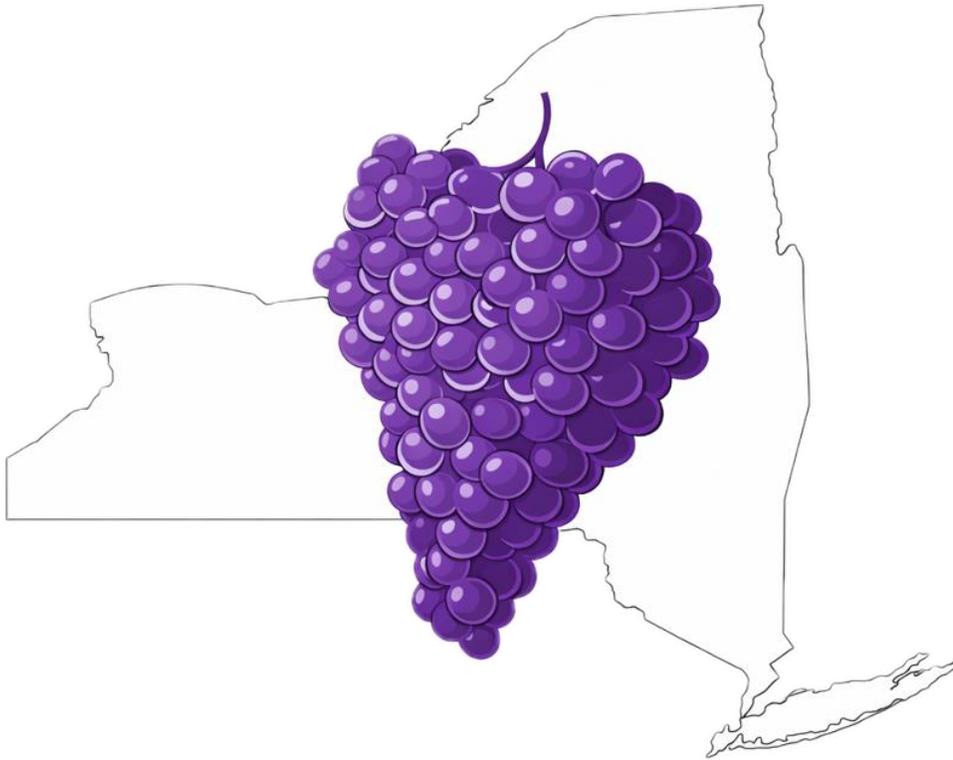


COST OF ESTABLISHMENT AND PRODUCTION OF V. VINIFERA GRAPES IN THE FINGER LAKES REGION OF NEW YORK - 2025



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Introduction

In 2022, the total economic impact of the wine industry in New York State was estimated at approximately \$16.81¹ billion. While a substantial portion of these benefits accrue to second- and third-party stakeholders, the industry directly supports a robust agricultural and tourism economy. New York’s wine industry includes approximately 507 wine producers and 32,149 acres of vineyards, generating an estimated 83,193 jobs and \$5.76 billion in wages. In addition, wine-related tourism contributes approximately \$541.90 million annually, representing more than 2.84 million visits statewide.

The Finger Lakes region is one of New York State’s largest wine-producing areas. As of 2024, the region encompassed approximately 10,790 acres of vineyards, producing an estimated 55,000 tons of grapes. The Finger Lakes is best known for sparkling wines, Riesling, Pinot Noir, and ice wines. In recent years, there has been growing interest in the Finger Lakes in expanding plantings of *V. vinifera* varieties for premium wine production. According to the 2024 New York Wine and Grape Foundation orchard and vineyard survey, acreage of several red vinifera varieties increased, including Pinot Noir (194 acres), Cabernet Sauvignon (104 acres), Merlot (87 acres), and Cabernet Franc (236 acres). White vinifera acreage also expanded over the past five years, led by Riesling (849 acres) and Chardonnay (351 acres). Overall, vinifera varieties accounted for approximately 22 percent of total grape acreage in the Finger Lakes region in 2024.

Americans’ per capita wine consumption has declined in recent years, falling from approximately 3.16 gallons per person in 2021 to about 2.54 gallons per person in 2024 (roughly from 9.62 to 7.66 liters per capita). Total U.S. wine consumption in 2023–2024 was estimated at 870–901 million gallons, reflecting a continuation of a downward trend that began after consumption peaked in the late 2010s. While Millennials and Generation Z now represent a growing share of wine consumers, their overall participation remains lower than that of older cohorts. This pattern aligns with broader declines in alcohol consumption nationwide, with recent surveys indicating historically low shares of U.S. adults consuming alcohol. Despite declining volumes, dollar sales of wine have increased in recent years, driven in part by consumers shifting toward higher-priced products and premium offerings. As a result, the U.S. wine market, valued in the hundreds of billions of dollars, continues to generate revenue growth even as per capita consumption softens. Wine consumption patterns also suggest increasing episodic use, with many consumers drinking wine primarily on special occasions rather than regularly. Additionally, white wine has gained popularity and now rivals or slightly exceeds red wine in market share by volume.

In addition to traditional retail and distribution channels, the growth of in-premise wine consumption, particularly through winery tasting rooms, has become an increasingly important driver of consumer engagement in New York State. Direct-to-consumer, on-site sales allow wineries to capture higher margins while strengthening brand loyalty and consumer education. Tasting rooms, winery events, and curated wine experiences attract both residents and destination tourists, contributing to increased visitation and longer stays in wine regions such as the Finger

¹ Economic Impact of Wine Industry 2025 Data, New York – The national Association of American Wineries – Wine America

Lakes. These in-premise experiences are especially effective at attracting younger consumers who place higher value on authenticity, local identity, and experiential purchasing. As a result, in-premise wine sales have become a critical marketing and revenue channel that supports both winery profitability and regional tourism development in New York State.

There has been an increase in consumer demand for quality wines, including interspecific French American hybrid and *V. vinifera* cultivars as well as from designated appellations. Consumers are buying fewer bottles, but at higher prices. While U.S. wine consumption has declined in volume, consumer demand has shifted toward higher-quality wines, reflected in rising average prices, premium segment growth, and greater willingness to pay for origin, sustainability, and quality signals. New York is gaining stature as a producer of high-quality wines that command premium prices. The Finger Lakes region has benefited from a surge of sales and interest nationally in Riesling varietal wines over the past ten years. Over the past five years we have been able to see, on average, the prices of the four main varieties of *V. vinifera* grapes grown in the Finger Lakes (Riesling, Chardonnay, Cabernet Franc, and Pinot Noir) increase in tandem with an increase in Finger Lakes wine nationwide. While the prices growers are receiving are rising and are significantly higher than those found in previous studies, costs related to growing *V. vinifera* crops in the region have also increased significantly.

Growers who are considering planting additional *V. vinifera* vineyards need to carefully weigh the cost of planting and establishing a vineyard, as well as the annual cost of operation of a mature vineyard, against the expected yields and prices to determine whether the investment of \$53,393 per acre or more required to bring a *V. vinifera* vineyard into production will result in a profitable return on investment. This requires a re-assessment of which varieties to plant and which sites would support profitable *V. vinifera* production. Varieties to plant must be considered relative to cold hardiness, as the Finger Lakes has experienced severe winter injury to *vinifera* about once every decade.

This question is complicated by the long-term nature of vineyard investments, which often involve payback periods exceeding ten years. Investment risk is further heightened by the potential for global oversupply of wine grapes, driven by substantial plantings in “New World” competitors such as Australia, New Zealand, and Chile, as well as rapid expansion of grape production in China over the past decade. Although New York’s wine industry is partially insulated by its small scale in the premium wine segment; where most wineries sell more than 50 percent of their wine directly through tasting rooms, it is unlikely to remain fully immune to future imbalances between global supply and demand. Given the limited acreage under production, even modest increases in planted area can lead to disproportionate supply effects once new vineyards reach bearing age. In the late 2010s and early 2020s, periods of excess production for select *V. vinifera* varieties in the Finger Lakes and other eastern wine regions contributed to downward pressure on grape prices and increased contract renegotiations, particularly for red varieties that had expanded rapidly in response to earlier market signals. These dynamics underscore the importance of careful varietal selection, which must align with both marketing strategies and the relative cold hardiness of *V. vinifera* varieties.

The objective of this study is to estimate the cost of producing *V. vinifera* grapes in the Finger Lakes region under a commercial-scale operation. Cost estimates include investments in land, machinery, vineyard establishment and development, as well as annual operating expenses. These estimates are intended to help growers and potential investors evaluate production costs and profit potential under their own conditions. The budgets presented are not meant to represent

average production costs across all Finger Lakes vineyards; rather, they reflect typical costs for well-managed vineyards that follow recommended practices. Yield and return estimates assume favorable sites characterized by well-drained, productive soils and appropriate slopes for air drainage, as well as vineyard management practices aimed at producing premium-quality grapes. Practices such as leaf removal, cluster thinning, and yield limitation are incorporated to reflect quality-focused production. Deviations from optimal site selection or management practices can substantially reduce profitability relative to the estimates presented. The importance of protective practices, such as hilling up and take-away, remains evident, as similar cold injury events continue to pose significant risks to vineyards in the region.

Methods

The methods used to construct cost estimates were a combination of 1) interviews with a panel comprised of grower representatives, 2) economic engineering using recommended practices, and 3) interviewing local stakeholders of the Finger Lakes wine industry. In August of 2025, we met with a panel of four growers and vineyard managers. The growers reviewed the data prepared for the most recent estimates of the costs of establishing and growing *V. vinifera* grapes. Consensus estimates were developed for land prices, labor requirements and wage rates for the various operations in a *V. vinifera* vineyard and for a typical machinery complementary for a full-time commercial vineyard. The panel reviewed the machinery and labor time estimates of the 2019 study and made recommendations for changes.

