Research Platforms & Project Priorities

Nick Dokoozlian, Research Chair

Background

- The NGWI research portfolio is broken into several platforms or disciplinary/theme areas
- Each Research Platform has a Committee responsible for establishing project priorities, as well as partnering with the research community for project development and execution
- Original research platforms were formed in 2005, in preparation for the first ARS Grape Industry Workshop
- The initial NGWI research platforms were closely aligned with both ARS and NIFA priorities, but had not evolved
- In December 2016, the NGWI Executive Committee requested a review of our research process and structure, including platforms, priorities and committee composition

Revised NGWI Research Platform Structure – 2017

Research Platform	Technical Focus
Genetics & Grapevine Improvement	Includes genomics, bioinformatics, traditional breeding, marker assisted selection, molecular physiology, cultivar and clonal selection and the establishment and maintenance of disease free plant materials.
Integrated Production Systems	Includes agronomics, use of remote and proximal sensors for improving production efficiency, vineyard design, mechanization and improved pest and disease management systems.
Natural Resources & Environment	Includes water use and sustainability, use of remote sensing for monitoring vine and soil water status, soil health and sustainability and vine response to extreme environmental conditions.
Extension & Outreach	Extension outreach and education efforts supporting national, state and regional objectives.

Revised NGWI Research Platform Structure – 2017

Research Platform	Link to Current USDA-ARS National Programs
Genetics & Grapevine Improvement	• ARS NP 301 – Plant Genetic Resources, Genomics and Genetic Improvement • ARS NP 304 – Crop Protection and Quarantine
Integrated Production Systems	• ARS NP 305 – Crop Production • ARS NP 303 – Plant Diseases • ARS NP 216 – Agricultural System Competitiveness and Sustainability
Natural Resources & Environment	• ARS NP 211 – Water Availability and Watershed Management • ARS NP 212 – Climate Change, Soils, and Emissions

NGWI Research Committees

Natural Resources and Environment	Integrated Production Systems	Genetics and Grapevine Improvement	Extension and Outreach
Anji Perry, Chair	Russell Smithyman, Chair	Franka Gabler, Chair	Keith Striegler, Chair

- Nine members per committee
  - Chair and five standing members selected from NGWI membership
  - Three academic subject matter experts (ARS and Land-Grant Universities)
  - Ad hoc members from industry and academia added for increased breadth as needed
- Match technical expertise with research theme
- Representative mix of regional and industry sectors

NGWI Platforms & Research Priorities

Advance research to maximize the productivity, sustainability and competitiveness of the US grape and wine industries

Genetics & Grapevine Improvement

- Advance our understanding of gene function & linkage to important traits
- Improve the speed & efficiency of traditional breeding
- Develop high-throughput trait phenotyping methods
- Build research capabilities for systems biology & genome editing
- Improve resistance to abiotic & biotic stresses
- Identify, establish & maintain high-performing, disease-free plant materials

Natural Resources & Environment

- Develop integrated models for the utilization of natural resources at the vineyard-block level, including water, nutrients & sunlight
- Understand the impact of soil physical, chemical & biological factors on vine performance
- Elucidate vine physiological responses & adaptations to extreme climatic events
- Advance practices to mitigate the impact of abiotic stresses including high & low temperatures, drought & salinity

Integrated Production Systems

- Build improved mechanization & automation systems to enhance labor efficiency
- Increase the accuracy of yield-estimation methods
- Advance tools for real-time management of water & nutrients
- Improve pest & disease detection, modeling & control systems
- Develop tools for the non-destructive measure of fruit quality traits in the vineyard
- Advance practices that improve fruit postharvest and processing quality

Extension & Outreach

- Strengthen and improve the National Viticulture & Enology Extension Leadership Conference (NVEELC) and its community of practice
- Partner with the extension and outreach community to establish a durable structure and long-term, sustained funding

NGWI Top Research Priorities

- Advance our understanding of **gene function and linkage** to important traits
- Identify, establish and maintain high-performing, disease-free **plant materials**
- Develop integrated models for the utilization of key **natural resources** at the vineyard-block level, including water, nutrients and sunlight
- Build improved mechanization and automation systems to enhance labor efficiency
- Improve **pest and disease** detection, modeling and control systems
- Strengthen and support **extension and outreach** for viticulture and enology in America

NGWI & Research Community Project Collaboration

NATIONAL GRAPE & WINE INITIATIVE

NATIONAL

GRAPE & WINE

INITIATIVE