

## NYWGF RESEARCH - FINAL REPORT

**Funding for fiscal year:** 2023

### SECTION 1:

**Project title:** Evaluation of Hybrid Winegrape Varieties on Long Island

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**Co-PI Collaborators with contact info:** none

**New Research**  **Continued Research**

**Amount Funded** \$ 10,000

### SECTION 2:

**Project Summary Impact Statement:** In 2023, 12 hybrid winegrape varieties were evaluated at the Long Island Horticultural Research and Extension Center in Riverhead. This information provides an overview of the potential for hybrid varieties in a maritime climate and sandy soils. Viticultural suitability is critical as the cost of both planting and management is high on Long Island. In order to gauge potential wine quality, fruit from several selections was provided to local winemakers for small lot winemaking. Vineyard data was presented to industry via several formats.

#### **Objectives:**

Five bearing hybrid winegrapes were screened for their suitability to a northeastern, maritime climate. Seven additional hybrid varieties were planted in spring 2022 and 2023. Evaluation of hybrids reflects the NYWGF goal of encouraging grape varieties that can thrive in changing climatic conditions. It also addresses the desire of many growers to reduce pesticide use.

#### **Activities/Methods:**

In 2023, this vineyard consisted of 0.5 acres of disease resistant hybrids. Five varieties were bearing; four were in second leaf; three were planted in spring, 2023. The vineyard is planted on a well-drained sandy loam soil. Vines are spaced 8x6 with VSP training and drip irrigation. Canopy management practices include shoot thinning to 4-5 shoots/ft. row, cluster zone leaf removal, crop adjustment and canopy hedging. The area under vines was maintained with a combination of herbicide, hand weeding and/or under vine mowing. Each bearing vine was harvested individually to determine cluster number, crop weight per vine and average cluster weight. From each variety/clone, 100 berries were randomly sampled to obtain average berry weight, Brix, titratable acidity, pH.

**Varieties:**

Variety	Planting year	Original source	Background
Aravelle (NY81)	2010	Cornell	Cayuga White x Riesling
Itasca	2018	Minnesota	Frontenac gris x MN1234 [MN1095 x Seyval]
Fleurtaï	2019	Rauscedo, Italy	Tocai Friulano x Kozma 20-3 <sup>1</sup>
Soreli	“	“	“
Regent	2017	German breeding program	Chambourcin , Silvaner and Müller-Thurgau in parentage
Sauvignon Kretos	2022	Rauscedo	Sauvignon Blanc x Bianca
Sauvignon Rytos	“	“	Sauvignon Blanc x 20-3
Merlot Kanthus	“	Rauscedo	Merlot x 20-3
Cabernet Volos	“	“	Cabernet Sauvignon x 20-3
Helios	2023	Germany; white	Complex cross, includes Müller-Thurgau
Muscaris	“	“	Solaris x Muskateller
Monarch	“	Germany; red	Complex cross, includes Muscat Ottonel + Dornfelder

1 – The variety Kozma 20-3 is used in breeding due to its good mildew resistance.

**Herbicide damage:** The vineyard suffered widespread injury due to herbicide drift from a nearby property in May. Regent, the closest to the offending property, was severely impacted. This occurred in mid-May. Leaves were distorted, shoot growth stunted. Shoot growth subsequently recovered though set was poor on many vines. This exacerbated the vigorous shoot growth (see below).

**Additional impacts on the vineyard:** Rainfall July-September was above average (6.5”, 5” and 5”, respectively). This led to vigorous growth in all varieties. Additionally, Regent vines were overhead watered repeatedly by an adjacent property, resulting in vigorous shoot growth. Despite expectations of rampant disease, Regent suffered from minor DM and PM infections and no cluster rot.

**Pest management:** The non-bearing hybrids were sprayed with fungicide several times with sprays ending in mid-July. Due to optimal conditions for disease, all developed varying degrees of downy and powdery mildew by mid-September. The bearing hybrids (Itasca, Aravelle, Fleurtaï, Soreli, Regent) received several fungicides post-fruit set (total of ~6), ending late July. By early September, like the non-bearing vines, all had minor downy and powdery mildew. Most affected was Aravelle, whose canopy deteriorated significantly in September. Itasca, in an adjacent row, was the exception as it had a whistle clean canopy. This was impressive as Itasca received one fewer fungicide due to an anticipated early harvest. No botrycides or insecticides were used. Despite a heavy yellow jacket/fruit fly infestation, Fleurtaï did not develop cluster rot. Interestingly, yellow jackets did not attack its sister variety Soreli, located in an adjacent row. After battling birds for years in this block, birds were not a concern in 2023.