The panel also provided estimates, based on their own experience in their vineyards, of the time required to perform various vineyard operations, such as tillage, spraying, mowing, etc., and hand operations such as pruning, tying & removal, suckering, and cluster & shoot thinning.

Land

The study assumes a land purchase price of \$13,750 per acre, representing a 37.5% increase from the value used in the 2019 study. This assumption reflects current market conditions and the likelihood that purchased land may require preparation before vineyard establishment. The selected price was determined through consultations with Farm Credit East and discussions of average sales prices for agricultural land suitable for *V. vinifera* vineyards since 2017. While an initial range of \$8,000 to \$15,000 per acre was considered, assuming that all acreage would be immediately vineyard-ready is unrealistic. For a hypothetical 54-acre purchase in the Finger Lakes region, some land would require clearing, cultivation, or site preparation; therefore, a value toward the lower end of the range was used.

Vineyard size was determined in consultation with the grower panel. The operation is assumed to total 54 acres, of which 50 acres are planted to grapes; the remaining 4 acres are allocated to roads, headlands, and a shop. A 50-acre vineyard is large enough to achieve efficient use of vineyard machinery and equipment, yet small enough to be managed by one full-time manager and one additional full-time worker. Select hand-labor operations are assumed to be performed by hired part-time labor or migrant labor crews.

We assume that 34 of the 54 acres purchased are immediately suitable for agricultural use. The remaining 20 acres are assumed to require, on average, \$1,000 per acre in basic site preparation (e.g., woodland clearing, cross ripping) before any advanced preparation, such as drainage installation, can occur. Based on these assumptions, an average adjusted land preparation cost of \$14,120 was calculated using the following equation:

$$\frac{((34 \text{ acres} * \$13,750) + (20 \text{ acres} * (\$13,750 \text{ land price} + \$1,000 \text{ land prep}))}{54 \text{ total acres}}$$

This calculation yields an average land price of \$14,120 per acre. However, if all purchased land is assumed to be immediately suitable for agricultural use, an average price of \$13,750 per acre should be used instead.

Vineyard Layout

The vineyard is assumed to be planted at a 9 ft × 6 ft spacing (row by vine), resulting in a planting density of 807 vines per acre. Each acre contains 11 rows, with rows averaging 440 feet in length. Vine costs are estimated at \$4.25 per plant. Annual replanting is assumed at 2% of vines due to losses from disease or environmental factors. Initial planting is assumed to be completed using contracted GPS planting services at a cost of \$1.10 per vine, with approximately 40,000 vines planted in total.

Varieties

The 50-acre vineyard is assumed to be planted to four *V. vinifera* varieties: Pinot Noir, Cabernet Franc, Chardonnay, and Riesling, selected for their suitability to the cool climate of the Finger Lakes region and their demonstrated ability to produce premium-quality wine

Tile Drainage

Tile drainage is assumed to be installed at 27-foot intervals, corresponding to the center of every third row. The system consists of 4-inch lateral pipes running down the center of every second row, which are connected to a 6-inch mainline pipe running across the width of the vineyard.

Trellis System

Vines are assumed to be trained using the vertically shoot positioned (VSP) system. The trellis system consists of two pairs of catch wires and two fruiting wires (six wires total), 8 ft × 5 in wooden line posts placed at every fourth vine, four catch-wire clips per line post, and 8 ft × 5 in wooden end posts with anchor support at the end of each row.

Herbicides and Fertilizer/Soil Program

The sample herbicide program was developed in consultation with an advisory panel of four growers. Details of the program are provided in Table A1 in the Appendix. Glyphosate spot applications are assumed to be applied using a shielded sprayer to prevent contact with green vine tissue; given the vineyard size, the study assumes use of an Environment sprayer for this purpose. The sample fertilizer and soil management program was developed by Hans Walter-Peterson, Viticulture Extension Specialist with the Finger Lakes Grape Program. Details are provided in Table A2 in the Appendix.

Wage Rates

Wage rates reflect the consensus of the grower panel. Skilled labor is assumed at \$24.00 per hour, which includes a base wage of \$18.46 plus fringe benefits such as workers' compensation, Social Security, medical insurance, and other benefits. Unskilled labor is assumed at \$21.70 per hour, including fringe benefits.

Piece-rate wages are assumed for pruning and tying vines in years 3–22. Pruning is paid at \$0.56 per vine and tying at \$0.28 per vine. These rates are based on base piece rates of \$0.45 and \$0.23 per vine, respectively, with an additional 13% contracting fee and 10% unemployment

insurance cost applied.

Harvesting & Hauling

Grapes are assumed to be custom machine-harvested beginning in year four. The harvesting cost is estimated at \$95 per ton, with an additional \$30 per ton for grape transportation.

Machinery and Building Costs

Investment and annual costs for equipment and buildings are summarized in Table A3 in the Appendix. All machinery is assumed to be purchased new, although total costs could be reduced by purchasing some equipment used. Total machinery investment is estimated at \$301,360, equivalent to \$6,027 per acre of vineyard. Investment in a shop is estimated at \$82,500, or \$1,650 per acre. The shop is assumed to be 1,500 ft², with construction costs of \$55 per ft², including basic amenities such as water and electricity, concrete floors, and insulated walls.

Machinery depreciation and interest are calculated using prices for new equipment, with a minor exception for a used pickup truck. Diesel fuel is budgeted at \$3.09 per gallon and gasoline at \$2.89 per gallon (unleaded), reflecting average prices in Central New York as of August 2025. Hourly machinery variable costs, including repairs, fuel, and lubrication, are reported in Table A4 and were estimated using American Society of Agricultural Engineers (ASAE) 2000 standards.

Total annual depreciation and interest costs are estimated at \$33,030 for machinery and \$4,209 for buildings, equivalent to \$661 and \$84 per acre, respectively. Machinery investment would be substantially higher if a mechanical grape harvester were required.

Overhead

Annual insurance costs are estimated at 1 percent of the initial investment in buildings and machinery. Office expenses, including supplies and phone services, are estimated at \$3,000 per year. School and property taxes are assumed at \$25 per \$1,000 of the assessed value of the initial land investment.

Management Charge

A management fee equal to five percent of gross receipts is included to represent the opportunity cost of the vineyard owner's management time. All labor requirements are treated as cash costs; therefore, if the owner or manager performs vineyard labor or management tasks, actual cash expenditures would be lower than those reflected in these estimates.

Cost of Capital

A three percent interest rate is applied to capital investments and operating capital, representing a real rate derived from a nominal interest rate of five percent and an assumed inflation rate of approximately two percent.

Yields

Yields are specified as long-term averages attainable on suitable sites characterized by proximity to the lake, sloping terrain, good air drainage, and moderately well-drained soils with at least medium depth. Yield assumptions reflect better-than-average management practices consistent with the production of premium-quality *V. vinifera* wines, including shoot thinning and cluster removal, which may reduce yields but enhance wine quality. Yield assumptions are summarized in Table 1.

Table 1: Yield Assumption

Variety	Year 3		Year 4+	
Pinot Noir	1	tons/acre	2.6	tons/acre
Cabernet Franc	1	tons/acre	3.3	tons/acre
Chardonnay	1	tons/acre	4	tons/acre
Riesling	1	tons/acre	4	tons/acre

Results

Grape Prices

Prices for the previous six years ending in 2024 are shown in Table 2. These averages do not consider quality and/or quantity of grapes purchased by each processor. Since larger processors often pay less, the weighted average price is often lower than the average reported in Table 2. However, the prices in Table 2 are a reasonable indicator of price trends for the four varieties. The panel of grape growers and vineyard managers took these prices into account when specifying the prices shown in the last row of Table 2, which are the prices used in the profitability analysis reported in this bulletin. The prices specified by the panel reflect special quality practices that are used for premium wine production.

Table 2: Average Price Listings for Selected *V. Vinifera* Grapes in the Finger Lakes Region, 2019-2024, Dollars per Ton.

Year	Pinot Noir	Cabernet Franc	Chardonnay	Riesling
2019	\$ 1,816	\$ 1,492	\$ 1,377	\$ 1,505
2020	\$ 1,933	\$ 1,630	\$ 1,381	\$ 1,519
2021	\$ 1,960	\$ 1,684	\$ 1,410	\$ 1,580
2022	\$ 1,900	\$ 1,773	\$ 1,539	\$ 1,625
2023	\$ 2,100	\$ 1,875	\$ 1,719	\$ 1,756
2024	\$ 2,067	\$ 1,867	\$ 1,650	\$ 1,669
Mean	\$ 1,978	\$ 1,720	\$ 1,513	\$ 1,609
Prices Used	\$ 2,100	\$ 1,875	\$1,719	\$ 1,756

Source: Finger Lakes Grape Price List, 2019-2024

Pesticide Program Spray Costs

Table 3.1 indicates the recommended spray program and costs for years one, two and three (establishment). Table 3.2 indicates the recommended spray program and costs for years 4- 22 (operation). In year three, eight sprays are recommended. Beginning in year four, the spray programs are assumed to be approximately the same from year to year, with the necessity on average for twelve sprays during the growing season. Spray material costs were estimated on average at \$790.36 per acre. Fungicide applications may vary slightly among *vinifera* cultivars due to the differences in disease susceptibility. For example, Pinot Noir, Chardonnay, and Riesling are more susceptible to Botrytis bunch rot. Of course, spray programs will have to be adjusted slightly from year to year to accommodate variable weather and/or pest pressure. Pesticide application costs for labor and machinery, as well as herbicides, are presented in Tables 6 and Table 8.

