

NCCC84 Potato Genetics Technical Committee Meeting

Best Western O'Hare, Rosemont, IL

December 12-13, 2011

Christian Thill (MN), Chair; Alex Pavlista (NE), Vice-Chair; Félix Navarro (WI), Secretary

Present: John Bamberg, Paul Bethke, Benoit Bizimungu, A.J. Bussan, Joe Coombs, Walter DeJong, Dave Douches, Dennis Halterman, Don Halseth, Andy Hamernick, Gary Hawkins, Kathy Haynes, Charlie Higgins, David Holms, Shelley Jansky, Austin Meier, Ali McKenna, Soltanat Mambetova, Max Martin, Félix Navarro, Rich Novy, David Parish, Alex Pavlista, Greg Porter, Alfonso del Rio, Andrew Ronald, Greg Steere, Christian Thill, Pedro Uribe, Craig Yencho, Yu Monica Chen and Matt Zuehlke.

December 12:

1. Welcome and Announcement:

C. Thill called the North Central Coordinating Committee meeting to order at 1:10 pm, welcomed those present, made comments on the decades of history of this committee and distributed copies of the agenda and minutes.

2. Introduction of Members and Guests:

C. Thill asked the members to introduce themselves. Following introductions, the floor was opened for announcements and additions to the agenda were solicited.

3. Approval of the Minutes of the December 2010 meeting:

The chair asked those present to read the minutes of the December 2010 meeting. After few deliberations, those present proceeded to unanimously approve the minutes. M/S/P: Jansky/Halterman.

4. Comments of Administrative Advisor:

Administrative Advisor Ken Grafton was absent from the meeting and no administrator report was given.

5. NCCC-84 Renewal:

S. Jansky reported that the documents for the NCCC-84 renewal were submitted December 1. The review process will be finished by June 1. A new cycle would start Sept/Oct. Jansky suggested that the NCCC-84 renewal functions be managed by one of the members of the committee by periods, suggesting a five year tenure. Jansky volunteered to take this role for the first five years. Specifically by the spring of 2012, the minutes and membership list should be submitted to NIMSS.

6. NRSP-6 Update:

J. Bamberg indicated that the FY11-15 budget for the Potato Genebank (NRSP-6) has been approved. The NRSP-6 Directors recommended that additional industry support be presented. Researchers and industry should identify objectives of common interest for the introduction of new germplasm. D. Douches referred to communications with Jorge Abad (USDA-APHIS): his lab can process 75 clones per year. Once a request is made to NRSP6 for a plant introduction to

be imported to the US, including APHIS clearance, the turnaround time is 6-12 months (C. Thill/M. Martin). C. Thill and others expressed the appreciation of the potato breeding community for the updates received from the Genebank on existing clones by research objectives.

7. Breeding and Genetics Research Reports:

This part of the meeting is used for the programs to give an update in research projects that provide knowledge to advance breeding.

a. Michigan

Joe Coombs presented the topic 'Development of SNP-Based Genetic Maps'. Discussion followed technical and methodological aspects of SNP mapping, frequency of crossover events in mapping populations and the prospects for mapping at the tetraploid level. It was recognized that there are limitations on the number of markers that can be handled by the mapping software currently available.

Matt Zuehlke (Douches Grad Student) presented the topic 'Identifying Scab Resistance Markers in a Tetraploid Mapping Population.' Results from common scab evaluation on the MSV507 population (Kalkaska x Tundra) were discussed. A rapid multiplication approach was used to increase via tissue culture the availability of seed for test. Also common scab scoring was discussed.

Dave Douches presented results on the topic 'On Farm Evaluation of Varieties for Common Scab.' Several MSU clones were identified/validated as common scab resistant in this test.

Dave Douches discussed 'Acrylamide Study (2009-10).' It was discussed that the acrylamide content was affected by the chip processing technique. The asparagine levels were affected by several factors including moisture %, cooking time, oil temperature, etc.

b. Minnesota

Christian Thill presented a report on cryotherapy as a method to eliminate viruses in seed multiplication.

c. Nebraska

Pavlista: nothing to report; he did not evaluate NCR breeding clones in 2011. He made a comment that irrigation worked well in NE as a means to manage common scab.

d. North Dakota:

No report, Susie Thompson was not present.

e. Wisconsin

Shelley Jansky presented an update on several research topics on germplasm enhancement; these included:

- Resistance to PVY.
- Factors affecting germination of true seed and accelerated true seed production.
- Amylose content in tubers.
- Mapping tuberization response to photoperiod.
- Resistance to early blight in *Solanum raphanifolium*.
- Resistance to cold sweetening in 2x potato.
- Overcoming tuber dormancy.
- Somatic doubling.
- National Verticillium trial report.

