



Texas Agricultural Extension Service

Texas Citrus Mature Orchard Production Costs and Returns— Years 8 to 10+

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Citrus groves planted after the 1983 freeze are in a state of increasing production with accompanying increases in production costs. These trees have not reached maturity or maximum production potential.

Two Extension fact sheets, *Orchard Establishment Costs* and *Young Orchard Production Costs and Returns—Years 4 to 7*, evaluate the land preparation costs and the associated costs of establishing and developing the orchard through the seventh year. A positive net return occurs during the fifth year after planting. A summary of the first 7 years' budgets is developed in Table 1.

This paper discusses the expected costs and returns for the specific case of a small-acreage, high-technology operation during the later years after grove establishment and development when the grove is in full production and considered to be mature. The case of a large commercial scale farm will not be addressed in this paper.

Assumptions

Data used to support this publication were collected from orchard managers, research scientists, agribusinessmen, Texas A&I Citrus Center personnel and Texas A&M University Extension and Research specialists.

Land Tenure

The three most common types of citrus operations in the Lower Rio Grande area are: 1) complete management services for investor-owned orchards; 2) owner-managed with major equipment operations performed by use of custom services

and 3) complete owner/operator-managed orchards. This paper concentrates on the second category where some equipment and services are provided by the manager, but the major spray operations are conducted by custom operators.

Returns

Returns are to management and risk because an imputed charge is not calculated for the owner's management.

Orchard Characteristics

A hypothetical 20-acre model is used throughout this study, but the costs are discussed on a cost-per-acre basis. It was necessary to select a historically economic unit because high management and equipment requirements and operation size substantially influence establishment costs. It is understood that a larger tract of land probably would reduce the cost-per-acre charges for equipment. A tree density of 145 trees per acre is used.

Soil and Irrigation

It is assumed that the orchard is established on alluvial soil that needs no drainage system. Rio Grande River water supplied through existing water districts will be used as a primary source of water, applied through a permanent valve system.

Prices

Costs are based on Fall 1987 costs. Citrus fruit sales are estimated to average \$135 per ton.

Miscellaneous

The study assumes that equipment, labor and supplies will be obtained specifically for the establishment and operation of the orchard. Harvesting will be conducted and paid for by the buyer.

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Table 1. Citrus orchard establishment and development costs and returns for years 1 through 7 (per acre), Lower Rio Grande Valley, Texas, 1988.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Tons production/acre	0	0	2	4	7	10	13
Price per ton	N/A	N/A	\$135.00	\$135.00	\$135.00	\$135.00	\$135.00
Gross revenue/acre	0	0	270.00	540.00	945.00	1,350.00	1,755.00
Variable costs	\$1,331.43	\$384.12	\$475.31	\$527.33	\$615.49	\$622.34	\$653.99
Fixed costs	373.13	318.62	290.72	283.98	247.49	207.03	207.03
Total costs/acre	\$1,704.56	\$702.74	\$766.03	\$811.31	\$862.98	\$829.37	\$861.02
Projected returns/acre	(\$1,704.56)	(\$702.74)	(\$496.03)	(\$271.31)	\$82.02	\$520.63	\$893.98
Breakeven price per ton for variable costs	N/A	N/A	\$237.66	\$131.83	\$87.93	\$62.23	\$50.31
Breakeven price per ton for total costs	N/A	N/A	\$383.02	\$202.83	\$123.28	\$82.94	\$66.23
Breakeven production per acre to cover total costs at \$135 per ton	N/A	N/A	5.7	6.0	6.4	6.1	6.4

Tax Issues

This study does not address income tax issues. Tax implications should be addressed in the context of the total business and with specialized professional assistance.

Orchard Development and Operational Costs and Returns

Table 2 provides an estimate of the costs and returns to maintain a citrus orchard during the mature years of production. The values provided in these budgets represent an average of the costs and returns obtained from growers. They do not represent the costs and returns of any particular orchard. Potential investors should modify these estimates and adapt them to more accurately describe a specific operation.

Returns to Risk and Management

A small amount of production should begin in the third year. Yields gradually increase from 2

tons per acre in the third year after planting to approximately 13 tons per acre in the seventh year.

In the eighth year after planting, the citrus grove is considered mature even though yields continue to increase. Variable costs are about \$661, with fixed costs leveling off at \$207 per acre. Total costs are \$868 per acre with a break-even selling price of \$54.24 per ton, assuming 16 tons per acre yield.

