

2019 SOYBEAN BREEDERS WORKSHOP

- Pathology and Breeding for Disease Resistance

February 11-13th, 2019

Sheraton Westport Chalet Hotel, 191 Westport Plaza Dr., St. Louis, MO

Registration in Versailles Foyer

Monday, Feb 11th 10:30 a.m. – 05:00 p.m.

Tuesday, Feb 12th 07:00 a.m. – 05:00 p.m.

Monday, February 11, 2019 | Room: Versailles 1

Session 1: Breeding and Breeding Technologies | Chair: Zenglu Li, University of Georgia

- 1:00 p.m. **Jeff Bennetzen, University of Georgia:** *Optimizing plant genotypes to improve the services provided by soil microbes*
- 1:40 p.m. **Bobby Brauer, Bayer CropScience:** *Shifting the field R&D paradigm to technology driven phenotyping*
- 2:10 p.m. **Bob Stupar, University of Minnesota:** *Soybean breeding with genome-editing technology*

2:40 - 3:00 p.m. Coffee Break | Foyer

Session 2: Breeding and Breeding Technologies | Chair: Aaron Lorenz, University of Minnesota

- 3:00 p.m. **Brian Diers, University of Illinois:** *Genetic architecture of soybean yield and agronomic traits based on a NAM analysis*
- 3:30 p.m. **Jeff Hegstad, Corteva Agriscience:** *Methods for using novel diversity to improve soybean yield*
- 4:00 p.m. **Aaron Lorenz, University of Minnesota:** *Developing resources to advance implementation of genomic prediction in soybean*
- 4:30 p.m. **Kelly Whiting, United Soybean Board:** *United Soybean Board Update*
- 4:50 p.m. **Keith Merrill, Bayer CropScience:** *Discussion on the future Workshop venue*

5:00 - 6:00 p.m. Poster session | Versailles 2

Tuesday, February 12, 2019 | Room: Versailles 1

Continental Breakfast | 7:00 - 8:00 am | Versailles Foyer Hosted by the Commercial Soybean Breeders

Session 3: Soybean nematodes | Chair: Brian Diers, University of Illinois at Urbana-Champaign

- 8:00 a.m. **Brian Diers, University of Illinois:** Overview of SCN resistance in soybean
- 8:25 a.m. **Andrew Bent, University of Wisconsin:** Mechanisms of SCN resistance: Implications for breeding
- 8:45 a.m. **Melissa Mitchum, University of Missouri:** Precision management of soybean cyst nematode: Pipedream or possible?
- 9:05 a.m. **Zenglu Li, University of Georgia:** Breeding for root-knot nematode resistance
- 9:25 a.m. **Greg Tylka, Iowa State University:** Nematode-protectant seed treatments and research results with SCN in Iowa

9:45 - 10:15 a.m. Coffee Break | Foyer

Session 4: Soybean seedling diseases | Chair: Istvan Rajcan, University of Guelph

- 10:15 a.m. **Anne Dorrance, The Ohio State University:** Resistance to *Pythium* spp in soybean
- 10:40 a.m. **Martin Chilvers, Michigan State University:** Update on oomycetes of soybean
- 11:00 a.m. **John Rupe, University of Arkansas:** Screening methods for charcoal rot in soybean
- 11:20 a.m. **Toyo Ajayi-Oyetunde, University of Wisconsin-River Falls:** Gaining some insights into the genetic diversity of *Rhizoctonia solani* associated with soybean seedling diseases
- 11:40 a.m. **Richard Belanger, Laval University:** Haplotypes and molecular detection of avirulence genes in *Phytophthora sojae*

12:00 - 1:00 p.m. Lunch

Session 5: Lower stem and root diseases | Chair: Alemu Mengistu, USDA-ARS, Jackson, TN

- 1:00 p.m. **Anne Dorrance, The Ohio State University:** An update on R-genes and quantitative resistance to *Phytophthora sojae* in soybeans
- 1:30 p.m. **Febina Mathew, South Dakota State University:** Genotype-isolate interaction for resistance to stem canker in soybean
- 1:55 p.m. **Leonor Leandro, Iowa State University:** Relationship between sudden death syndrome onset and intensity and soybean yield components

- 2:20 p.m. **Alemu Mengistu, USDA-ARS:** *Charcoal Rot: A hidden threat to soybean yield - an update on what has been accomplished*