Table 3.3 shows the cost break down of the chemicals used, as well as other potential substitutes or additions, in the example spray programs and lists the market price for the chemicals as well as the per unit price of each chemical.

Table 3.1: Sample Spray Program for *V. Vinifera* Grapes for Years 1 -3, Finger Lakes NY, 2025

Year	Material	Target organisms	Rate/acre	Price	\$/acre
Spray 1-3					
Year 1	Mancozeb 75DF	Downy mildew, botrytis, anthracnose	3 lbs.	\$7.50 lb.	\$22.50
	Sulfur	Powdery mildew	4 lbs.	\$1.49 lb.	\$5.96
	Surfactant	Lowers the surface tension of the spray	4 oz.	\$0.03 oz	\$0.13
	Total per spray				
Total for year (3 sprays)					\$85.7
Sprays 1-4					
Year 2	Mancozeb 75DF	Downy mildew, botrytis, anthracnose	3 lbs.	\$7.50 lb.	\$22.50
	Sulfur	Powdery mildew	4 lbs.	\$1.48 lb.	\$5.96
	Surfactant	Lowers the surface tension of the spray	4 oz.	\$0.03 gal.	\$0.13
	Total per spray				
Total for year (4 sprays)					\$114.37
Sprays 1-2					
	Mancozeb 75DF	Downy mildew, botrytis, anthracnose	3 lbs.	\$7.50 lb.	\$22.50
	Sulfur	Powdery mildew	4 lbs.	\$1.49 lb..	\$5.96
	Surfactant	Lowers the surface tension of the spray	4 oz.	\$0.03 gal.	\$0.13
	Total per spray				
Total per year (2 sprays)					\$57.19
Sprays 3-4					
Year 3	Revus Top	Powdery mildew, downy mildew	7 oz.	\$3.59 oz	\$21.13
	Sulfur	Powdery mildew	4 lbs.	\$1.49 lb	\$5.96
	Surfactant	Lowers the surface tension of the spray	4 oz.	\$0.03 oz	\$0.13
	Total per spray				
Total per year (2 sprays)					\$62.45
Sprays 5-8					
	Captan 80WP	Botrytis, anthracnose, brown rot	2.5 lbs.	\$4.00 lb	\$10.00
	Sulfur	Powdery mildew	5 lbs.	\$1.49 lb	\$7.45
	Surfactant	Lowers the surface tension of the spray	4 oz.	\$0.03 oz	\$0.13
	Total per spray				
Total per year (3 sprays)					\$52.75
Total for year 3 (8 sprays)					\$172.38

Table 3.2: Sample Spray Program for *V. Vinifera* Grapes for Years 4 - 22, Finger Lakes NY, 2025

Spray	Chemical	Target organisms	FRAC	Measure	Unit/Acre	Cost	Spray Cost
1	Pencozeb	DM, Ph	n/a	3	lb	\$ 9.75	\$ 15.71
	Sulfur	PM	n/a	4	lbs.	\$ 5.96	
2	Pencozeb	DM, Ph	n/a	3	lb	\$ 9.75	\$ 15.71
	Sulfur	PM	n/a	4	lbs.	\$ 5.96	
3	Captan 80WDG	DM, Ph, BR	n/a	2	lb	\$ 8.00	\$ 19.12
	Tebustar	PM, BR	3	4	fl oz	\$ 5.16	
	Sulfur	PM	n/a	4	lbs.	\$ 5.96	
4	Sulfur	PM	n/a	4	lb	\$ 6.32	\$ 105.42
	Captan 80WDG	DM, Ph, BR	n/a	2	lb	\$ 8.00	
	Quintec	PM	13	4	oz	\$ 15.92	
	Narvos 50 WDG	BR	11	6	oz	\$ 35.28	
	Zampro 4.4SC	DM	45, 40	14	fl oz	\$ 39.90	
5	Sulfur	PM	n/a	4	lb	\$ 6.32	\$ 71.42
	Gatten	PM	U13	6.4	fl oz	\$ 26.50	
	Vanguard	Bot	9	10	oz	\$ 38.60	
6	Endura 70WG	PM, Bot	7	8	oz	\$ 38.56	\$ 88.02
	Ridomil Copper	DM	4	2	lbs.	\$ 44.30	
	Tebustar	PM, BR	3	4	fl oz	\$ 5.16	
7	Miravis Prime	PM, BR, Bot	7, 12	12	oz	\$ 51.60	\$ 75.75
	Zilker (Ranman)	DM	21	2.5	fl oz	\$ 17.83	
	Sulfur	PM	n/a	4	lb	\$ 6.32	
8	LifeGard	DM, PM	n/a	2.5	oz	\$ 18.13	\$ 70.63
	Theia	PM, BR	BM02	3	lb	\$ 52.50	
9	Sulfur	PM	n/a	3	lb	\$ 4.47	\$ 38.72
	Vivando 2.5SC	PM	50	12	oz	\$ 26.25	
	Captan 80WDG	DM	n/a	2	lb	\$ 8.00	

10	Inspire Super	PM, Bot	3	20	fl oz	\$ 40.40	\$ 67.90
	Warhammer	DM	n/a	10	oz.	\$ 27.50	
11	Rovral	Bot	2	2	pt	\$ 39.76	\$ 92.26
	Theia	PM, BR	BM02	3	lb	\$ 52.50	
12	Oxidate 5.0	SR	n/a	37	oz	\$ 8.88	\$ 115.52
	Elevate	Bot	17	1	lb	\$ 45.00	
	Howler EVO	DM	BM02	6	lb	\$ 24.00	
	Delegate	Fruit flies	5	4	fl oz	\$ 37.64	
13	Oxidate 5.0	SR	n/a	37	oz	\$ 8.88	\$ 14.19
	Mustang Max	Fruit flies	3A	4	oz	\$ 5.31	
Total Cost							\$ 790.36

Table 3.3 Sample Cost Key of Chemicals Use in Spray Programs for V. Vinifera Grapes, Finger Lakes NY, 2025

Chemical	Amount	Cost	Unit	Cost per 1 Unit	
Gatten	1	\$ 132.50	qt	\$ 4.14	oz
Howler EVO	15	\$ 262.50	lb	\$ 17.50	lb
Warhammer	2.5	\$ 352.00	gal	\$ 1.10	oz
Theia				\$ 17.50	lb
Assail	4	\$ 203.56	lb	\$ 3.18	oz
Oxidate 5.0		\$ 30.38	gal	\$ 0.24	oz
Cueva	2.5	\$ 112.95	gal	\$ 11.25	qt
Ridomil Copper		\$ 22.15	lb	\$ 22.15	lb
Tebustar		\$ 20.63	lb	\$ 1.29	oz
Narvos 50 WDG				\$ 5.88	oz
Miravis Prime				\$ 4.30	liquid oz
Endura				\$ 4.82	liquid oz
LifeGard		\$ 116.00	lb	\$ 7.25	oz
Inspire Super		\$ 258.00	gal	\$ 2.02	liquid oz
Elevate	2	\$ 93.20	lb	\$ 45.00	lb

Microthiol	30	\$ 44.70	lb	\$ 1.58	lb
Pencozeb	30	\$ 116.70	lb	\$ 3.25	lb
Pristine	7.5	\$ 472.50	lb	\$ 3.94	oz
Rampart	2.5	\$ 22.00	gal	\$ 2.75	pt
Revus	1	\$ 443.77	gal	\$ 3.47	liquid oz
Vanguard	50	\$ 132.26	oz	\$ 3.86	oz
Vivando	1	\$ 280.00	gal	\$ 2.19	liquid oz
Zampro	140	\$ 393.40	oz	\$ 2.85	oz
Sevin	2.5	\$ 182.23	gal	\$ 72.89	gal
Rovral	2.5	\$ 360.00	gal	\$ 19.88	pt
Revus	1	\$ 443.77	gal	\$ 3.59	liquid oz
Sulfur	30	\$ 44.70	lb	\$ 1.49	lb
Mancozeb 75DF	12	\$ 90.00	lb	\$ 7.50	lb
Captan 80WP	6.25	\$ 40.25	lb	\$ 4.00	lb
Surfactant	16	\$ 68	gal	\$ 0.03	liquid oz
Quintec	30	\$ 124.80	oz	\$ 3.98	oz
Zilker (Ranman)	1	\$ 1,024.00	gal	\$ 7.13	oz
Delegate				\$ 9.41	oz
Mustang Max	1	\$ 170.00	gal	\$ 1.33	oz

Drainage Construction Costs

Table 4 contains an estimate of drainage construction costs. These costs are transferred to the site preparation section of the establishment and development costs (see Table 6). Costs will vary greatly from site to site depending on the soil conditions and preferences of the vineyard manager. Growers should consult with their county's Soil & Water District staff to determine the proper amount of drainage a particular site requires. This study assumed that tile drainage was placed in the middle of every third row or 27 feet apart. Costs were estimated to total \$7,337 per acre.

