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Cost of Producing Sweet Cherries For the Fresh Market in Northwest Michigan  
Michigan State University Extension Service  
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October 1989  
8 pages

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# COST OF PRODUCING SWEET CHERRIES

## FOR THE FRESH MARKET IN NORTHWESTERN MICHIGAN



By Myron P. Kelsey,<sup>1</sup> Jim Bardenhagen<sup>2</sup> and Uta Kniese<sup>3</sup>

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

These figures do not reflect the average cost of sweet cherry production for all growers in the state. Costs vary considerably by area and from farm to farm.

The data can help you develop 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 a particular operation. Where costs cannot be determined, 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 200 acres of diversified tree fruit, including 40 acres of sweet cherries. However, the data in Table 1 are presented for 10 acres of sweet cherries 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 cherries. 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 same rate. As a result, producers who do a major portion of the work may have a lower cash labor cost than the figures indicate. This rate is a base rate of \$7 per hour plus Social Security, Worker's Compensation insurance and other fringes to equal \$9 per hour. Part-time labor was paid \$6 per hour, including Social Security, Worker's Compensation and other fringes.

### EQUIPMENT COSTS

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 hourly operating costs, which include only gas and oil and repairs for each piece of equipment, are given in Table 1 and are based on the direct use of the equipment. The overhead machinery costs on an hourly basis are also shown in Table 1 but are included in overhead costs only in Table 3.

### VARIABLE COSTS

Variable costs are those that change directly with increases or decreases in the acreage of sweet cherries. Examples of such costs are spray material, fertilizer, hired labor and machinery operating costs.

Variable costs incurred in sweet cherry production are categorized by labor, machinery and materials in Table 1. Included in Table 1 are the details of hours and types of labor, machinery used and hours of use, and kinds and amounts of materials used by operation. If your costs for particular items are substantially higher than those shown, you 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 sufficiently higher yield or improved quality.

Variable costs incurred in the hand harvesting of an acre of fresh sweet cherries with an estimated production of 2 tons per acre are shown in Table 2. This total cost was assumed not to vary for the various levels of production illustrated in Table 5.

### OVERHEAD COSTS

The overhead or fixed costs of cherry production (Table 3) include allocation of machinery overhead on the basis of the proportion of total farm use in cherries, interest on orchard investment, orchard depreciation and taxes. The details of orchard establishment costs are shown in Tables 6 and 7.

The fixed costs of machinery are allocated to sweet cherries on the basis of hours of use relative to the total hours of equipment use on the farm. These are shown in Table 1 by operation but are not included in the total of variable costs. Fixed costs on

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Table 1. Variable growing cost for 10 acres of sweet cherries (fresh market), northwestern Michigan, 1989.

