



# 2021 PNW Cherry Research Priorities

Some of the priorities listed do not specifically ask for organic options. We are interested in having organic practices considered in all proposed work, when appropriate. Also, proposals are expected to include an industry outreach component, if the sought-out project outcomes are anticipated to directly translate into management changes.

Novel ideas in areas not listed as priority are encouraged. It is suggested to contact Ines Hanrahan ([hanrahan@treefruitresearch.com](mailto:hanrahan@treefruitresearch.com)) to discuss any ideas outside of the priorities identified by the RFP, before submitting a preproposal.

## Highest priority

Cherry virus disease identification and elimination in order of importance:

1. Optimized or new testing methods (reliable, cost effective, fast, non-destructive)
  - a. Explore canine detection scenarios
  - b. Molecular tools (PCR primer adjustments to ensure accuracy as disease is changing)
  - c. Sensing for non-symptomatic trees (orchard, nursery)
2. Effective industry outreach program to develop and/or disseminate information to stakeholders (Eng./Span.) based on continuously adjusted LCD group priorities and industry feedback while considering novel ways for effective industry penetration/adoption of information
  - a. Variety specific symptom description
  - b. Determine best replant scenario options
  - c. Facilitation of lab capacity ramp-up and seamless operation (increase # of companies, training material, QC-SOP's, assurance of testing accuracy and timely sample processing, communication plan, PCR primer verification)
  - d. Monitor the spread of the infections (continued mapping)
3. Non-symptomatic trees
  - a. Timeline of symptomless trees to unmarketable fruit (including correlation of titer levels vs. fruit symptoms)
4. Determine strains
  - a. Same strains than CA or BC?
  - b. Strain specific symptoms and virulence
5. Leafhoppers
  - a. What other leafhoppers are transmitting?
  - b. Elucidate mechanisms of transmission, including low titer scenarios for x-disease
  - c. Develop trapping SOP (action thresholds, # of traps/area)
  - d. Determine habitat (i.e. where are leafhoppers coming from?)

## 6. Tree health

- a. Modeling of biotic and abiotic factors that influence disease progression
- b. Interaction of tree health, titer levels and visual symptoms
- c. Can infection be avoided?

### **Areas of high interest**

#### SWD detection and management:

- control strategies (attract and kill)
- resistance management: increase choices of active ingredient groups to accommodate export market requirements (i.e. avoid heavy use of group 5)
- intensity of infestation: develop action thresholds for individual orchards

#### Powdery mildew management:

new chemistries & resistance management  
inoculum testing & strategic control methods

#### Scion breeding program:

- Powdery mildew resistance
- Postharvest evaluation

#### Crop load management:

- Physiology of the timing of thinning (mechanical vs. chemical) to achieve optimum yield/fruit size balance

Technology projects that work across several different crops are encouraged also. Those projects will be moved into the technology committee. Specifically:

- Partial or full automation of pruning, thinning, spraying, insect monitoring, harvest
- Accurate crop estimation (yield, size profile)