The ninth year after planting has the same variable and total costs of \$661 and \$207, respectively, as in the eighth year. With the increased expected yields of 19 tons per acre, the expected returns to risk and management are \$1,697 per acre. The break-even selling price at this level of production is \$45.68/ton.

In the tenth year after planting, and those years following, production is expected to rise to 22 tons per acre, stabilizing at that level for subsequent years. With an expected total cost of production of about \$864 per acre, the break-even selling price is \$39.76 per ton.



Table 2. Citrus orchard development budget estimates, Texas Lower Rio Grande Valley, 1988 projected costs and returns per acre.

Category	Unit	\$/Unit	Phase of Development					
			Production (year 8)		Production (year 9)		Mature Orchard	
			Projected Yield	Projected Value	Projected Yield	Projected Value	Projected Yield	Projected Value
1. Gross receipts	ton	\$135.00	16.00	\$2,160.00	19.00	\$2,565.00	22.00	\$2,970.00
Total projected returns			16.00	\$2,160.00	19.00	\$2,565.00	22.00	\$2,970.00
2. Variable costs			Input use		Input use		Input use	
Preharvest costs								
Nitrogen	lb.	\$0.26	125.00	\$32.50	125.00	\$32.50	150.00	\$39.00
Fertilizer appl.	appl.	\$3.00	3.00	9.00	3.00	9.00	3.00	9.00
Tree hedging	acre	\$30.00	1.00	30.00	1.00	30.00	1.00	30.00
Miticide	qt.	\$8.28	4.00	33.12	4.00	33.12	4.00	33.12
Citrus oil	gal.	\$4.60	8.00	36.80	8.00	36.80	8.00	36.80
Insecticide #1	qt.	\$9.68	4.00	38.72	4.00	38.72	4.00	38.72
Insecticide #2	qt.	\$38.76	1.00	38.76	1.00	38.76	1.00	38.76
Insecticide appl.	appl.	\$21.75	4.00	87.00	4.00	87.00	4.00	87.00
Fungicide*	lb.	\$2.30	6.00	13.80	6.00	13.80	6.00	13.80
Contact herbicide	qt.	\$17.50	2.00	35.00	2.00	35.00	2.00	35.00
Selective herb. #1	qt.	\$3.60	5.00	18.00	5.00	18.00	5.00	18.00
Selective herb. #2	lb.	\$3.20	5.00	16.00	5.00	16.00	5.00	16.00
Irrigation water	appl.	\$8.00	6.00	48.00	6.00	48.00	6.00	48.00
Fuel and lube	acre			3.00		3.00		3.00
Repairs	acre			2.00		2.00		2.00
Labor—machinery	hour	\$6.13	2.00	12.26	2.00	12.26	2.00	12.26
irrigation	hour	\$4.70	9.00	42.30	9.00	42.30	9.00	42.30
equipment	hour	\$4.70	1.20	5.64	1.20	5.64	1.20	5.64
other	hour	\$4.70	10.00	47.00	10.00	47.00	10.00	47.00
Tree insurance LVL2	acre	1.00		77.50		77.50		77.50
Operating capital int.	sum/2	\$0.11	313.20	34.45	313.20	34.45	316.45	34.81
Total variable costs	acre			\$660.85		\$660.85		\$667.71
Break-even price, variable costs			\$41.30 / ton		\$34.78 / ton		\$30.35 / ton	
3. Income above variable cost	acre			\$1,499.15		\$1,904.15		\$2,302.29
4. Fixed costs								
Cash costs								
Taxes	acre	\$20.00	1.00	\$20.00	1.00	\$20.00	1.00	\$20.00
Misc. admin. O/H	acre	\$7.50	1.00	7.50	1.00	7.50	1.00	7.50
Non-cash								
Land	acre	\$0.05	2,000.00	100.00	2,000.00	100.00	2,000.00	100.00
Equip deprec.	years	15.00	1,210.00	64.53	1,210.00	64.53	1,210.00	64.53
Irr. sys. depr.	years	20.00	300.00	15.00	300.00	15.00	300.00	15.00
Total fixed costs	acre			\$207.03		\$207.03		\$207.03
5. Total projected costs	acre			\$867.89		\$867.89		\$874.74
Break-even price, total			\$54.24 / ton		\$45.68 / ton		\$39.76 / ton	
6. Net projected returns to risk and management	acre			\$1,292.11		\$1,697.11		\$2,095.26

Note: Projections for planning purposes only. Should not be used without updating.

*Used in grapefruit production.



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