

Minutes of the Annual Meeting

Project Number: **NC-140**

Project Title: **Rootstock and Interstem Effects on Pome- and Stone-fruit Trees**

Period Covered: **October 1, 2008 to September 30, 2009**

Date: **November 17-18, 2008**

Presiding: Dr. Terence Robinson

Meeting convened: November 17, 9:00 am at La Nortenita Fruit Company meeting room, in Cuauhtémoc, Chihuahua, Mexico

Introduction: Carlos Chavez introduced us to our host Salvador Coral, son of the founder of La Nortenita who provided a brief history of the company. Participants then moved to the conference tables.

Introduction of representatives in attendance:

Terence Robinson, Cornell University – Chair, Chair of apple subcommittee

Brent Black, Utah State University – Secretary

Greg Lange, Michigan State University, Chair of cherry subcommittee

Darius Kviklys, Lithuania – chair of European rootstock research group

Thor Lindstrom, Utah State University

Ramesh Pokharel, Colorado State University

Mike Newell, University of Maryland

Rachel Elkins, University of California

Todd Einhorn, Oregon State University

Rafael Parra, INIFAP, Chihuahua, Mexico – Co-host

Genarro Fazio, USDA-ARS, Geneva NY

Matt Stasiak, University of Wisconsin

Win Cowgill, Rutgers

Elina Coniva, Auburn University, Alabama

Charlie Embree, Nova Scotia, Canada

Rafeal Hernandez, INIFAP, Queretaro, Mexico

Pablo Cruz, Chapingo, Mexico

Valdemar Gonzalez, Coahuila, Mexico

Paul Demoto, Iowa State University

Steve Hoying, Cornell University

Doug Archbold, University of Kentucky

Greg Reighard, Clemson University – chair of Peach subcommittee

Wes Autio, University of Massachusetts – apple trial coordinator

Adriana Telias, University of Minnesota – standing in for Emily Hoover, vice-chair

Couldn't hear the name, Rafael Parra's associate from Chihuahua INIFAP.

Mike Parker, North Carolina State University

Mosbah Kushad, University of Illinois

Jon Clements, University of Massachusetts

Couldn't hear the name, Rootstock breeder from China

Valerie Vanreen, guest of Rachel Elkins

Leo Dominguez, Cornell University

Peter Hirst, Purdue University
Carlos Chavez, University of Chihuahua – co-host

Terence stated that the three most important things carried out at the meeting were (1) planning of new trials (2) state reports, (3) the synthesizing of information learned in existing trials.

Approval of minutes: A motion was made and seconded to approve the minutes from the 2007 meeting. Motion passed unanimously.

Approval of agenda: The agenda was then put forward for approval and was approved with some modifications, which included the following new discussion items: (1) Tree spacing computer model, (2) Greg Reighard's state report was moved to Monday to accommodate his travel arrangements, (3) Win Cowgill asked for time to discuss his paper on the history of NC-140. The amended agenda was then approved.

New Memberships: Elina Coneva of Alabama was approved as a new member to the group. Her membership was approved unanimously. Terence discussed the process for accepting new members. Membership is limited to North America. Changes in member state official representatives included: Todd Einhorn now representing Oregon, Doug Archbold as representative of Kentucky, and Matt Stassiak as the Wisconsin representative.

The new representatives were encouraged to check the NIMS system to ensure that they were listed as the official representative. Other changes included Tom Beckman of USDA would take over as the Georgia representative.

Washington State University still does not have official representation. Greg Lang will contact Matt Whiting to clarify his status in NIMS.

Genarro will follow up with Kate Evans, the new apple breeder at WSU to invite her to join.

Reporting: We are now completing the first year on the new project plan. This includes a new title and new objectives. These new objectives should be considered in '08 and future reporting. Win and Jon will add these objectives and titles to the website.

Future meeting sites and leadership:

2009, Minnesota, hosted by Emily Hoover

2010, Utah, hosted by Brent Black

2011, Michigan, hosted by Greg Lang. This would be in conjunction with the Great Lakes Fruit worker's meeting. A motion for Michigan to host the 2011 meeting was made, seconded and approved unanimously.

Official Advisor: Bill Randle, Ohio State University, was not present and did not send any report.

Genarro pointed out that CSREES is transitioning to NIFA (National Institute of Food and Agriculture) over the next year.

