

2012 NC-140 Minutes, Portland, Maine hosted by Dr. Renae Moran

Thursday, November 8, 2012

Introductions and remarks

Members introduced, 39 attendees

Minutes approved and seconded

Approved Kate Evans, WSU as new member

Emily Hoover wanted to know if confidential info can be shared, answer is no.

Canadian members can be accepted but they are not voting members just cooperators.

Ron Perry's comments as NC-140 administrative advisor were that money for multi-regional projects goes to each land grant administrator to decide how or what their policy is on expenses. Some cover travel, some do not cover website. However, 25% of Hatch funds are to be used for multi-state projects. It is important to include website support in the cost of registration and not as a separate line item.

Rootstock trial reports

2002 apple rootstock trial. Wes Autio said a manuscript has been prepared for review. Group thanked Wes Autio for getting new proposal approved. Need to get data on true not estimated dollar value of the NC-140 projects, also extension outreach needs to be better defined.

2002 pear rootstock trial finished. Todd Einhorn said manuscript is written for review. 2003 apple physiology. Golden Delicious trial terminated, Rich Marini has 3 papers coming out of that trial. Also Renae Moran and Paul Domoto have possible papers coming out of it

2003 dwarf apple rootstock trial. Rich Marini asked Brent Black how he planned to look at some of these root systems -- coring was the short answer. Rich Marini trying to do a yield stability analysis.

Confounding factor as Terence Robinson says some European stocks gear up in production in years 8, 9, & 10 and thus catch up in yield efficiency to the dwarfing rootstocks.

Question debated on how long to keep trial trees: apples 7-10 years, pears 10+, and peaches 6-7 years?

2004-2005 pear trials. 5-year results are in Acta Hort Vol. 909. Suzanne Blatt has assumed leadership of the 2004 Kentville trial. Ana Luisa Chávez-González will/has assumed the 2005 Chihuahua, Mexico trial. Data are no longer being taken on the WA

trial. Rachel Elkins will write up the 10-year report after the 2014 season, in time for the 2015 ISHS Pear Symposium in Belgium.

2009 peach rootstock trial. Please get data to Greg Reighard by February 1 or earlier (January 21, 2013) for proposed ISHS Peach Symposium paper, protocol is on website and will be sent out via email.

2010 apple rootstock trial. Wes Autio asked for submission all of the previous data each year with new data to pick up dead trees, anomalies, etc. Once tree “dies” it should stay dead, but if alive submit data. Not all data are collected by cooperators like bloom data. For sucker counts count every one even if it is multiple suckers from one cut sucker the previous year.

2010 Sweet cherry systems trial (Benton variety). Greg Lang, now down to 9 sites in 2012; CA losing lot of trees from Phytophthora. Bacterial canker entered into spurs that had frost killed flowers/fruitlets. Lot of spur mortality. Gisela 6 was very susceptible to bacterial canker.

2013 planned pear rootstock trial. Todd Einhorn. One year behind due to cold problems at propagators.

2014 planned apple rootstock trial by John Cline and Terence Robinson. There is a mistake in handout where it should be G.890 not G.5890. Plant 4 by 12 feet in a tall spindle recommended by Terence. Discussion on how many reps (5 vs 10) and trees (1 vs 2) per plot to maximize distribution of rootstocks to cooperators. Wait until final counts to decide on who can be added.

2015 planned tart cherry rootstock trial with Montmorency by Matt Stasiak. To be discussed later when Greg arrives.

2015 planned sweet cherry rootstock trial by Greg Lang. Also to be discussed later.

Future meetings: It was discussed and confirmed that the NC-140 group would meet next year in Idaho, same time, in Boise, near the airport. Essie Fallahi hosting. For 2014, the meeting will be at Clemson University, South Carolina hosted by Greg Reighard, and the tentative location for 2015 is California with the site depending on what Rachel Elkins decides with Ted DeJong. She is not the official rep for CA, Scott Johnson is, who is retiring in 2013.

State Cooperator Reports

Alabama: Auburn University by Elina Coneva, PTSL problem in 2012. Mirobac susceptible to PTSL. Guardian highest yielder.

British Columbia: Cheryl Hampson reviewed multiple apple rootstock trials.

