

APPENDIX D
SAES-422
Format for Multistate Research Activity
Accomplishments Report

Note: This report is submitted each year of an activity's duration and is due 60 calendar days following the annual meeting. The SAES-422 is submitted electronically by AAs into NIMSS. Annual Reports for MRF projects are available to CRIS and CSREES through NIMSS.

Project/Activity Number: NCCC215

Project/Activity Title: Potato Breeding and Genetics Technical Committee

Period Covered:

Date of This Report: 20 October, 2014

Annual Meeting Date(s): 9-10 December, 2013

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Brief summary of minutes of annual meeting: Full annual meeting minutes can be found at:<https://www.dropbox.com/s/tbq605dbxe7z08q/minutes%20NCCC215%202013.docx>

A change in the administrative officer for NCCC215 was discussed briefly before the beginning of the business meeting. This was followed by an update of the Solanaceae CAP project currently funded through the USDA. Breeding and genetics research reports were given, followed by cultivar development reports from participants. The meeting finished with an election of new officers and arrangement of next year's meeting, which will be held on December 8-9, 2014.

NCCC215

Holiday Inn, Rosemount, IL

December 9 and 10, 2013

Minutes

The meeting was called to order at approximately 1 p.m. on December 9, by Dennis Hatterman. Participants went around the room and introduced themselves (attendees attached).

The agenda was approved. Minutes of the December 2012 meeting were approved. A change in administrative officers was announced. Dr. Grafton (NDSU AES) is stepping down and Dr. Christina Hamilton (UW-Madison) was filling in and working to get someone new on board.

The NRSP6 had several reps present. Max Martin indicated the summer meeting will be held and will include potato breeder reps, a Simplot Plant Sciences rep, amongst others.

Dave Douches gave a brief SolCAP summary. Christina Hackett will be visiting MSU in April and he will be organizing a workshop. MSU research presentations followed. Norma Manrique talked about a diploid mapping population and a second presentation focused on 'Distorted segregation in diploid populations of potato. Joe Coombs presentation was on 'Mapping economically important traits in tetraploid potato. Alicia Massa talked about 'Genetic linkage mapping of economically important traits in cultivated tetraploid potato. Nathan Butler talked

about 'Genome editing in potato using Talens and CRISPR/Cos. Saltanat Mambetova discussed her work 'Characterizing late blight resistance'. Following the break and some introductions by new arrivals, Jiwan Palta indicated he was giving his last breeding report to the group since Jeff Endelman was on board. He indicated W5015-12 will be named and that W9133-__ was in the pipeline. Kyle Rak talked about the 'AgRay' Potato Sizer/Grader, new equipment at Hancock. Sanjay Gupta (UMN) presented on 'The use of biochemical markers to predict cold induced sweetening in potato breeding programs for use in variety development. Mitchell Schumann (NCSU) spoke about 'Linkage mapping for IHN'. The Wisconsin group closed the presentations for the day. Shelley Jansky summarized the germplasm enhancement efforts she is working on. She is working a lot with diploid lines and cultivars in efforts to enhance germplasm, but also to determine if cultivar development at the diploid level will be successful and acceptable in US markets. Paul Bethke gave a fabulous talk on 'The search for Russet Burbank'. The session was adjourned at 6:05 p.m.

Oral genetics/ research presentations followed.

The meeting was resumed and called to order at approximately 8 a.m. on Tuesday, December 10. Research presentations by Wisconsin students and researchers resumed. Almicar Sanchez presented 'Expression of RB genes from wild *Solanum* species' and 'Characterization of *P. infestans* in WI in 2013'. Christina Allen talked about 'Scab resistance screening'. Austin Meier spoke about 'Next Gen Sequencing'.

Potato Breeding reports ensued. Benoit Bizimungu presented the New Brunswick report. Their cultivar releases can be found at www.agr.gc.ca/potato. He discussed the performance of new selections and the release process. The weblink will be updated in January/February. New releases include AAC Alta Cloud (evaluated as CV98112-3). It resulted from AC91014-2 x Canella Russet. AAC Alta Rose (evaluated as CV00088-3) is the result from the cross of CO89097-2 x Dakota Rose (ND3574-5R). Also released are AAC Kelle (a chipper with ND860-2 as the male parent), AAC Helina, and AAC Blue Steele (looks like All Blue and resulted from the cross of F91-31 x Congo and was tested as AR2009-10. It has PCN resistance). AAC Poppy is a red skinned, white fleshed creamer, and AR2011-06 (F05056) a cross of Glenwood Red x F92028 is progressing; it has PCN and wart resistance.

David Holm summarized the Colorado State University potato breeding program activities. New releases include Mercury Russet, Masquerade and Midnight Moon which are half-sibs with Inca Gold as a parent, and Red Luna. They are working with Kemin Industry evaluating Slendesta as a satiety aid from potato. An advancing selection to watch is CO04063-4R/R; it has red skin and red flesh.

Dave Douches from Michigan State University summarized their breeding efforts. They are

continuing to focus on scab resistance and have begun a diploid breeding effort. Dave also gave an update on some of the genetically modified traits their program is working with.

Christian Thill (University of Minnesota) talked about the breeding program and introduced Spencer Baribell as his new research associate, replacing Jeff Miller. Spencer put the NCRPVT summary together this year and just started in late August. He also commended Jeff for his many years of service to the UMN potato breeding program and his efforts in putting together the NCRPVT reports the past many years. Jeff is now with the MN Dept. of Agriculture in potato seed certification. Christian's presentation included many clones in the pipeline for potential release, their efforts with cryopreservation and some work he is touting regarding nitrogen management (ie. a potential SCRI proposal in the future with the breeding community) and utilization.

Following a break, Susie Thompson discussed the NDSU potato breeding program. Her summary included hybridizing, greenhouse production, the many seed locations and their certification efforts, and the many collaborative cultivar development trials that NDSU Team Potato and other collaborators conduct each year. Several selections are nearing release ND8555-8R will be considered for release in early 2014. Others in the pipeline include ND8068-5Russ, ND7519-1, ND7799c-1, ND8304-2, ND8305-1, ND6002-1R, ND7132-1R, amongst others.

Jeff Endelman introduced himself as the new potato breeder and geneticist from the University of Wisconsin. He has been on board since September. He summarized his background and described how that might influence their work in WI and how he hopes to contribute to North American potato breeding efforts. He also discussed the direction of the WI program. Their website is www.potatobreeding.calswisc.edu.

Jeff Endelman led a great discussion about the NCRPVT and potential future direction. Contributors to this discussion included Susie Thompson, Christian Thill, Craig Yencho, Walter DeJong and Dave Douches. Paul Bethke gave an SCRI update and mentioned that the NCPT and NFPT/SCRI groups would convene after a lunch break. Christian provided info that the NCRPVT report will be in the drop box. Shelley Jansky also place the results from the National Verticillium trial in the drop box.

Dates for next year's meeting were tentatively set for Monday, December 8 (beginning at 1 p.m.) and Tuesday, Dec. 9, 2014, at the same venue.

Officer election took place. Christian Thill (UMN) was elected secretary, Dave Douches (MSU) moves into the chairs position and Susie Thompson (NDSU) became vice chair.

The meeting was adjourned at 12 p.m.

Respectfully submitted,
Susie Thompson

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Accomplishments:

Participants continue to carry out basic and applied research related to the enhancement of potato germplasm for breeding purposes. This has led to the development of elite potato cultivars that are available for production.

Impacts:

Publications:

Authorization: Submission by an AES or CES director or administrative advisor through NIMSS constitutes signature authority for this information.

*Limited to three pages or less exclusive of publications, details may be appended.