

APPROPRIATIONS REQUEST: GRAPE GENETICS RESEARCH

Requesting Entity: [FILL IN]

Request type: Program

Subcommittee/Agency/Account: Agriculture/USDA/ARS

Line item or specific office/project within Agency: National Program 301

Program Title: Grape Genetics

Funding Request: \$10 million (annually)

Description of Program Request: Grape genetics research is sorely underfunded at USDA-ARS. Grapes are the largest and most economically important fruit and specialty crop in the US, representing approximately 1 million acres and more than \$6 billion in farm-gate revenue. Grapes are commercially produced in 49 of the 50 states, and vineyards represent a critical component of the US agroecosystem and rural economy. Yet grapes are vulnerable to an increasing number of biotic and abiotic threats, including invasive pests and diseases and extremes of drought, cold and soil salinity, all with potentially devastating economic consequences. A greater understanding of the tolerance of grape species and varieties to these threats is needed, especially due to the broad geographic footprint and highly variable climatic conditions encountered for grape production in the US. In addition, the US houses the world's reservoir of grape germplasm believed to have resistance to many of the industry's most economically important pests and diseases. However, most of this germplasm remains uncharacterized due to insufficient funding for grape genetics research. Identifying the sources of genetic resistance to the major threats to US grape production is critical to facilitate both traditional and modern germplasm improvement approaches, as well as for the development of growing practices to help mitigate these threats. Both objectives are critical to the long-term economic viability of the US grape industry. Thus, we are seeking a \$10 million annual increase in ARS funding for grape genetics research.

Additional Background

Investment in grape genetics research is essential to maintain the competitive advantage of the US grape industry.

Due to the continuous introduction of invasive pests and diseases with devastating economic consequences, as well as the many potentially catastrophic environmental stresses including drought, heat, frost, cold and salinity, a greater understanding of the tolerance of specific grape species and varieties to these variables is needed. The US represents a broad geographic footprint and highly variable climatic conditions—all with direct impact to grape production. Plus, the US serves as the world's reservoir for grape germplasm believed to have resistance to economically important diseases and diverse environmental conditions, in particular species native to the eastern US. Yet much of it remains uncharacterized and under-utilized due to the lack of sufficient resources dedicated to grape genetics research. Characterizing the sources of genetic resistance to the major biotic and abiotic threats to US grape production, and then using this information to breed new cultivars and growing practices to help mitigate these threats, is critical to our long-term economic viability.

An expansion of USDA-ARS grape genetics research capabilities and infrastructure is critical to ensure the future of US grape production.

The USDA-ARS is charged with the advancement of grape genetics research in the US, and operates laboratory facilities in Geneva, NY, as well as plant material repositories in both Geneva and Davis, CA. The current funding allocated to these efforts is woefully inadequate, and critical gaps exist in the facilities and knowledge needed to advance key industry research needs and initiatives. We are requesting significant investments in annual infrastructure and ongoing research support. Additional scientists are needed to address critical industry needs involving pest and disease resistance, as well as the threat of environmental stresses such as drought, salinity and cold. Expanded scientific capabilities are essential to address these objectives, including expertise in functional genomics, gene editing, plant regeneration, statistics, bioinformatics and data curation. Lastly, greater support of the plant material repositories and related germplasm infrastructure essential for these programs is needed.