



2010 Grape Cost and Return Estimates: Summaries and Assumptions

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Production budgets with assumptions for American, hybrid, European (*vinifera*), and table grape varieties were first developed during 2002 to estimate grape profitability in Kentucky. These estimates were updated in 2005, then more recently in 2010, to reflect current planting populations, yield levels, price changes, 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 that maximize yields and when market prices approach \$1,500 per ton for *vinifera* wine grapes and \$1,000 per ton for French-American and American hybrid wine grape varieties. Sound management that maximizes wine grape yields and minimizes input costs, and especially marketing that captures top grape prices, are absolutely necessary to 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 7-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.

Prices paid for *vinifera* grapes in Kentucky appear to frequently fall in the range for profitable wholesale production; these budget estimates assume a price of \$1,350 per ton for *vinifera*. Hybrid wine grape variety prices in Kentucky, however, do not always fall in the \$850 to \$1,000 per ton range needed for long term profitability (see Tables 2 and 3 below). 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, 2010

Variety	Estimated Establishment Cost (Cash Outlays Until Positive Cash Flows Are Generated) -per acre-	Estimated Annual Return to Land, Labor, & Management (Full Production) -per acre-	Estimated Present Value of 10-Year Cumulative Return (7% Discount Rate) -per acre-	Estimated Payback Period (Land, Labor & Management) -per acre-
American & French-American Hybrids	\$ 8,028	\$1,850	\$3,821	7 Years
<i>Vinifera</i> (European Hybrids)	\$10,667	\$3,042	\$9,191	5 Years
Table Grape	\$9,034	\$3,277	\$8,587	6 Years

Table 2. Estimated *Vinifera* Wine Grape Annual Return to Land, Capital & Management (\$) Full Production Year Varying Price/Yield Combinations: Kentucky, 2010

Yield/A (Tons)	Price Per Ton							
	\$900	\$1000	\$1100	\$1200	\$1300	\$1350	\$1400	\$1450
2.0	-1,568	-1,369	-1,169	-969	-769	-669	-569	-469
3.0	-813	-513	-213	87	387	537	687	837
3.5	-435	-85	265	615	965	1,140	1,315	1,490
4.0	-58	342	742	1,142	1,542	1,742	1,942	2,142
4.5	320	771	1,220	1,670	2,120	2,345	2,570	2,795
5.0	698	1,198	1,698	2,198	2,698	2,948	3,198	3,448
6.0	1,453	2,053	2,653	3,253	3,853	4,153	4,453	4,753

Table 3. Estimated French-American Hybrid and American Varieties Annual Return to Land, Capital & Management, Full Production Year Varying Price/Yield Combinations: Kentucky, 2010

Yield/A (Tons)	Price Per Ton							
	\$750	\$800	\$850	\$900	\$950	\$1000	\$1050	\$1100
3.0	-1,263	-1,113	-963	-813	-663	-513	-363	-213
4.0	-658	-458	-258	-58	142	342	542	742
5.0	-52	198	448	698	948	1,198	1,448	1,698
5.5	251	526	801	1,076	1,351	1,626	1,901	2,176
6.0	553	853	1,153	1,453	1,753	2,053	2,353	2,653
6.5	856	1,181	1,506	1,831	2,156	2,481	2,806	3,131
7.0	1,159	1,509	1,859	2,209	2,559	2,909	3,259	3,609

Table 4. Estimated Table Grape Return to Land, Capital & Management, Full Production Year Varying Price/Yield Combinations: Kentucky, 2010

Yield/A (Lbs)	Average Price Per Pound*							
	\$0.80	\$0.90	\$0.95	\$1.00	\$1.25	\$1.30	\$1.40	\$1.50
7000	-479	221	571	920	2,671	3,021	3,721	4,421
7500	-154	596	971	1,346	3,221	3,596	4,346	5,096
8000	171	971	1,371	1,771	3,771	4,171	4,971	5,771
8500	496	1,346	1,771	2,196	4,321	4,746	5,596	6,446
9000	821	1,721	2,171	2,621	4,871	5,321	6,221	7,121
9500	1,146	2,096	2,571	3,046	5,421	5,896	6,846	7,796

*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

2010 Kentucky Grape Costs and Returns Budget Assumptions

Planting: Assumed plant cost varied according to the variety planted: \$3.50 per vine for American and hybrid varieties, \$4.50 per vine for European varieties, and \$3.25 per 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 recent fuel price trends. A trickle irrigation system was assumed for establishment of both wine and table grapes, and for all production years of table grapes. Costs for irrigation can vary greatly depending on system and water source.

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 \$8.50 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 \$15.00 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 \$240 annual cost for bird and wildlife pest control was assigned per acre of fruiting grapes. Table grape production included a \$550 annual fixed cost for refrigeration. Annual fixed irrigation cost was assumed at \$258 for table grapes.

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

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