

2021 New England and New York Grape Production Survey

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The cold and disease-conducive climate of New England and New York has long been a challenge for commercial grape growers. New practices have been developed to counter those challenges. Traditionally, the European cultivars of the species *Vitis vinifera* have been used in viticulture. In regions where winters are too cold, growers cannot rely on the *V. vinifera* cultivars. Thanks to breeding programs using American and Asian grape species with cold and disease resistances, grape production is now possible in New York and New England¹.

Because the grape industry in New England and New York is relatively new, it is small compared to California and Washington. For example, there were 35,000 acres of bearing grapes and an average yield of 5.34 tons per acre in 2017 in New York, compared to 829,000 acres with an average yield of 7.82 tons per acre in California². In New York, that area decreased 6% between 2015 and 2017, from 37,000 acres in 2015 to about 34,700 acres in 2017, while in California it decreased 3% in 2017 from 856,000 acres in 2015² to about 830,000 acres in 2017. When looking at the yield in tons per acre, in New York, the yield increased by 37% from 3.92 to 5.34 tons per acre in 2015, while in California, the yield decreased by one percent from 7.93 to 7.82 tons per acre in 2015. Data is missing on the reason for these changes. Data on acreage and production is also missing for the states of New England. As an emerging industry, support and data for viticulture in the Northeast is crucial. In August 2021, several commercial grape growers were surveyed regarding the age and size of their vineyard, whether they

grow other crops or run a nursery or a winery, the varieties they grow, and the challenges they encounter. This survey's goal is to quantify the state of the industry in New England and New York to help growers respond to an economic and/or environmental sustainability need. This survey also has informative value more broadly, as worldwide viticulture is shifting to use more diverse and disease resistant cultivars to respond to a need to reduce pesticide usage and a growing awareness of environmental sustainability.

Materials and Methods

In August 2021, a survey was created by the University of Massachusetts using Qualtrics and distributed to commercial grape growers in the New England region and New York state. Responses came in from 102 individuals, 29 non-commercial grape growers were removed, leaving 79 responses from commercial grape growers.

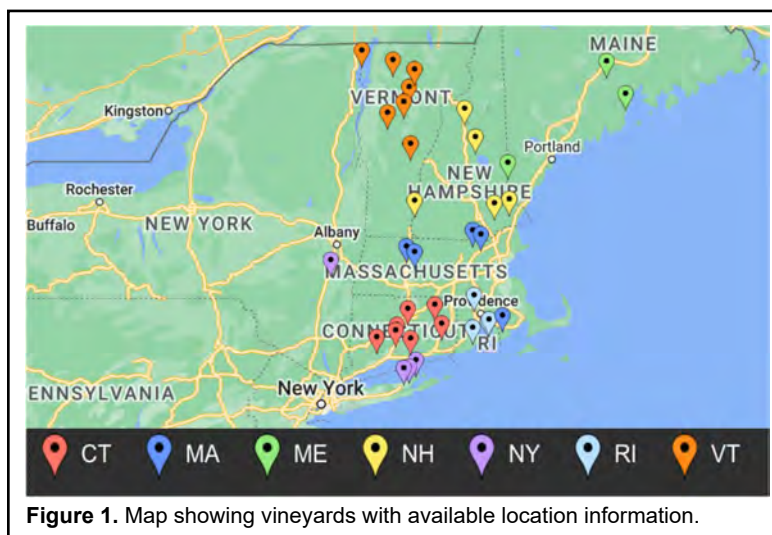
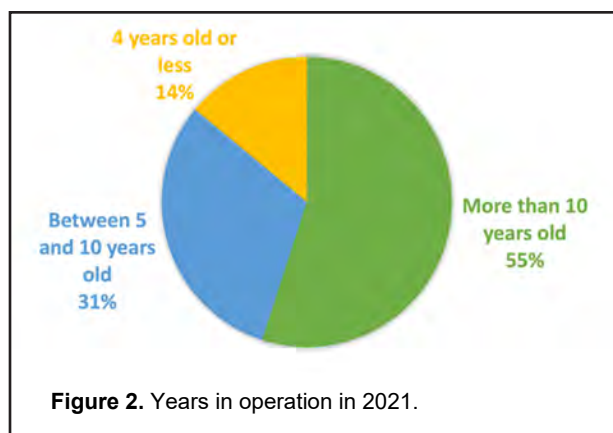


Figure 1. Map showing vineyards with available location information.

