

PNW PEAR RESEARCH PRIORITIES FOR 2018

Representing Fresh and Processed Pear 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 values proposals that have clear obtainable objectives. They look for continuing and final project reports which describe work toward those 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.

Pear research priorities face similar issues most seasons. Input costs are quickly increasing, 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 necessary 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.

The 2017 cropping season had some unique challenges in IPM partially driven by higher heat and early vegetative growth. Fireblight was a serious concern for some growers. Tree stress and cork issues continue to reduce packable fruit and create storage issues. The long term need for a smaller tree architecture and rootstock remains a high need.

Highest Research Priorities

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 metabolic or genetic markers which could help identify/sort fruit which will ripen properly? - survey consistency of product delivered to the consumer - ability to measure flavor - impact on skin physiology in fruit packed months after treatment - improve guidelines for consistency on industry use of MCP - conduct consumer taste panels on pears.

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.).

Needs: Impact of variation of fruit quality on the tree at harvest and how this relates to a quality eating experience for the end consumer - post harvest decay and handling losses impact grower returns, post-harvest programs that cooperate regionally and nationally - automate warehouse to reduce labor and improve fruit handling – 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.

IPM: Reducing the overwintering generation of pear psylla numbers or egg laying capacity.

Needs: more 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.

FIREBLIGHT:

Needs: new control methods for organic growers (current options are failing) - understand rat tail bloom physiology - reduce inoculum levels during infection periods - understand the physiology that makes some varieties much more susceptible to tree losses once blight infections take place.

GENETICS:

ROOTSTOCKS: This topic runs through fruit quality, improving orchard profitability, improving labor friendliness, mechanization, and improving IPM issues. There is recognition that 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.

VARIETIES: This topic takes second place to the focus of rootstock development.

Needs: Awareness of varieties being developed around the world - create priorities established for PNW (develop targeted traits) - understand consumer preferences, is there a market preference for specific flavors, crispness, and ready to eat qualities?

HORTICULTURE: *Creating high yield, targeted fruit size and grades, consistent cropping combined with labor input reduction per unit produced.*

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 10/25/2017 version 1.0