



# Viticulture, enology and marketing for cold-hardy grapes



## Cost of Establishment and Operation Cold-Hardy Grapes in the Thousand Islands Region

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**Background and Rationale:** Grape production budgets (White et al, 2010 for example) have been based on high end *vinifera* wine grapes and the costs of developing and equipping a 20 acre vineyard in the Thousand Islands Region. We adapted the methodology and collect data based on smaller-scale vineyards and actual costs of producing hybrid grapes, which are critical for many regions targeted by the Northern Grapes Project. Growers who are considering planting new or additional vineyards need to carefully weigh the cost of planting and establishing a vineyard and the annual cost of production of a mature vineyard against the expected yields and prices to determine whether the investment per acre required to bring a vineyard into production will result in a profitable return on investment. This requires a reassessment of which varieties to plant on this acreage and which sites will support profitable wine grape production.

**Methods:** The methods used to construct cost estimates were a combination of 1) interviews with a panel comprised of grower representatives in the Thousand Islands Region, and 2) economic engineering using recommended practices. In November of 2015, we met with a panel of three growers and vineyard managers. The growers went through the data prepared for the most recent estimates of the cost of establishing and growing hybrid grapes. Consensus estimates were developed for land prices, labor requirements and wage rates for the various operations in a cold-hardy hybrid grape vineyard and for a typical machinery complement for a full time commercial vineyard. Because this hybrid grape study was first conducted, the panel went through the machinery and labor time estimates for the 2014 hybrid study, and made recommendations for changes to hybrid grapes. The panel also provided estimates, based on their own experience in the vineyard, of the time required to perform various vineyard operations, such as tillage, spraying, mowing, etc., and hand operations such as pruning, tying & removal, and suckering.

**Results:** Table 1 summarizes the growing, establishment, and development costs for a cold-hardy hybrid vineyard in the Thousand Islands Region. Growing costs are largest in the first year when a significant amount must be spent preparing the site, planting the vines, and constructing the trellis. Growing costs are \$1,759 per acre in years 4 through 22, and this number is transported to Table 1 to use in the computation of the costs and returns for the mature vineyard.

Table 10: Summary of Growing Costs for Cold Hardy Vineyard, Trained to High Cordon System, Thousand Islands Region, NY, 2015

Item	Year 1	Year 2	Year 3	Year 4+
Site preparation	\$5,204			
Vines & planting	\$2,788			
Trellis materials & construction	\$3,316			\$113
Replanting & Rouging		\$134	\$128	\$128
Dormant pruning & removal		\$46	\$170	\$397
Weed control	\$125	\$181	\$213	\$117
Fertilization	\$25	\$0		\$81
Canopy management		\$150	\$272	\$249
Disease & insect control	\$86	\$116	\$231	\$330
Mowing		\$74	\$125	\$125
Bird Control			\$36	\$36
Pick-up				\$75
Crop Insurance*				\$109
<b>Total Growing Costs</b>	<b>\$11,544</b>	<b>\$700</b>	<b>\$1,175</b>	<b>\$1,759</b>

\*Crop Insurance generally starts at the fifth year of positive production (i.e., year 8)

Table 2 summarizes the costs and returns expected from a mature vineyard. The estimated revenue per acre varies from \$3,250 to \$4,560 depending upon variety. Total costs vary from \$3,300 to \$5,436 per acre, also depending upon variety. The break-even prices and yields are shown in Table 2 as well. A yield of 2.74 tons per acre is the break-even yield for Marquette. A yield of 3.3 tons per acre would be necessary to break even with Brianna. A yield of 3.3 tons per acre would be necessary to break even with Frontenac. La Crescent shows a large loss (-\$1,457) given the assumed yield and prices. To put this in perspective, it should be remembered that we assumed recommended practices throughout the model. Some growers will be able to reduce some of these costs considerably. All labor, including the owner's labor, is charged a cash wage. There is an imputed charge on all capital used.