Operation	Labor			Machinery						Materials			
	Labor (hr)	Wage rate	Cost	Equipment	Hours of use	Unit var. cost	Total var. cost	Fixed unit cost	Total fixed cost	Item	Cost per 10 acres	Total variable cost	Your farm
Trimming (every 2 yr): avg. cost	185	\$9.00	\$1,665.00	Chain saw	3	\$1.20	\$3.60	\$1.25	\$3.75			\$1,668.60	
Brush removal	4	\$9.00	\$36.00	Tractor (80 hp)	4	\$7.02	\$28.08	\$9.37	\$37.48				
				Rotary mower	4	\$1.71	\$6.84	\$4.02	\$16.08			\$78.92	
Fertilizer: nitrogen	2	\$9.00	\$18.00	Tractor (60 hp)	2	\$6.79	\$13.58	\$5.93	\$11.86				
				Fertilizer spreader	2	\$3.76	\$7.52	\$10.71	\$21.42	33-0-0: 500 lb @ \$185/ton	\$462.50	\$581.60	
Fertilizer: potash (every other yr) -- annual cost	1	\$9.00	\$9.00	Tractor (80 hp)	1	\$7.02	\$7.02	\$9.37	\$9.37	0-0-60: 200 lb every other yr			
				Fertilizer spreader	1	\$3.76	\$3.75			@ \$148/ton	\$74.00	\$93.77	
Lime (every third yr): -- annual cost										2 tons/A custom applied			
										@ \$21/ton every 3rd year	\$140.00	\$140.00	
Weed control	4	\$9.00	\$36.00	Tractor (60 hp)	3	\$6.79	\$20.37	\$5.93	\$17.79				
				Weed sprayer	3	\$4.88	\$14.64	\$8.87	\$26.61	material cost @ \$16/A	\$160.00	\$231.01	
Mowings (3 times)	18	\$9.00	\$90.00	Tractor (80 hp)	18	\$7.02	\$78.20	\$9.37	\$93.78				
				Rotary mower	18	\$1.71	\$17.10	\$4.02	\$48.20			\$177.30	
Bee rental										Hives: 5 per 10 A @ \$25 each	\$125.00	\$125.00	
Spray program (7 1/2 sprays)	15	\$9.00	\$135.00	Tractor (80 hp)	15	\$7.02	\$105.30	\$9.37	\$140.55	Insecticides and fungicides:			
				PTO sprayer	15	\$4.98	\$74.70	\$12.15	\$182.25	@ \$138/A	\$1,380.00		
										Foliar fertilizer: @ \$10/A	\$100.00	\$1,795.00	
Lesser peach borer	10	\$6.00	\$60.00	Tractor (80 hp)	5	\$7.02	\$35.10	\$9.37	\$46.85	Lorsban: 3 qt/100 gal			
				High pressure sprayer	5	\$0.53	\$2.65	\$32.41	\$162.05	@ \$32.50/gal	\$60.94	\$158.69	
Painting trunks (once in 20 yr) -- cost prorated over 20 years	10	\$6.00	\$60.00	Tractor (60 hp)	10	\$6.79	\$67.90	\$8.38	\$2.97	Paint: 1 gal/A undiluted			
				Weed sprayer	10	\$4.88	\$48.80	\$8.44	\$4.44	@ \$15/gal	\$150.00	\$16.34	
Trickle irrigation (incl. well & pump)	50	\$6.00	\$300.00	Trickle irrigation	3.3	\$ 2.50	\$8.00	\$15/A	\$ 50.00				
				Electric & repairs		\$ 40/A	\$400.00					\$700.00	
Tree replacement (annual cost during 10th to 20th year)	2.5	\$9.00	\$22.50	Tractor (60 hp)	2.5	\$6.79	\$16.98	\$5.93	\$14.83				
				Trailer	2.5	\$0.19	\$0.48	\$4.10	\$10.25	Trees: 2/A @ \$5.25/tree	\$105.00	\$144.95	
Pest management service @ \$15/A												\$150.00	
Orchard cleanup	4	\$6.00	\$24.00	Tractor (60 hp)	2	\$6.79	\$13.58	\$5.93	\$11.86				
				Trailer	2	\$0.19	\$0.38	\$4.10	\$8.20			\$37.96	
Overhead labor	50	\$9.00	\$450.00									\$450.00	
Pickup operation (miles)				Pickup	400	\$0.16	\$64.00	\$8.38	\$152.00			\$64.00	
Totals	348		\$2,905.50				\$1,022.56		\$1,014.50		\$2,757.44	\$6,525.14	

Table 2. Variable harvest cost for 10 acres (4,000 lb/A) of sweet cherries (fresh market), northwestern Michigan, 1989.

	Units of use	Wage rate	Total	Your farm
Full-time	30	\$9.00	\$270.00	-----
Hauling	20	\$9.00	\$180.00	-----
Piecework fresh harvest @ 18.25 cents/lb	40,000	\$0.18	\$7,300.00	-----
Packing	40,000	\$0.05	\$2,000.00	-----
Equipment use:				
Tractor (60 hp)	20	\$6.79	\$135.80	-----
Trailer	20	\$0.19	\$3.80	-----
Truck (400 miles)	400	\$0.16	\$64.00	-----
Camp cost:				
(16 people, 2 weeks @ \$15/week)			\$480.00	-----
Porta - Jons (2 @ \$55/month)			\$110.00	-----
Ladders, buckets and straps			\$200.00	-----
Boxes (1,910 pieces @ 21 cents)	1,910	\$0.21	\$401.10	-----
Sweet cherry tax .5 cents/lb			\$200.00	-----
Total variable cost			\$11,344.70	-----
Total cost per pound			\$0.28	-----

Table 3. Overhead cost for growing and harvesting 10 acres of sweet cherries (fresh market), northwestern Michigan, 1989.