Pedro Uribe presented the topic ‘Developing a marker for Verticillium Wilt resistance.’

Dennis Halterman presented the topics:

- Enhancing late blight response from the RB gene. An update was given on the plant pathogen relations and how IPI-O effectors were recognized by RB.
- Integration of early blight and late blight resistance into adapted germplasm: germplasm data and correlations between early and late blight were presented.

Felix Navarro presented the topics:

- Efficiency of selection in early years in potatoes.
- Genetic variation of fry quality and cold induced sweetening (Kyle Rak graduate project).
- Over expression of the vacuolar antiporter CAX₁ in the potato variety Atlantic: Phenotypic variation of the transformed clones.

December 13:

1. North Central Regional Potato Variety Trial Report:

The performance of clones included in the North Central Potato Variety Trials was discussed.

2. Cultivar Development Reports

a. Michigan:

Dave Douches presented a report from Michigan. New clones with resistance to common scab, late blight were discussed. Relevant new clones include MSH228-6, MSR061 (scab/PVY resistant), MSQ070 (scab/PVY resistant); MSQ176-5 (two sources of late blight introgressed), MSM182 (late blight/PVY resistant) and MSS544-1 (common scab resistant). The prospect of trait development such as nitrogen use efficiency through ‘all native’ transformation using genes from other species was discussed.

b. Minnesota

Christian Thill explained Minnesota efforts on cultivar development and characterization of new breeding clones. Among interesting MN clones are: MN02467 (cold chipper), MN02419, MN18747 (early bulking) and MN99380-1.

c. New Brunswick:

Benoit Bizimungu presented an update on breeding lines developed by the Agriculture and Agri-Food Canada (AAFC) potato breeding program. He also presented results on a study on the glycemic index among potato cultivars. This is important since low glycemic index varieties may contribute to better nutrition of people suffering from diabetes.

d. Wisconsin:

Félix Navarro presented an update on WI clones. The WI breeding program named two clones in 2010: Nicolet (W2133-1) and Tundra (W2310-3); for 2011 two new clones are being named Lelah (W2717-5) and Accumulator (W2324-1). Other advanced clones with variety potential have been identified (W5955-1 chip/yield/common scab) and several fresh market and processing russets.

e. Idaho:

Rich Novy from the USDA/Aberdeen breeding program mentioned that Palisade Russet (A97066-42LB), a late blight resistant clone and Titan Russet (008-1TE), an early fresh market clone with low asparagine had just been released from his program. Additionally, A99366-1PY will soon be released.

3. SCRI Project on acrylamide mitigation in processing potatoes

Paul Bethke and A.J. Bussan highlighted the SCRI collaborative project and its importance. A main strategy for this SCRI project is to support existing initiatives such as the USPB National Chip Processing Trial and National French Fry Processing Trial for a more thorough evaluation of the clones tested. Additionally, the SCRI project will support virus cleaning and seed production for on farm and processing tests of these clones. The adoption of a database to include trial results was discussed. The SCRI would like to contribute to the development of a minimum of 2-4 varieties, developing comprehensive information including agronomic and storage practices.

4. New Business: No new business presented.

5. Venue and Date for the 2012 Meeting

The 2012 meeting will include additional researchers and stakeholders that contribute to the USPB NCPT and NFPT projects. After discussions, the group unanimously agreed that the Best Western O'Hare did not have the meeting facilities to accommodate a larger group. It was decided that a new location in the O'Hare area would be pursued by the committee. The 2012 meeting will take place on December 10-12.

6. Election of New Officers:

Alex Pavlista expressed his intentions to step down as vice-chair. For the 2012 year Félix Navarro will move to chair. After deliberations motions were proposed M/S/P Jansky/Douches and M/S/P Jansky/Pavlista for the election of the vice chair and secretary respectively. The new committee will be headed by Félix Navarro (chair), Dennis Halterman (vice chair) and Dave Douches (secretary).

Meeting adjourned at 1:00 PM

Respectfully submitted: Félix Navarro, Secretary