

NCCC-167 REGIONAL CORN BREEDING COORDINATING COMMITTEE ANNUAL REPORT 2015

LETTER OF INVITATION AND MEETING PROGRAM

2015 Corn Breeding Research Meeting

March 11-12, 2015
Pheasant Run Resort, St. Charles, IL
Turquoise Room, in the Tower

You are invited to attend the 2015 Corn Breeding Research Meeting to be held at Pheasant Run Resort in St. Charles, IL immediately preceding the 57th Annual Maize Genetics Conference. The Corn Breeding Meeting will begin at 1:00 pm on Wednesday, March 11 and will adjourn at 4:00 pm on Thursday, March 12.

The purpose of this meeting is to discuss and plan how to more effectively integrate public maize breeding and maize genetics research to increase translational research outputs that benefit corn growers. Chalk talks and formal discussions will be organized around these themes. There will also be opportunity for student/post-doc presentations during the meeting.

Registration: Early registration fees will be \$125 for scientists/post-docs and \$100 for graduate students. Registration includes breakfast and lunch on the 12th, and session breaks on both days. The early registration deadline is February 20. Registration after February 20 (including onsite) will be \$150 for scientists/post-docs and \$125 for students. Register here: https://events.uwex.uwc.edu/cos/getdemo.ei?id=28004&s=_0U00WFYBG

Volunteered presentations: Attendees are encouraged to share current research with volunteered paper presentations in either poster or oral format. If the number of volunteered oral presentations exceeds available time, the meeting chair will ask some oral presenters to present in poster format. Oral presentations should be a maximum of 15 minutes in length, with 5 minutes for questions. To volunteer a paper, please submit a title and abstract to Sherry Flint-Garcia (sherry.flint-garcia@ars.usda.gov) by February 20 according to the format guidelines below. The Larry Darrah Student Presentation Award will be given to the best student oral presentation.

Lodging: Attendees may reserve lodging at the Pheasant Run Resort by calling 1-800-474-3272. A block of rooms has been reserved for the nights of March 11 at a rate of \$89.00 per night (plus tax and fees). Please refer to "Corn Breeding Research" when making your reservation.

Abstract Formatting: Abstracts should contain title, authors, author institution affiliations, and text. All text should be 12-point New Times Roman and left justified. Please include all authors in the form last name, first name followed by a numerical footnote to indicate institutional affiliation. Include asterisk following presenting authors name. List institution with footnotes following authors. Abstracts will be posted on the website following the February 15 deadline. Please adhere to formatting guidelines to assist with compilation of abstracts.

Wednesday, March 11

- 1:00 Meeting Begins
- 1:20 ** Michael Stein, Iowa State University
Effects of Planting Density on Plant Development in Adapted and Unadapted Populations of a Recurrent Selection Program
- 1:40 ** Stacie Shuler, University of Wisconsin
Endosperm Carbohydrates During Kernel Development in Pseudostarchy and Extreme-sugary Maize (*Zea mays* L.) Inbreds
- 2:00 ** Dnyaneshwar Kadam, University of Nebraska-Lincoln
Prospects for optimization of genomic prediction of hybrid performance using genotyping by sequencing in Maize (*Zea Mays* L.)
- 2:20 ** Joe Gage, University of Wisconsin
Genome-Wide Association Analysis of Tassel Size and Branch Number in the Wisconsin Diverse Association Panel
- 2:40 ** Christine Diepenbrock, Cornell University
Genomic prediction of provitamin A and vitamin E levels in maize grain
- 3:00 ** Matthew Murray, University of Wisconsin
NIRS Phenotyping Methods of Sweet Corn Kernels for Effective Prediction of Kernel Composition
- 3:20 Break
- 3:40 ** Amritpal Singh, University of Nebraska, Lincoln
Understanding the genetic basis of tolerance to Goss's bacterial wilt and leaf blight in North American Maize
- 4:00 ** Nicholas Haase, University of Wisconsin
Image-Based Precision Phenotyping of Maize Ear Morphology and Kernel Size
- 4:20 ** Avimanyou Vatsa, University of Missouri
Unravelling Complex Phenotypes from Multivariate Data
- 4:40 ** Ashley Webster, University of Wisconsin
Results of recurrent selection for large endosperm size in a supersweet population
- ** Student presentation competition
- 5:15 Business meeting for NCCC-167

