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Michigan State University Extension Service

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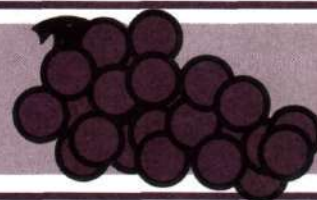
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COST OF PRODUCING CONCORD GRAPES IN SOUTHWESTERN MICHIGAN



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

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

These figures do not reflect the average cost of grape production for all growers in the state because costs vary considerably by area in the state 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 particular operations for the total grape enterprise. 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 80 acres of diversified fruits and vegetables, including 40 acres of grapes. However, the data in Table 1 for a single-cordon system are presented for 10 acres of grapes 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 grapes. 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 \$8 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 costs, salvage value, years of life, annual usage, repair costs, insurance, interest, and operating expenses such as gas and oil. The operating costs, which include only 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 acreage of grapes. 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.

FIXED COSTS

The overhead or fixed costs of grape production (Table 3) include allocation of machinery overhead on the basis of the proportion of total farm use in grapes, interest on land investment and taxes. The overhead costs of machinery are allocated to grapes 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).

You should evaluate your farm situation and decide whether to consider fixed costs as part of the total costs 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.

The yield obtained per acre is a very important factor in determining production costs per ton (Table 5). In computing per ton costs, 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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Table 1. Growing operations and related variable cost for 10 acres of grape production, single cordon system, southwestern Michigan, 1989.

Operation	Labor			Equipment	Machinery					Item	Cost per 10 acres	Total variable cost	Your farm
	Labor hr or unit	\$/unit	Cost		Hours of use	Unit var. cost	Total var. cost	Fixed unit cost	Total fixed cost				
Pruning (piece rate)	5500	\$0.23	\$1,265.00									\$1,265.00	
Chopping vines	4	\$8.00	\$32.00	40 hp Tractor Chopper	4	\$5.08	\$20.32	\$4.45	\$17.80				\$53.52
					4	\$0.30	\$1.20	\$2.50	\$10.00				
Trellis maintenance	30	\$8.00	\$240.00	40 hp Tractor Trailer	10	5.08	\$50.80	\$4.45	\$44.50	6 pressure treated posts per acre @ \$3.60 each	\$216.00		
					10	0.19	\$1.90	\$4.10	\$41.00	2 End posts/A @ \$6.35 ea.	\$127.00		
										2 end anchors/A @ \$5 each	\$100.00		
										Wire @ \$.50/acre	\$5.00	\$740.70	
Tying (piece rate)	5500	\$0.03	\$165.00							Ties -- 3/4 boxes for 10 acres @ \$50	\$375.00	\$540.00	
Fertilization (spring)	3	\$8.00	\$24.00	40 hp Tractor Fertilizer spreader	3	5.08	\$15.24	\$4.45	\$13.35	300 lb. ammonium nitrate per acre @ \$185.00/ton	\$277.50	\$320.55	
					3	1.27	\$3.81	\$8.92	\$26.76				
Fertilization (fall)	3	\$8.00	\$24.00	40 hp Tractor Fertilizer spreader	3	5.08	\$15.24	\$4.45	\$13.35	250 lb. potash per acre @ \$160.00/ton	\$200.00	\$243.05	
					3	1.27	\$3.81	\$8.92	\$26.76				
Lime application -- 1/5 acreage				Custom applied						2 ton / acre every 5 years @ \$20/ton custom applied	\$80.00	\$80.00	
First weed spray -- 1/3 area	5	\$8.00	\$40.00	40 hp Tractor Weed sprayer	3	5.08	\$15.24	\$4.45	\$13.35	Pre emergence -- 3 lb./acre sprayed @ \$3.00/lb.	\$29.97		
					3	1.93	\$5.79	\$7.11	\$21.33	Contact herbicide -- 1.5 qt. acre sprayed @ \$12.00/qt.	\$59.94		
										Spreader 1 pint / acre sprayed @ \$2.00 / pint	\$6.60	\$157.54	
Second weed spray -- 1/3 area	5	\$8.00	\$40.00	40 hp Tractor Weed sprayer	5	5.08	\$25.40	\$4.45	\$22.25	Contact herbicide -- 1 qt./acre @ \$9.50/qt.	\$31.64		
					5	1.93	\$9.65	\$7.11	\$35.55	Spreader 1 pint / acre sprayed @ \$2.00 / pint	\$6.66	\$113.35	
Suckering -- 1/2 acreage @ 4 hr/A	20	\$8.00	\$160.00									\$160.00	
Tillage -- rototiller	10	\$8.00	\$80.00	60 hp Tractor Rototiller	10	6.79	\$67.90	\$5.93	\$59.30				\$162.90
					10	1.50	\$15.00	\$6.50	\$65.00				
Tillage (3 times): disc/drag 1/2 hr/acre	15	\$8.00	\$120.00	40 hp Tractor Disc/drag	4	5.08	\$76.20	\$4.45	\$66.75				\$196.20
					15	0.24	\$3.60	\$3.50	\$52.50				
Cover crop	5	\$8.00	\$40.00	40 hp Tractor Drill	5	5.08	\$25.40	\$4.45	\$22.25	Rye 1/2 bu./A @ \$4/bu.	\$20.00	\$85.40	
					5	1.27	\$6.35	\$8.92	\$44.60				
Spraying (6 times): 1/4 hr/A	15	\$8.00	\$120.00	60 hp Tractor Sprayer	15	\$6.79	\$101.85	\$5.93	\$88.95	Spray materials @ \$65/A	\$650.00	\$871.85	
					15	\$4.98	\$74.70	\$12.50	\$187.50				
Management & labor supervision	60	\$8.00	\$480.00									\$480.00	
Pickup operation				Pickup	1250 m	0.16	\$200.00	\$0.38	\$475.00			\$200.00	
Miscellaneous											\$500.00	\$500.00	
TOTAL	11175		\$2,830.00				\$739.40		\$1,347.85		\$2,685.31	\$6,170.06	

