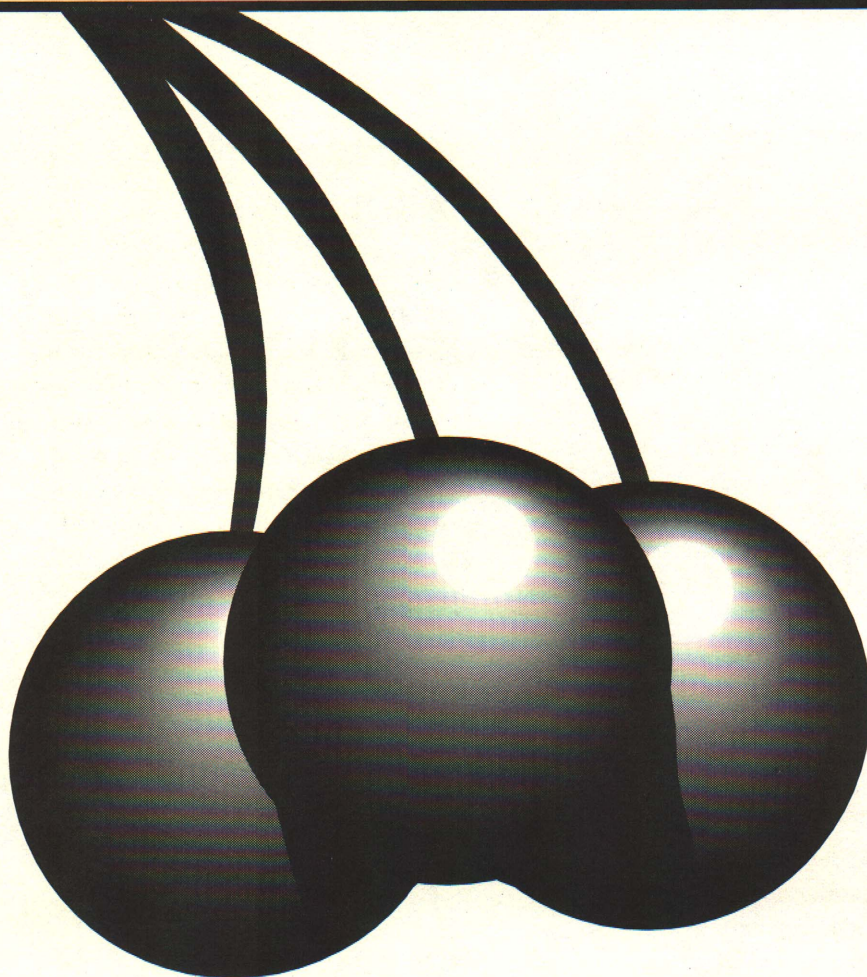


COST OF  
**PRODUCING TART CHERRIES**  
IN NORTHWESTERN MICHIGAN



By  
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Glenn Kole,  
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# PRODUCING TART CHERRIES

IN NORTHWESTERN MICHIGAN

By Myron P. Kelsey, Glenn Kole, James Nugent and James Bardenhagen<sup>1</sup>

This cost evaluation of tart cherry production in northwestern Michigan is a projection of costs developed through focus group discussions with cherry growers from Antrim, Leelanau and Grand Traverse counties in April 1996. In the discussions, growers described growing and harvesting practices of representative cherry growers in the area. They also agreed on the size of cherry acreage, the equipment and the cultural practices generally used by a grower.

These figures cannot necessarily reflect the average cost of tart cherry production for each grower in the state. Costs vary considerably by area and from farm to farm.

The data can provide an outline to help you develop cost information 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 100 acres of tart cherries. The data in Table 1 are presented for 10 acres of tart cherries, however, to make it easier for you to visualize many of the resource inputs.

## 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 or by the operator, both have been included as cash expenses. As a result, producers who do a major portion of the work may have a lower cash labor cost than the figures indicate.

Several rates were combined to determine a 23 percent labor fringe, i.e., 7.65 percent for FICA, 10.35 percent for workers compensation and 5 percent for a combination of housing, health insurance, unemployment, retirement plans, etc.

## 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 gas, oil and repairs for each piece of equipment, plus overhead costs of depreciation interest and housing—are given in Table 1 and are based on the direct use of the equipment.

## VARIABLE COSTS

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

Variable costs incurred in cherry production are categorized by labor, machinery and materials in Table 1. Included 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 harvesting an acre with an estimated total production of 3.5 tons of cherries are shown in Table 2. At 7,000 pounds per acre, harvest costs were 7.28 cents per pound.