Table 4: Tile Drainage Costs per acre for *V. Vinifera* Grapes,
Finger Lakes Region, NY, 2025

Item	Quantity (ft)	Price \$/ft	Total Cost per acre
Main line: 6" pipe	29	\$ 4.00	\$ 115.86
Laterals: 4" pipe	2,723	\$ 2.00	\$ 5,432
Installation	2,752	\$ 0.65	\$ 1,789
Total Drainage Construction per acre			\$ 7,337

Trellis Construction Costs

The trellis was designed for Vertically Shoot Positioned (VSP) vines. It was made up of two pairs of moveable catch wires and two fixed fruiting wires (a total of six wires). Wooden line posts were used for every fourth vine, and four catch wire clips were used on each post to hold the catch wires in place. Wooden anchor posts were used to support each end post. Rows were 440 feet long and there were 11 rows to an acre and 73 vines per row.

Table 5 contains an estimate of trellis constructions costs. The total cost for materials is estimated at \$5,754 per acre. These costs are transferred to Table 6 in the first year of establishment and development. Labor and machinery costs for trellis establishment are also shown in Table 6. The total cost of trellis construction for materials, labor, and machinery is \$7,546 per acre.

Table 5: Trellis Construction Costs per acre for *V. Vinifera* Grapes, Finger Lakes Region, NY, 2025

VSP Trellis Construction Materials per Acre	Quantity		Price		Total per acre
Wood end posts (8 ft X 5" diameter)	22	posts	\$19.79	post	\$435
Anchor Kit	22	posts	\$10.00	post	\$220
Line Post (8 ft, 5" diameter, every 4th plant)	200	stakes	\$21.71	stake	\$4,342
12.5-gauge HT foilage & cordon wire (\$110 roll of 4000 ft)	26,889	ft	\$0.025	ft	\$672
Catchwire clips (4 per line post)	800	clips	\$0.08	clip	\$60
Staples, lbs.	3	lbs.	\$3.99	lb.	\$12
Crimping sleeves (for joining wire ends)	50	crimps	\$0.25	crimp	\$13
Total Trellis Construction materials					\$5,754

Establishment and Development Costs

The costs for labor machinery and materials for site preparation and in years one through three constitute the establishment and development (E&D) variable costs in Table 6. First year costs, including site preparation, trellis construction, and planting, are substantial, amount to \$20,529 per acre. A planting density of 800 vines (6' x 9') (vine by row) was assumed. The largest cost in the first year is for trellis construction, for a total of \$7,546. In year two, variable costs are a relatively modest at \$1,141 per acre with less labor required than for mature vines. In the third year, a spray program of eight sprays is recommended, and hand harvesting is required to protect the young vines. Total variable costs for the third year are estimated at \$2,011 per acre. Note that the usage of pickup truck is estimated at 10,000 miles for a 50-acre farm per year, which is \$68 per acre (including gas and maintenances costs).

The total costs (variable and fixed) for the entire E&D period (years 1-3) are summarized in Table 7. The totals from Table 6 for each of the three years are brought into the row labeled 'annual variable costs. Hand harvesting costs are added for the third year only. Fixed costs (capital recovery for machinery and equipment and buildings, property taxes, office supplies, land charge, insurance, and management) are added. Interest, at a real rate of two percent, is added to the cumulative costs. Credit is given for the revenue from the estimated one ton of grapes per acre harvested in year three. The price of grapes in year three is the average price of the four varieties produced. The total cumulative cost for the E&D period is \$31,237 per acre. Amortized at a two percent real rate of interest for the estimated years of life from year four through 22, the annual cost for capital recovery (interest and depreciation) is \$1,960 per acre. This amount was charged as a fixed cost labeled 'vineyard capital recovery' in Table 10, which summarizes the costs and returns for a mature vineyard. Cash costs for establishment, including labor, are \$23,681 per acre for site preparation and the first three years.

Table 6: *V. Vinifera* Grape Establishment and Development Costs, Finger Lakes Region, New York, 2025

(Unit: Acre)	Labor Used	Labor Hours	Equipment Hours	Labor Cost	Equipment Cost	Materials Cost	Total Cost
Site Preparation – Year 0							
Drainage (see table 5 for details)	Custom						\$7,337
Lime (2 tons/acre)	Custom					\$100.00	\$100
Herbicide application	Custom				\$10.50	\$33.63	\$44
Stone removal & land maint.	Unskilled	10	10	\$217.00	\$154.53		\$372
Soil Sampling	Skilled	0.2		\$4.80		\$4.00	\$9
Fall fertilization	Skilled	0.6	0.5	\$14.40	\$7.91	\$100.00	\$122
Plowing	Custom						\$50
Discing (2X)	Custom						\$46
Pickup truck (10,000 miles for 50 ac/year)	n/a	n/a	n/a		\$67.92		\$68
Total		10.8	10.5	\$236.20	\$172.94	\$237.63	\$8,148
First Year							
Floating/dragging	Skilled	1	1	\$24.00	\$14.25		\$38
Laser Planting (\$3.5/vine)	Custom			\$852.00		\$3,428.33	\$4,280
Fertilization (banded)	Skilled	0.6	0.5	\$14.40	\$7.91	\$9.74	\$32
Hilling up	Skilled	1.5	1.2	\$36.00	\$20.20		\$56
Hilling up	Unskilled	1.5		\$32.55			\$33
Chem. weed control -trellis	Skilled	1.25	1.25	\$30.00	\$19.65	\$115.38	\$165
Trellis construction (see table 5 for details)	Skilled	60	16	\$1,440.00	\$352.25	\$5,754	\$7,546
Spot herbicide-hand application	Skilled	1		\$24.00		\$0.00	\$24
Cultivation (2X)	Skilled	1.2	1.2	\$28.80	\$20.20		\$49
Spray 1	Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Spray 2	Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Spray 3	Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Seed cover crop	Skilled	0.6	0.5	\$14.40	\$7.91	\$11.25	\$34
Pickup truck (10,000 miles for 50 ac/year)	n/a	n/a	n/a		\$67.92		\$68
Total		80.65	22.55	\$2,524.95	\$537.06	\$9,318.78	\$12,381
Total for first year and site preparation							\$20,529

	(Unit: Acre)	Labor Used	Labor Hours	Equipment Hours	Labor Cost	Equipment Cost	Materials Cost	Total Cost
<u>Second Year</u>								
Pruning & brush removal		Skilled	3		\$72.00			\$72
Tying & renewal		Unskilled	2		\$43.40		\$5.60	\$49
Vine Replacement		Skilled	2	2	\$48.00	\$44.51	\$68.57	\$161
Spring Fertilization		Skilled	0.6	0.5	\$14.40	\$7.91	\$0.00	\$22
Chem. weed control-trellis		Skilled	1.25	1.25	\$30.00	\$28.45	\$74.09	\$133
Suckering		Unskilled	2.5		\$54.25			\$54
Cluster removal		Unskilled	2.5		\$54.25			\$54
Take away (de-hilling)		Skilled	3	2.5	\$72.00	\$42.09		\$114
Hand hoe		Unskilled	4		\$86.80			\$87
Spot herbicide treatment		Skilled	0.4	0.3	\$9.60	\$4.72	\$0.00	\$14
Spot herbicide treatment		Skilled	0.4	0.3	\$9.60	\$4.72	\$0.00	\$14
Hilling up		Skilled	3	1.5	\$72.00	\$25.25		\$97
Spray 1		Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Spray 2		Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Spray 3		Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Spray 4		Skilled	0.4	0.3	\$9.60	\$8.92	\$0.00	\$19
Mowing (4X)		Skilled	2.6	2	\$62.40	\$43.17		\$106
rogueing		Unskilled	1		\$21.70			\$22
Pickup truck (10,000 miles for 50 ac/year)		n/a	n/a	n/a		\$67.92		\$68
Total for Second Year			29.85	11.55	\$688.80	\$236.49	\$148.25	\$1,141
	(Unit: Acre)	Labor Used	Labor Hours	Equipment Hours	Labor Cost	Equipment Cost	Materials Cost	Total Cost
<u>Third Year</u>								
Pruning and brush pulling (\$0.45/vine)		Custom	piece rate		\$451.73			\$452
Tying & renewal (\$0.23/vine)		Custom	piece rate		\$225.87		\$5.60	\$231
Brush chopping (1X)		Skilled	1.2	1	\$28.80	\$20.98		\$50

Vine replacement	Skilled	2	2	\$48.00	\$44.51	\$68.57	\$161
Chem. weed control- trellis	Skilled	2.6	2	\$62.40	\$31.45	\$74.09	\$168
Suckering	Unskilled	4		\$86.80			\$87
Cluster removal	Unskilled	4		\$86.80			\$87
Take away (de-hilling)	Skilled	3	2.5	\$72.00	\$42.09		\$114
Hand hoe	Unskilled	4		\$86.80			\$87
Bird control	Skilled	3		\$72.00			\$72
Spot herbicide treatment	Skilled	0.4	0.3	\$9.60	\$4.72	\$0.00	\$14
Spot herbicide treatment	Skilled	0.4	0.3	\$9.60	\$4.72	\$0.00	\$14
Spray 1	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 2	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 3	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 4	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 5	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 6	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 7	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Spray 8	Skilled	0.6	0.5	\$14.40	\$14.87	\$0.00	\$29
Mowing (4X)	Skilled	2.6	2	\$62.40	\$43.17		\$106
Hilling up	Skilled	1.7	1.5	\$40.80	\$25.25		\$66
Pickup truck (10,000 miles for 50 ac/year)	n/a	n/a	n/a		\$67.92		\$68
Total for third year		33.7	15.6	\$1,458.80	\$403.72	\$148.25	\$2,011

Table 7: Summary of establishment and development costs by year,
V. Vinifera grapes, Finger Lakes Region, NY, 2025