Table 6 (continued)

Draining: 125 hr labor @ \$8/hr	\$750.00
Suckering: 40 hr labor @ \$8/hr	\$240.00
Cover crop: 5 hr labor @ \$8/hr, mach. @ \$77.23 rye: .5 bu/A @ \$4/bu	\$137.23
Weed spray: 5 hr labor @ \$8/hr, 3 hr equip. @ \$55.71, material @ \$346.67	\$442.38
Leafhopper spray: 5 hr labor @ \$8/hr, 3 hr equip. @ \$55.71, mat. @ \$63.80	\$159.51
Real estate taxes @ \$30/A	\$300.00
Shop, storage & well	\$205.00
Management & labor supervision: 40 hr @ \$8/hr	\$320.00
Total, year two	\$3,581.92

Grape establishment cost (year three)	
Cultivation (2x): 10 hr labor @ \$8/hr machinery @ \$132.70	\$219.70
Fertilizer: 3 hr labor \$8/hr, mach. @ \$ 59.16, 300 lb ammonium nit./A @ \$185/ton	\$360.66
Pruning & tying: 605 vines/A @ \$.25/vine	\$1,512.50
Spraying: 15 hr labor @ \$8/hr, mach. @ \$189.66, material @ \$65/A	\$959.66
Tip-ins: 10 hrs labor @ \$8/hr	\$80.00
Weed spray: 5 hr labor \$8/hr, 3 hrs equip. @ \$55.71, material @ \$346.67	\$442.38
Cover crop: 5 hr labor @ \$8/hr, mach. @ \$77.23, rye: .5 bu/A @ \$4/bu	\$137.23
Real estate taxes @ \$30/A	\$300.00
Shop, storage & well	\$205.00
Management & labor supervision: 40 hr @ \$8/hr	\$320.00
Total, year three	\$4,537.13
Total of three years	\$29,773.74

Table 2. Variable harvest cost for 10 acres (4.5 tons/A) of grapes, southwestern Michigan, 1989.

