

# PNW PEAR RESEARCH PRIORITIES FOR 2020

## Representing Fresh and Processed Pear Growers in Oregon and Washington

*The task of this sub-committee is to encourage and support research on pears that improves dollar returns per acre to the land. The committee requires proposals that have clear obtainable objectives. We encourage scientists to pursue other public and private sources of funding as appropriate, and to leverage pear grower funding to support applications for larger projects such as USDA Crop Protection, Sustainable Agricultural Research and Education (SARE), Organic Research Education Initiative (OREI), Specialty Crop Research Initiative (SCRI), or state Specialty Crop Block grants.*

The economic viability of pear production is being challenged over the last few seasons. Input costs are increasing rapidly, especially labor and IPM issues, climatic issues provide constant challenges. Consistent cropping of high yields per acre with targeted fruit size and quality will be mandatory to retain profitability. Pear production and warehousing are heavily dependent on labor. Concerns with labor availability, efficiency, and cost are a consistent through all the below listed areas.

There are three key areas or legs to the stool that generate grower returns. Increasing consumer satisfaction and improving return sales will drive movement. Reducing warehouse repackaging and shrinkage while improving efficiency with handling special packages like bags. Developing methods to increase consistent production volumes of targeted fruit sizes capable of delivering 40 plus bins per acre of targeted fruit sizes and cleanest grades.

The 2018 crops largest issues were with fire blight, fruit size, and holding/building market share. The long term need for a smaller tree architecture remains critical.

### Highest Research Priorities

**IPM: Pear psylla, mites, and fire blight are viewed as the greatest threats.**

Needs: focused research on 2-spot mite management, improving predation, and understanding stresses caused by climate as well as having some chemical control options - continued work on psylla, (this insect impacts harvest labor availability, reduces the quality/quantity of packs per bin of prime marketable fruit, and reduces cropping potential of the tree) - role of heat cycle/climate impacts on mites, psylla, and codling moth - reduce overwintering adult psylla populations or their egg laying capacity - investigate season long impacts of oil/oil calcium applications on tree health and calcium uptake - novel practices to improve pear integrated control (conventional & organic) including more focus on natural enemies - need to team up with groups working with other crops facing psyllid challenges (potatoes and citrus) – assess threat posed by building pressure from BMSB.

**FIRE BLIGHT:**

Needs: Work with newly labeled Phages for fire blight control (timing/phytotoxicity/efficacy) - reduce inoculum levels during infection periods -understand the physiology that makes some varieties much more susceptible to tree losses once blight infections take place.

**POSTHARVEST QUALITY: Putting a product in the consumer's hand that creates repeat business and draws in new customers.**

FRUIT RIPENING: Meeting the consumers' needs while extending marketing and packing seasons. The need for tools to control scald, extend the packing season, maintain fruit visual quality on the store shelf, and deliver a quality eating experience to the end consumer.

Needs: Understanding ripening triggers – are there industry usable tools to measure fruit ripening potential - survey consistency of product delivered to the consumer (is the industry hitting targets/does it have targets?) – is there a measure for flavor? – managing phenolic browning and scuffing observed with later handling of fruit – MCP and BMPs to deliver best eating experience to consumer.

IMPROVE AND EXTEND STORAGE LIFE: Extend the packing season to meet market demands for different types of packs (bags/pouches/display trays/wrap packs/etc.). The impact of multiple packaging has reduced warehouse efficiency.

Needs: Use of sensors to evaluate dry matter quality index - post harvest decay and handling losses impact grower returns, post-harvest programs that collaborate regionally and nationally - automate warehouse to reduce labor and improve fruit handling (especially bagging) – pre- and post-harvest application of growth regulators, fungal antagonists, and/or fungicides to improve quality and reduce storage losses – strategies to reduce fruit scuffing.

DEVELOP AND IMPROVE VALUE ADDED PRODUCTS FOR PEARS: Fresh slice work needs to move to commercial implementation or clearly show progress in that direction.

FOOD SAFETY: Critical need is to understand where the actual vs. perceived risks are.

**GENETICS:**

ROOTSTOCKS: This topic runs through fruit quality, improving orchard profitability, improving labor friendliness, mechanization, and improving IPM issues. Rootstock improvement will allow modernization and transformation of the PNW Pear industry.

Needs: Maintain support in long term breeding program while continuing to investigate alternative rootstock currently available from other producing areas worldwide. Develop regional demonstration plantings in partnership with commercial operations. This is focused to be rootstock adding targeted new pear varieties.

**HORTICULTURE: Maintaining high yield, targeted fruit size and grades, consistent cropping combined with labor input reduction per unit produced is essential for economic survival.**

Needs: Improving fruit quality - developing and improving chemical fruit thinning on Bartlett -improving fruit set/reduce fruit drop, especially in older canopies (could be pollination - PGRs - tree architecture/light issues – water - nutrition) - managing vigor impacting fruit set and sizing while not stimulating vegetative growth - understanding the nutritional and orchard impacts on post-harvest decay - improved integration of horticultural, water management and nutrition strategies to mitigate stress disorders, particularly cork spot.

Bob Gix, Acting Chairman, Steve Hunt Co-Chair, Sam Godwin Co-Chair, and WTFRC Commissioner representing Pears. Document created 10/25/2019 Version Beta