



# VitisGen III



## What is *VitisGen3*?

*VitisGen3* is a USDA-funded grant project aimed at building technologies and resources for grape breeders to develop improved grape varieties. *VitisGen3* also provides economic data and Extension materials to help growers learn the benefits and challenges of adopting improved grape varieties, along with new guidelines for growing these varieties.



Bundles of disease resistant grapevines ready for planting in the *VitisGen3* field trial. The field trial will generate best practices for managing a low spray, disease resistant vineyard.

## What is a Disease Resistant Variety (DRV)?

Most varieties of commercially grown wine, table, and raisin grapes belong to the species *Vitis vinifera*. While they result in fantastic products, they also require frequent applications of expensive agrochemicals, which can build up in the environment and impact a grower's bottom line. In contrast, many native North American and Asian grape species have some level of disease resistance which allows them to survive without the use of fungicides--but they often have poor fruit quality or unacceptably small berries. Grape breeders are combining the strengths of wild and cultivated vines to develop disease resistant varieties (DRVs) that produce high quality wines, raisins, and table grapes.

## Low spray, NOT no spray!

Diseases like powdery mildew, a major pathogen of grapevines, reproduce rapidly, evolve quickly, and migrate easily via air currents or water droplets. These qualities make diseases like powdery mildew more likely to evolve resistance to fungicides. Similarly, the disease resistance genes incorporated into DRVs can only provide durable protection against diseases if their resistance is maintained (ie, if the pathogens are prevented from evolving past the plant's inherent protection). This means that growers can adopt a low frequency spray regimen and save money on fungicides, but they should not stop spraying altogether. After all, fungicides do help manage both the pathogen and the host (the grapevine). Growing DRVs means low spray, NOT no spray!



## Examples of breeding programs working on DRVs:

- Cornell
- UC Davis
- University of Minnesota
- USDA-ARS
- Julius Kuhn Institute (Germany)
- INRAE (France)
- ...and many more!

Note: There are many varieties which have already been released, including those resistant to specific diseases and insects. Many of these institutions will have more information about which varieties would best suit your needs, and about the recommended growing conditions and cultural practices for those varieties. Please contact their grape breeding program if you have questions.

## Marketing and branding support:

Despite disease resistance being a desirable trait for growers and winemakers, the term “DRV” doesn’t mean much to the average consumer. With that in mind, the *VitisGen3* project is conducting research into how best to market and brand DRV products to appeal to your customers. Focus groups have already honed in on consumer preferences for terms like “green” and “sustainable”, and not surprisingly, their dislike for mentions of “fungus”, “disease”, or “fungicide”. Through further consumer experiments with eye-tracking for mock raisin, table grape, and wine labels, we will soon be able to provide recommendations about best practices for design and marketing related to DRVs. More information about this part of the project can be found at [vitisgen3.umn.edu](http://vitisgen3.umn.edu).



*Itasca cold-hardy wine grapes.*



*A mock wine label being used for eye-tracking and EEG experiments that study consumer preference for grape product packaging information.*

## Questions?

Contact VitisGen3 at [vitisgen3@umn.edu](mailto:vitisgen3@umn.edu)