Table 2: Costs and Returns for a mature Cold Hardy Vineyard, Trained High Cordon System, Thousand Islands Region, NY, 2015

Item	Brianna	Frontenac	La Crescent	Marquette
<b>Receipts:</b>				
Yield <b>target</b> , tons per acre	2.44	2.25	2.20	3.02
Price, \$ per ton	\$1,500	\$1,500	\$1,500	\$1,800
Total receipts	\$3,660	\$3,375	\$3,300	\$5,436
<b>Costs:</b>				
Variable Costs:				
Growing (incl. crop insurance @\$109/Ac)	\$1,759	\$1,759	\$1,759	\$1,759
Interest on operating capital	\$18	\$18	\$18	\$18
Machine Harvesting (\$95/ton)	\$232	\$214	\$209	\$287
Trucking (\$30/ton)	\$73	\$68	\$66	\$91
Total variable costs	\$2,081	\$2,057	\$2,051	\$2,154
Fixed Costs:				
Vineyard capital recovery	\$1,019	\$1,019	\$1,019	\$1,019
Machinery and equipment capital recovery	\$998	\$998	\$998	\$998
Buildings capital recovery	\$151	\$151	\$151	\$151
Property taxes	\$50	\$50	\$50	\$50
Land opportunity cost	\$40	\$40	\$40	\$40
Office supplies, phone, etc.	\$150	\$150	\$150	\$150

Insurance	\$133	\$133	\$133	\$133
Management	\$183	\$169	\$165	\$272
Total fixed costs:	\$2,724	\$2,710	\$2,706	\$2,813
<b>Total costs</b>	<b>\$4,805</b>	<b>\$4,767</b>	<b>\$4,757</b>	<b>\$4,967</b>
<b>Profit or loss</b>	<b>-\$1,145</b>	<b>-\$1,392</b>	<b>-\$1,457</b>	<b>\$469</b>
Breakeven price (\$ /ton)	\$1,969	\$2,119	\$2,162	\$1,645
Breakeven yield (tons)	3.3	3.3	3.3	2.74

### **Capital Requirement**

Table 3 indicates the capital investment per acre necessary to get into grape production in the Thousand Islands region, assuming a vineyard of 20 total planted acres with an additional four acres for roads, headlands, and a building; and reliance on either custom hand or machine harvesting of grapes. The table uses the value of new machinery and equipment and buildings. If a harvester is purchased, investment per acre for machinery would be considerably higher. Land costs assume a prime site close to the lake. Table 3 indicates that it would require \$33,530 per planted acre to get a vineyard into maturity in NYS under the assumptions indicated above. Established growers, with depreciated vineyards, machinery and equipment, and buildings, would have lower capital investment (book value) depending upon the age of their depreciable assets. Growers with smaller acreage will typically have higher investment costs per acre. This is due to less efficient use of the machinery complement unless these smaller growers hire some vineyard operations to be done by custom operators and/or vineyard management companies, thus giving them the possibility of buying fewer items of machinery and equipment.

Table 3: Investment per Planted Acre of Cold Hardy Grapes,  
Thousand Islands Region of New York, 2015

Assets	\$/acre
Land*	\$2,200
Machinery & equipment	\$9,968
Buildings (shop & tool shed)	\$3,375
Vineyard establishment and development	\$17,987
<b>Total Investment per acre</b>	<b>\$33,530</b>

\* Assumes 22 acres purchased (including support land) for 20 planted acres.

### What the results mean:

This report can shed light on the following issues relevant to vineyard managers in the Thousand Island Region:

- The results can help northern grape growers identify low-cost production practices that enhance profitability of wine grape growing; in addition, through extension efforts, these results are helping improve the ability of vineyard managers to make superior production decisions.
- The cost and returns estimates derived in this publication indicate results for cold-hardy hybrid grapes in the Thousand Island wine region in New York State under the assumption of prime sites, the use of recommended practices, good management, 2015 prices for inputs, and prices for grapes that reflect several quality enhancing practices such as leaf pulling, cluster removal for two varieties, and limited yields.
- Potential investors should be forewarned that the current economic climate for grape growing can change. In some years, given the thin markets for certain varieties, a surplus situation can develop when grape yields increase or a few growers plant additional acres.
- The total acreage of some varieties in New York State is quite limited. With such limited acreage, a few small plantings or one large planting of these varieties can lead to a large percentage increase in grapes produced, temporarily depressing the cash market. Labor, especially with more reliance on Hispanic labor for pruning and tying, is a concern.