Peter Hirst suggested a discussion of SCRI (Specialty Crop Research Initiative) funding and how NC-140 might cooperate to pursue this funding. 300 grant proposals submitted in the first round, 170 reviewed, 10-12 funded (all large grants). After some discussion on SCRI and how NC-140 projects might fit in, it was decided that Mosbah would hold some discussions and report back on Tuesday.

Ongoing cooperative plantings:

- Wes Autio – '99 Apple planting. Wes put out a request for additional data to be submitted for final reporting. Deadline for 2008 data is January 15, 2009. Wes also suggested that a second paper may need to be written to discuss tree mortality and the various causes at the different sites. Terence suggested that blackheart evaluations be carried out at colder sites, including MA, NY, MN, ON, VT, MI, KY?. Wes spelled out a protocol for evaluating blackheart. This protocol has been used previously in the 1994 trial, and will be redistributed.
- Greg Reighard – '01 Peach planting. Greg is busy rewriting the final report which he hopes to send out by the end of the month. In it he will prepare a data table summarizing each site. Although this will lengthen the manuscript, it makes it more readily accessible by fruit growers. He submitted an ISHS paper on the project. Bailey was the most yield efficient across sites. Controller 5 was the best of the California stocks, and is in the new
- Scott Johnson – '02 Peach planting. Scott is not present. Greg reported that the paper is essentially written. The physiology trial was written for the ISHS. The group discussed writing up the full paper for APS. Terence suggested that it should be written up for APS.
- Wes Autio – '02 apple. Call for data for 2008. Root suckers, yield, fruit weight and trunk circumference. Next season will be the standard data set. Trials with excessive tree loss should continue to collect data for the overall experiment. Findings: B9 trecu and B9 Europe are clearly different. Supporter 4 similar to M26.
- Jon Clements – regional Cameo trial 2002. B9 smallest tree with greatest yield efficiency. Fruit size differences between sites. What are the causes? Degree days in first 40 days determine fruit size. Peach physiology study with low crop load to determine fruit size potential. Peter said that in apple cell division is set. Length of time determines fruit size. Quick cell division period leaves more time for cell enlargement. Scott Johnson reported the opposite for peaches. Terence suggested an NC-140 project to explore temperature effects on fruit size. Tree nutrition could be an ignored factor.
- Pears 2002 – Leadership vacuum. Steve Castagnoli took leadership in organizing plantings, but no data analysis and summary. Rachel and Todd are working together to gather past data. Rachel is taking the lead on organizing the data. Todd will work on analyzing the data. Todd will then be taking the lead for pears. 2002 planting is past due for a preliminary report and coming up on the 10 year final. 2004-05 plantings are coming up on the first progress report due.
- Apples 2003 – Rich Marini (not present). Rootstock and physiology paper drafts were circulated previous to the meeting. Suggestions for future physiology requested. More fruit size potential studies. Some sites may need multiple

- resting years for high crop load trees to completely recover. Finish '09 2nd crop year. Then consider the next objective. Wes suggested analyzing the low crop load treatments along with on-site weather data for determining fruit size potential.
- 2006 Apple Replant – Terence Robinson. Not all sites showing strong replant effect. No effect at Terence's site based on fumigated vs. unfumigated. Terence proposed using 50% growth difference between fumigated and unfumigated. Bioassay didn't show consistent results to the field. Mike Parker seeing big effect. Ramesh suggested that moisture level and land preparation during fumigation likely had a major effect. '08 data need to be submitted by March '09. Shoot growth data to be based on 20 shoots per tree, including the leader. Dan Ward is analyzing data to determine subsampling efficiency. Use chemical thinning in the coming year, followed by hand thinning. Mike and Genarro thought that 50% differences were too severe, and that perhaps 20% cutoff might be more reasonable.
 - 2006 Cherry Physiology – Greg Lang. Will be working with Terence and Matt Whiting. Need to determine '08 growth and determine '09 crop loads. Four locations: MI, WA, NY, CA.
 - 2009 Peach Trial – Greg Reighard. Fourteen cooperators currently, three more interested, but trees may not be available for all interested parties. Not all new rootstocks that Greg had hoped to get ended up in this trial. Some programs are reluctant to release new rootstocks for NC-140 testing. Tree spacing may need to be different at northern vs. southern locations. Conclusion: northern locations (MA, CO, NY, UT, MO?) = 4m × 5m; Southern locations = 5m × 6m.
 - 2009 Physiology Trial – Greg Reighard reported for Scott. Some are taking the physiology trial but not the rootstock trial. Need 8 trees per cultivar per site.