2:45 - 3:15 p.m. Coffee Break | Foyer

Session 6: Soybean foliar diseases | Chair: David Walker, USDA-ARS, Urbana, IL

- 3:15 p.m. **Daren Mueller, Iowa State University:** *Update on foliar diseases of soybean in Iowa*
- 3:40 p.m. **Carl Bradley, University of Kentucky:** *Fungicide resistance: Complications arising in management of soybean foliar diseases*
- 4:00 p.m. **Burt Bluhm, University of Arkansas:** *Fungicide resistance in *Cercospora kikuchii* populations in the Midsouth*
- 4:20 p.m. **Istvan Rajcan, University of Guelph:** *Using genomic approaches to combat white mold, caused by *Sclerotinia sclerotiorum* in soybean*
- 4:40 p.m. **David Walker, USDA-ARS:** *Soybean rust resistance in the United States: Germplasm, genes and pathogenic diversity*

5:00 - 6:30 p.m. Social Hour & Poster Session | Foyer & Versailles 2

Wednesday, February 13, 2019 | Room: Versailles 1

Continental Breakfast | 7:00 - 8:00 a.m. | Versailles Foyer Hosted by the Commercial Soybean Breeders

Session 7: Reports and announcement | Chair: Zenglu Li, University of Georgia

- 8:00 a.m. **Keith Merrill, Bayer CropScience:** *Announcement of poster winners*
- 8:10 a.m. **Michelle Graham, USDA-ARS:** *SoyGEC Report*
- 8:25 a.m. **David Grant, USDA-ARS:** *Soybean Genetics Committee report and SoyBase.org update*
- 8:55 a.m. **Dechun Wang, Michigan State University:** *Soybean Germplasm Committee report*
- 9:10 a.m. **From the floor:** *Recognitions, retirements, and announcements*

Session 8: Breeding and Genetics | Chair: David Walker, USDA-ARS, Urbana, IL

- 9:30 a.m. **Marcelo Oliveira, Embrapa-Soja:** *Soybean breeding at Embrapa and in Brazil*
- 10:00 a.m. **Malli Gelli, Corteva Agriscience:** *Genomics assisted haplotype characterization and identifying novel trait-associated variation*
- 10:30 a.m. **Mariola Klepadlo, University of Missouri:** *Genetic association between reniform nematode and soybean cyst nematode resistance in soybean*

11:00 a.m. Adjourn

Technicians Workshop

Date and time: 1:00 p.m., Feb 11th - 5:00 p.m., Feb 12th, 2019

Organizer: Troy Cary

Room: St. Moritz / Bern

USB Seed Composition Workshop

Date and time: 11:15 a.m., Feb 13th - 3:00 p.m., Feb 14th, 2019

Organizer: Kelly Whiting

Room: St. Moritz / Bern

The 2019 United Soybean Board (USB) Composition Workshop highlights current research on soybean seed composition and quality traits and offers presentations on the value and delivery of soybean quality traits to the market. The Workshop will begin immediately after the Soybean Breeders Workshop and thus begin Wed Feb. 13 at 11:15am in the St Moritz/Bern conference room of the Sheraton Chalet Hotel.

Wednesday, Feb. 13th, 2019 Improvement in Soybean Oil Quality

- 11:15 - 11:25 a.m.** Welcome, Introductions and Workshop Overview – Kelly Whiting, SmithBucklin / USB
- 11:25 - 12:20 p.m.** USB project update: Innovative oil traits and developing soybean germplasm with increased oil while maintaining protein and yield
Leah McHale, The Ohio State University
- 12:20 - 1:30 p.m.** **Lunch (on your own)**
- 1:30 - 2:30 p.m.** USB project update: High oleic/low linolenic breeding,
Kristin Bilyeu USDA-ARS, Columbia Missouri
- 2:30 - 3:15 p.m.** Market outlook and opportunities for non-GM high oleic soybean
Ray Massey, University of Missouri
- 3:15 - 3:35 p.m.** Developing soybean cultivars with reduced anti-nutritional and allergen content – Hari Krishnan, USDA-ARS, Columbia Missouri
- 3:35 - 4:00 p.m.** **Break**
- 4:00 - 4:25 p.m.** Value-added soybean market opportunities – A company perspective
Palindromes Inc.
- 4:25 - 4:50 p.m.** Value and utility of high oleic soybean oil in livestock rations –
Bryon Wiegand, University of Missouri
- 4:50 - 5:15 p.m.** Introduction of non-GM high oleic soybean varieties into the market –
Glenn Bowers, Calyxt Inc.

