NCCC215 Breeding and Genetics Technical Committee Meeting

December 9-10, 2019

Chair: Dennis Halterman; Vice-Chair: Laura Shannon; Secretary: Dave Douches

Administrative Advisor: Ray Hammerschmidt

Agenda

Monday, December 9

1:00 – Welcome and Introductions

1:15 – Tribute to Creighton Miller

1:20 – 3:15 Research presentations

3:15 – 3:45 Break

3:45 – 5:30 Research presentations

Order of research presentations:

Michigan

Minnesota

North Dakota

Wisconsin

Other contributors

Tuesday, December 10

7:30 – 8:15 SCRI Diploid potato discussion

8:15 – 8:45 Potato pan-genome discussion

8:45 – 9:05 Approve minutes, new business, scheduling 2020 meeting, officer elections, announcements

9:05 – 9:15 Administrative Advisor report

9:15 – 10:30 Breeder presentation

10:30 – 11 Break

11 – 12 Breeder presentations

**Minutes of meeting and Research Project report titles**

**Michigan**

* Sarah Lee – Douches – Overcoming self-incompatibility in diploid potatoes using CRISPR/Cas-9
* Paul Collins – Douches – Introgressing Self-compatibility to Solanum tuberosum dihaploids for diploid variety development
* Thilani Jayakody – Douches -- Gene editing in diploid potato
* Natalie Kaiser – Douches – Deploying durable Colorado potato beetle resistant diploid breeding lines
* Douches – Dihaploid Potato Production at Michigan State University; Application of molecular markers in marker assisted selection in Michigan State Breeding program; Certified Seed Minituber Production
* Will Behling – Interspecific crossing barriers and self-compatibility
* Genevieve Hoopes – Circadian rhythm in potato

**Wisconsin**

* Maria Caraza-Harter – Genetics of Skin Set Red Potatoes
* Filipe Matias – FIELDimageR – A tool to analyze othologous data
* Lin Song – diploid potato breeding and the selection for self-compatibility
* Jansky (for Akito Nashiki) – Verification of cold stratification for TPS germination
* Shelley Jansky (for Jim Busse and Paul Bethke) – Fixing red color through inbreeding Red Norland
* Shelley Jansky (for Asma Aikhaja) – Creating dihaploids from Russet Nortotah
* Shelley Jansky – RILS and germplasm releases
* Dennis Halterman – Resistance breaking in PVY
* Dennis Halterman – *P. infestans* effector IPI-O1 disruption of RB gene
* Hari Karki – Halterman – Source of late blight resistance in Payette Russet
* John Bamberg – summary of USPG reported above

**Minnesota**

* Heather Tuttle – Shannon – Diversity analysis of diploids and tetraploids using GBS data
* Husain Agha – Shannon – Dihaploid Seed Production – Using NIR spec to determine ploidy

**North Dakota**

* Felicity Merritt – Identification of genes involved in sugar end disorder in 4x potato

**Maine**

* Oluwafemi Alaba (with Han Tan) – Leveraging haploid induction in tetraploid potato

**Tuesday 12/10/19**

Dennis Halterman called the meeting back to order and reminded us of the agenda.

Shelley Jansky and Jeff Endelman– Diploid breeding grant update

* We were funded starting October 1, 2019
* The objectives were reviewed for the breeding and genetics community

.

Jeff Endelman – and Genevieve Hoopes – PanGenome update

* Genevieve gave a presentation on the assembly of the Atlantic and Castle Russet genomes

Susie Thompson moved to approve the 2018 minutes and Dave Douches seconded. Unanimously approved.

It was determined that NCCC215 will meet 12/7-8/2020, at the Hyatt Place, Chicago (same as 2019).

Elections for secretary, call for nominations: Dennis Halterman nominated Josh Parsons. Josh accepted the nomination. Susie Thompson moved to close nominations. Josh Parsons was unanimously approved. Laura Shannon will be chair and Dave Douches will be vice-chair.

**Announcements**

Administrative Advisor Ray Hammerschmidt– Noted that 2020 is the International Year of Plant Health. He also gave a multistate committee update. We are due for a mid-term review. What is evidence of working together? Collaborations, enhanced education of graduate students and post docs, leadership opportunities, huge attendance and participation at the technical meeting. We should create an article for the potato industry popular press magazines (e.g. Spudman) describing the meeting.

**Breeders Presentations**

Jeff Endelman – Wisconsin

Susie Thompson – North Dakota

Laura Shannon – Minnesota

Dave Douches – Michigan

Isabel Vales – Texas A&M

Benoit Bizimungu – Agriculture and Agri-food Canada

Max Feldman – USDA/ARS Prosser, WA

Dennis closed the meeting at noon.