	Purchased orchard	Established orchard	Your farm
Equipment, growing	\$1,014.50	\$1,014.50	-----
Equipment, harvest	\$352.60	\$352.60	-----
Interest on land (\$800/A @ 10%)	\$800.00	\$800.00	-----
Property taxes (@ \$35/A)	\$350.00	\$350.00	-----
Int. on orchard establishment cost of \$5,076/A @ 10%		\$2,538.72	-----
Depr.(20-yr) of establishment cost		\$2,538.72	-----
Int. on ave. purchased orchard cost of \$2,200/A @ 10%	\$1,100.00		-----
Depr.(20-yr) of purchased orch. cost	\$1,100.00		-----
Interest on growing and harv. cost	\$326.26	\$326.26	-----
Total overhead cost			\$7,920.79
Total cost per pound			\$0.20

Table 4. Total growing and harvesting costs for 10 acres (4,000 lb/A) of sweet cherries (fresh market), northwestern Michigan, 1989.

	Purchased orchard	Established orchard	Your farm
Variable growing cost	\$6,525.14	\$6,525.14	-----
Variable harvest cost	\$11,344.70	\$11,344.70	-----
Overhead cost for established orch.		\$7,920.79	-----
Overhead cost for purchased orchard	\$5,043.35		-----
Total variable cost			\$25,790.62

Table 5. Effect of varying yield on cost/lb for sweet cherries (fresh market), northwestern Michigan, 1989.

Yield, lb/acre	Variable		Total variable cost	Your farm	Purchased orchard		Established orchard		Your farm
	Growing cost	Harvest cost			Overhead cost	Total cost	Overhead cost	Total cost	
2,000	\$0.326	\$0.284	\$0.610	-----	\$0.252	\$0.862	\$0.396	\$1.006	-----
3,000	\$0.218	\$0.284	\$0.501	-----	\$0.168	\$0.669	\$0.264	\$0.765	-----
4,000	\$0.163	\$0.284	\$0.447	-----	\$0.126	\$0.573	\$0.198	\$0.645	-----
5,000	\$0.131	\$0.284	\$0.414	-----	\$0.101	\$0.515	\$0.158	\$0.573	-----
6,000	\$0.109	\$0.284	\$0.392	-----	\$0.084	\$0.476	\$0.132	\$0.524	-----
7,000	\$0.093	\$0.284	\$0.377	-----	\$0.072	\$0.449	\$0.113	\$0.490	-----
8,000	\$0.082	\$0.284	\$0.365	-----	\$0.063	\$0.428	\$0.099	\$0.464	-----
9,000	\$0.073	\$0.284	\$0.356	-----	\$0.056	\$0.412	\$0.088	\$0.444	-----
10,000	\$0.065	\$0.284	\$0.349	-----	\$0.050	\$0.399	\$0.079	\$0.428	-----

Table 6. Establishment cost for 10 acres of sweet cherries  
(fresh market), northwestern Michigan, 1989.

Site preparation	Your farm
General land development and taxes (\$300/A)	\$3,000.00
Planting year (year one)	
Ground preparation: 4 hr labor @ \$7.50 & equipment @ \$21.40/hr	\$115.60
Nematode control @ \$125/A	\$1,250.00
Marking: 5 hr @ \$9 10 hr @ \$6	\$45.00 \$60.00
Trees: 90/A @ \$5.25	\$4,725.00
Custom tree planting @ \$.25/tree	\$225.00
1/2 bale straw/tree @ \$1.25/bale	\$562.50
Spraying (3 times): 6 hr labor @ \$9 material @ \$5.98/A/spray equipment @ \$67.04/10 A/spray	\$54.00 \$179.40 \$201.12
Cover crop: machinery, material and labor @ \$15/A	\$150.00
Mowing: labor & equip. @ \$8.10/A	\$81.00
Mouse bait: machinery, mat. & labor @ \$6.44/A & mouse gds. @ \$.25/tree	\$289.40
Fertilizer: equip. & labor .45 lb fert./tree @ \$200/ton	\$105.58 \$40.50
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Management: 10 hr @ \$9	\$90.00
Real estate taxes @ \$35/A	\$350.00
Total	\$9,711.60
Growing cost (year two)	
Prune: 10 hr @ \$9	\$90.00
Tree replacement: 10 hr @ \$7.50 + 50 trees @ \$5.25 + equip. @ \$17/hr	\$507.50
Herbicide spray: equip., labor, mat.	\$212.00
Insect & disease control (3 times): equip., labor, material	\$440.00