Thursday, March 12

- 7:30 Breakfast, South Atrium
- 8:30 Ann Stapleton, University of North Carolina Wilmington
Validation of Your Data Analysis Using the VALIDATE Workflow on Public High Performance Computing Resources
- 8:50 Lewis Lukens, University of Guelph
An approach for detecting multiple, interacting QTL using evolutionary computation and stochastic hill climbing.
- 9:10 Bill Tracy, University of Wisconsin
Carbohydrate characteristics of *shrunken2-intermediate* and *shrunken2-intermediate sugary1* sweet corn
- 9:40 Jianming Yu, Iowa State University
Maize and Sorghum
- 10:00 Coffee Break & Poster Session
- 10:30 **Chalk Talks, 10 minutes each**
David Ertl, Iowa Corn Growers "300 bushels by 2030"
Shawn Kaeppler, University of Wisconsin "Identifying new reference lines"
Liz Lee, University of Guelph "Recurrent selection for early leaf accumulation"
Wes Bruce, BASF "High density planting stress as a treatment in trials"
Nathan Springer, University of Minnesota "Choosing genetic markers that reflect regulatory elements"
- 11:30 Lunch, South Atrium
- 1:00 Natalia de Leon, University of Wisconsin
Overview of G2F and GxE
- 1:25 Cinta Romay, Cornell University
GxE 2014 Germplasm
- 1:40 Jode Edwards, USDA-ARS Ames, IA
Hybrid trial data and initial observations
- 1:55 Liz Lee, University of Guelph
Weather data collection and evaluation
- 2:15 Diego Jarquin, University of Nebraska, Lincoln
Limits of genomic prediction from GxE 2014
- 2:35 Break & Poster Session
- 3:15 Nathan Miller, University of Wisconsin
Field and ear phenotyping
- 3:35 James Schnable, University of Nebraska, Lincoln
Individual plant phenotyping
- 3:50 David Ertl, Iowa Corn Growers
Concluding remarks
- 4:00 Adjourn

Posters:

Anna Krzywdzinski, University of Guelph

Mapping and identifying candidate genes of the modifier of amylose extender 1 (mae1) mutation in maize (*Zea mays* L.).

Alison Cooke, University of Guelph

Genetic relationships among Guelph and off-PVP maize lines

Marianne Emery, Iowa State University

Gametophytic incompatibility in maize: Refining the region of interest

Ryan Huffman, Iowa State University

Diallel Cross Analysis for Methionine in Maize

Avinash Karn, University of Missouri

Joint-Linkage QTL Analysis for Total Kernel Protein Content in Teosinte Near Isogenic Lines

Anna Selby, University of Missouri

Comparative Evaluation of Zea Alleles in Doubled Haploids Created from the Zea Synthetic Population

Ginnie Morrison, University of Missouri

Mild Inbreeding Depression in a Unique Synthetic Population: Preliminary Findings

MINUTES NCCC-167 BUSINESS MEETING (DRAFT)

2015 NCCC167 Corn Breeding Research Meeting Business Meeting Minutes, March 11th, 2015 Pheasant Run Conference Center, St. Charles, IL

Notes: This FY15 meeting took place immediately following Session I of the Corn Breeding Research Meeting. The order of items presented herein is consistent with presentation at the meeting and does not necessarily correspond with the order of proposed agenda items.

Participants: Sherry Flint-Garcia, Natalia de Leon, Nick Lauter, Candice Hirsch, Bill Tracy, Liz Lee, Jode Edwards, Jianming Yu, Shawn Kaeppler, Nathan Springer, David Ertl (Iowa Corn Grower's Association), Jose Costa (USDA-ARS National Program Leader)

1. Introductory remarks. The meeting was called to order at 5:15 PM by Sherry Flint-Garcia, who presented a brief agenda for the meeting, which included review of previous meeting, discussion of next meeting site, review of the Treasurer's report, electing new meeting organizers, review of work by Executive Committee for Corn Breeding Research, and miscellaneous items. The 2015 recipient of the Larry Darrah student presentation award went to Joe Gage, from the University of Wisconsin.

2. Approval of 2014 meeting minutes. Nick Lauter, secretary for the group submitted a draft copy of the meeting minutes for the 2014 meeting. They were reviewed and several alterations were requested. Then, a motion to accept the minutes with the alterations was made by Shawn Kaeppler seconded by Liz Lee, and approved by a unanimous vote of the group.

3. Time and location of the 2016 Meeting. After much discussion as to whether the 2016 CBR Meeting should be held in conjunction with ASTA in Chicago in December, 2015 or in conjunction with MGC in Jacksonville in March 2016, Bill Tracy moved that we choose to hold the CBR Meeting in Jacksonville in March, 2016. The motion was seconded by Liz Lee and approved by a unanimous vote of the group.

4. Election of Officers. *Treasurer:* Natalia de Leon agreed to remain treasurer and to *laissez* with UWEX (University of Wisconsin Conference Organizing Office) such that they can continue to handle participation fees for future meetings. *Secretary:* Nick Lauter agreed to remain Secretary through the 2016 meeting. *Past Chair:* Sherry Flint-Garcia will serve as Past Chair for the 2016 CBR Meeting. Due to a job shift for Aaron Lorrenz, who had been scheduled to lead the 2016 meeting, *Chairs* for the next two meetings needed to be chosen. Sherry Flint-Garcia called for volunteers and nominations for future Meeting Chairs; Candice Hirsch, Nick Lauter and Jianming Yu all volunteered. After some discussion about balance among participating Universities and logistics for the next several meetings, Sherry Flint-Garcia moved that Candice Hirsch and Nick Lauter serve as the 2016 and 2017 CBR Meeting Chairs, respectively. The motion was seconded by Shawn Kaeppler and approved by a unanimous vote of the group.

