NATIONAL GRAPE RESEARCH ALLIANCE

Spring 2020
To: U.S. Grape and Wine Industry Stakeholders
From: National Grape Research Alliance
Re: Appropriations Request for Grape Genetics Research

Background

The U.S. Department of Agriculture's Agricultural Research Service (USDA-ARS) is charged with advancing world-class grape genetics research in the U.S., through its units in Parlier, CA (grape breeding), Geneva, NY (grape genomics and gene expression). Geneva and Winters, CA, also are home to a collection of critical grape germplasm, that collectively serve as an extensive source of grape traits for the continued viability and sustainability of our industry.

In fiscal year 2020, the Grape Genetics Research Unit (GGRU) in Geneva received appropriations of $68.9 million for new laboratory facilities on campus at Cornell University. Yet, after years of diminishing budgets, there are only three scientists stationed there. Although a network for collaboration is largely in place, the scientists charged with advancing our understanding of grape genetics—a key to our future—are grossly underpaid by scientific standards and their number is insufficient to achieve the kind of science the American grape industry requires. Thus, despite the grape and wine industry's contribution of more than $220 billion annually to the U.S. economy and the tremendous promise of genetics to improve the quality and sustainability of grapes for fresh consumption, raisins, and wine and juice production, **the USDA's funding for grape genetics research remains woefully inadequate.**

- In its original vision in 2004, **the GGRU was to have eight Ph.D.-level scientists on staff.** Attrition and budget cuts have brought us to three.
- **The unit's budget today is a mere $1.5 million,** allocated *not only* for salaries, but for facilities and infrastructure, supplies and equipment.
- It's clear that, at the current level of staffing, **the strategic GGRU cannot achieve the kind of advances in genetics research the American grape industries need.**

Appropriations of $10 million per year would right-size staffing for grape genetics, enabling breakthrough science like:

- Like California Cabernet Sauvignon? It could disappear. Grapes are threatened by an increasing number—and increasingly virulent species—of insects and diseases. They also are buffeted by extremes of drought and storms, heat and cold, and increasing levels of salt in our soils and water, with potentially devastating economic effects. **We need a vastly deeper understanding of the genetic mechanisms that regulate grape varieties' tolerance to these threats to tackle them today—*and* be ready to combat the next, unforeseen deadly virus or crippling change in climate tomorrow.** It is this level of research that will be ultimately required to allow growers to maintain grape varieties as they are, where they are.
- The U.S. has a vast reservoir of grape germplasm, including species of wine, table, juice and raisin grapes with resistance to many of the most severe environmental challenges and devastating pests and diseases facing the industry. But due to insufficient staffing, the DNA of the majority of these vines has not been analyzed. Doing so would reveal the sources (or markers) of **genetic resistance to pests, diseases and other stresses that threaten U.S. grape production,** enabling us to breed new cultivars faster and with greater success, greatly reducing the need for chemicals in our vineyards and ensuring the sustainability of our industry. Even the tradition-bound European wine industries have begun to embrace modern genetic methods and new varieties developed using marker-assisted breeding. Will the U.S. be left behind?
- In emerging regions, where traditional *Vitis* vinifera grapes such as Cabernet Sauvignon, Chardonnay and Merlot aren't well-suited, newly developed varieties are critical to wine's growth and economic viability. **Research into the genetic constructs of cold-hardiness, for example, have enabled the industry to take root there—and is required for it to thrive.**

hello@graperesearch.org
916.446.3900
grapereresearch.org
1601 Alhambra Blvd., Suite 100
Sacramento, CA 95816

NATIONAL GRAPE RESEARCH ALLIANCE

The Impact of Grape Genetics Research

Think the USDA's grape genetics resources serve only California (the nation's largest grape-growing state) or New York (third largest, and home of the USDA-ARS Grape Genetics Research Unit)? Think again.

USDA-ARS has guided public grape breeding and genetics programs in 13 states: North Carolina, Georgia, Florida, Mississippi, Arkansas, New York, Ohio, Missouri, Wisconsin, Minnesota, North Dakota, South Dakota and California. And they've worked directly with small private breeders in nearly all states. Their expertise has helped in using modern genetic tools to develop locally adapted, disease resistant varieties with improved fruit quality. For example:

- Powdery mildew causes losses to yield and quality everywhere grapes are grown; on the West Coast, it is the number-one disease grape growers manage. The disease-resistant varieties that GGRU scientists are helping to develop will have an estimated economic impact exceeding $1 billion in the U.S., and will reduce pesticide use in grapes by more than 90% in California, Oregon, Idaho and Washington.
- Muscadine grapes are a popular local specialty in the southeastern U.S., and GGRU scientists have collaborated with breeders, geneticists, chemists, and pathologists in North Carolina, Georgia, Florida, Mississippi, Arkansas and Oklahoma to develop new disease resistant, seedless varieties with improved fruit quality and thinner skins.
- Cold winters and spring frosts present challenges to much of the northern U.S., and the cold physiology tools, knowledge and genetic resources from GGRU have contributed to improved production and cold hardiness breeding in most U.S. states. In particular, breeding programs in Ohio, Missouri, Wisconsin, Minnesota, North Dakota, South Dakota, and New York have directly benefited from GGRU research.

What's at Stake?

- **Grapes are the largest and most economically important fruit and specialty crop in the U.S.,** representing approximately 1 million acres and more than $6 billion in farm-gate revenue, and $219.9 billion in economic impact—*for wine alone.*
- Grapes are commercially produced in 49 of the 50 states, and **vineyards represent a critical component of America's rural economy**—a hot button for the current USDA administration.
- **A nearly $70 million USDA-ARS facility will stand nearly empty.**

The National Grape Research Alliance is comprised of leaders from across the U.S. grape industry including representatives from the wine, juice, table grape and raisin commodity sectors and from all growing regions nationwide. We believe strongly that investment in more USDA scientists dedicated to grape genetics research is essential to the long-term viability and competitive advantage of the U.S. grape industry. Help make grapevine improvement part of our national DNA.

Request at a Glance

- **Appropriations requested:**
  $10 million per year
- **Constituent base:**
  The Grape Genetics Research Unit is based in New York, but collaborative resources are located across the country and the impact of genetics research applies to all states where grapes are grown and/or wine is made
- **Economic impact:**
  The grape and wine industry contributes more than $220 billion annually to the U.S. economy
- **Urgency:**
  High

For more information:
Donnell Brown
President | National Grape Research Alliance | dbrown@graperesearch.org

hello@graperesearch.org
916.446.3900
graperesearch.org
1601 Alhambra Blvd., Suite 100
Sacramento, CA 95816