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**Table 1. Variable growing cost for 10 acres of tart cherries, northwestern Michigan, 1996.**

Operation	Labor			Machinery			Materials			Total variable cost	Your farm
	Labor (hrs)	Wage rate	Cost	Equipment	Hours of use	Unit cost	Total cost /10 acres	Item	Cost per 10 acres		
Trimming every 2 yr— avg. cost	100	\$11.69	\$1,169.00	Chain saw & hand tools	100	\$ 20	\$20.00			\$1,189.00	
Brush piling	5	8.00	40.00	Misc. tools	5	20	1.00			41.00	
Brush removal	4	11.69	46.76	Tractor (60 hp)	4	11.65	46.60				
				Rotary mower	4	12.14	48.56				
Fertilizer: nitrogen	2	14.15	28.30	Tractor (60 hp)	2	11.65	23.30	33-0-0 3000 lbs.	@ \$228/ton	\$342.00	401.10
				Fertilizer spreader	Rent	5/ton	7.50				
Fertilizer: potash (annual cost)	1	14.15	14.15	Tractor (60 hp)	1	11.65	11.65	100 lb 0-0-60	@ \$148/ton	\$74.00	102.30
				Fertilizer spreader	Rent	5/ton	2.50				
Foliar nutrients								\$16/A	\$160.00	160.00	
Lime (every third year) — annual cost								3 tons/A custom applied @ \$21/ton x 1/3 average	\$210.00	210.00	
Weed control (2 applications) (cover area)	8	14.15	113.20	Tractor (60 hp)	6	11.65	69.90	material cost		\$190.00	422.84
				Weed sprayer	6	8.29	49.74	@ \$19/A/api			
Mowings (3 times)	10	14.15	141.50	Tractor (60 hp)	10	11.65	116.50				379.40
				Rotary mower	10	12.14	121.40				
Bee rental								3 hives/10 A @ \$35/hive	\$105.00	105.00	
Summer tipping: sickle bar - custom rate @ \$40/hr								4 hrs. custom rate @ \$40/hr	\$160.00	160.00	
Spray program (4 sprays)	8	14.15	113.20	Tractor (80 hp)	8	11.65	93.20	Insecticides & fungicides		\$1,550.00	1,659.84
				PTO sprayer	8	12.93	103.44	@ \$155/A			
Lesser peach borer (spray 1/4 acreage, 300 gal)	6	11.69	70.14	Tractor (80 hp)	4	11.65	46.60	Lorsban: 2 qt/100 gal		\$68.63	317.37
				High pressure sprayer	4	33.00	132.00	@ \$45.75 gal.			
Mouse baiting								mouse bait @ \$1/A	\$10.00	10.00	
Tree replacement (annual cost during first 4 yrs. orchard life)	2.5	11.69	29.23	Tractor (40 hp)	2.5	14.34	35.85	1/2 trees/A	\$25.00	90.08	
Growth regulator	3	14.15	42.45	Tractor (80 hp)	3	11.65	34.95	Gibberellin @ \$13.50/A		\$135.00	251.19
				PTO sprayer	3	12.93	38.79				
Ethrel spray	3	14.15	42.45	Tractor (80 hp)	3	11.65	34.95	7 pt Ethrel/A	\$45.50	161.69	
				Sprayer	3	12.93	38.79	@ \$6.50/pt			250.00
Post management service @ \$25/A									\$250.00	250.00	
Management & labor supervision	50	15.00	750.00							750.00	
Pickup operation (miles)				Pickup	400	mi .30	120.00			120.00	
<b>Totals</b>	<b>202.5</b>		<b>\$2,600.38</b>				<b>\$1,197.22</b>		<b>\$3,325.13</b>	<b>\$7,122.73</b>	

**Table 2. Variable harvest and production costs per 7,000 lb./A of tart cherries, northwestern Michigan, 1996.**

	Unit	Price	Total	Your farm
Full-time labor	4	\$11.69	\$46.76	_____
Custom shaking @ \$200/hr.	2 hrs.		400.00	_____
Hauling @ .9 cents/lb.	7,000 lbs.	.009	63.00	_____
Total variable harvest cost per acre			509.80	_____
Total variable harvest cost per pound (at 7,000 lbs./acre)			.0728	_____
Cherry promotion assessment @ .75 cents/lb.			52.50	_____
Total harvest and assessment cost			562.26	_____
Total harvest and assessment cost/lb.			.08	_____