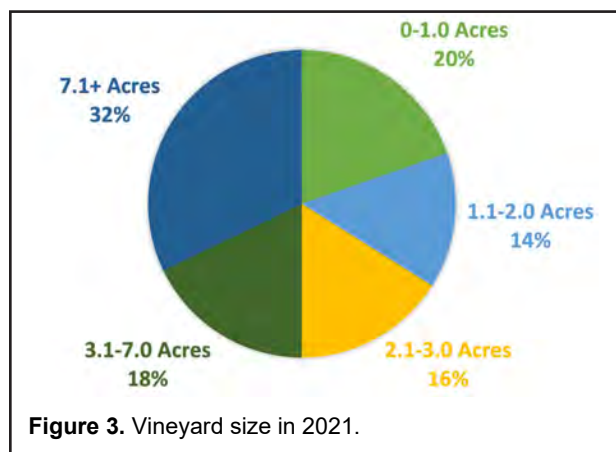
Results

1. Location, Age and Size of Vineyards. Among the 79 vineyards that responded, 35 vineyards gave location information. Vineyards were reported to be in various towns throughout Connecticut (7), New Hampshire (5), New York (4), Maine (3), Massachusetts (5), Rhode Island (4), and Vermont (7) (Figure 1).

The average age of the vineyards was 17 years. Fourteen percent of the vineyards are 4 years old or less. It is important to note that vineyards start being at full production after 4 years. About a third of the vineyards are between 5-10 years, which means they are young operations but at production stage. More than half (55%) of the vineyards were more than 10-year-old, which means they are mature vineyards (Figure 2).



On average vineyards were 12 acres. The biggest vineyard was 185 acres. Half of the vineyards were less than 3 acres (Figure 3). One third of the vineyards had over 7 acres and most of those largest vineyards were in the range of 10-20 acres.



2. Other businesses than grape production

2.1 Other crops. On average, the vineyard represented 73% of the agricultural operations with about half of the growers (n=39) only growing grapes and nothing else. Those who did grow other crops grew in order of importance: small fruits (n=20), vegetables (n=17), apples and pears (n=15), and stone fruits (n=10).

2.2 Nursery. 11% (n=9) reported operating nurseries for an average of 16 years and the percent acreage of their operations dedicated to their nurseries was an average of 35%. Two respondents indicated that their entire agricultural operation was dedicated to their nurseries. Vines grown in the nurseries were used for own-rooted American hybrid wine grapes, own-rooted American hybrid table grapes, rootstocks, grafted American hybrid wine grapes, and grafted European wine grapes. No respondents reported growing grapes for use as grafted American hybrid table grapes, own-rooted European table or wine grapes, or grafted European table grapes.

2.3 Winery. 50% (n=40) of respondents reported operating wineries for an average of 14 years. Operations with a winery have a significantly larger size vineyards (Figure 4).

3. Grape varieties used. Among the vineyards surveyed, most vineyard acreage is taken up by European wine grapes (303 acres, 54%), followed by American hybrid wine grapes (252 acres, 45%), and American hybrid table grapes (10 acres, 2%) (Figure 5).

The varieties that take up the most acreage are, for European wine grapes, Merlot (yield 5.11 tons/acre), Cabernet Franc (yield 3.46 tons/acre) and Chardonnay (yield 4.14 tons/acre), for American hybrid wine grapes, Petite Pearl (6.8 tons/acre) and Itasca (8.67 tons/acre) and for American hybrid table grapes, Mars (yield data not available), Concord (yield data not available) and Niagara (yield data not available) (Figure 6).

4. Challenge for a sustainable vineyard management

4.1 Growing organic grapes. Only two respondents (out of 79) reported being certified organic, and non-organic respondents reported an average of 31.64% likelihood of considering becoming certified organic.