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Scheduling for next year: Conflicts include ISHS cherry symposium 12-26 of November, Great Lakes Fruit workers, and NE1020. Emily proposed Nov. 2-3 or the following week. Southern climates would like to stay out of October as apple harvest is continuing. Nov. 2-3 would work better.

Scheduling for 2010: Conflicts: Nov. 16-19 is ISHS Pear symposium. Meet at Kaysville or in Santaquin. Terence proposed meeting in Santaquin with a day trip to Kaysville.

Committee planning of new plantings

- Cherry sub-committee – Greg Lang:
 - New high density trial for sweets: G3, G5, G6, three training systems KGB, tall spindle, UFO. Scion cultivar differ by state: WA, MI (Benton); OR (Bing); NY (Regina); NS (Skeena), extra set of Skeena. Sleeping eye vs. nursery finished trees. Colorado might be interested in extra trees.
 - New tart cherry high density plantings in UT and MI. Not coordinated at this point. Over the row harvesting or side-row harvesting of high density plantings. Montmorency on Mahaleb, G3, and G5 at multiple row spacings in Utah. MI will have Mahaleb, G3, G5 and G6, and own-rooted

Montmorency on tall spindle and parallel V. Training systems are tall spindle, KGB and parallel V. John Cline is also interested in tarts and will take extra trees.

- Greg is coordinating a proposal to IFTA to cover tree costs.
- New possible cherry rootstock trial? Nobody has stepped forward to take the lead on this. There are some new rootstocks available, and some of Amy Iezzoni's may be available for trial. Amy's program is shooting for higher precocity, but lower productivity than Gisela's. Timeline for a new planting would be 2011 to 2012.
- Pears sub-committee – Rachel Elkins. New rootstocks from the Horner series are being propagated for grower trials. New rootstocks may also be available from France and England. There are new Quince rootstocks from Poland. Todd is starting to evaluate quince material for relative cold hardiness. Terence said that a pear person needs to take the lead in importing material. Genarro suggested that Joseph Postman take the lead in importing new rootstocks for Pear. Action items include: (1) getting data from existing trials for 5-year reports with a report on the 2002 trial completed by the next NC-140; (2) Get new material imported and propagated for trial. Mike Newell also proposed a multi-state asian pear cultivar trial. He is looking at a list of 10 cultivars.
- Apple sub-committee. New planting for 2010. Not enough trees to go around. 8 trees per rootstock per site. 31 rootstocks including new Russian and Geneva stocks and controls. Some of the trees are semi-dwarfing. PiAu clones should be dropped as they are too large. Two varieties, Honeycrisp and Fuji. 4 reps with two trees per rep, or 8 single-tree reps? Wes' preference was for 8 replications. Where trees are short do we short trees per site, or short sites? The conclusion was to try and give all rootstocks to all sites, and short trees per site. Spacing was a question.
 - Spacing. Terence proposed 1.5 x 4 m with tall spindle. Southern sites felt that this didn't work well for them. Conclusion was to differ spacing for northern and southern locations. Northern sites use Honeycrisp on 1.2 x 4.0m tall spindle. Southern locations use Fuji on 2.0 x 4.5 M vertical axe. Support leader to 10'.
 - What do we do with semi-dwarf less precocious rootstocks? Brent Black proposed semi-dwarf freestanding, firebight resistant rootstocks for a separate trial for homeowners. Terence suggested that a similar trial would be useful for the processing industry. NY, NC, NS, AL, PA?
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- Plums – Terence is gathering data and will have a draft of the last planting.
- SCRI committee – proposed a lunchtime discussion and report back. After some discussion groups during lunch, a committee was appointed to pursue possible NC-140 coordinated proposals to SCRI. The committee included Mosbah Kushad, Peter Hirst, Wes Autio, Genarro Fazio and possibly Greg Lang.
- Technology committee.
 - State reports are to be uploaded in the members-only section. Need to put updated proposal on home page, with current project plan.

- Tree spacing calculator was also discussed. Need varieties alphabetized, warm vs. cold climate adjustments perhaps under a pull down menu listing states.

State reports: State reports were provided by each participant.

Adjournment: At the completion of state reports the meeting temporarily recessed to allow for souvenir shopping in downtown Cuauhtémoc. After souvenir shopping was completed an informal quorum of participants gathered at the Rancho Viejo restaurant and voted over dinner to adjourn, after the requisite motion for the chair-elect to write letters of thanks to the supervisors of the three meeting organizers/hosts (Terence Robinson, Carlos Chavez and Rafael Parra).