinery operating costs. An interest charge on variable costs has not been included in these figures.

OVERHEAD COSTS

The overhead or fixed costs of blueberry production (Table 3) include allocation of machinery overhead on the basis of the proportion of total farm use in blueberries, interest on land investment and taxes. The overhead costs of machinery are allocated to blueberries on the basis of hours of use relative to the total hours of use of the equipment on the farm. Overhead costs on machinery include depreciation, interest on investment, insurance and housing costs (interest, insurance and housing equal 12.7 percent of average value).

Also included in overhead costs is an interest charge on the real estate value and average value of the blueberry bushes. If the acreage is being financed, this is an out-of-pocket cost. If the acreage is paid for, then interest is part of the return on investment for the owner. An acquisition cost of \$6,000 per acre was determined for the bushes, which was depreciated over a 25-year life.

You need to evaluate your farm situation and decide whether to consider fixed costs as part of the total costs for decision-making purposes.

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Table 1. Growing operations and related variable cost for 10 acres of blueberries, southwestern Michigan, 1989.

Operation	Labor			Equipment	Machinery					Item	Cost per 10 acres	Total variable cost	Your farm
	Labor (hr)	Wage rate	Cost		Hours of use	Unit var. cost	Total var. Cost	Fixed unit cost	Total fixed cost				
Pruning	9,000	\$0.15	\$1,350.00									\$1,350.00	
Brush removal	10	\$10.00	\$100.00	Tractor (60 hp) Flail mower Brush spider	10 10 10	\$6.79 \$1.71 \$8.00	\$67.90 \$17.10 \$8.00	\$5.93 \$4.02 \$2.00	\$59.30 \$40.20 \$20.00				\$185.00
Fertilizer: 1st application	3	\$10.00	\$30.00	Tractor (60 hp) Fertilizer spreader	3 3	\$6.79 \$1.27	\$20.37 \$3.81	\$5.93 \$8.92	\$17.79 \$26.76	Amm.sul.: 40 lb actual N @ \$0.32/lb Mg.: 5 lb/A @ \$3.33/lb 0-0-60: 45 lb/A @ \$2.28/lb	\$128.00 \$16.50 \$126.00		\$324.68
Fertilizer: 2nd application	3	\$10.00	\$30.00	Tractor (60 hp) Fertilizer spreader	3 3	\$6.79 \$1.27	\$20.37 \$3.81	\$5.93 \$8.92	\$17.79 \$26.76	Amm.sul.: 50 lb actual N/A @ \$0.32/lb		\$160.00	\$214.18
Lime (20% of acreage)	1	\$10.00	\$10.00	Tractor (60 hp) Fertilizer spreader	1 1	\$6.79 \$1.66	\$6.79 \$1.66	\$5.93 \$4.76	\$5.93 \$4.76	Hydrated lime: 1/2 ton/A @ \$45/ton		\$45.00	\$63.45
Weed control (50% of acreage sprayed)	3	\$10.00	\$30.00	Tractor (60 hp) Weed sprayer	3 3	\$6.79 \$1.93	\$20.37 \$5.79	\$5.93 \$7.11	\$17.79 \$21.33	Princep: 2 lb/A @ \$3/lb Sinbar: 1/2 lb/A @ \$18.45/lb	\$30.00 \$46.13		\$132.29
Spot weed control (50% of acreage sprayed)	20	\$7.00	\$140.00	Back pack sprayer	20	\$8.00	\$8.00	\$2.25	\$45.00	Roundup: 2 qt/A @ \$13.25/qt Sticker: 1 pt/A @ \$1.75/pt	\$132.50 \$8.75		\$281.25
Tillage	7	\$10.00	\$70.00	Tractor (60 hp) Rototiller	7 7	\$6.79 \$1.50	\$47.53 \$10.50	\$5.93 \$6.50	\$41.51 \$45.50				\$128.03
Mowing (2 times)	7	\$10.00	\$70.00	Tractor (60 hp) Rotary mower	7 7	\$6.79 \$1.71	\$47.53 \$11.97	\$5.93 \$4.02	\$41.51 \$28.14				\$129.50
Spray program													
Mummyberry	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2 2	\$6.79 \$4.98	\$13.58 \$9.96	\$5.93 \$12.15	\$11.86 \$24.30	Funginex: 24 oz/A @ \$4.45/oz	\$108.00		\$151.54
Prebloom	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2 2	\$6.79 \$4.98	\$13.58 \$9.96	\$5.93 \$12.15	\$11.86 \$24.30	Guthion: 1 qt/A @ \$5.63/qt Benlate: 1 lb/A @ \$11.00/lb Captan: 1 lb/A @ \$1.30/lb	\$56.30 \$118.00 \$13.00		\$230.04

Table 5. Effect of varying yield on cost/lb for blueberries (mechanical harvest), southwestern Michigan, 1989.

Yield/acre	Variable		Total variable cost	Your farm	Overhead cost	Total cost	Your farm
	Growing cost	Harvest cost					
3,000	0.25	\$0.30	\$0.55	-----	\$0.29	\$0.84	-----
4,000	0.19	\$0.22	\$0.41	-----	\$0.22	\$0.63	-----
5,000	0.15	\$0.18	\$0.33	-----	\$0.17	\$0.50	-----
6,000	0.13	\$0.16	\$0.29	-----	\$0.15	\$0.43	-----
7,000	0.11	\$0.14	\$0.25	-----	\$0.12	\$0.37	-----
8,000	0.09	\$0.12	\$0.21	-----	\$0.11	\$0.32	-----
9,000	0.08	\$0.11	\$0.19	-----	\$0.10	\$0.29	-----
10,000	0.08	\$0.10	\$0.18	-----	\$0.09	\$0.26	-----

Table 2. Variable harvest cost for 10 acres (5,000 lb/A) of blueberries, southwestern Michigan, 1989.