Item	Year 1	Year 2	Year 3
Revenue			
Yield per acre (tons)	0	0	1
Market price (average of 4 varieties)	n/a	n/a	\$1,863
Total revenue	\$0	\$0	\$1,863
Costs			
Site preparation	\$8,148	\$0	\$0
Annual variable costs			
-Preharvest	\$12,381	\$1,141	\$2,011
-Harvest (hand)+hauling	\$0	\$0	\$300
Total Variable Costs & Site preparation	\$20,529	\$1,141	\$2,311
Annual fixed costs			
-Machines & equipment depreciation	\$661	\$661	\$661
-Buildings depreciation	\$84	\$84	\$84
-Property taxes	\$344	\$344	\$344
-Land opportunity cost	\$413	\$413	\$413
-Office Supplies, phone, etc.	\$60	\$60	\$60
-Insurance (fire, liability)	\$77	\$77	\$77
-Management	\$0	\$0	\$0
Total Fixed Costs	\$1,638	\$1,638	\$1,638
Interest on cumulative costs	\$665	\$768	\$910
Total costs	\$22,831	\$3,548	\$4,858
Net returns	(\$22,831)	(\$3,548)	(\$2,996)
Total cumulative costs	\$22,831	\$26,379	\$31,237
Amortization of vineyard (in 22 years)			\$1,960
Cash costs of vineyard establishment (3 years)			\$23,681

Costs and Returns for a Mature Vineyard

Annual growing costs for years four through 22 are presented in Table 8. Total growing costs for a typical year in the mature vineyard are estimated to be \$3,152 per acre. The costliest operations are canopy management (\$1,016 per acre), spraying (11 times, for a total of \$594 per acre, including labor, machinery and materials costs) and pruning and brush removal (\$452 per acre). By year four, the well-managed vineyard will nearly have reached its full yield potential and will require approximately the same management each year for the duration of its life.

Table 9 summarizes the growing, establishment, and development costs for a *V. vinifera* vineyard. 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 \$3,152 per acre in years four through 22, and this number is transported to Table 10 to use in the computation of the costs and returns for the mature vineyard. The cost of crop insurance is added at an average cost of \$109 per acre, which generally starts at the fifth year of positive production (i.e. year 8). Costs for crop insurance will vary a few dollars per acre depending upon the grape variety planted.

Table 8: Growing Costs, Years Four through Twenty-two, *V. Vinifera* Grapes, Finger Lakes Region, 2025

	(Unit: Acre)	Labor Used	Labor Hours	Equipment Hours	Labor Cost	Equipment Cost	Materials Cost	Total Cost
Operation								
Pruning+brush pulling		Custom	piece rate		\$451.73			\$452
Brush chopping		Skilled	1.2	1	\$28.80	\$20.98		\$50
Trellis maintenance		Skilled	4	1	\$96.00	\$15.45	\$30.00	\$141
Tying & renewal		Custom	piece rate		\$225.87		\$3.92	\$230
Vine replacement		Skilled	2	2	\$48.00	\$44.51	\$68.57	\$161
Chem.weed control-trellis		Skilled	2.6	2	\$62.40	\$31.45	\$48.89	\$143
Soil applic of Solubor (w. herb. Spray)		n/a					\$0.00	\$0
Spot herbicide treatment		Skilled	0.4	0.3	\$9.60	\$4.72	\$0.00	\$14
Suckering		Unskilled	4		\$86.80			\$87
Cluster removal		Unskilled	4		\$86.80			\$87
Shoot thinning		Unskilled	6		\$130.20			\$130
Take-away (de-hilling)		Skilled	3	2.5	\$72.00	\$42.09		\$114
Bird control		Skilled	3		\$72.00			\$72
Spray 1		Skilled	0.6	0.5	\$14.40	\$14.87	\$9.75	\$39
Spray 2		Skilled	0.6	0.5	\$14.40	\$14.87	\$9.75	\$39
Spray 3		Skilled	0.6	0.5	\$14.40	\$14.87	\$8.00	\$37
Spray 4		Skilled	0.6	0.5	\$14.40	\$14.87	\$6.32	\$36
Spray 5		Skilled	0.6	0.5	\$14.40	\$14.87	\$35.28	\$65
Spray 6		Skilled	0.6	0.5	\$14.40	\$14.87	\$39.90	\$69
Spray 7		Skilled	0.6	0.5	\$14.40	\$14.87	\$38.60	\$68
Spray 8		Skilled	0.6	0.5	\$14.40	\$14.87	\$51.60	\$81
Spray 9		Skilled	0.6	0.5	\$14.40	\$14.87	\$52.50	\$82
Spray 10		Skilled	0.6	0.5	\$14.40	\$14.87	\$8.00	\$37
Spray 11		Skilled	0.6	0.5	\$14.40	\$14.87	\$8.88	\$38
Mowing (4X)		Skilled	2.6	2	\$62.40	\$43.17		\$106
Lime (1 in 5 years)		Skilled	0.1	0.1	\$2.40	\$4.73	\$10.00	\$17
Shoot positioning/move catch wires (first path)		Unskilled	6		\$130.20			\$130

Shoot positioning/move catch wires (second path)	Unskilled	6		\$130.20			\$130
Mechanical leaf removal	Skilled	3.2	3	\$76.80	\$31.72		\$109
Summer pruning (2X)	Skilled	2.6	2.4	\$62.40	\$51.43		\$114
Petiole sampling (\$88 for every 2 years)	Skilled	0.1		\$2.40		\$3.84	\$6
Soil sampling (every 5 years)	Skilled	0.1		\$2.40		\$0.40	\$3
Hilling-up	Skilled	1.7	1.5	\$40.80	\$25.25		\$66
Fall fertilization	Skilled	0.3	0.3	\$7.20	\$4.74	\$11.00	\$23
Crop insurance							\$109
Pickup truck (10,000 miles for 50 ac/year)	n/a	n/a	n/a		\$67.92		\$68
Total		59.5	23.6	\$2,045.80	\$551.69	\$445.20	\$3,152

Table 9: Summary of Growing Costs for *V. Vinifera* Vineyard, Trained to a Vertically Shoot Positioned System, Finger Lakes Region, NY, 2025

Item	Year 1	Year 2	Year 3	Year 4+
Site preparation	\$8,148			
Vines & planting	\$4,319			
Trellis materials & construction	\$7,546			\$141
Replanting & Rougeing		\$183	\$161	\$161
Dormant pruning & removal		\$72	\$452	\$452
Weed control	\$272	\$161	\$197	\$157
Fertilization	\$32	\$22		\$49
Canopy management		\$158	\$405	\$1,016
Disease & insect control	\$56	\$74	\$234	\$591
Take away & hilling up	\$89	\$298	\$267	\$180
Mowing		\$106	\$155	\$155
Bird Control			\$72	\$72
Pick-up (fuel, maintenances...etc)	\$68	\$68	\$68	\$68
Crop Insurance*				\$109
Total Growing Costs	\$20,529	\$1,141	\$2,011	\$3,152

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

Table 10 summarizes the costs and returns expected from a mature vineyard. The estimated revenue per acre varies from \$7,024 to \$5,460 depending upon variety. Total costs vary from \$7,648 to \$7,482 per acre by variety. The break-even prices and yields are shown in Table 10. A yield of 4.2 tons per acre is the break-even yield for Chardonnay, and a yield of 3.4 tons per acre would be necessary to break even with Pinot Noir. Yields at these higher levels may be inconsistent with quality requirements.

Pinot Noir shows a large loss (\$2,022) given the assumed yield and prices. At the assumed yield and prices, all varieties exhibited negative net returns. Riesling is the closest variety to breaking even at the assumed yields and prices with a loss of (\$624). 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.

The vineyard capital expense (establishment costs from Table 7) is written off after 22 years, which increase the fixed costs by \$1,960. In Table 13, we will discuss the scenario that vineyard holds a positive value which may be as much, or even more, than it was worth in the early years of the planting.

Table 10: Costs and Returns for a Mature V. *Vinifera* Vineyard - 1,
Finger Lakes Region, New York, 2025

Item	Pinot Noir	Cab. Franc	Chardonnay	Riesling
Receipts:				
Yield target , tons per acre	2.6	3.3	4	4
Price, \$ per ton	\$2,100	\$1,875	\$1,719	\$1,756
Total receipts	\$5,460	\$6,188	\$6,876	\$7,024
Costs:				
Variable Costs:				
Growing (incl. crop insurance \$109/Ac)	\$3,152	\$3,152	\$3,152	\$3,152
Cluster removal (Cab. Franc and P. Noir)	\$87	\$87	\$0	\$0
Interest on operating capital	\$47	\$47	\$47	\$47
Machine Harvesting (\$95/ton)	\$247	\$314	\$380	\$380
Trucking (\$30/ton)	\$78	\$99	\$120	\$120
Total variable costs	\$3,611	\$3,698	\$3,699	\$3,699
(Optional) Bird control - sound*	\$30	\$0	\$0	\$0
Fixed Costs:				
Vineyard capital recovery	\$1,960	\$1,960	\$1,960	\$1,960
Machinery and equipment capital recovery	\$661	\$661	\$661	\$661
Buildings capital recovery	\$84	\$84	\$84	\$84
Property taxes	\$344	\$344	\$344	\$344
Land opportunity cost	\$413	\$413	\$413	\$413
Office supplies, phone, etc.	\$60	\$60	\$60	\$60
Insurance	\$77	\$77	\$77	\$77
Management	\$273	\$309	\$344	\$351
Total fixed costs	\$3,871	\$3,907	\$3,942	\$3,949
Total costs	\$7,482	\$7,605	\$7,641	\$7,648
Profit or loss	-\$2,022	-\$1,418	-\$765	-\$624
Breakeven price (\$ /ton)	\$2,878	\$2,305	\$1,910	\$1,912
Breakeven yield (tons)	3.6	4.1	4.5	4.4