5:15 p.m. Wrap-up, Adjourn
Reminder of 7:30 am start on Thursday session, Feb. 14th

Thursday, Feb. 14th, 2019 Improvement of Soybean Meal Quality

7:30 – 12:00 p.m. Project Updates: genetic diversity to improve soybean meal

7:30 – 7:35 a.m. Welcome – Lisa Weaver, SmithBucklin/USB

7:40 – 8:00 a.m. Soybean Meal Research Strategic Plan and Coordination – Dennis Byron, USB consultant

8:00 – 8:55 a.m. Modifying Soluble Carbohydrates in Soybean Seed for Enhanced Nutritional Energy Meal – Katy Martin Rainey, Purdue University

9:00 – 9:55 a.m. Utilizing Unique Genetic Diversity to Combine Elevated Protein Concentration with High Yield in New Varieties and Experimental Lines – George Graef, University of Nebraska - Lincoln

10:00 – 10:15 a.m. Break

10:15 – 11:10 a.m. Discover Sources, Genes and Develop U.S. Adapted Germplasm with Improved Protein Quantity and Quality Utilizing Diversity in Cultivated and Wild soybeans - Rouf Mian, USDA-ARS / Zenglu Li, University of Georgia

11:15 – 12:00 p.m. Upper Midwest Protein Initiative Update – Nadia Krasheninnik, Corteva

12:00 – 1:00 p.m. Lunch on your own

1:00 – 2:00 p.m. Other approaches to improve soybean meal

1:00 – 1:20 p.m. Genome Guided Modification of Soybean Meal Composition - Bing Stacey, University of Missouri, Columbia

1:25 – 1:45 p.m. Regional Characterization of Soybean Quality in the US - Ignacio Ciampitti, Kansas State University

1:45 – 2:00 p.m. Break

2:00 – 2:45 p.m. Targets for soybean meal essential amino acid composition – panel discussion

Moderators: Lisa Weaver and Kelly Whiting, SmithBucklin/USB

Panelists:

- Dean Boyd, Hanor Co. and Triumph Foods Group, adjunct faculty, North Carolina State and Iowa State Universities
- Byron Wiegand, University of Missouri
- Ignacio Ciampitti, Kansas State University
- Vince Pantalone, University of Tennessee
- George Graef, University of Nebraska - Lincoln

2:45 – 3:00 p.m.
3:00 – 3:05 p.m.

Next steps – Dennis Byron, USB consultant
Wrap up, adjourn

Special Meetings

Date & Time	Meeting	Contact person	Room
Sun, Feb 10th			
1:00 pm - 6:00 pm	USB HOLL Project Meeting	Kelly Whiting/ Kristin Bilyeu	Sheraton Plaza Hotel
Mon, Feb 11th			
9:00 am - 11:00 am	USB Project Meeting	Kelly Whiting	St. Moritz/ Bern
8:30 am -10:00 am	SoyBase Workshop Meeting	David Grant	Alpine II
8:30 am -10:00 am	Soybean Germplasm Committee Meeting	Dechun Wang	Alpine I
10:00 am - 12:00 pm	Soybean Genomics Executive Committee	Michelle Graham	Alpine I
1:00 pm - 5:00 pm	Technicians Workshop	Troy Cary	St. Moritz/ Bern
5:30 pm - 6:30 pm	Commercial Soybean Breeders' Business Meeting	Luciano Jaureguay	Alpine I
7:00 pm - 8:00 pm	Soybean Genetics Committee	David Grant	Alpine II
7:00 pm - 8:30 pm	USB Nematode Working Group Meeting	Kelly Whiting	Alpine I
Tue, Feb 12th			
8:00 am - 12:00 pm	Technicians Workshop	Troy Cary	St. Moritz/ Bern
7:00 pm - 8:00 pm	Uniform Regional Testing - South	Anne Gillen	Alpine I
7:00 pm - 7:30 pm	Uniform Regional Testing - North	Gary L Nowling	Alpine II
7:30 pm - 8:00 pm	SCN Regional Testing	Brian Diers	Alpine II
Wed, Feb 13th			
7:00 am - 8:00 am	Public-Private Southern Breeders Meeting	Tommy Carter	St. Moritz/ Bern

11:00 am - 6:00 pm	USB Seed Composition Workshop	Kelly Whiting	St. Moritz/ Bern
Thu, Feb 14th			
8:00 am - 5:00 pm	USB Seed Composition Workshop	Kelly Whiting	St. Moritz/ Bern

Workshop Coordinators

Zenglu Li, University of Georgia
David Walker, USDA-ARS, Urbana, IL
Bo Zhang, Virginia Tech
Kelly Whiting, United Soybean Board
David Grant, USDA-ARS

Executive Board of Commercial Soybean Breeders

Luciano Jaureguy, Corteva Agriscience
Keith Merrill, Bayer CropScience
Heinrich Wohleser, Bayer CropScience
Clem Weidenbenner, KG AgriProducts
Raymond Kennett, BASF

Acknowledgement

Special thanks to our sponsors, United Soybean Board and Bayer CropScience



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