Table 6 (continued)

Mow (2 times): labor & equip. @ \$16.20/A	\$162.00
Mouse control: equip., labor, mat. @ \$6.44/A	\$64.40
Wildlife control: 1 bag/tree @ \$.30	\$270.00
Fertilizer: equip. & labor .6 lb fert./tree @ \$200/ton	\$106.00 \$54.00
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Management: 10 hr @ \$9	\$90.00
Real estate taxes @ \$35/A	\$350.00
Total	\$3,533.40

Growing cost (year three)

Prune: 20 hr @ \$9	\$180.00
Tree replacement: 10 hr @ \$7.50 + 50 trees @ \$5.25 + equip. @ \$17/hr	\$507.50
Herbicide spray: equip., labor, mat.	\$212.00
Insect & disease control (4 times): equip., labor, material	\$640.00
Mow (2 times): labor & equip. @ \$16.20/A	\$162.00
Mouse control: equip., labor, mat. @ \$6.44/A	\$64.40
Wildlife control: 1 bag/tree @ \$.30	\$270.00
Fertilizer: equip. & labor .9 lb fert./tree @ \$200/ton	\$106.00 \$81.00
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Management: 10 hr @ \$9	\$90.00
Real estate taxes @ \$35/A	\$350.00
Total	\$3,850.40

Growing cost (year four)

Prune: 30 hr @ \$9	\$270.00
Tree replacement: 7 hr @ \$7.50 + 30 trees @ \$5.25 + equip. @ \$17/hr	\$329.00
Herbicide spray: equip., labor, mat.	\$212.00
Insect & disease control (4 times): equip., labor, material	\$720.00

Table 6 (continued)

Mow (2 times): labor & equip. @ \$16.20/A	\$162.00
Mouse control: equip., labor, mat. @ \$6.44/A	\$64.40
Wildlife control: 1 bag/tree @ \$.30	\$270.00
Fertilizer: equip. & labor .9 lb fert./tree @ \$200/ton	\$112.00 \$81.00
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Management: 15 hr @ \$9	\$135.00
Real estate taxes @ \$35/A	\$350.00
Total	\$3,892.90

Growing cost (year five)

Prune: 40 hr @ \$9	\$360.00
Tree replacement: 5 hr @ \$7.50 + 20 trees @ \$5.25 + equip. @ \$17/hr	\$227.50
Herbicide sprays: equip., labor, mat.	\$212.00
Insect & disease control (4 times): equip., labor, material	\$800.00
Mow (2 times): labor & equip. @ \$16.20/A	\$162.00
Mouse control: equip., labor, mat. @ \$6.44/A	\$64.40
Wildlife control: 1 bag/tree @ \$.30	\$270.00
Fertilizer: equip. & labor 1.2 lb fert./tree @ \$200/ton	\$110.00 \$108.00
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Management: 20 hr @ \$9	\$180.00
Real estate taxes @ \$35/A	\$350.00
Total	\$4,039.40

Growing cost (year six)

Prune: 60 hr @ \$9	\$540.00
Tree replacement: 5 hr @ \$7.50 + 20 trees @ \$5.25 + equip. @ \$17/hr	\$227.50
Herbicide spray: equip., labor, mat.	\$212.00
Insect & disease control (5 times): equip., labor, material	\$1,133.00

Table 6 (continued)