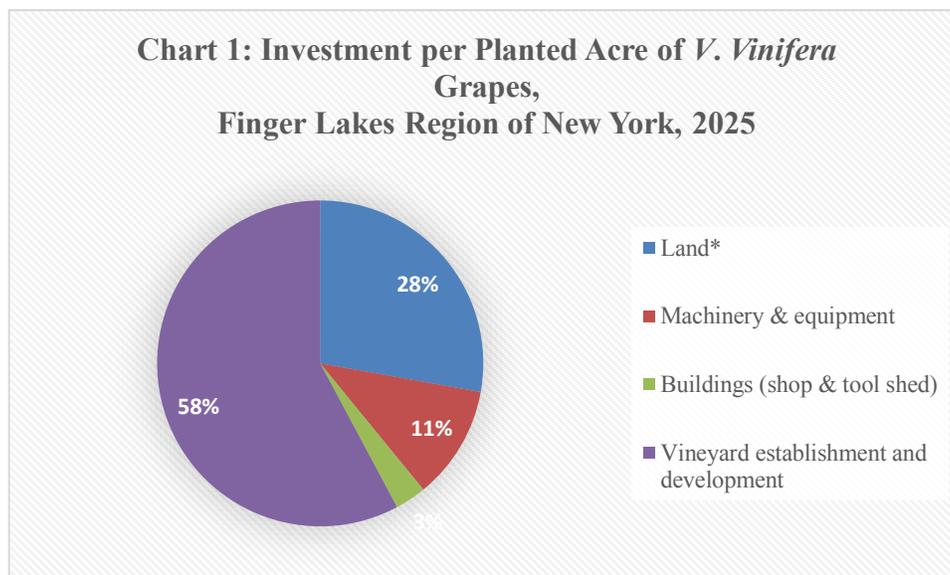
Capital Requirements

Table 11 indicates the capital investment per planted acre necessary to get into grape production in the Finger Lakes region, assuming a vineyard of 50 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 11 indicates that it would require \$53,393 per planted acre, for a total of \$2,883,222 for the entire 54-acre vineyard, to get the vineyard into maturity in the Finger Lakes 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 11: Investment per Planted Acre of *V. Vinifera* Grapes,
Finger Lakes Region of New York, 2025

Assets	\$/acre
Land* - specifically for planting – 50 acres	\$14,850
Machinery & equipment	\$6,027
Buildings (shop & tool shed)	\$1,650
Vineyard establishment and development**	\$30,865
Total Investment per acre	\$53,393



*Assume 54 acres purchased (including support land) for 50 planted acres

** Investment for E&D period is calculated by E&D costs in Table 7,
excluding revenue, machinery, equipment and building depreciation

Sensitivity Analysis

Costs per ton of grapes and profits for Finger Lakes vineyards will vary widely due to factors such as price of land, site-specific factors, farm size, managerial ability, and labor efficiency. The cost and return estimates developed in this publication represent typical costs for well-managed vineyards producing premium quality grapes on prime sites.

The grower panel did not believe there was sufficient data to adjust costs in detail for varietal differences. Vigorous cultivars such as Cabernet Franc may require a greater labor input for pruning, brush removal, tying and other hand labor tasks. Differences in fungicide applications may be necessary due to the differences in disease resistance among the various varieties. For example, Pinot Noir, Chardonnay, and Riesling are more susceptible to Botrytis bunch rot, so additional spray materials may be used for Botrytis control, but these were not included in this analysis.

The total cost per ton, or breakeven price, is quite sensitive to yield as shown in Table 12. If yields are two tons per acre or less and/or with low yielding cultivars, prices around \$3,700 per ton would be required to break even. Even the highest price paid in the most recent seasons would result in unprofitable production with such a low yielding scenario.

Yields of more than four tons per acre for Cabernet Franc or more than 2.6 tons per acre for Pinot Noir; or more than five tons per acre for white *vinifera* varieties may be incompatible with the quality requirements of the market for premium wines, but this will depend greatly on the characteristics of the given growing season and the contractual agreement between grower and winery purchasing the fruit.

Table 12: Total Cost per Ton (Breakeven price) at Varying Yields,
V. Vinifera Grapes, Finger Lakes Region of New York, 2025

Pinot Noir		Cab Franc		Chardonnay		Riesling	
Yield (tons/acre)	Cost/ton*	Yield (tons/acre)	Cost/ton*	Yield (tons/acre)	Cost/ton*	Yield (tons/acre)	Cost/ton*
1.5	\$4,896	1.5	\$4,920	1.5	\$4,885	1.5	\$4,890
2.0	\$3,703	2.0	\$3,721	2.0	\$3,695	2.0	\$3,699
2.5	\$2,988	2.5	\$3,002	2.5	\$2,981	2.5	\$2,984
3.0	\$2,511	3.0	\$2,523	3.0	\$2,505	3.0	\$2,508
3.5	\$2,170	3.5	\$2,180	3.5	\$2,165	3.5	\$2,167
4.0	\$1,914	4.0	\$1,923	4.0	\$1,910	4.0	\$1,912
				4.5	\$1,712	4.5	\$1,713
				5.0	\$1,553	5.0	\$1,555

*Cost at different yield levels adjusted for harvesting and hauling at \$95/ton, trucking at \$30/ton

Discussion: Costs and Returns for a Mature Vineyard
- An established vineyard holds positive value

Table 13 indicates the estimated annual cash flow for a mature vineyard (like table 10), but assuming that an established vineyard is able to partially recover selected capital investments after 22 years of operation.

In this study, we do not discuss the returns of land investment, as it is mostly case-sensitive and this is not including in the vineyard's establishment capital recovery costs in table 10. Implicitly, the study thus assumes that land values increase by a rate equal to the real interest rate over the 22 years of operation. Instead, we assume that the trellis maintenance is done annually, so the trellis system has half of the value after 22 years. In addition, certain practices, such as drainage, lime application, land maintenance, herbicide application system do not need to be done when starting a new production cycle and add value to the vineyard. The costs of these activities are therefore dropped from the annual vineyard capital recovery estimates. As a result, the capital recovery costs per acre decreases from \$1,960 (Table 10) to \$1,081 (Table 13). In Table 13, Pinot Noir and Cab. Franc exhibits the only non-profitable variety at \$730 and 126 per acre, respectively. The other two varieties exhibit per- acre profits that range from (\$527) to (\$688).

Table 13: Cash and Returns for a Mature *V. Vinifera* Vineyard - 2,
Assuming that E&D costs can be partially recovered, Finger Lakes Region, New York, 2025

Item	Pinot Noir	Cab. Franc	Chardonnay	Riesling
Receipts:				
Yield target , tons per acre	2.6	3.3	4	4
Price, \$ per ton	\$2,100	\$1,875	\$1,719	\$1,756
Total receipts	\$5,460	\$6,188	\$6,876	\$7,024
Costs:				
Variable Costs:				
Growing (incl. crop insurance @\$109/Ac)	\$3,152	\$3,152	\$3,152	\$3,152
Cluster removal (Cab. Franc and P. Noir)	\$87	\$87	\$0	\$0
Interest on operating capital	\$47	\$47	\$47	\$47
Machine Harvesting (\$95/ton)	\$247	\$314	\$380	\$380
Trucking (\$30/ton)	\$78	\$99	\$120	\$120
Total variable costs	\$3,611	\$3,698	\$3,699	\$3,699
(Optional) Bird control - sound	\$30	\$0	\$0	\$0
Fixed Costs:				
Vineyard establishment capital recovery*	\$1,081	\$1,081	\$1,081	\$1,081
Machinery and equipment capital recovery	\$661	\$661	\$661	\$661
Buildings capital recovery	\$84	\$84	\$84	\$84
Property taxes	\$344	\$344	\$344	\$344
Land opportunity cost	\$0	\$0	\$0	\$0
Office supplies, phone, etc.	\$60	\$60	\$60	\$60
Insurance	\$77	\$77	\$77	\$77
Management	\$273	\$309	\$344	\$351
Total fixed costs	\$2,579	\$2,615	\$2,650	\$2,657
Total costs	\$6,190	\$6,313	\$6,349	\$6,356
Profit or loss	-\$730	-\$126	\$527	\$668
Breakeven price (\$ /ton)	\$2,381	\$1,913	\$1,587	\$1,589
Breakeven yield (tons)	3.0	3.4	3.7	3.6

*Discounting practices generally need not to be redone or remains positive salvage value

Discussion: Projected 20 Year Cash Flows

Chart 2 shows the projected cash flows for 20 years of operations. This includes both variable and fixed costs. In year 20 it is assumed the vineyard, and all equipment associated with it, are sold off. The land is estimated to be worth \$1,081,682 after 20 years, and the equipment is estimated to have a salvage value of \$15,001. Estimated cash flow shows a total profit after 20 years of operation of (\$437,695). With current market conditions the vineyard's revenues do make up the initial establishment costs even after 20 years of operations.

