

FINAL PROJECT REPORT

Project Title: International pear workshop

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Cooperators: WA, OR and CA Pear Industry, Richard Bell, USDA-ARS; US Pear Scientists, Joan Bonany, IRTA Spain; Stefano Musacchi, University of Bologna, Italy; Enrique Sanchez, INTA, Argentina; Marie-Helene Simard, INRA, France

Total Project Funding: \$20,000

Budget History:

Item	2011		
Air Fare	\$7700		
Food and incidentals	\$5000		
Lodging	\$4300		
Domestic travel	\$3000		
Total	20,000		

OBJECTIVES

- Objective 1: Arrange for the pear researchers to interact directly with OR-WA industry folks in orchards and packing sheds across the production regions

As articulated by the pear research sub-committee, we would like to bring international researchers who have specialties in pear horticulture to the PNW. The focus in expertise would be in historic and current use of dwarfing/precocious rootstocks, genetics, training systems and unique horticultural manipulation of pear. Ideally, we would like to use their experience to translate similar benefits to the PNW industry. Adaptation of current foreign systems in our unique environments may have limitations but the PNW industry feels that they need to be exposed to the possibilities and use these researcher's experiences to view change objectively. Based on the current level of collaboration, California may also get involved adding on a visit from the researchers before or after the tour or simply have their representatives participate in the PNW tour.

- Objective 2: Arrange for focused researcher meetings around (but not limited to) a potential SCRI application.

As advised by the Pear Research sub-committee, the visit will end in a final day workshop/summary discussion at which all of the tour participants will summarize the activities and map future strategy focusing on White paper development and the proposed SCRI application. This activity would involve the presence and guidance of the Pear Industry Advisory Committee. This will be a logical progression of the momentum established during the discussion/meeting in Argentina where global pear researchers and industry came together for the common cause of increasing per capita consumption of pears.

SIGNIFICANT FINDINGS

Objective 1:

- Three of the four invited international researchers attended the workshop. Joan Bonany, IRTA Spain, Stefano Musacchi, University of Bologna Italy, and Enrique Sanchez INTA, Argentina were in attendance while Marie-Helene Simard, INRA, France was unable to travel due to health issues.
- Over 57 researchers and industry members participated in this workshop.
- The workshop attendees visited several orchards and packing operations in Hood River OR, Yakima WA and Cashmere WA.
- The workshop covered the following orchards and topics
 1. Reflective fabric test plots in low-density 'd'Anjou'
Hosts: John Benton & Todd Einhorn; Location: Benton Orchards
 2. High-density 'Bartlett' V-trellis & productive low-density 'd'Anjou'
Host: Ken Goe
Location: Goe orchards
 3. 'Bosc', 'd'Anjou', 'Bartlett', and 'Comice', in-row-steep-V-system
Host: Gorham Blaine; Location: Dog River Ranch
 4. Container nursery stock culture; new plantings of green 'd'Anjou' & 'Bosc' V-trellis; 'Red d'Anjou' decline; 'Forelle' & fire blight
Host: Tim Annala; Location: Annala Orchards
 5. 'Bartlett' & 'Bosc' V-trellis; 'Horner' rootstocks; new pear plantings
Hosts: Don Gibson & Mike Sandlin; Location: Mount Adams orchards
 6. Pear consumption – Gorge Delights value-added pear products
Host: Gary Willis; Location: Willis Family Farms
 7. 'Bosc' & 'Red d'Anjou' V-trellis; pear systems; spacing and training concepts

Host: John Wells; Location: Wells Orchards

8. Jerry Haak Orchard

9. Don Weippert, Firewood Orchard,

10. Dave Olsen Orchard

11. Peters Orchards

12. Matson Fruit, Selah, WA

13. Roundtable discussions; Hilton Garden Inn conference room, Yakima.

14. Classic pear production Cashmere area and assess problems.

Walk through the Pine Flats Area.

Schmitt/Cunningham 12 year old Red Anjou and Starkrimson OHXF 87

15. Blue Star Growers-Cashmere. Packing, Conditioning and MCP

16. Small group meeting with Crunch Pak – 8 participants (Lead: Ray Schmitt)

17. Higher density Orchards

a. Koempel Blewett Pass Block

b. Rudy Prey Block, Prey's Fruit Barn

c. Schmitt Orchards, Turkey Shoot Orchard

18. Tim Smith Rootstock trial

19. Roundtable discussions around all the meetings. Location Schmitt residence.

20. Pear CGC meeting, Tree Fruit Research and Extension Center

21. Scientist and industry group meeting. Location WSU TFREC. Several Pear Bureau Members and CA Industry representatives attended.

- A brainstorming session was held in Yakima with industry representatives from the area

Objective 2:

- The final day of discussions were attended by several pear industry leaders and most pear researchers either in person or via phone
- A draft summary of pear industry's topmost issues was developed. A synopsis is appended to this document.