	Tons	Rate	Total	Your farm
Custom harvest	45	\$35.00	\$1,575.00	
Total variable cost			\$1,575.00	
Total cost per ton			\$35.00	

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

	Total	Your farm
Equipment, growing	\$1,347.83	
Shop, storage, well	\$205.00	
Interest on land (\$1,000/A @ 10%)	\$1,000.00	
Property taxes @ \$30/A	\$300.00	
Int. on 1/2 vineyard estab. cost of \$3,972.34/A @ 10%	\$1,986.17	
Depr. of estab. cost of \$3,972.34/A over 30 yr	\$1,324.11	
Interest on growing & harvest cost	\$387.26	
Total overhead cost	\$6,550.39	
Total cost per ton	\$145.56	

Table 4. Total growing and harvesting cost for 10 acres (4.5 tons/A) of grapes, southwestern Michigan, 1989.

	Total	Your farm
Variable growing cost	\$6,170.13	
Variable harvest cost	\$1,575.00	
Overhead cost	\$6,550.39	
Total variable cost	\$14,295.52	
Total cost per ton	\$317.68	

Table 5. Effect of varying yield on cost/ton for grapes, southwestern Michigan, 1989.

Yield/acre	Variable		Total variable cost	Your farm	Overhead cost	Total cost	Your farm
	Growing cost	Harvest cost					
3.0	205.7	\$35.00	\$240.67		\$218.35	\$459.02	
3.5	176.3	\$35.00	\$211.29		\$187.15	\$398.44	
4.0	154.3	\$35.00	\$189.25		\$163.76	\$353.01	
4.5	137.1	\$35.00	\$172.11		\$145.56	\$317.68	
5.0	123.4	\$35.00	\$158.40		\$131.01	\$289.41	
5.5	112.2	\$35.00	\$147.18		\$119.10	\$266.28	
6.0	102.8	\$35.00	\$137.83		\$109.17	\$247.01	
6.5	94.9	\$35.00	\$129.92		\$100.78	\$230.70	
7.0	88.1	\$35.00	\$123.14		\$93.58	\$216.72	
7.5	82.3	\$35.00	\$117.27		\$87.34	\$204.61	
8.0	77.1	\$35.00	\$112.13		\$81.88	\$194.01	

ESTABLISHMENT COSTS

The establishment costs for grapes are summarized in Tables 6 and 7. Individual cash costs will vary widely, depending on what must be done for site preparation, if anything, and the cultural practices used in establishing the vineyard.

The first column of Table 7 repeats the totals of 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 \$1,000 per acre, one-half year's interest charge on the current year growing costs, and an interest cost on the prior year's accumulated cost in the last column.

The final accumulated cost of year three is used in Table 3 to calculate the operating year's depreciation of

the establishment cost and interest on the average establishment cost. If you purchase a vineyard, substitute the purchase cost for the establishment cost. Generally, the sale value of a vineyard is considerably less than the establishment cost because both sellers and buyers tend to under-value the costs involved in vineyard establishment.

Table 7. Total establishment cost including interest for 10 acres of grapes, southwestern Michigan, 1989.

Year	Growing cost	Your farm	Interest*	Your farm	Annual total	Your farm	Accumulated cost	Your farm
1	\$21,654.69	-----	\$2,082.73	-----	\$23,737.42	-----	\$23,737.42	-----
2	\$3,581.92	-----	\$3,552.84	-----	\$7,134.76	-----	\$30,872.18	-----
3	\$4,537.13	-----	\$4,314.07	-----	\$8,851.20	-----	\$39,723.39	-----

*Interest charge of 10 percent on real estate value of \$1,000/acre and prior year accumulated cost @ 10 percent plus 10 percent interest on one-half of current year's growing cost.

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