Mow (2 times): labor & equip. @ \$16.20/A	\$162.00
Mouse Control: equip., labor, mat. @ \$6.44/A	\$64.40
Wildlife control: 1 bag/tree @ \$.30	\$270.00
Fertilizer: equip. & labor 1.2 lb fert./tree @ \$200/ton	\$118.00 \$108.00
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Paint trunks: labor @ \$60 machinery @ \$264.70 paint @ \$150	\$474.70
Management: 30 hr @ \$9	\$270.00
Real estate taxes @ \$35/A	\$350.00
Total	\$5,117.10
Growing cost (year seven)	
Prune: 80 hr @ \$9	\$720.00
Tree replacement: 5 hr @ \$7.50 + 20 trees @ \$5.25 + equip. @ \$17/hr	\$227.50
Herbicide spray: equip., labor, mat.	\$212.00
Insect & disease control (5 times): equip., labor, material	\$1,133.00
Mow (2 times): labor & equip. @ \$16.20/A	\$162.00
Mouse control: equip., labor, mat. @ \$6.44/A	\$64.40
Wildlife control: 1 bag/tree @ \$.30	\$270.00
Fertilizer: equip. & labor 1.2 lb fert./tree @ \$200/ton	\$118.00 \$108.00
Trickle irrigation: depr. & int./yr operating cost/yr	\$887.50 \$300.00
Management: 40 hr @ \$9	\$360.00
Real estate taxes @ \$35/A	\$350.00
Total	\$4,912.40
Total of 7 years	\$38,057.20

Table 7. Total establishment costs, including interest, for 10 acres of sweet cherries (fresh market), northwestern Michigan, 1989.

Year	Growing cost	Your farm	Interest	Your farm	Annual total	Your farm	Accumulated cost	Your farm
Site preparation	\$3,000.00	-----	\$950.00	-----	\$3,950.00	-----	\$3,950.00	-----
Planting year	\$9,711.60	-----	\$1,680.58	-----	\$11,392.18	-----	\$15,342.18	-----
Year two	\$3,533.40	-----	\$2,115.89	-----	\$5,649.29	-----	\$20,991.47	-----
Year three	\$3,850.40	-----	\$1,557.45	-----	\$5,407.85	-----	\$26,399.32	-----
Year four	\$3,892.90	-----	\$1,535.43	-----	\$5,428.33	-----	\$31,827.65	-----
Year five	\$4,039.40	-----	\$1,544.80	-----	\$5,584.20	-----	\$37,411.85	-----
Year six	\$5,117.10	-----	\$1,614.28	-----	\$6,731.38	-----	\$44,143.22	-----
Year seven	\$4,912.40	-----	\$1,718.76	-----	\$6,631.16	-----	\$50,774.38	-----



machinery include depreciation, interest on investment, insurance and housing costs. Interest on land and growing and establishment costs was charged at 10 percent. Fixed costs vary from farm to farm more than the variable costs shown in Table 1. The figures in Table 3 reflect two ways of acquiring an orchard. Growers felt a 10- to 15-year-old sweet cherry orchard could be purchased for \$3,000 per acre, which would be divided for depreciation into \$800 land value and \$2,200 orchard value. If a grower establishes an orchard, current establishment costs illustrated in Tables 6 and 7 are more appropriate to use.

You should evaluate your farm situation and decide whether to consider fixed costs as part of the total cost for decision-making purposes. For example, orchard overhead is a fixed cost if you own the orchard outright, but if you rent, it is a variable cost.

## PRODUCTION COSTS

Per-acre yields are very important in determining production costs per

pound (Table 5). In computing per pound costs, it was assumed that pre-harvest costs per acre, such as spraying, pruning, cultivating, etc., do not vary greatly, regardless of the yield.

In addition, overhead costs for interest on orchard value and depreciation will vary considerably from farm to farm, depending on when the orchard was planted. These costs include an estimate of 1989 establishment costs, so they may overstate actual costs on currently producing orchards. You are encouraged to substitute your land and orchard acquisition or establishment costs in these tables.

## ESTABLISHMENT COSTS

Tables 6 and 7 illustrate current establishment costs for a sweet cherry orchard. Individual cash costs will vary widely, depending on the site preparation and the cultural practices needed to establish the orchard. This example includes the cost of trickle irrigation, which is expensive but should obtain higher yields at an earlier age.

The first column of Table 7 repeats the costs per year shown in Table 6. In the second column, an interest charge of 10 percent is calculated on the land investment of \$800 per acre, one-half year's interest charge on the current growing year cost, and an interest cost on the prior year's accumulated cost in the last column.

The final accumulated cost of year seven is used in Table 3 to calculate the operating year's depreciation of the establishment cost and interest on the establishment cost. If you purchased an orchard, substitute the purchase cost for the establishment cost. Generally, the sale value of an orchard is considerably less than the establishment cost because both sellers and buyers tend to undervalue the costs involved in orchard establishment.



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