EXECUTIVE SUMMARY

The International Pear Workshop established a framework of priorities that has been taken up by researchers to draft a Pear Research Roadmap White Paper. A synopsis of this document is available at <http://genomics.wsu.edu/pages/researchpear/index.html> and a summary is appended to this document

During the workshop many participating members of the pear industry were interviewed. A short video was prepared to highlight the issues prevalent in the industry. The video can be accessed on you tube by visiting the following link: http://www.youtube.com/watch?v=mfJjA_JtKc

Collaboration was maintained with the international pear researchers throughout the year; they are all participating in the developing SCRI application bringing both their expertise and the offer of valuable genetic resources. The impact of their visit also lead to them being invited back to attend and present at the Washington State Horticultural Show in Wenatchee 2011.

Several of these elements were included in the grant application that was prepared for submission to the USDA SCRI panel. The work on the roadmap and the SCRI application continues. The grant application will be submitted in FY 2013.

Appendix: Synopsis of the Pear Research Roadmap Document

Current situation, vital needs and research priorities for enhancing profitability and global competitiveness of the pear industry

This is a synopsis of a white paper that is being currently drafted. This document summarizes urgent pear industry needs and research priorities that will modernize the pear industry so that its profitability and global competitiveness can be enhanced.

Introduction: This document has been developed using real-time information gathered at WA, OR and CA pear orchards, processing and packaging sheds, and from pear marketing boards in the same three states since 2009. The WA, OR and CA are key players in pear production, with the West coast representing more than 95% of the US Pear industry however east coast researchers and industry will play an important role in the determined research priorities. A US pear industry-sponsored week-long International Pear Workshop in July 2011 served as a platform to document the information and prioritize near, medium and long-term goals of the industry. The workshop was attended by the US pear research community (east and west coast) and pear science experts from Spain, Italy and Argentina.

Current Situation: The US pear industry is economically stagnant. There is an urgent need to increase its profitability. Decreasing trends in pear consumption are matched by increasing concerns for a sufficient labor supply. This is especially relevant in the face of several other competitive products such as other fruits and fruit-containing health products on the market.

Pear orchards in the US are ageing and outdated resulting in decreased fruit quality with little vigor management. The old, three dimensional trees lack consistent fruit set and the resulting fruit size is highly variable. One of the critical reasons for this state is a lack of dwarfing and precocious rootstocks suited to the production environment in the US. There is also a lack of uniformity in trees for new plantings, which are few and far in between. There are several plant propagation and nursery-related issues linked to the non-availability of an adequate rootstock.

Due to the high variability in pear production systems, there is a lack of best management practices for pear production and crop load indices. Existing yields are driving down profitability, and furthermore, the current orchard architecture is not amenable to implementation of mechanization that could potentially provide cost-savings and reduce the issues of labor shortage. As production costs are rising, there is a need to increase productivity to recover those costs. Establishing further quantitative and qualitative economic information addressing the issue of time-value money for orchard production or time to return on investment is necessary. The industry and researchers conclude that the existing genetic diversity in *Pyrus* is not being exploited to address the above-mentioned critical production-related questions.

The ageing orchard infrastructure doesn't bode well for the safety of an already scarce labor force. There are major concerns related to ladder safety. Typically the ladders are 10 to 16 feet tall. The pear industry is unprepared for the near-term challenges of policy change in immigration regulations and customer expectations in labor safety. In addition, adverse environmental effects due to the use of pesticides, chemicals and water use come into question with the current infrastructure. The pear industry is extremely fragile and has a large carbon footprint.

At the consumer level, the pear industry has fallen short of providing a consistent organoleptic experience to the consumer. This is in part due to the high variability of fruit obtained from outdated production systems. Not much emphasis has been provided to fruit finish and promoting product uniformity. The lack of a ready-to-eat pear and variable ripening requirements confound the issue further. There are numerous post-harvest pathological and physiological disorders that plague the pear industry also raising issues about food safety. Further, the biology of pear fruit has not been carefully considered to devise appropriate handling and packaging throughout the value chain. There remains a clear disconnect between the customer and the retailer who sets high and

narrow standards for food quality. There are strict market constraints with current varieties and the situation is worsened by an inelastic demand curve. To make matters worse, there is strong resistance to new varieties at the retailer and packer level.

What the consumer wants in a pear fruit remains largely unknown. Consumer preference studies are inadequate for pears forcing the retailer to follow marketing strategies for other fruit such as apple. More information could be made available to the public on the health benefits of pear consumption; pears are known to be one of the most hypoallergenic fruits and recent data indicates their beneficial qualities for combating diabetes. Pears are rarely used in processed food markets which could be one avenue to boost domestic consumption and enhance profitability. In the US, there are only a handful of pear varieties available at the retail level consequently the consumer lacks the experience to sample the diversity in pear germplasm.

It was concluded that there is insufficient pear research being conducted in the public domain. There needs to be stronger integration of extension to translate the research outcomes into practice at the industry level. There is an urgent need for an excellent quality product aligned with consumer demand.

The pear industry ratified the research community's plan of action to address two major areas of pear research which can deliver enhanced profitability in the next five years while developing a research infrastructure for sustained progress in reinvigorating the pear industry over the next two decades. A research proposal is currently being developed to be submitted to a USDA SCRI panel with a team of over 40 US and International scientists.