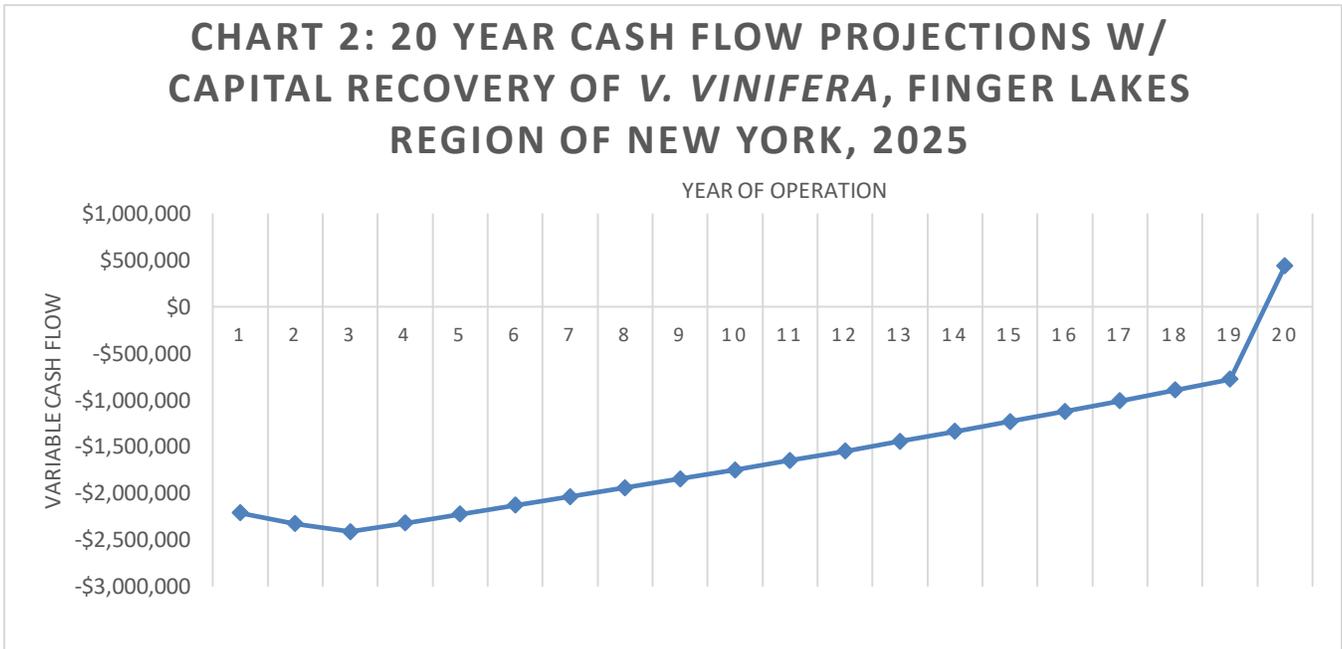
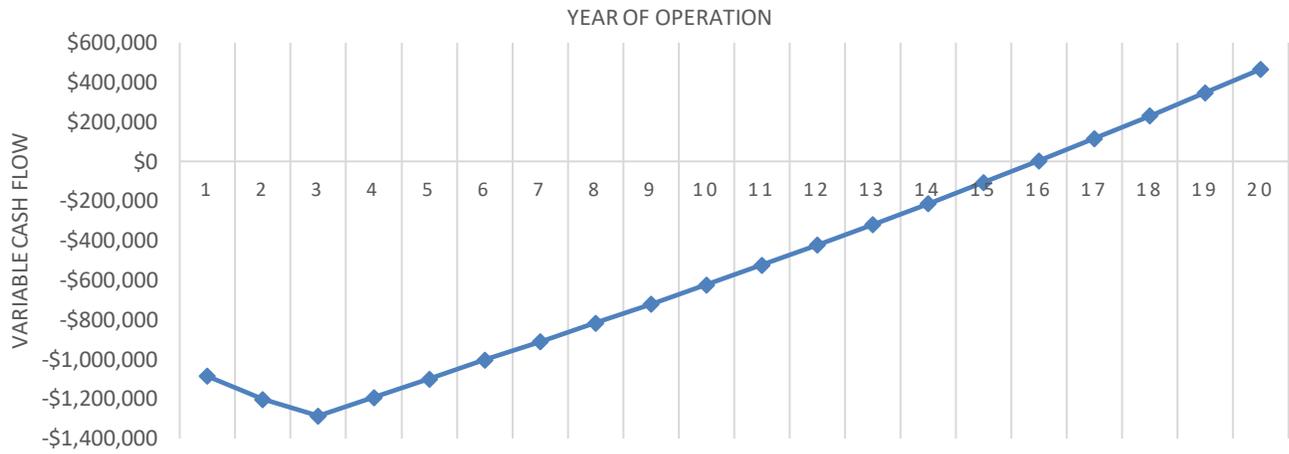


Chart 3 shows the projected cash flows for 20 years of operations in regard to variable costs. After 20 years of operations cash flows have yet to fully cover total variable costs of the establishment of the vineyard. This is mainly due to the significant upfront costs to establish the vineyard. At the end of 20 years cash flows shows a profit of (\$466,032).

**CHART 3: 20 YEAR CASH FLOW PROJECTIONS FOR
VARIABLE COSTS OF V. VINIFERA, FINGER LAKES
REGION OF NEW YORK, 2025**



Concluding Comments

The cost and returns estimates derived in this publication represent expected results for *V. vinifera* production in the Finger Lakes under the assumption of prime vineyard sites, the use of recommended cultural practices, sound management, 2025 prices for production inputs, and grape prices that reflect quality-enhancing practices such as leaf removal, cluster thinning for selected varieties, and yield limitation strategies designed to meet premium wine production standards.

Potential investors should be aware that the economic climate for grape production in the Finger Lakes continues to evolve. While demand for premium wines produced in New York State remains strong, overall U.S. wine consumption has declined in recent years. At the same time, market demand has shifted toward higher-quality wines and direct-to-consumer sales channels. The relatively small acreage of many *V. vinifera* varieties grown in the Finger Lakes contributes to ongoing market volatility. Because planted acreage remains limited for several key varieties, relatively small increases in vineyard plantings can significantly increase grape supply once vineyards reach full production. This dynamic has historically contributed to short-term oversupply situations and downward pressure on grape prices when plantings expanded rapidly in response to favorable market signals. These supply fluctuations remain a concern for investors considering new vineyard establishment.

Production costs for Finger Lakes vineyards have increased substantially in recent years due to higher prices for labor, equipment, fuel, trellis materials, fertilizers, crop protection inputs, and land. Labor availability continues to represent one of the most significant operational challenges facing growers. Vineyard operations remain highly labor intensive, particularly during dormant pruning, canopy management, and vineyard establishment. Many operations increasingly rely on seasonal and guest worker programs such as the H-2A visa program to maintain adequate labor supply, although these programs involve substantial regulatory requirements, administrative costs, and long lead times. Mechanical harvesting remains widely adopted in the Finger Lakes region, reducing labor requirements during harvest relative to other specialty crop sectors; however, labor needs during other critical vineyard operations remain substantial.

Climate variability has also become an increasingly important source of production risk. Although site selection, cold-hardy rootstocks, and protective practices such as hilling-up and take-away operations help mitigate winter injury, periodic severe cold events and increased weather variability continue to pose economic risks for *V. vinifera* production. Additionally, increased precipitation variability and disease pressure in some growing seasons may increase input costs and production uncertainty.

Despite these challenges, several structural trends continue to support the long-term outlook for premium grape production in the Finger Lakes. Growth in wine tourism, expansion of direct-to-consumer marketing, and increasing consumer interest in locally produced wines have strengthened the region's competitive position. Winery tasting rooms, experiential tourism, and on-site wine sales allow producers to capture higher margins and strengthen consumer loyalty. Furthermore, New York wines continue to gain national and international recognition for quality. These factors help buffer regional producers from some broader global wine market pressures, although the Finger Lakes industry is not immune to global oversupply cycles and shifting consumer preferences.

The long-term profitability of *V. vinifera* vineyard investments remains dependent on careful site selection, variety choice, cost management, and alignment with evolving winery demand and marketing strategies. Vineyard establishment represents a significant long-term capital investment with payback periods that often exceed ten years. As a result, investment decisions must consider not only current market conditions but also the potential for future changes in supply, consumer demand, climate conditions, and production costs.

Appreciation is extended to the grower panel and industry specialists who contributed expertise, cost information, and technical review to support the development of these budgets. Their practical knowledge and industry insight remain essential for maintaining the relevance and accuracy of cost-of-production estimates for the Finger Lakes region.

Special recognition is also extended to Mark Pisoni (M.S., Department of Agricultural, Resource, and Managerial Economics, Cornell University, 2001). While at Cornell, working on a grant funded by the New York State Department of Agriculture and Markets' Grow New York Program, Mark developed an Excel-based budgeting program that supported earlier cost-of-production publications for *V. vinifera* grapes in the Finger Lakes. His foundational work continues to inform economic budgeting tools used by growers and industry stakeholders today.

