

Economic analysis of commercial Concord grape production in Northwest Arkansas, 1987

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Costs and returns from Concord grapes to Northwest Arkansas were outlined in Arkansas Agricultural Experiment Station Special Report No. 125 (April 1987). These estimates were intended as production guidelines and as economic evaluations of alternative cultural and trellis systems.

Table 1 is a summary by year for irrigated cultures with two trellis systems. Cost and return items listed are: 1) expected yield, 2) market price, 3) total revenue, 4) total costs, 5) net returns above specified costs, and 6) cumulative costs. Details of the combination of production technologies and resource inputs are provided in Special Report 125.

The price of \$185 per ton was used because it is the price reported for the 1985 crop by the more than 80 member-farmers who delivered Concord grapes for processing to the National Grape Cooperative, the major buyer in the area. In the most recent 10-year period, settlement prices to members have ranged from \$261 per ton in 1977 to \$156 per ton in 1983 with an average of \$217 per ton. The returns are a composite of an initial harvest advance plus periodic additions from profits as the juice is processed into retail products and sold. Thus, the full price to the grower member cannot be determined until several months after harvest. Also included in the \$185 per ton for 1985 was the discounted value of the seven-year certificates of ownership which are issued as part of payment to member farmers.

Based on these assumed costs and product prices, the projected profits are outlined for Concord grape vineyards for 5 to 30 years in the future (Table 1). At \$185 per ton for grapes, there would be a \$4.58 profit per acre for irrigated Geneva double curtain vineyards, with losses projected for the other examples. Because this estimated profit would be so near the breakeven level for this top technology combination, it would appear questionable to encourage new Concord grape industry investments with current costs and grapes selling for \$185 per ton. Using 5th year costs as accumulated, the breakeven price per ton using other technology combinations would be \$191.07, GDC nonirrigated; \$204.84, UK irrigated; and \$208.27, UK nonirrigated.

Table 1. Irrigated Concord grapes: Estimated revenue, commulative costs, and returns per acre by year and trellis system, 1987.

Costs ¹ and Revenue	Years of Establishment and Production				
	1	2	3	4	5-30
Irrigated Culture					
Umbrella Kniffin Trellis					
Expected Yield per Acre (tons)	0	0	3.0	5.0	6.65 ²
Market Price (\$)	185.00	185.00	185.00	185.00	185.00
Total Revenue	0	0	555.00	925.00	1230.25
Total Costs (\$)	1150.46	795.54	1119.84	1236.70	1362.22
Net Returns above Specified Costs (\$)	-0-	-0-	-564.84	-311.70	-132.41
Total Cumulative Costs ³	1233.36	2028.90	2593.74	2905.44 ⁴	329.65 ⁴
Geneva Double Curtain Trellis					
Expected Yield per Acre (tons)	0	0	3.0	6.0	8.55 ²
Market Price (\$)	185.00	185.00	185.00	185.00	185.00
Total Revenue	0	0	555.00	1110.00	1581.75
Total Costs (\$)	1253.99	881.03	1251.76	1417.47	1577.17
Net Returns Above Specified Costs (\$)	-0-	-0-	-696.76	-307.47	4.58
Total Cumulative Costs ³	1336.89	2217.92	2914.68	3222.15 ⁷	365.59 ⁸

¹Details on equipment operations, spray schedule, revenue and costs are in Special Report No. 125.

²Establishment costs including preplanting preparation costs were amortized over the productive years.

³In years 5-30 yields were reduced by 5% from expected yield to reflect the risk of crop loss due to adverse weather and other factors.

⁴Annual Establishment Charge which is the 4th year cumulative cost amortized over the remaining 26 seasons of expected vineyard life.

Estimated establishment costs were accumulated for the first four years to identify the capital-intensive nature of grape vineyard investments. The annual establishment charges for years 5 through 30 were calculated from these totals which ranged from \$2182.68 per acre for a nonirrigated umbrella Kniffin trellis to \$3222.15 per acre for an irrigated Geneva double curtain trellis. Some existing vineyards maybe returning profits at \$185 per ton because the establishment costs were lower in the past. However, plantings of new acreage were projected based on current input costs and product prices. If the prospect for prices were to be raised to \$244 per ton, the average for the 1976 to 1981 crops, then even

Table 2. Estimated average net returns above 1986 specified costs per acre for Concord grapes at four price levels by cultural and trellis system in Northwest Arkansas.

Culture & Trellis	Average Price Per Ton			
	\$170	\$185	\$200	\$215
	----- Returns Per Acre (\$) -----			
Non Irrig.				
UK	-192.39	-110.57	-28.75	53.07
GDC	-143.27	-37.66	67.95	173.56
Irrigated				
UK	-257.88	-132.41	-14.94	95.39
GDC	-139.52	4.58	148.69	292.79

UK = Umbrella Kniffin; GDC = Geneva Double Curtain.

at current establishment costs Concord grape vineyards could be considered a profitable investment.

Recent reports on the 1986 crop of National Grape Cooperative members indicate that the completed returns will combine to a total of more than \$200 per ton. With this additional information, it would seem only appropriate to consider the prospects for Concord grapes based on the estimated costs and a variable price structure as illustrated in Table 2. In this way, the prospect for vineyard investment can be seen to depend on both costs as well as price which is a reflection of the demand for Concord grapes. When there is a relative scarcity, as evidently developed for the 1986 crop, prices and profits for grapes should increase. As long as prices are above the breakeven level and input costs do not rise in proportion, Concord grape vineyards will become an increasingly profitable alternative. Table 2 also illustrates the results if grape prices fall below \$185 per ton with costs relatively fixed.

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