

BIC Genetics Committee Meeting Minutes

During the 2019 BIC Meeting

Meeting location: Hotel Radisson Downtown Fargo, Fargo ND

Date: Wednesday Nov 6, 2019, 11:15-12:30

Committee Members and Guests present:

Avican, Omer (omer.avican@may.com.tr) – May Seed, Turkey
Baetsen-young, Amy (amy.baetsen-young@syngenta.com) – Syngenta Seeds
Beebe, Steve (s.beebe@cgiar.org) – CIAT, Colombia
Cichy, Karen (Karen.cichy@ars.usda.gov) – USDA-ARS, East Lansing, MI
Emmalea, Ernest (emmalea@udel.edu) – University of Delaware
Gang, David (gangd@wsu.edu) – Washington State University
Glahn, Ray (Raymond.glahn@usda.gov) – USDA-ARS
Gomez, Francisco (gomez225@umn.edu) – University of Minnesota
Goncalvez Vidigal, Maria C. (mcgvidigal@gmail.com) – UEM, Brazil
Grusak, Mike (mike.grusak@ars.usda.gov) – USDA-ARS, Fargo, ND
Haus, Miranda (hausmi@msu.edu) – Michigan State University
Heitholt, Jim (Jim.Heithlot@uwyo.edu) – University of Wyoming
Hellier, Barbara (Barbara.heliler@usda.gov) – USDA-ARS, Pullman, WA
Hoyos-Villegas, Valerio (Valerio.hoyos-villegas@mcgill.ca) – McGill University
Hou, Anfu (anfu.hon@canada.ca) – Ag-Canada
Humann, Jodi (jhumman@wsu.edu) – Washington State University- pulsedd.org
Hyten, David (David.hyten@unl.edu) – University of Nebraska
Kelly, Jim (kellyj@msu.edu) – Michigan State University
Mazourek, Michael (mm284@cornell.edu) – Cornell University
McClellan, Phillip (Phillip.mcclellan@ndsu.edu) – North Dakota State University
Munoz-Amatriain, Maria (maria.munoz_amatriain@colostate.edu) – Colorado State University
Miklas, Phil (phil.miklas@ars.usda.gov) – USDA-ARS, Prosser, WA
Osorno, Juan (juan.osorno@ndsu.edu) – North Dakota State University
Porch, Tim (timothy.porch@ars.usda.gov) – USDA-ARS, TARS, Mayaguez, PR
Pastor-Corrales, Talo (talo.pastor-corrales@ars.usda.gov) – USDA-ARS, Beltsville, MD
Raatz, Bodo (b.raatz@cgiar.org) – CIAT, Colombia
Trapp, Jennifer (jtrapp@senecafoods.com) – Seneca Foods
Safe, Jeff (jeff@critessed.com) – Crites Seed, Inc.
Saha, Gopesh (gopesh.saha@brothertonseed.com) – Brotherton Seed Co.
Scholz, Todd (tscholz@usapulses.org) – American Pulse Association
Shi, Ainong (ashi@uark.edu) – University of Arkansas
Souza, Thiago (Thiago.souza@embrapa.br) – EMBRAPA, Brazil
Uebersax, Mark (uebersax@msu.edu) – Michigan State University (retired)
Vidigal Filho, Pedro (vidigal.filhop@gmail.com) – UEM, Brazil
Urrea, Carlos (currea2@unl.edu) – University of Nebraska
Vaz Bisneta, Mariana (marianavazbisneta@hotmail.com) – UEM, Brazil
Wahlquist, Dan (dan.wahlquist@syngenta.com) – Syngenta Seeds
Wiesinger, Jason (Jason.wiesinger@usda.gov) – USDA-ARS
Woolf-Weibye, Andy (bean@bean.idaho.gov) – Idaho Bean Commission

1. Old Business:

Approval of the Genetics Committee meeting minutes from 2017

Decision: The Genetics Committee minutes from the meeting held at the Kellogg Center, Michigan State University, East Lansing, MI on Nov 1, 2017 were approved. Motion by Miklas – seconded by Porch - AIF.

Introduction to Bean Genes List

The introduction to Bean Genes List should be updated with the new genomic tools we now have available providing links for all the reference genome materials: G19833 V2.1, BAT 93, OAC REX, UI-111 (soon to be available), gene annotation lists and other genomic materials that could be shared.