Appendix

Table A1: Sample Herbicide Program for *V. Vinifera* Grapes, Finger Lakes NY, 2025

Year	Reason for Spray	Material	Rate/acre	Price	\$/acre
Year 0					
Site Preparation	Custom Herbicide	Glyphosate	4 qt	\$6.79 qt	\$27.17
		Ammonia Sulfate	1.7 lbs.	\$3.80 lb.	\$6.46
		Total per spray			
<hr/>					
Year 1					
	Chem. Weed control - Trellis	Surflan	1.5 qt	\$76.92 qt	\$115.38
	Chem. Weed control-spot	Glyphosate	2 qt	\$6.79 lb.	\$13.58
		Ammonia Sulfate	1.7 lbs.	\$3.80 lb.	\$6.46
		Total per spray			
<hr/>					
Year 2 - 3					
	Chem. Weed control - Trellis	Prowl H20	6 qt	\$12.35 qt	\$74.09
	Spot herbicide treatment	Glyphosate	2 qt	\$6.79 qt	\$13.58
		Ammonia Sulfate	1.7 lbs.	\$3.80 lb.	\$6.46
		Spot herbicide treatment	Glyphosate	2 qt	\$6.79 qt
		Ammonia Sulfate	1.7 lbs.	\$ 3.80 lb.	\$6.46
	Total for all sprays				\$20.04
	Total for all sprays				\$114.17
<hr/>					
Year 4 - 20					
	Chem weed control - trellis	Chateau	12 fl. Oz.	\$2.40 fl. Oz	\$28.85
		Glyphosate	2 qt.	\$6.79 qt	\$13.58
		Ammonia Sulfate	1.7 lbs.	\$3.80 lb.	\$6.46
		Total per spray			
	Spot herbicide treatment	Rely 280	24 fl. Oz.	\$0.59 fl. Oz	\$6.46
	Total per spray				\$55.35

Table A2: Sample Fertilizer/Soil Program for *V. Vinifera* Grapes, Finger Lakes Region, NY, 2025

Year	Material	Rate/acre		Price/Unit		\$/acre
Year 0 Site Preparation	Soil sampling 1 test/5 acres, 2 depths	0.4	acre	\$10.00	test	\$4.00
	Lime	2	tons	\$50.00	ton	\$100.00
	Fall fertilization (Muriate of potash)	300	lbs	\$550.00	ton	\$82.50
Total cost - year 0 =						\$186.50
Year 1	Fertilization 10:10:10	30	lbs	\$0.32	lb	\$9.74
	Mulch (if irrigation not installed - optional)	20	bales	\$15.00	bale	\$300.00
Total cost - year 1						\$309.74
Year 2	Spring fertilization (10:10:10)	30	lbs	\$0.32	lb	\$9.74
Total cost						\$9.74
Year 3+						
	Muriate of potash (every 3rd year)	120	lbs	\$550.00	ton	\$11.00
	Lime (1 in 5 years)	1	ton	\$50.00	ton	\$10.00
	Petiole sampling	0.16	acre	\$24.00	test	\$3.84
	Soil sampling (every 5th year)	0.2	acre	\$10.00	test	\$2.00
Total cost - year 3+						\$26.84

Table A3: Machinery, equipment, and building capital recovery and interest costs, *V. Vinifera* Grapes, Finger Lakes Region, NY, 2025

<i>Machinery and Equipment</i>	Purchase Price	Years of Life	Salvage Value	Capital to be Recovered	Cost Recovery Factor	Annual Recovery	Interest on Salvage Value	Total Capital Recovery & Interest
Tractor, 62-HP, 2WD, spray cab	\$72,500	10	\$7,250	\$65,250	0.1172	\$7,649	\$218	\$7,867
Tractor, 45-HP	\$34,400	10	\$3,440	\$30,960	0.1172	\$3,629	\$103	\$3,733
Air-blast sprayer- 400 gallon	\$33,464	10	\$3,346	\$30,118	0.1172	\$3,531	\$100	\$3,631
Herbicide sprayer- 50 gallon	\$4,900	10	\$490	\$4,410	0.1172	\$517	\$15	\$532
300 gallon 2-row Cima Geamore Sprayer	\$28,363	10	\$2,836	\$25,527	0.1172	\$2,993	\$85	\$3,078
Mower	\$5,900	7	\$843	\$5,057	0.1605	\$812	\$25	\$837
Brush chopper (6ft)	\$4,000	7	\$571	\$3,429	0.1605	\$550	\$17	\$567
Fertilizer Spreader	\$2,345	10	\$235	\$2,111	0.1172	\$247	\$7	\$254
Small disc	\$10,599	10	\$1,060	\$9,539	0.1172	\$1,118	\$32	\$1,150
Grape hoe	\$8,607	10	\$861	\$7,746	0.1172	\$908	\$26	\$934
Shaver post driver hd8 3pt	\$5,400	10	\$540	\$4,860	0.1172	\$570	\$16	\$586
Vineyard Trailer	\$4,500	10	\$450	\$4,050	0.1172	\$475	\$14	\$488
Pickup truck (used)	\$25,000	10	\$2,500	\$22,500	0.1172	\$2,638	\$75	\$2,713
Auger	\$2,800	10	\$280	\$2,520	0.1172	\$295	\$8	\$304
Rineri mechanical hedger - one sided (new)	\$17,943	10	\$1,794	\$16,149	0.1172	\$1,893	\$54	\$1,947
Rineri Leaf remover - one sided	\$26,433	10	\$2,643	\$23,790	0.1172	\$2,789	\$79	\$2,868
ATV	\$12,000	10	\$1,200	\$10,800	0.1172	\$1,266	\$36	\$1,302
Side net applicator (bird control) - from Sutton Ag	\$866	10	\$87	\$779	0.1172	\$91	\$3	\$94
Side Nets (bird control)-12.5 acres for Pinot Noir (\$/acre)	\$1,340	10	\$134	\$1,206	0.1172	\$141	\$4	\$145
Shop Equipment		10	\$0	\$0	0.1172	\$0	\$0	\$0
Electric pruning shears (\$2,500 x 3)		5	\$0	\$0	0.2184	\$0	\$0	\$0
Macrobin (X15)		10	\$0	\$0	0.1172	\$0	\$0	\$0
Total Machine & Equipment costs	\$301,360		\$30,560	\$270,800				\$33,030
Cost per planted acre	\$6,027							\$661

Buildings

Shop (1,500 ft ² @ \$46 ft ²)	\$82,500	30	\$0	\$82,500	0.0510	\$4,209	\$0	\$4,209
Cost per planted acre	\$1,650							\$84

Table A4: Hourly Machinery and Equipment Variable Costs, *V. Vinifera* Grapes,
Finger Lakes Region, NY, 2025

Item	Purchase Price	Hours of life	Total Repairs	Repairs	Fuel	Lube (15% of fuel)	Total Hourly Variable Costs
Tractor, 62-HP, 2WD, spray cab	\$ 72,500	7000	100%	\$10.36	\$8.12	\$1.22	\$19.70
Tractor, 45-HP	\$ 34,400	7000	100%	\$4.91	\$8.12	\$1.22	\$14.25
Air-blast sprayer- 400 gallon	\$ 33,464	2000	60%	\$10.04			\$10.04
Herbicide sprayer- 50 gallon	\$ 4,900	2000	60%	\$1.47			\$1.47
Enviro mist sprayer	\$ 28,363	2000	60%	\$8.51			\$8.51
Mower (6ft)	\$ 5,900	2500	80%	\$1.89			\$1.89
Brush Chopper	\$ 4,000	2500	80%	\$1.28			\$1.28
Fertilizer Spreader	\$ 2,345	1200	80%	\$1.56			\$1.56
Small disc (used)	\$ 10,599	2000	60%	\$3.18			\$3.18
Grape hoe	\$ 8,607	2000	60%	\$2.58			\$2.58
Post driver	\$ 5,400	2000	80%	\$2.16			\$2.16
Trailer	\$ 4,500	3000	80%	\$1.20			\$1.20
Pickup truck (used)	\$ 25,000	2500	83%	\$8.30	\$7.00	\$1.05	\$16.35
Auger	\$ 2,800	2000	80%	\$1.12			\$1.12
Mechanical hedger (used)	\$ 17,943	2000	80%	\$7.18			\$7.18
Mechanical leaf remover	\$ 26,433	2000	80%	\$10.57			\$10.57
ATV	\$ 12,000	1200	80%	\$8.00			\$8.00

Tractor Fuel Factors	Factor
Diesel	0.0438
Gasoline	0.0600

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2026-04	Cost of Establishment and Production of V. Vinifera Grapes in the Finger Lakes Region of New York - 2025		Pinto, A.F., Gomez, M.I., Moss, R., and Walter-Peterson, H.
2026-03	Dairy Farm Home-Grown Grain Production: Characteristics and Trends in Financial Performance		Koval, H.L., and Karszes, J.
2026-02	Factors Influencing Grape Growers' Adoption of Clean Plant Materials		Li, J., Gomez, M.I., and Fuchs, M
2026-01	Six Year Trend Analysis 2024, New York State Dairy Farms		Karszes, J. and Koval, H.L.
2025-10	How-To Financial Feasibility Tool: Agrivoltaics Solar-Shep Cooperative		Santillana, S., Schmit, T., Tommell, N., Li, Y., amd Severson, R.,
2025-09	NY_VT Land Value Trends Report		Zhang, W, Guay, R, Stone, R, Sweeney, S, McDowell, K, Herrington, P, Lagerquist, J, Loomis, C, and Guyer, N
2025-08	Farm Performance at Farmers Markets 2024 Summary		LeRoux, M., Rigotti, L., and Schmit, T.
2025-07	Progress of the Dairy Farm Report: Dairy Farm Business Summary 2024		Karszes, J., Koval, H.L., MacKenzie, M. K.
2025-06	2024 New York Berry Price Information		Guerro, M. and Park, K.S.
2025-05	2024 Farm Product Proce Reports: Farmers Markets & Grocery Stores in NY		Santillana, S., Naugler, A., Rigotti, L., and LeRoux, M
2025-04	Wholesale Produce Markets: An On-site Infrastructure Assessment		Park, K.S., Long, A.B., and Gomez, M.I.
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