A lot of discussion on getting leaf and fruit nutrient analyses done by the cooperators. Robinson wants 80 trees to sample (1/tree x 8 rootstocks x 10 reps = 80 trees per planting). Essie recommends measuring the same individual tree each year. This was in regards to the potential SCRI proposal Root to Fruit.

California: Rachel Elkins. Gave peach and pear reports. Horner 4 is looking the best in the Bartlett trial; OHxF87 has the highest yield efficiency thus far in Bosc. Data on suckers will be corrected and replaced in the report. Also mentioned that the NC-140 cherry trees died of ORF.

Subcommittee Meetings for future Plantings

John Cline went over proposed 2014 Apple rootstock trial. Handout had the available Vineland and Geneva rootstock numbers. As many as 13-16 rootstocks in the trial. Honeycrisp and Aztec Fuji are the 2 scion cultivars.

Terence Robinson talked about obtaining apple rootstocks for Spring 2016,. New 3-4 AR ones from the UK, (Bruno ?) and 5 New Zealand Plant and Food rootstocks, maybe some new Geneva stocks too. Next year (2013), potential cooperators need to tell their interest in this to Terence.

Organic apple rootstock trial, limited in scope, premise is it will be managed as a certified organic orchard. InnoRed from France with backup of Modi both scab resistant apples. Do not want to start with transitioning sites or ok to do so. May have high nitrogen carry over. Need to seek out alternative funding sources for this type of organic research. The type of orchard floor management (sandwich, burning, mulch) needs to be decided by the cooperators.

Want close spacing to use Darwin thinner with a tall spindle system.

Apricot rootstock trial for 2014. Win Cowgill, Greg Lang, & Terrence Robinson interested. Greg Reighard will try to get some rootstocks.

Need new coordinator for new peach plantings. Suggested to ask Kevin Day and Tom Beckman to coordinate?

2013 Pear rootstock planting by Todd Einhorn/Terence Robinson/Rachel Elkins, training system by spacing,

Potential future plantings for cold-hardy quince looking at 22 rootstocks selected for hardiness to test further. Want to pick out 10 best. Richard Bell will evaluate for fireblight.

Rachel/Todd with Dave Weil (Tree Connection) have 3 cold hardy Amelanchier clones with Anjou plus 6 cultivars in CA on them.

Group discussed why lack of adoption of OHF 69, which is very precocious.

Mentioned Duarte, Tree Connection and Fowler Nursery are in a consortium testing various new acquisitions including Amelanchier and possibly others.

Planned Cherry Rootstock Plantings by Greg Lang.

Sour cherry: 3 elite MSU selections plus 9 less elite available from Amy Iezzoni.

Matt Stasiak asked about Krymsk 5 and 6, Maxima 14, Picu, Weiroot for tarts.

Terence mentioned Weiroot 720 sport of 72, reported better than 72.

Cooperators from Ontario, WI (2), Utah (2), and MI interested in tart cherry rootstock trial. Six locations total.

Planned sweet cherry rootstock trial includes cooperators Todd Einhorn, California, Greg Lang (2), Terence Robinson, Steve Hoying, Essie Fallahi, Peter Hirst, and Cheryl Hampson (?).

Any interest in new training system (3 or 4) trial to move towards platform and mechanization of cherries? Steve Hoying, California (?), Todd Einhorn, Essie Fallahi, Cheryl Hampson (?), Terence Robinson, and Greg Lang (2) showed interest.

Root to Fruit Committee Meeting held Thursday evening. 25 in attendance.

Friday, November 9, 2012

State Cooperator Reports --Continued

California. Rachel Elkins: Kevin Day is now on board for Scott Johnson, who will retire in 2013. Joe Grant and Chuck Ingels are involved with the cherry planting.

Colorado. Ramesh Pokharel, no paper report. Peach trees are doing well. A few trees died last year due to Cytospora Canker and more trees have Cytospora canker infection. Had severe problem of yellow peach syndrome during growth period, had frost and lost some crop. Cherry trees going down hill. Don't know why may be due to water management issue. Honeycrisp apple did well and had a light crop.

Idaho. Essie Fallahi, no paper report. Presentation on Aztec Fuji rootstock trial. 400-500 grams per fruit on a number different of rootstocks. Emphasized importance of applying zinc at his location.