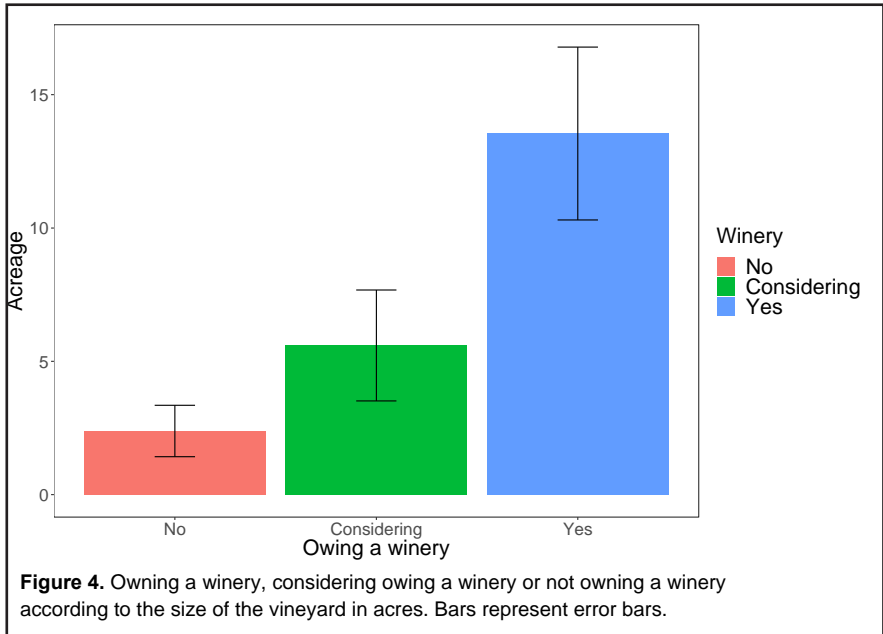


Figure 4. Owning a winery, considering owing a winery or not owning a winery according to the size of the vineyard in acres. Bars represent error bars.

mostly satisfied with their disease management. Issues that growers did still have with their disease management programs were cost and added difficulty due to bouts of wet weather.

Insects and mite pests are another challenge that are faced by grape growers. The pests that were economically or agronomically most significant to their operations, were, by order of importance: Japanese beetle, yellow jacket, and grape berry moth (Figure 9).

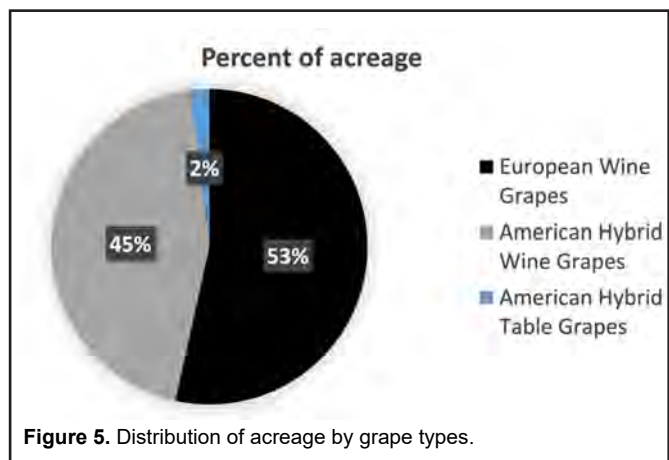


Figure 5. Distribution of acreage by grape types.

Disease management is the major challenges for growers impeding them from growing grapes organically, followed by insect and weed management (Figure 7).

The diseases that were economically or agronomically most significant to vineyards operations, were by order of importance: downy mildew, black rot, and powdery mildew (Figure 8).

Diseases that growers also indicated the highest levels of interest in learning treatment options for were anthracnose, crown gall, and sour rot. Ultimately, however, 50 of the 56 responses to a question asking growers to rate out of 100 their satisfaction with their overall disease management program were in the range of 50+, with 34 of those responses in the 75+ ranges, indicating that, for the most part, growers are