**Harvest:** Despite a rainy summer, *Botrytis* bunch rot and sour rot were non-existent at harvest. Itasca and Fleurtaï were picked Sept. 7, Soreli the next week and Aravelle, the week after that. Regent was picked Oct. 5. Brix were modest throughout the vineyard, 19-20°. Acids were slightly higher on Itasca, 9.3 g/l. Fleurtaï and Soreli had low acids, in the 4's. Others were intermediate. Harvest was based on ripeness, fruit integrity and scheduling. Historically, harvest of the hybrids has been somewhat dictated by the much larger adjacent vinifera block. With that block removed in early 2024, we will have more flexibility with harvest date.

### **Results/Progress/Next Steps:**

Yield component results and brief descriptions of performance are included in attached files. These results, along with a more descriptive PowerPoint presentation, will be posted to the CCE-SC grape program website in 2024.

Disease resistant hybrids were successfully managed with a 40-50% reduction in fungicide use. In this vineyard, the hybrids have generally required more nitrogen fertilizer than vinifera, approximately 20-30 lbs/a actual vs 0-10 lbs. Currently just one local business has a few small hybrid plantings, primarily Vidal. However, several growers have expressed an interest. Hybrids may well represent the future of viticulture in the eastern US due to their resistance to downy and powdery mildew. In the LIHREC vineyard, hybrids are managed with fewer fungicides compared to vinifera. They are also earlier ripening thereby reducing the risk of losing fruit to bad weather or animal depredation. The major concern among stakeholders is wine quality potential and market acceptance. This is undoubtedly in part due to simply being unfamiliar with hybrid varieties. Breeding programs in Europe, the US and in fact at Cornell are producing new, high-quality selections. Hybrids are slowly being embraced by many European winegrowers looking to reduce pesticide use. It is therefore incumbent upon eastern US winegrape industries to evaluate the viticultural and enological potential of these varieties.

### **Technology Transfer Plan:**

Data and articles/data from the trial appeared in the technical publications Long Island Fruit and Vegetable Update (circ. 220) and the Feb. 2024 issue of Suffolk County Agricultural News (circ. 330). The trial was repeatedly referenced in the statewide Veraison to Harvest newsletters (<https://grapesandwine.cals.cornell.edu/newsletters/veraison-harvest>). Research reports and yield component results are posted annually on our website - <http://ccesuffolk.org/grape-program> (1600 hits in 2023). Fifteen growers attended the annual LIHREC Plant Science Day for a vineyard tour/discussion on held July 13, 2023. A second tour and berry tasting for 15 winegrowers was held Sept 6. A PowerPoint presentation summarizing the vineyards results is posted annually on the CCE-SC grape program website. A presentation was given at the 2023 Long Island Agricultural Forum Viticulture Session, Jan. 12, 2023 (28 attendees).

**Attachments:** The 2023 yield components chart and Itasca at harvest, 9-7-23.

## **SECTION 3:**

### **Project objectives:**

In 2023, 12 hybrid winegrape varieties were evaluated at the Long Island Horticultural Research and Extension Center in Riverhead. Data was collected on all aspects of vineyard performance including growth habit, pest management, yield and fruit quality characteristics. This information assists growers in the selection of varieties, an important decision given the expense of planting and the long-term nature of a vineyard. Planting varieties that perform poorly in an eastern

maritime climate or are not suited to the winemaking or marketing goals of a business can be a costly mistake. This work also gives reluctant vinifera growers a preview of hybrids – their vineyard performance, fruit quality and wine quality potential. By demonstrating that hybrids can produce quality fruit, local growers should feel more confident with the idea of including hybrid fruit in their winemaking program.

**Importance of research to the NY wine industry:**

According to the NY Wine & Grape Foundation, the NY grape and wine industries generate >\$6.5 billion in direct economic activity and \$2.4 billion in total taxes. Clearly the industry is a critical part of the NY economy. Modest investment in research programs helps to ensure its continued success. The cost of establishing a vineyard on Long Island represents a major investment in time and money (\$25-30,000/acre). Information generated from other regions is helpful but inadequately addresses the challenges of grape growing in a northeastern maritime climate. In keeping with the environmental stewardship goals of local growers, hybrids can be managed with approximately half of the fungicides required for vinifera. However, local winemakers are concerned about wine quality and marketability. By generating local data on yield, fruit quality, vine management, susceptibility to pests and nutritional requirements, growers can gauge both vineyard suitability, fruit and wine quality and potential market acceptance.

**Project Results/next steps:**

Disease resistant hybrids were successfully managed with a substantial reduction in pesticide use. This project reflects the interest of both growers and consumers in products that support environmental stewardship goals. Continued evaluation is necessary to assess the degree of resistance to downy and powdery mildew as well as degree of susceptibility to black rot and Phomopsis under different climatic conditions. It is essential that these varieties demonstrate they are capable of consistently producing high-quality fruit.

**Supporting attachments:**

1. Yield components chart
2. Itasca at harvest, 9-7-23. Additional photos available upon request.