Indiana. Peter Hirst, no paper report. Challenges of deer at research farm so now have an 8-foot fence. Deer liked Honeycrisp, but liked cherries better. Studying Gala sports with large size fruit. Found larger nuclei and cell size, but expressed only in fruit. Big Red Gala preferred over Gala. Also, Grand Gala and Magnum Gala are large fruited sports.

Iowa. Paul Domoto mentioned the mild winter. Then on April 11, -7.2 C in the field. Fruit only from axillary bloom. Lot of aborted flowers in April from hot pollination weather. Noticeable zonal leaf chlorosis in Honeycrisp.

Kentucky. Dwight Wolfe reported that Kentucky had a mild, dry winter, but an extreme drought and above normal temperatures most of the growing season. For the 2003 apple rootstock trial, cumulative yield and tree size were highest for trees with PiAu 56-83 and PiAu 51-4 rootstocks. April freezes killed some peach embryos and limited fruit size to some degree, and that along with the high temperatures and drought may explain why the Redhaven fruit in the 2009 peach rootstock trial were same size/weight as the physiology trial fruit. This was the first year of harvest for the 2010 apple rootstock trial, and although some progress has been made in getting limbs below horizontal, more work is still needed.

Maine. Report to be given by Renae Moran on Friday afternoon at the Highmoor Farm.

Massachusetts. Wes Autio mentioned *P. americana* doing well in 2009 peach planting.

Michigan. Greg Lang, no paper report. Cherry systems trial no correlation between tcsa and canopy volume. Lot of dead spurs (>100/tree) from bacterial canker. Higher number of dead spurs on KGB system. Testing transgenic cherry rootstocks to gene silencing *Prunus* necrotic ringspot virus. Early results show transformed Gisela 7 survived virus inoculation. These are triploid rootstocks so no sexual reproduction. Now trying for induced scion resistance. Apple trial yields very low in 2012 due to multiple freezes.

Minnesota. Emily Hoover. Mild winter and hot dry summer. Now in extreme drought. No frost so had a crop. Less zonal leaf chlorosis in Honeycrisp than others had reported.

Missouri. Michele Warmund. Harvest was 3 weeks early and unseasonably warm temperatures with low rainfall. Mirobac and Viking are the largest trees and Krymsk 1 are the smallest trees in 2009 peach trial. Guardian®, Krymsk® 86, Controller 5, HBOK 32, and Mirobac rootstocks produced the highest yields/tree (31 to 34 kg). Study on rootstock effect on peach bud hardiness is in progress with UT and SC. Study to determine if blackheart in rootstock affects fruit yield is also in progress since 2007.

New Jersey. Win Cowgill. Good apple crop. Large variation in fruit size. Website information is on the NC-140 website. Uploaded reports are there. Site is supported by NC-140 members. **Executive committee should contact via phone with the next year's host to go over the details for hosting the meeting.**

Jon Clements commented that when eXtension met earlier they would like to maintain eApples linked with the NC-140 website. NC-140 will remain a reservoir of publications, member collaboration, and rootstock information in addition to eApples. It will maintain links between eApples and nc140.org. The NC-140 website is still very valuable for member communication (i.e., listserv, reports upload, etc.). Robinson suggested the website needs a re-design, taken under advisement by webmasters Cowgill and Clements. Note that website is open to public and good source of information/reports in addition to eApples.

New York. Terence Robinson. Gave lesson on training the tall spindle. Tie down (135 degrees from vertical) the branches early to get columnar form. Tree eventually gets/grows wide and then do limb removal (Dutch cut) up top (larger, untied branches) to get back to narrow columnar form again. Tie down smaller branches way below horizontal. Trees on tissue cultured G.202 and G.41 are smaller not larger than normal stooled rootstocks in NY planting. Tissue cultured G.41 had more and finer roots when grown out in a commercial nursery. Many new Budagosky rootstocks appeared resistant to fireblight infection from scion inoculation to the rootstock. In fall 2012, there will be 1.2 million Geneva rootstocks liners for nurseries. In 2015, 1 million trees will be available to the grower.

New York. Gennaro Fazio. Replant experiments. 2 soil types, 5 pHs and 33 rootstocks. Nutrient uptake differed across rootstocks. P and Cu had a similar relationship in uptake. Did genetic mapping of specific nutrient uptake by the rootstock genotype. Genetic basis for root architecture (i.e., G.41 root “branchiness”) evident in rootstock cultivars as well as number of branches and blind wood appear to be influenced by rootstock. Tissue cultured G.935 produce flat scion branch angles just like the stool bed produced trees. Appears to be a genetically stable trait.

