



2002 Grape Cost and Return Estimates: Summary and Assumptions

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Production budgets with assumptions for American Hybrid, European Hybrid (Vinifera), and Table grape varieties were developed during 2002 to estimate grape profitability in Kentucky. Assumptions used in the construction of these budgets are indicated below.

Our analysis indicates that wine grapes will be economically feasible only in areas of the state where climate risk for grape production is minimized and market prices approaching \$1000/ton for winegrapes are assured. Sound management that maximizes wine grape yields and minimizes input costs, as well as marketing that captures top grape prices, are absolutely necessary to making grape production economically viable in Kentucky.

Many current grape producers in Kentucky established grape acreage using cost share funds formerly available through a state program. That program was recently discontinued; these budget estimates assume that the producer incurs 100% of the expense and risk for grape production. Using an assumed price of \$950/ton, American grape varieties do not appear to be an economically viable option in the long run if the producer has incurred all establishment costs. Higher prices or cost savings must be obtained for long-term profitability using these varieties that are more suited to Kentucky climates (see Table 3 below).

According to these estimates, winegrape prices approaching or exceeding \$1000 per ton need to be obtained to economically break even in the long run (see Tables 2 and 3 below). Regional trends for wholesale grape prices indicate that this is at the peak of grape prices in Kentucky's region. New producers considering grape production should take care to acquire price contracts that cover all costs of production.

Table grape production is an economically viable option in Kentucky; however, production requires a high level of management. Furthermore, the market for locally produced table grapes is very thin and is currently concentrated at the farmers' market and fine dining levels. Still, there may be some potential for table grape producers wishing to explore and expand markets in more populated parts of the state, especially in the Louisville and Northern Kentucky areas.

Grapes can be an economically viable alternative crop for Kentucky producers. As for any new crop, however, producers should carefully examine their own costs and production situation before beginning production. Kentucky's climate and developing grape market can lend considerable risk for producers who do not pay utmost attention to marketing and management.

Table 1. Estimated Grape Producer Profitability Summary: Kentucky, 2002

Variety	Estimated Establishment Cost (Cash Outlays Until Positive Cash Flows are Generated)	Estimated Annual Return to Land, Labor, & Management (Full Production)	Estimated Present Value of 10-Year Cumulative Return (9% Discount Rate)	Estimated Payback Period (Land, Labor & Management)
American Hybrid	\$8,542	\$485	-\$1,702	None (Economically infeasible at \$950/ton)
Vinifera (European Hybrids)	\$9,696	\$1,761	\$183	10 Years (\$1,150/ton)
Table Grape	\$7,721	\$3,224	\$8,328	6 Years (\$0.95/lb)

Table 2. Estimated Vinifera Wine Grape Annual Return to Land, Labor & Management Varying Price/Yield Combinations: Kentucky, 2002

Yield (Tons)	Price Per Ton							
	\$950	\$1000	\$1050	\$1100	\$1150	\$1200	\$1250	\$1300
2.5	-464	-339	-214	-89	36	161	286	411
3.0	11	161	311	461	611	761	911	1061
3.5	486	661	836	1011	1186	1361	1536	1711
4.0	961	1161	1361	1561	1761	1961	2161	2361
4.5	1436	1661	1886	2111	2336	2561	2786	3011
5.0	1911	2161	2411	2661	2911	3161	3411	3661

Table 3. Estimated American Hybrid Wine Grape Annual Return to Land, Labor & Management Varying Price/Yield Combinations: Kentucky, 2002

Yield (Tons)	Price Per Ton							
	\$750	\$800	\$850	\$900	\$950	\$1000	\$1050	\$1100
2.0	-1340	-1240	-1140	-1040	-940	-840	-740	-640
2.5	-965	-840	-715	-590	-465	-340	-215	-90
3.0	-590	-440	-290	-140	10	160	310	460
3.5	-215	-40	135	310	485	660	835	1010
4.0	160	360	560	760	960	1160	1360	1560
4.5	535	760	985	1210	1435	1660	1885	2335

Table 4. Estimated Table Grape Return to Land, Labor & Management Varying Price/Yield Combinations: Kentucky, 2002

Yield (Lbs)	Average Price Per Pound*							
	\$0.75	\$0.80	\$0.85	\$0.90	\$0.95	\$1.00	\$1.05	\$1.10
7000	874	1224	1574	1924	2274	2624	2974	3324
7500	1249	1624	1999	2374	2749	3124	3499	3874
8000	1624	2024	2424	2824	3224	3624	4024	4424
8500	1999	2424	2849	3274	3699	4124	4549	4974
9000	2374	2824	3274	3724	4174	4624	5074	5524
9500	2749	3224	3699	4174	4649	5124	5599	6074

*Based on Following Assumptions:

$\frac{3}{4}$ yield at full price; $\frac{1}{4}$ yield at 80% of full price
e.g. \$0.95 avg. price = 6000 lbs @ \$1.00, 2000 lbs @ \$0.80

2002 Kentucky Grape Costs and Returns Budget Assumptions

Planting: Assumed plant cost varied according to the variety planted: \$1.80/vine for American varieties, \$4.00/vine for European hybrids, and \$3.00/vine for table grape varieties. Trellis establishment was estimated based on estimated materials of 180 4"-wooden posts, 20 6"-wooden posts, 13,000 feet of wire, and miscellaneous trellis materials (end post anchors, wire strainers, etc.).

Production: University of Kentucky recommended cultural practices (fertilization, pesticides, cultivation, etc.) were followed in these budgets. Labor estimates were developed using data from current growers. These budgets estimate significantly more labor time than the *Mid-Atlantic Grape Growers Guide* for production. This is mostly due to the *Guide* underestimating actual pruning time for grapevines in Kentucky production systems.

Equipment costs (irrigation and machinery) were estimated using 2002 university standards. A trickle irrigation system was assumed for the table grape budget only. A \$15/month variable cost of irrigation was assigned for table grapes; this cost can vary greatly according to water source and irrigation system. Machinery costs were estimated using an Iowa State machinery cost generator customized for Kentucky.

Grape harvest lugs for winegrapes were assumed for purchase in first and full production years. Summary tables assume no cost of lugs in subsequent years. A daily electricity cost for cooling table grapes was assumed during the harvest season.

Labor: Labor costs were assigned at a wage rate of \$9.00 per hour for untrained labor due to the care needed in many of the ordinary duties of grape production. Management, pesticide application, and other more specialized tasks were assigned a rate of \$12.00 per hour. Due to the labor intensity required in grape production, lower wage rates could significantly raise profitability.

Fixed Costs

Fixed machinery costs were also calculated using recommended cultural practices and the Iowa State machinery cost generator. A \$220 annual cost for bird and wildlife pest control was assigned per acre of fruiting grapes. Table grape production included a \$341 annual fixed cost for refrigeration. Annual fixed irrigation cost was assumed at \$177.70 for table grapes.

Further budget assumption details may be obtained by contacting Matthew Ernst at: mernst@uky.edu