



# Washington State Viticulture and Enology Research Priorities

July 1, 2017 – June 30, 2018

## **Fermentation Management**

- Phenolic measurement and management
- Yeast strains, including indigenous (influence on fermentation, sensory properties, etc.)
- Management of microbiological spoilage (*Brettanomyces*, *Lactobacillus*, *Pediococcus*, etc.)
- Management at winery of diseased/disordered fruit (*Botrytis*, bunch rot, shrivel)
- Impact/management of nutrients on fermentation (e.g. fermentation adjuvants)
- Fermentation management and monitoring (cap extraction, process control, real-time methods, etc.)

## **Aroma and Flavor Compounds in Wine**

- Impact of various filtration options on wine quality (chemistry, mouth feel, oxygen impact, etc.)
- Vineyard-derived sulfur off aromas—avoidance and removal
- Optimizing sensory compounds in wine (e.g. role of glutathione on oxidation)
- Smoke taint analysis and removal

## **Winery Waste**

- Develop methods to recycle/reuse/repurpose biomass from harvest
- Winery waste and water management

## **Viticulture Production Efficiency and Profitability**

- Impact of canopy management/mechanization on wine quality
- Improve water use efficiency/water savings to optimize grape production and wine flavors
- Impact on vine health from water quality (salinity, alkalinity, others)
- Develop nutrient management for optimal vine health
- Develop/assess labor-savings crop estimation tool
- Berry and sour shrivel
- Optimize clonal selections for Washington State
- Impact of field grafting (*vinifera* to *vinifera*)

## **Pest Control (including sustainable and organic)**

- Develop strategies for viral disease management (preventing spread, replanting, impact on vine health, developing vector control, etc.)
- Develop/refine strategies for all pests (insect, weeds) with economic impact potential, with emphasis on stable, biological systems.
- Trunk canker disease management
- Management of powdery mildew and *Botrytis* (early detection, efficacy of new fungicides, resistance management, etc.)
- Develop nematode management strategies (efficacy, economic thresholds, resistant rootstock)
- Develop effective control of birds, deer, gophers, and other vertebrate

## **Climate Impacts on Site/Viticulture**

- Optimum light and heat exposure of fruit

- Impact of climate variability on fruit maturity, dormancy, phenology, pest/disease management
- Winter trunk injury and secondary infections (e.g. crown gall)
- Develop decision support system for inversion, frost protection (i.e. alert system)

#### **Mechanization Options**

- Development and evaluation of mechanization tools that reduce reliance on hand labor within the vineyard and winery (e.g. canopy management, pest management, crop reduction, sorting, MOG removal)

#### **Emerging Issues**

- Unforeseen viticulture and enology emerging issues
- Extension bulletins for transfer of research information (i.e. publication costs)
- Comparative analysis of Washington state viticulture practices to other regions (e.g. sustainable pest and disease management systems)