Multistate Research Fund
IMPACTS

Improving Wine Grapes for American Growers and Winemakers

Wine grapes are a high-value crop, but planting a poorly-adapted variety in the wrong place is a costly mistake. Traditional grape varieties are not well-suited to the growing conditions or pests and diseases in large parts of the United States. In addition, some varieties may not perform well as climate change creates new pressures.

Researchers at land-grant universities nationwide are developing and evaluating wine grapes for American growers and winemakers.

As part of this project, each member has the support of their State Agricultural Experiment Station, which provides field plots to test varieties, laboratory space, and computing hardware and software. Collaboration allows researchers in different states to share expertise and resources, like specialized facilities. The multistate structure also enables coordinated, long-term evaluation of grape varieties in different growing environments. Coordination makes this research more efficient and reduces unnecessary duplication of efforts. With members in different states, this project can share findings widely.

The availability of well-adapted grapes has expanded wine production to most states, diversified American wines, and improved the economic viability of and respect for the American grape and wine industries.

Research Highlights

In **Colorado**, vineyard area planted with cold-tolerant varieties has increased from less than 1% to over 20%. The most widely grown cold-tolerant variety was developed by the **University of Minnesota** and was first trialed as part of this multistate project. **Colorado State University** researchers also identified several varieties that have excellent cold-hardiness.

Specialists at **Purdue University** in **Indiana** evaluated grape varieties and recommended Petite Pearl due to its ability to avoid frost injury.

Tannins are compounds that help protect wine against oxidation and are responsible for the astringent mouthfeel of red wines. **Iowa State University** and **University of Minnesota** scientists showed that fermenting whole clusters of Marquette grapes could increase the level of tannins. **Iowa State University** studies also showed that Petite Pearl and Crimson Pearl have lower levels of acids and higher levels of tannins than Marquette grapes, so they could be promising options for consumers who prefer less acidic, more astringent red wines.

Project members developed grape varieties that are now the most widely planted in **Kansas** and which contributed to the tripling in vineyard acres from 2010 to 2020. In addition, the **Highland Community College** winery business incubator has helped three wineries emerge.

University of Massachusetts scientists evaluated 10 organic pesticides for efficacy against downy mildew and Japanese beetles and measured the cold protection provided by frost protection fabrics and plastic covers.

Michigan State University researchers evaluated the cold hardiness of different grape varieties and developed a cold hardiness model. This information helps grape growers in **Michigan** select varieties, choose vineyard sites, and know when to use heaters, pruning, and other tactics to protect grapes.

University of Minnesota researchers developed many widely used wine grape varieties. The economic impact of grapes, wine, and associated tourism is valued at over $80 million per year in **Minnesota**.

To help the **Missouri** wine industry diversify the red wines they can offer consumers, **University of Missouri** scientists evaluated red grape varieties. Other studies measured the potential effects of viruses on grape yield, quality, and vine vigor and longevity. Scientists also used a **U.S. Department of Agriculture** germplasm collection to evaluate varieties that are expected to require fewer fungicide applications.

To help vineyards in **Montana** recover after a sudden severe freeze, **Montana State University** researchers tested grape varieties and identified two with superior grapevine trunk survival.

The **Nebraska** grape and wine industry has widely adopted varieties tested by the **University of Nebraska**. In particular, the Itasca variety has grown well and produced excellent dry white wines.

Rutgers University researchers educated over 100 growers in **New Jersey** about Grapevine Pinot Gris Virus.

The Vignoles variety is known for high-quality wine, but produces grapes with tight clusters and thin skins, which are prone to splitting and more susceptible to diseases like sour rot. To reduce splitting, researchers with the **U.S. Department of Agriculture** developed a new Vignoles variety with loose clusters and significantly reduced rot severity compared to standard Vignoles. This variety significantly reduces losses and may require fewer fungicide sprays. It has become a mainstay at vineyards in **Illinois**, **Indiana**, **Missouri**, **New York**, and **Ohio**.

Using cold-hardy varieties evaluated by this project, **Vermont's** wine industry has grown from almost no vineyards to 165 acres with an estimated production value of $4 to $5 million.

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Learn more: bit.ly/NE-1720

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