5. Discussion of how to continue the project. Members of the Executive Committee reported that the current project period is nearly over and that a new proposal will be required in order for the project to continue. During 2015, Kendall Lamkey accepted the role of advisor to the project. Although unable to attend, he recommended to Sherry Flint-Garcia that the project be rewritten to include new objectives and accomplishments of the group, especially focused on the G2F work. The emphasis of the recommendation is on creating a novel proposal, instead of recycling old language, views and targets. He also noted that it is important for the group to submit reports on time. Members of the Executive Committee reported Paul Scott (not present)

and Shawn Kaeppler had agreed to work together on drafting a new proposal. Based on this discussion, Liz Lee motioned that the group proceed with this plan to write a new proposal to continue the project. The motion was seconded by Shawn Kaeppler and approved by a unanimous vote of the group.

6. Approval of 2014 budget report. Natalia de Leon, treasurer for the group, submitted a copy of the 2014 budget report. The main account had \$10,643 prior to debits and credits associated with the 2015 CBR Meeting. A second account that holds outside funds contained \$1,000 for the same reporting period. The Treasurer’s report was briefly reviewed, and a motion to accept the report without alteration was made by Bill Tracy, seconded by Liz Lee and approved by the group. There was one abstention on this vote, with the individual noting that Treasurer’s reports are not accepted or rejected by a group according to Robert’s Rules of Order.

7. Adjournment. The meeting was adjourned at 6:05 PM by Sherry Flint-Garcia.

This draft copy of the minutes for the 2015 NCCC167 Corn Breeding Research Business Meeting is respectfully submitted to the committee by Nick Lauter, Secretary, for review and approval at the 2016 meeting , as well as for use in reports made in the interim.

LIST OF ATTENDEES

Participant	Institution
Andorf, Carson	USDA-ARS
Anibas, Calli	University of WI, Madison
Beissinger, Timothy	University of California-Davis
Bradbury, Peter	USDA-ARS, Cornell University
Bruce, Wes	BASF Plant Science
Burdo, Brett	University of WI, Madison
Campbell, Darwin	Iowa State University
Carlone, Mario	DuPont Pioneer
Cooke, Alison	University of Guelph
Costa, Jose	USDA, Agricultural Research Service
de Leon, Natalia	University of WI, Madison
Diepenbrock, Christine	Cornell University
Edwards, Jode	USDA ARS
Emery, Marianne	Iowa State University
Ertl, David	Iowa Corn
Flint-Garcia, Sherry	USDA-ARS
Gage, Joseph	University of Wisconsin
Gardiner, Jack	Iowa State University
Gilbert, Erin	University of Nebraska-Lincoln
Gustin, Jeff	University of Florida
Haase, Nicholas	University of WI, Madison
Hernandez Jarquin, Juan	University of Nebraska-Lincoln
Hirsch, Candice	University of Minnesota
Huffman, Ryan	Iowa State University

Jaroenchai, Chutinan	University of Guelph
Johnson, James	AgReliant Genetics
Kadam, Dnyaneshwar	University of Nebraska-Lincoln
Kaeppler, Shawn	University of WI, Madison Early
Karn, Avinash	University of Missouri-Columbia
Kazic, Toni	University of Missouri
Kebede, Aida	Agriculture and Agri-Food Canada
Krzywdzinski, Anna	University of Guelph
Lawrence, Carolyn	Iowa State University
Lee, Elizabeth	University of Guelph
Lukens, Lewis	University of Guelph
Maxwell, Judd	Monsanto
Mazaheri, Mona	University of WI, Madison
Miller, Nathan	University of WI, Madison
Mingramm, German	University of WI, Madison
Moore, Ginny	University of WI, Madison
Morrison, Ginnie	University of Missouri-Columbia
Murray, Matthew	University of WI, Madison
Ott, Oliver	Dow AgroSciences
Petzoldt, Jane	University of WI, Madison
Romay, Cinta	Cornell University
Schaeffer, Mary	USDA - ARS
Selby, Anna	University of Missouri
Shuler, Stacie	University of WI, Madison
Singh, Amritpal	University of Nebraska-Lincoln
Springer, Nathan	University of Minnesota
Stapleton, Ann	UNCW
Stein, Michael	Iowa State University
Stelpflug, Scott	University of WI, Madison
Studer, Anthony	Donald Danforth Plant Science
Taguchi, Kazunori	University of WI, Madison
Thompson, Addie	Purdue University
Tracy, William	University of WI, Madison
Vatsa, Avimanyou	University of Missouri
Webster, Ashley	University of WI, Madison
Willmot, David	AgReliant Genetics
Yu, Jianming	Iowa State University