Decision: Phil McClean will provide a draft narrative for the Bean Genes List – Introduction section that can then be edited.

Update the 2010 SCAR table and transform into a SNP table

Decision: Those involved in generating SNPs/Indels for important traits will provide those SNPs/Indels to Phil Miklas before publication and for inclusion in an accessible SNP table for the BIC webpage. This resource will make the SNPs available for use with economical external laboratories, e.g. Intertek, for genotyping by the bean community at large.

Naming of the *bc-u* gene (item from Phil Miklas)

An item for discussion is the naming of the *bc-u* locus (loci) given that two linked loci have been found that are about 3 Mb apart and that interact separately/differentially with *bc-2/bc-2(2)* locus. Actually, there are no alleles for *bc-2* in the Durango market class. The *bc-2* gene of Michelite, Sanilac, Robust origin is different and still being sorted out. *bc-u(A)* with *bc-2* is resistant to NL-4 (PG VII) and susceptible to NL-3, while *bc-u(B)* with *bc-2* is susceptible to NL-4 and resistant to NL-3 (this latter interaction has always been characterized as the *bc-2(2)* allele).

Decision: No decision was made at the meeting. Instead this discussion will continue by email. Some ideas included: using *bc-u* and *bc-s* for unspecific and specific reaction, respectively; or naming the additional locus *bc-4*. Other ideas included investigating the system used for recessive genes in cucurbits or for the *pto* disease resistance locus in tomato.

Updating text for the photoperiod gene (*Ppd*) in the Bean Genes List (item from Jim Kelly)

The text currently states: *ppd (neu)* photoperiod-insensitive gene found in ‘Redcloud’ with a syndrome of effects (Wallace et al. 1993); an allele-specific associated primer is now available for *ppd* (Gu et al. 1995); probably the same locus as Neu+ for short day vs. neu for day neutral flowering response to length of day of Rudorf (1958).

Decision: Add the following text to the Bean Genes list for *Ppd*: “The red/far-red photoreceptor gene PHYTOCHROME A3 (PHYA3) was identified as the *Ppd* gene on Pv01 (Kamfwa et al., 2015; Weller et al., 2019).”

KAMFWA, K., K.A. CICHY and J.D. KELLY. 2015. Genome-wide association study of agronomic traits in common bean. The Plant Genome 8: doi:10.3835/plantgenome2014.09.0059.

WELLER, J. L., J. K. VANDER SCHOOR, E. C. PEREZ-WRIGHT, V. HECHT, A. M. GONZÁLEZ, C. CAPEL, F. J. YUSTE-LISBONA, R. LOZANO, and M. SANTALLA. 2019. Parallel origins of photoperiod adaptation following dual domestications of common bean. *J. Exp. Botany* 70:1209–1219.

Also a lookup table, or an http link in the pdf to phytosome would be helpful that links the symbol with the gene sequence.

Request for a consensus about an appropriate QTL symbol for quantitative resistance to rust, e.g. Ua3.1, Ur3.1, Ru3.1, BR3.1. (item from Phil Miklas)

Decision: No decision was made at the meeting, but several ideas were presented including BR, RU, RST, RUST, RUS.

Molecular evidence for new gene symbol in rules section (item from Jim Kelly)

This item concerns the Coordination of Genes and Gene Symbol Nomenclature of BIC Genetics Committee and a requirement for physical map positions. Currently the evidence must include: “2. iv. molecular marker data and genetic linkage map and physical map (preferred) positions when available.” The suggestion is to make the physical map position mandatory.

Decision: No decision was made, instead the committee has decided to send this item out to the BIC community at large for recommendations about making the physical map position information mandatory, and about what to do with cases of gene clusters.

2. New Business

Membership: Election of new Genetic Committee Chair

Decision: The Committee has selected Dr. Phillip Miklas as the new Genetics Committee Chair and thanks Dr. James Kelly for his service in this position.

3. Next meeting:

Decision: The next Genetics Committee Meeting will be held in conjunction with the W-3150 meeting to be held in mid to late-August 2020 in Scottsbluff, NE and hosted by Carlos Urrea.