**Table 3. Overhead cost for growing and harvesting 10 acres of bearing tart cherries, northwestern Michigan, 1996.**

	Established orchard	Your farm
Interest on land (\$2,000/A @ 8.5%)	\$1,700.00	_____
Property taxes (@ \$36/A)	360.00	_____
Interest on avg. orchard establishment cost of \$4,942/A @ 8.5% (Table 7)	2,100.35	_____
Depreciation of establishment cost (20 yr.) (Table 7)	2,470.84	_____
Interest on growing & harvest cost [1/2 (7,122.73 + 5,622.60) @ 8.5%] (Tables 1 and 2)	541.68	_____
Total overhead cost	\$7,172.87	_____
Total overhead cost per pound	.102	_____

**Table 4. Total growing and harvesting cost for 10 acres (7,000 lb./A) of tart cherries, northwestern Michigan, 1996.**

	Established orchard	Your farm
Variable growing cost (Table 1)	\$7,122.73	_____
Variable harvest cost (Table 2)	5,622.60	_____
Overhead cost of established orchard (Table 3)	7,172.87	_____
Total cost	\$19,918.20	_____
Total cost per acre	1,991.82	_____
Total cost per pound (@ 7,000 lb./acre)	.285	_____

**Table 5. Effect of varying yield on cost/lb. for tart cherries, northwestern Michigan, 1996.**

Yield lb./acre	Variable growing cost <sup>1</sup>	Variable harvest cost <sup>2</sup>	Total variable cost	Established orchard		Your farm
				Overhead cost <sup>3</sup>	Total cost	
2,000	\$0.356	\$.13	\$0.486	\$0.359	\$0.845	_____
4,000	0.178	.10	.278	.179	.457	_____
6,000	0.119	.08	.199	.120	.319	_____
7,000	0.102	.08	.182	.103	.285	_____
8,000	0.089	.08	.169	.090	.259	_____
10,000	0.071	.07	.141	.072	.213	_____
12,000	0.059	.07	.129	.060	.189	_____
14,000	0.051	.07	.121	.051	.172	_____

<sup>1</sup>Table 1

<sup>2</sup>Table 2

<sup>3</sup>Table 3

## OVERHEAD COSTS

The overhead or fixed costs of cherry production (Table 3) include interest on orchard investment, orchard depreciation and taxes. The details of orchard establishment cost are shown in Tables 6 and 7.

Fixed costs on machinery include depreciation, interest on investment, insurance and housing costs. Interest on land and growing and establishment costs was charged at 8.5 percent. Fixed costs vary more from farm to farm than do the variable costs shown in Table 1. Such costs are the land acquisition cost and orchard establishment costs. 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 a variable cost if you rent.

## 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. Custom harvest rates were charged at \$200 per hour harvested at the 7,000-pounds-per-acre rate. Based on calculations made in "Yield Sensitivity Chart on Tart Cherry Harvest Cost," an article by Glenn Kole, the variable harvest costs in Table 5 have been adjusted to reflect lower costs per pound for higher yields and higher costs per pound for yields lower than the average.

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 estimated 1996 establishment cost, 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.

Trickle irrigation costs were not included in this analysis. Initial investment in such a system would cost \$500 to \$700 per acre.

## ESTABLISHMENT COSTS FOR A NEW ORCHARD

All preproductive establishment costs incurred in years 1-5, including interest, are capitalized in one establishment cost. Individual cash costs will vary widely, depending on the site preparation and the cultural practices needed to establish the orchard. This example does not include the cost of trickle irrigation, which is expensive but should obtain higher economic yields from trees at an earlier age.

The first column of Table 7 summarizes the costs per year shown in Table 6. In the second column, an interest charge of 8.5 percent is calculated on the land investment of \$2,000 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 5 is used in Table 3 to calculate the operating year's depreciation of the establishment cost. If you purchase 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.

