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# Costs of Pear Production In Western Michigan

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

It should be stressed that these figures do not reflect the average cost of pear production for all growers in the state because costs vary considerably by area in the state and from farm to farm.

The data were assembled, assuming equipment and labor available for a hypothetical farm of 100 acres of diversified tree fruit, including 10 acres of pears. However, the data in Table 1 are presented for 10 acres of pears 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 to 6, can be determined from Table 1 (p. 2-3) by dividing by 10.

The full-time labor classification includes the working time of the operator and regular hired help devoted to pears. 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 by the operator, both have been included at the \$4.27 per hour rate. This rate is a basic wage of \$3.50 per hour plus social security (6.13%) and workers' compensation (16%). Hourly labor was paid a basic wage of \$2.90 which equals \$3.54 with S.S. and W.C. As a result, producers who do a major portion of the work may have a lower cash labor cost than the figures indicate.

Some major factors considered in computing 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 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.

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

Variable costs incurred in pear production are categorized by labor, machinery and operating materials in Tables 1 and 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 an individual 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 higher yield or improved quality.

The variable costs incurred in harvesting an acre with estimated total production of 200 bushels of pears are shown in Table 3. These costs totaled \$1.04 per bushel.

The overhead, or fixed cost, for pear production (Table 4) includes allocation of machinery overhead on the basis of the proportion of total farm use in pears, interest on orchard investment, orchard depreciation, and taxes. The fixed costs of machinery are allocated to pears on the basis of hours of use 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. One example of this type of consideration is the fact that orchard overhead is a fixed cost to the owner, but if the orchard is rented, it is a variable cost for the operator.

Yield per acre is a very important factor in determining production costs per bushel (Table 6). In computing per bushel costs, it was assumed that pre-harvest costs per acre, such as spraying, pruning, cultivation, etc., do not vary greatly regardless of the yield obtained.

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Table 1. Growing operations and related variable costs for 10 acres of pear production in western Michigan, 1979

Operation	Labor		Equipment Used	Machinery		Cost Per Hour of Use	Cost	Materials		Total Cost Per 10 Acres
	Labor Hr. Per 10 Acres	Wage Rate		Hours of Use	1 yr Cost			Item	Cost Per 10 Acres	
Hedging - Custom hired every 4 years: (1.5 acres/hr at \$40/hr)										
Trimming & Blight Limb Removal	660	\$4.27	Pruning Tower Chain Saw	220	\$ .72	158.40				\$ 66.67
Brush Removal	25	3.54	60 HP Tractor	5	2.95	14.75				2989.14
	5	4.27	Brush Rake	5	.25	1.25				125.85
Fertilize-Nitrogen	7	4.27	40 HP Tractor	7	2.21	15.47	400# 33-0-0 @ \$181.70/ton		\$363.40	411.56
			Fert. Spreader	7	.40	2.80				
Fertilize-Potash (1/3 of cost)	3	4.27	40 HP Tractor	3	2.21	6.63	180#/3 0-0-60 @ \$132/ton		39.60	60.24
			Fert. Spreader	3	.40	1.20				
Weed Control	5	4.27	40 HP Tractor	5	2.21	11.05	.5 lb/A Simizim @ \$3.50/lb.		17.50	156.80
			Weed Sprayer	5	.38	1.90	1 qt/A Paraquat @ \$10.50/qt.		105.00	
<u>Spray Program</u>										
Oil Spray	7	4.27	60 HP Tractor	7	2.95	20.65	2 gal/100 gal. Oil @ \$1.32/gal.		105.60	187.85
			Air Blast Sprayer	7	4.53	31.71				
Cluster Bust	5	4.27	60 HP Tractor	5	2.95	14.75	1 lb/100 gal. Guthion @ \$4.25/lb.		127.50	262.45
			Air Blast Sprayer	5	4.53	22.65	2 lb/100 gal. Copper 53 @ \$1.17/lb.		70.20	
							4 lb/100 gal. Lime @ \$.05/lb.		6.00	
Petal Fall	5	4.27	60 HP Tractor	5	2.95	14.75	1 lb/100 gal. Guthion @ \$4.25/lb.		127.50	238.00
			Air Blast Sprayer	5	4.53	22.65	1.5 lb/100 gal. Ferbam @ \$1.15/lb.		51.75	
1st Cover Spray	5	4.27	60 HP Tractor	5	2.95	14.75	1 lb/100 gal. Guthion @ \$4.25/lb.		127.50	238.00
			Air Blast Sprayer	5	4.53	22.65	1.5 lb/100 gal. Ferbam @ \$1.15/lb.		51.75	
2nd Cover Spray	5	4.27	60 HP Tractor	5	2.95	14.75	1 lb/100 gal. Guthion @ \$4.25/lb.		127.50	238.00
			Air Blast Sprayer	5	4.53	22.65	1.5 lb/100 gal. Ferbam @ \$1.15/lb.		51.75	
3rd Cover Spray	5	4.27	60 HP Tractor	5	2.95	14.75	1 lb/100 gal. Guthion @ \$4.25/lb.		127.50	238.00
			Air Blast Sprayer	5	4.53	22.65	1.5 lb/100 gal. Ferbam @ \$1.15/lb.		51.75	
4th Cover Spray	5	4.27	60 HP Tractor	5	2.95	14.75	1 lb/100 gal. Guthion @ \$4.25/lb.		127.50	286.00
			Air Blast Sprayer	5	4.53	22.65	1.5 lb/100 gal. Ferbam @ \$1.15/lb.		51.75	
							1 lb/100 gal. Sevin @ \$1.60/lb.		48.00	