	Hours	Wage rate	Total	Your farm
Labor				
Custom harvest	50,000	\$0.18	\$9,000.00	_____
Total variable cost			\$9,000.00	_____
Variable cost per pound			\$0.18	_____

Table 3. Overhead cost for growing and harvesting 10 acres of blueberries, southwestern Michigan, 1989.

	Total	Your farm
Equipment, growing	\$1,644.93	_____
Interest on land (\$1,000/A @ 10%)	\$1,000.00	_____
Property taxes (@ \$30/A)	\$300.00	_____
Int. on avg. establishment cost (1/2 of \$6000/A @ 10%)	\$3,000.00	_____
Plantation depr. (\$6,000/A -- 25-yr)	\$2,400.00	_____
Interest on 1/2 growing cost @ 10%	\$376.29	_____
Total overhead cost	\$8,721.22	_____
Overhead cost per pound	\$0.17	_____

Table 4. Total growing and harvesting cost for 10 acres (5,000 lb/A) of blueberries, southwestern Michigan, 1989.

	Total	Your farm
Variable growing cost	\$7,525.88	_____
Variable harvest cost	\$9,000.00	_____
Overhead cost	\$8,721.22	_____
Total cost	\$25,247.10	_____
Total cost per pound	\$0.50	_____

Table 1 (continued)

Bloom	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2	\$6.79	\$13.58	\$5.93	\$11.86	Funginex: 24 oz/A @ \$.45/oz	\$108.00	
					2	\$4.98	\$9.96	\$12.15	\$24.38			\$151.54
Petal fall	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2	\$6.79	\$13.58	\$5.93	\$11.86	Captan: 5 lb/A @ \$1.38/lb	\$65.00	
					2	\$4.98	\$9.96	\$12.15	\$24.38	Diazinon: 2 lb/A @ \$2.25/lb	\$45.00	\$153.54
First cover	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2	\$6.79	\$13.58	\$5.93	\$11.86	Guthion: 1 qt/A @ \$5.63/qt	\$56.38	
					2	\$4.98	\$9.96	\$12.15	\$24.38	Captan: 4 lb/A @ \$1.38/lb	\$52.00	
										Benlate: 1 lb/A @ \$11.88/lb	\$118.00	\$269.84
Second cover	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2	\$6.79	\$13.58	\$5.93	\$11.86	Captan: 5 lb/A @ \$1.38/lb	\$65.00	
					2	\$4.98	\$9.96	\$12.15	\$24.38	Aqua malathion: 1 pt/A @ \$3.25/lb	\$32.50	\$141.04
Third cover	2	\$10.00	\$20.00	Tractor (60 hp) PTO sprayer	2	\$6.79	\$13.58	\$5.93	\$11.86	Captan: 5 lb/A @ \$1.38/lb	\$65.00	
					2	\$4.98	\$9.96	\$12.15	\$24.38	Aqua malathion: 1 pt/A @ \$3.25/lb	\$32.50	\$141.04
Fourth cover	custom applied								\$7.60/A		\$76.00	\$76.00
Bird control (20% of acreage)	custom applied								\$45/A		\$90.00	\$90.00
Plant removal	8	\$7.00	\$56.00	Tractor (60 hp) Chain	8	\$6.79	\$54.32	\$5.93	\$47.44			\$110.32
Plant inspection @ \$6/A										\$6/A	\$60.00	\$60.00
Plant replacement	20	\$7.00	\$140.00	Tractor (60 hp) Trailer	10	\$6.79	\$67.90	\$5.93	\$59.38	Plants: 5/acre @ \$1.88/plant	\$90.00	
					10	\$0.19	\$1.90	\$4.18	\$41.00			\$299.88
Irrigation (40% of acreage)	20	\$10.00	\$200.00	Repairs Electric	4	\$4.50	\$18.00	177.00	\$708.00			\$360.00
					4	\$35.58	\$142.00					
Bee rental										Hives: 3/A @ \$25/hive	\$750.00	\$750.00
Pest management/consulting										\$20/A	\$200.00	\$200.00
Pickup operation (miles)					200	\$0.16	\$32.00	\$0.38	\$76.00			\$32.00
Management & labor supervision	100	\$10.00	\$1,000.00									\$1,000.00
Miscellaneous										\$50/A	\$500.00	\$500.00
Totals	9216		\$3,366.00				\$774.40		\$1,644.93		\$3,393.48	\$7,525.88

One example of this type of consideration is the fact that interest and taxes on land are fixed costs if you own the acreage, but rent is a variable cost if you lease the plantation.

PRODUCTION COSTS

Machine harvest costs are illustrated in Table 2 for a yield of 5,000 pounds per acre. As illustrated in Table 5, the total harvest costs per acre for a grower owning a harvester would not vary with lower or higher yields, so the cost per pound for a low-yielding acreage would be higher

and the cost per pound for a high-yielding acreage would be lower. Hand harvest costs will average between 30 and 35 cents per pound. You will need to use the "Your farm" column to adjust the harvest cost figures to reflect your harvest cost and your mix of hand and mechanical harvesting.

The yield obtained per acre is a very important factor in determining production cost per pound (Table 5). In computing per pound cost, it was assumed that preharvest costs per acre, such as spraying, planting, cultivation, etc., do not vary greatly regardless of the yield obtained.



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