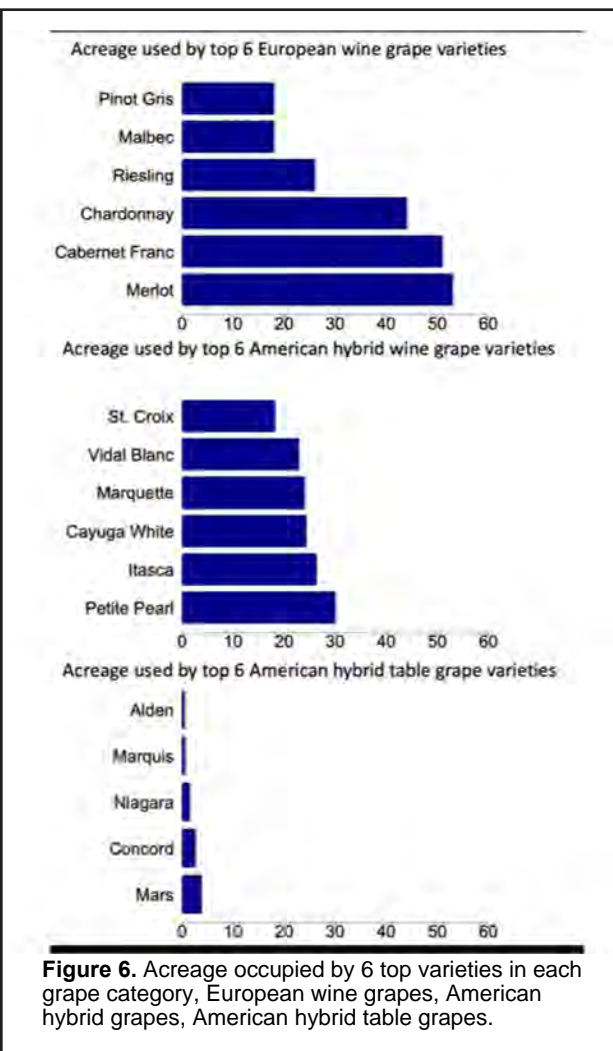
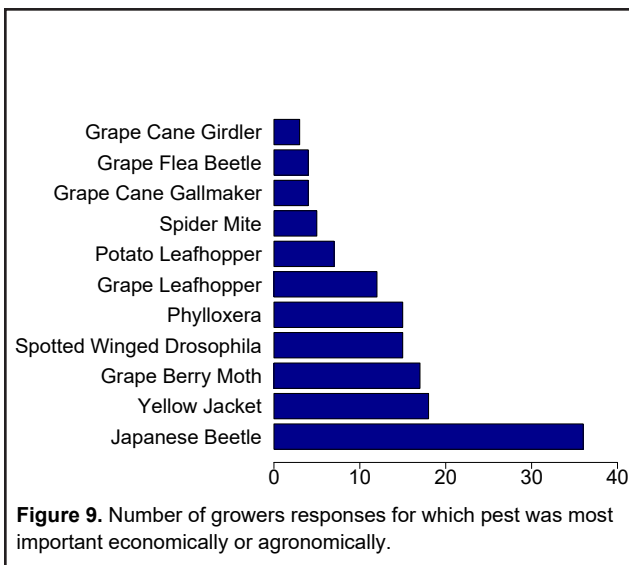
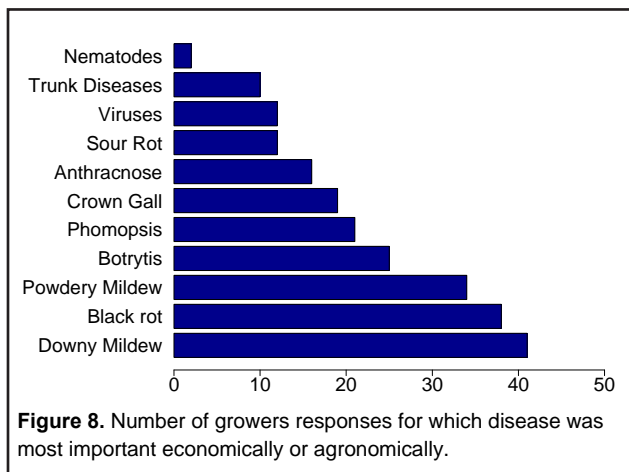
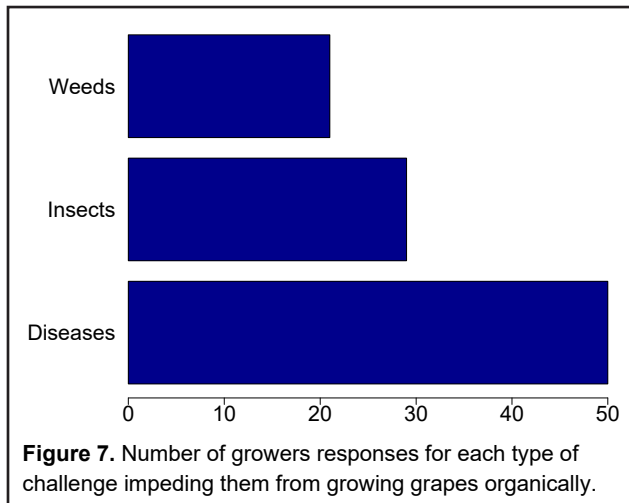


Figure 6. Acreage occupied by 6 top varieties in each grape category, European wine grapes, American hybrid grapes, American hybrid table grapes.



Conclusions

In 2021, 79 grape growers in New England and New York responded to a survey. About 45% of vineyards were young operations, indicating that the industry was still developing. Vineyards were small on average (12 acres). 50% of the respondents, typically the larger operations, also owned a winery. The surveyed acreage was split about evenly between European and American hybrid wine grapes. Yet, European had a much lower yield (4 tons/acre) than American hybrid wine grape varieties (8 tons/acre). The biggest challenge for organic production was disease management. American hybrid varieties, with their higher yield and disease resistance, are a better choice for the New York and New England region for environmental sustainability. Future research should address whether the American hybrid varieties are also more economically sustainable. Other research should also focus on finding organic solutions against the main diseases, downy mildew and black rot.

Acknowledgments

Thank you to all the grape growers and wine makers who answered this survey. Your input was vital to show to policy makers and industry leaders the current state of the New England and New York grape and wine industry. Special thanks to Terry Bradshaw, Mary Conklin, Heather Faubert, Caitlin Gold, David Handley and Becky Sideman for distributing the survey to their list of growers.

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Zoe, Jessica, Max, and Amber are undergraduate students at the University of Massachusetts Amherst.



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