



2005 Grape Cost and Return Estimates: Summaries and Assumptions

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Production budgets with assumptions for American and American French Hybrid, European (Vinifera), and table grape varieties were first developed during 2002 to estimate grape profitability in Kentucky. These estimates were updated in 2005 to reflect current planting populations, yield levels, and labor needs for Kentucky grape growers.

This analysis indicates that wine grapes can be economically feasible in Kentucky, when best production practices are followed to maximize yields and when market prices approach \$1000/ton for wine grapes. Sound management that maximizes wine grape yields and minimizes input costs, as well as marketing that captures top grape prices, are absolutely necessary making wholesale grape production economically viable in Kentucky.

These budget estimates assume the producer incurs 100% of the expense of grape establishment. While prior budget estimates indicated a mixed outlook for profitability potential from wholesale grape production, increased plant populations and yield expectations now project French-American Hybrids and American varieties to have a 6-8 year economic payback period. Higher prices or establishment cost savings, such as cost-share programs aiding establishment, can increase chances for long-term profitability. However, sound management is still required to capture profits; poor production management can easily result in negative cash flows during full-bearing years.

Wine grape prices approaching or exceeding \$1000 per ton are necessary for wholesale wine grape production to break even in the long run (see Tables 2 and 3 below). Regional trends for wholesale grape prices indicate that this has been the peak for many grape prices in Kentucky's region. New producers considering grape production should know their costs and attempt to acquire price contracts covering all costs of production. Grape prices are extremely sensitive to grape quality, again emphasizing the need for good management.

Table grape production is an economically viable option in Kentucky; however, production requires a high level of labor and management. Furthermore, the market for locally produced table grapes is very thin and is currently concentrated at the farmers' market and fine dining levels. There may especially 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 a profitable alternative crop for Kentucky producers. However, producers should carefully examine their own costs and whole farm situation before beginning production as grapes require much labor and some production expertise. In addition, Kentucky's climate and weather patterns can still lend considerable risk for producers who do not give the utmost care to both managing and marketing their grape plantings.

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Table 1. Estimated Grape Producer Profitability Summary: Kentucky, 2005

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 (7% Discount Rate)	Estimated Payback Period (Land, Labor & Management)
American & French-American Hybrids	\$6,233	\$2,792	\$9,671	6 Years
Vinifera (European Hybrids)	\$10,186	\$2,677	\$4,402	8 Years
Table Grape	\$6,945	\$3,864	\$6,997	6 Years

Table 2. Estimated Vinifera Wine Grape Annual Return to Land, Capital & Management (\$) Full Production Year Varying Price/Yield Combinations: Kentucky, 2005

Yield (Tons)	Price Per Ton							
	\$950	\$1000	\$1050	\$1100	\$1150	\$1200	\$1250	\$1300
2.0	-1,039	-940	-840	-740	-640	-540	-440	-340
2.5	-636	-511	-386	-261	-136	-11	114	240
3.0	-233	-83	67	217	367	517	667	817
3.5	170	345	520	695	870	1,045	1,220	1,395
4.0	574	774	974	1,174	1,374	1,574	1,774	1,974
4.5	977	1,202	1,428	1,652	1,877	2,102	2,328	2,552
5.0	1,381	1,631	1,881	2,131	2,381	2,631	2,881	3,131

Table 3. Estimated French-American Hybrid and American Varieties Annual Return to Land, Capital & Management, Full Production Year Varying Price/Yield Combinations: Kentucky, 2005

Yield (Tons)	Price Per Ton							
	\$750	\$800	\$850	\$900	\$950	\$1000	\$1050	\$1100
3.0	-1,029	-879	-729	-579	-429	-279	-129	21
4.0	-422	-222	-22	178	378	578	778	978
5.0	185	435	685	935	1,185	1,435	1,685	1,935
5.5	488	763	1,038	1,313	1,588	1,863	2,138	2,413
6.0	792	1,092	1,392	1,692	1,992	2,292	2,592	2,892
6.5	1,095	1,420	1,745	2,070	2,395	2,720	3,045	3,370
7.0	1,399	1,749	2,099	2,449	2,799	3,149	3,499	3,849

Table 4. Estimated Table Grape Return to Land, Capital & Management, Full Production Year Varying Price/Yield Combinations: Kentucky, 2005

Yield (Lbs)	Average Price Per Pound*							
	\$0.75	\$0.80	\$0.85	\$0.90	\$0.95	\$1.00	\$1.05	\$1.10
7000	-1,275	-1,013	-752	-439	-177	84	345	659
7500	-524	-215	93	464	773	1,081	1,390	1,761
8000	-149	184	516	915	1,248	1,580	1,913	2,312
8500	226	583	939	1,366	1,723	2,079	2,435	2,863
9000	977	1,381	1,784	2,269	2,673	3,076	3,480	3,965
9500	1,727	2,179	2,630	3,171	3,623	4,074	4,525	5,067

*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

2005 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 for each production system at current post and wire prices.

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 and comparable production budgets.

Equipment costs (irrigation and machinery) were estimated using 2005 fuel price trends. 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.

Grape harvest lugs for wine grapes 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 \$8.00 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 \$10.00 per hour. Due to the labor intensity required in grape production, profitability can be very sensitive to changes in wage rates.

Fixed Costs

Fixed machinery costs were also calculated using recommended cultural practices and the Iowa State machinery cost generator. A \$225 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 (\$180) for table grapes.

Further budget assumption details may be obtained by contacting the authors.

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