Table 1 (Continued) - Pears

Operation	Labor		Machinery		Materials		Total Cost Per 10 Acres		
	Labor Hr. Per 10 Acres	Wage Rate	Cost	Equipment Used	Hours of Use	Cost Per Hour of Use		Item	Cost Per 10 Acres
Well and Pump Operation				Well and Pump	10 A	\$1.06	\$10.60	\$ 10.60	
Mowings (3)	10	4.27	\$ 42.70	40 HP Tractor Mower	10 10	2.21 1.70	22.10 17.00	81.80	
House Baiting				Airplane @ \$3.50/acre			35.00	Zinc Phosphate Corn 10 bu @ \$2.80 \$28.00	
Orchard Clean-up	6	3.54	21.24	40 HP Tractor Trailer	6 4	2.21 .18	13.26 .72	49.45	
Tree Replanting (Annual cost as done during first half of orchard life)	2.5	3.54	8.85	40 HP Tractor Trailer	1 1	2.21 .18	2.21 .18	41.24	
Pick-up Usage				Pick-up	750 Mi	.12	90.00	90.00	
Management and Labor Supervision	80	4.27	341.60					341.60	
Misc. Repairs	30	4.27	128.10					128.10	
TOTALS			Labor-\$3692.58				Machinery-\$760.49	Materials-\$1851.28	\$6304.35

**Table 2. — Variable costs per acre for growing pears, western Michigan, 1979.**

Operation	Labor	Machinery	Materials	Total	Your farm cost
Hedging, trimming and brush removal	\$292.80	\$25.36	\$ 0.00	\$318.16	_____
Fertilizer	4.27	2.61	40.30	47.18	_____
Weed spray	2.13	1.30	12.25	15.68	_____
Spraying	15.81	27.68	125.36	168.84	_____
Mowing	4.27	3.91	0.00	8.18	_____
Management and misc. repair	46.97	0.00	0.00	46.97	_____
Other & mouse bait	3.01	15.20	7.22	25.43	_____
<b>TOTALS</b>	<b>\$369.25</b>	<b>\$76.06</b>	<b>\$185.13</b>	<b>\$630.44</b>	_____

**Table 3. — Variable harvest costs for 200 bushels of pears, western Michigan, 1979.**

	Total	Your farm cost
Regular full-time labor (6.25 hrs.)	\$ 26.69	_____
Piecework labor (\$.80/bu)	160.00	_____
Equipment use	22.16	_____
<b>TOTAL</b>	<b>\$208.85</b>	_____
Cost per bushel	\$ 1.04	_____

**Table 4. — Overhead costs for growing and harvesting one acre of pears, western Michigan, 1979.**

	Total	Your farm cost
Machinery	\$105.98	_____
Interest on land (\$800 × 5%)	40.00	_____
Interest on average orchard value (\$1200 ÷ 2 × 8%)	48.00	_____
Orchard depreciation (\$1200 ÷ 10 yrs)	120.00	_____
Property Taxes	18.00	_____
<b>TOTAL</b>	<b>\$331.98</b>	_____

**Table 5. — Total growing and harvesting costs for one acre of pears, western Michigan, 1979.**

	Total	Your farm cost
Cash growing cost	\$ 630.44	_____
Cash harvest cost	208.85	_____
Overhead cost	331.98	_____
<b>TOTAL</b>	<b>\$1171.27</b>	_____

**Table 6. — Effect of varying yields on cost/bushel for pears, western Michigan, 1979.**

Harvest yield per acre	Variable growing cost	Variable harvest cost	Total cash cost	Your farm cash cost	Overhead cost	Total cost	Your farm total cost
Bu.	-----Per bushel-----						
50	\$12.61	\$1.04	\$13.65	_____	\$6.64	\$20.29	_____
100	6.30	1.04	7.34	_____	3.32	10.66	_____
150	4.20	1.04	5.24	_____	2.21	7.45	_____
200	3.15	1.04	4.19	_____	1.66	5.85	_____
250	2.52	1.04	3.56	_____	1.33	4.89	_____
300	2.10	1.04	3.14	_____	1.11	4.25	_____

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