**Table 6. Establishment costs for 10 acres of tart cherries (excluding interest), northwestern Michigan, 1996.**

Your farm		Your farm	
<b>Site preparation prior to year 1</b>			
General land development and taxes (\$400/A)	\$4,000.00		
<b>Planting year (year 1)</b>			
Ground preparation: 4 hr. labor @ \$11.69/hr. & equipment @ \$25.08/hr.	147.08	Herbicide spray: equip., labor, mat.	212.00
Marking: 5 hr. @ \$11.69	58.45	Insect & disease control (4 times): equip., labor, material	570.16
10 hr. @ \$8	80.00	Mow (2 times): labor & equip. @ \$9.91/A/mowing	198.20
Trees: 125/A @ \$6	7,500.00	Mouse control: equip., labor, mat. @ \$6.44/A	64.40
Custom tree planting: @ \$.35/tree	437.50	Fertilizer: equip. & labor 2 lb. fert./tree @ \$.10/lb.	106.00 250.00
½ bale straw/tree @ \$1.50/bale	937.50	Deer control @ \$.30/tree	375.00
Spraying (3 times):		Management: 15 hr. @ \$15	225.00
6 hr. labor @ \$11.69	70.14	Real estate taxes @ \$36/A	360.00
material @ \$7/A/spray	210.00	Total	\$3,060.98
equipment @ \$49.16/10 A/spray	147.48	<b>Growing cost (year 4)</b>	
Cover crop: machinery, material and labor @ \$17/A	170.00	Prune: 40 hr. @ \$11.69	467.60
Mouse bait: machinery, material and labor @ \$6.44/A	64.40	Tree replacement : 5 hr. @ 11.69 + 10 trees @ \$6 + equip. @ \$17/hr.	203.45
Fertilizer: equip. & labor 1 lb. fert./tree @ \$.10/lb.	106.00 125.00	Herbicide spray: equip., labor, mat.	212.00
Deer control @ \$.50/tree	625.00	Insect & disease control (4 times): equip., labor, material	650.16
Management: 10 hr. @ \$15	150.00	Mow (2 times): labor & equip. @ \$9.91/A/mow	198.20
Real estate taxes @ \$36/A	360.00	Mouse control: equip., labor, mat. @ \$6.44/A	64.40
Total	\$11,188.55	Fertilizer: equip. & labor 3 lb. fert./tree @ \$.10/lb.	106.00 375.00
<b>Growing cost (year 2)</b>		Management: 20 hr. @ \$15	300.00
Prune: 10 hr. @ \$11.69	116.90	Real estate taxes @ \$36/A	360.00
Tree replacement: 8 hr. @ \$ +11.69 30 trees @ \$6 + equip. @ \$17/hr.	409.52	Total	\$2,936.81
Herbicide spray: equip., labor, mat.	212.00	<b>Growing cost (year 5)</b>	
Insect & disease control (3 times): equip., labor, material	440.00	Prune: 50 hr. @ \$11.69	584.50
Mow (2 times): labor & equip. @ \$9.91/A/mowing	198.20	Tree replacement: 4 hr. @ \$11.69 10 trees @ \$6 + equip. @ \$17/hr.	174.76
Mouse control: equip., labor, mat. @ \$6.44/A	64.40	Herbicide spray: equip., labor, mat.	212.00
Fertilizer: equip. & labor 1 lb. fert./tree @ \$.10/lb.	106.00 125.00	Insect & disease control (4 times): equip., labor, material	730.16
Deer control @ \$.50/tree	625.00	Mow (2 times): labor & equip. @ \$9.91/A/mow	198.20
Management: 10 hr. @ \$15	150.00	Mouse control: equip., labor, mat. @ \$6.44/A	64.40
Real estate taxes @ \$36/A	360.00	Fertilizer: equip. & labor 4 lb. fert./tree @ \$.10/lb.	118.00 500.00
Total	\$2,807.02	Management: 30 hr. @ \$15	450.00
<b>Growing cost (year 3)</b>		Real estate taxes @ \$36/A	360.00
Prune: 30 hr. @ \$11.69	350.70	Total	\$3,392.02
Tree replacement: 8 hr. @ \$11.69 + 20 trees @ \$6 + equip. @ \$17/hr.	349.52	<b>Total of 5 years</b>	
		<b>\$27,385.38</b>	

**Table 7. Total establishment costs, including interest, for 10 acres of tart cherries, northwestern Michigan, 1996.**

Year	Growing cost	Your farm	Interest*	Your farm	Annual total	Your farm	Accumulated cost	Your farm
Site preparation	\$ 4,000.00	_____	\$1,870.00	_____	\$ 5,870.00	_____	\$ 5,870.00	_____
Planting year	11,188.55	_____	2,674.46	_____	13,863.01	_____	19,733.01	_____
Year 2	2,807.02	_____	3,496.60	_____	6,303.62	_____	26,036.63	_____
Year 3	3,060.98	_____	4,043.21	_____	7,104.19	_____	33,140.82	_____
Year 4	2,936.81	_____	4,641.78	_____	7,578.59	_____	40,719.41	_____
Year 5	3,392.02	_____	5,305.31	_____	8,697.33	_____	49,416.74	_____

\*Includes annual interest of .085% on \$20,000 land cost.

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