North Carolina. Mike Parker. Had a crop despite fireblight and hail. Fuji had problems with fireblight from blossom blight infections. G.935 best yields. Comment by Terence, apples are most susceptible to fireblight in years 2 through 5. In 2009 peach trial, PTSL showing up in Imperial California, Controller 5 and Krymsk®1. X disease phytoplasma (leafhopper vectored) showing up in NC mountains? However, no choke cherry (alternative host) there at 2200 foot elevation.

Nova Scotia. Charlie Embree. Has 3 newer trials that Suzanne Blatt has been assisting with. 2012 was a great cherry year for Nova Scotia (dry, no cracking, no birds due to netting) but smaller size with no irrigation. Light crop of pears may be due to warm spring with a few cold events. However, pears on OHF 97 were not as affected by these weather conditions.

Oregon. Todd Einhorn, no paper copy. ‘d’Anjou not precocious (6th year) so poor yield efficiency. Pyrodwarf did not produce good fruit size. Similar rootstock effects on Bosc at different sites. Horner 4 produces a very large Anjou tree, but no differences in tree size were detected for either Bosc or Bartlett relative to Horner 10 and OHxF 87. Horner 10 produced a smaller tree than Horner 4 only for Anjou; it did not induce greater precocity than Horner 4 or OHxF 87 for Anjou, Bosc or Bartlett. Amelanchier clones from Germany produced a similar sized tree as Quince A. OHxF 87 vs. 97, little canopy difference in Bosc and none in Bartlett but large difference for Red Anjou (50% lower photosynthesis than green Anjou).

Pennsylvania. Rob Crassweller. No crop in 2012 at Rock Springs. Bud.9 runting out Golden Delicious. Terence commented that Bud.10 being commercialized by Dave Weil. Mistake in not bending the top branches down in the apple systems trial.

South Carolina. Greg Reighard. Low chilling winter and high pollination temperatures affected fruit set on younger Redhaven trees. Utah and Weinberger models used to predict chilling effects and amelioration somewhat successful with Dormex and scaled back thinning regime. There was still a good crop in the state with highest prices in a long time.

Utah. Brent Black. Worst frost damage at Kaysville in the past 25 years. Had light peach crop and lost king bloom in apples. Iron chelate used at growers farm at other 2009 peach rootstock site so it confounded/nullified any potential pH effects on growth. Large differences in tree growth due to site (i.e., soil pH). BH-5 has been excellent for growth and yield. Also Krymsk@86, Mirobac, Atlas and Viking are looking good. BMSB has just appeared in 2012.

Virginia Tech. Greg Peck. No official NC-140 plantings yet. One apple rootstock trial planted by Keith Yoder. Virginia apple growers mostly do not have irrigation. Need rootstocks tolerant to drought. Growers interested in the tall spindle. Dark bark on the apple rootstock shanks was possibly due to Gramoxone damage and heat on that side of tree. Some trees had purple leaves in fall (symptomatic of borer or girdling injury).

Washington. Kate Evans. Starting a breeding program for pear rootstocks. Will bring more accessions from Europe. Ahmet Dinghra doing molecular research with pear and tissue culture propagation for pear rootstocks.

Wisconsin. Matt Stasiak. Extremely mild winter with 9 frost/freeze events. Tarts did not do well but sweet cherries did ok. Weather affected fruit size on Golden Delicious. Recommend Nic 29 for high-density plantings, then maybe Bud 9. Experienced zonal chlorosis on Honeycrisp.

Emily Hoover made a motion for the secretary of the NC-140 committee to send a letter to the Director of the Maine Agricultural Experiment Station to commend Dr. Renae Moran for her efforts of successfully coordinating and hosting the NC-140 Multi-Regional Rootstock Group. The motion was seconded by Wes Autio. The motion passed unanimously.

Friday afternoon the NC-140 group traveled to the research plots at the University of Maine's AES Highmoor Farm and also visited Ricker Hill Orchards and their packinghouse facilities. NC-140 member emeritus George Greene joined the group.