

23rd North American Barley Researchers Workshop & 43rd Barley Improvement Conference

Time **Wednesday 21 September**

6:00 - 9:00 **Welcome reception TBC**

**Thursday 22 September**

**Session 1 - Industry Updates - Moderator (Glen Fox)**

8:30	American Malting Barley Association	Ashley McFarland
	Craft Maltsters Guild	Jesse Bussard
	Canadian Malting Barley Technical Center	Peter Watts
	Brewing and Malting Barley Research Institute	Gina Feist
	Brewers Association	Kaylyn Kirkpatrick
	Panel discussion	

10:30 **Break**

**Session 2 Plant breeding 1**

11:00	Breeding for Ug99 stem rust resistance at the Agriculture and Agri-Food Canada,	<b>Chair : Pat Hayes</b> James Tucker
11:30	Thaumatococcus-like proteins and their interaction with $\beta$ -glucan and malting quality in	Jaswinder Singh
11:50	Genome Wide Association Studies (GWAS) of Root System Architecture in Barley (H.	Raja Khanal
12:10	Drought-tolerant Barley for the Upper Midwest	Jerry Frankowiak

12:30 **Lunch**

Session 3 - Plant breeding 2

1:30	Validation of a candidate gene for the Un8 barley loose smut resistance gene	<b>Chair : Ana Badea</b> Wen Zang
1:55	Frozen Promise: Toward winter barley for the Bold North	Kevin Smith
2:20	Impact of Seed Dormancy Loci 1 and 2 (SD1 and SD2) on Preharvest Sprouting,	Jason Walling
2:45	High resolution mapping of a barley hybrid susceptibility locus exploited by the spot form net blotch pathogen <i>P. teres f. maculata</i>	Shaun Clare*

3:10 **Break**

**Session 4 - Plant breeding 3**

3:40	Lodging: The great fall of barley	Michael Taylor*
4:00	Transcriptome analysis of barley varieties with contrasting responses to heat, drought and combined heat and drought stress	Ramamurthy Mahalingham
4:20	Development of a multi-parent population to enhance FHB resistance in barley	Rae Page*
4:40	Integrating Aerial Imaging with Genomic Prediction for Malt Quality Traits in Winter	Amelia Loeb*
5:00	Visualization, Tools, and Resources for Barley at GrainGenes	Taner Sen

5:20 **happy hour/poster session**

6:30 **Free evening**

**Friday 23 September**

**Session 5 Past, present and future barley production**

8:30	Retrospective and Prospective Views of Barley Research and Development in	<b>Chair : Ashley McFarland</b> Cal Qualset
9:00	Lessons Learned from Six Years of Winter Barley Research in Michigan	Brook Wilke
9:20	From 'Thoroughbred' to 'Avalon', the story of one man's life long effort to improve barley for the eastern U.S.	Nick Santantonio
9:40	The Eastern Spring Barley Nursery: Collaborative Variety Testing for a Non-Traditional	James DeDecker

10:00 **Break**

**Session 6 - Abiotic and Biotic Stressors 1**

**Chair : Brian Steffensen**

- 10:30 Barley resistance to a membrane-targeting fungal metabolite from Fusarium Elizabeth Brauer
- 11:00 An interolog-based barley interactome as an integration framework for NLR immune signaling: A model to predict targets for resistance breeding Roger Wise
- 11:25 Rpt5 encodes a receptor-like protein that provides the broadest and most effective net form net blotch (Pyrenophora teres f. teres) resistance in barley Karl Effertz\*
- 11:45 Sensitivity of the western Canadian Cochliobolus sativus population to propiconazole, pyraclostrobin and fluxapyroxad fungicides Dilini Adihetty\*
- 12:05 The effectiveness of sources of scald and net-form net blotch resistance in barley differentials and Canadian barley varieties Kelly Turkington

12:30 **Lunch**

**Session 7 - Abiotic and Biotic Stressors 2**

**Chair : Gina Feist**

- 1:30 Survey of fungal endophyte microbiome diversity of barley genotypes grown in Ana Badea
- 1:50 QTL analysis of novel stem rust resistances identified from the world barley core collection utilizing two bi-parental RIL world barley core collection utilizing two bi-Matthew Brook\*
- 2:10 Changes of Barley Stripe Rust Races and Populations in the United States from 1993 Xianming Chen
- 2:30 Analyzing the Economic Impact of Major Barley Diseases in North Dakota Suzette Baldwin\*

2:45 **Break**

**Session 8 - Agronomy**

**Chair : Glen Fox**

- 3:10 Irrigated Spring Barley Yield, Grain Quality, and Malt Quality Response to Nitrogen and Sulfur Fertilization Jared Spackman
- 3:30 Influence of previous crop and nitrogen management on barley yield and malt quality Aaron Mills
- 3:50 Sustainable Western Wisconsin Malting Barley Production Jerry Clark
- 4:10 Investigation of Stay-Green and Root Traits in Barley Jessica Williams\*
- 4:30 Joint improvement of grain quality and agronomic characteristics Nicholas Santantonio
- 4:50 Determining the critical traits associated with lodging and approaches to mitigate the risks of lodging in the Canadian barley varieties and elite breeding lines Ludovic Capo-chichi
- 5:10 Close

6:30 **Dinner @ Conference center**

Mike Davis

9:30 **Dinner ends**

**Saturday 24 September**

**Session 9 - Hulless (naked) barley**

**Chair : Harmonie Bettenhausen**

- 8:30 Optimum seeding rates for hulless barley production in eastern Canada Raja Khanal
- 8:40 Shedding deoxynivalenol with naked barley Kevin Smith
- 9:00 Screening a Diverse set of Naked Barley for Resistance to Covered Smut Brigid Meints
- 9:20 Manipulating steep and germination protocols to improve malting quality profiles of naked barley Cristiana Vallejos

9:40 **Break**

**Session 10 - All things quality****Chair : Marta Izydorczyk**

10:00	Ensuring High-quality Barley with an Economic Advantage	Jamie Sherman
10:30	Effects of grain hydration and germination time during malting on the molecular structure and mass of $\beta$ -glucans and arabinoxylan in wort	Marta Izydorczyk
10:50	Investigating the genetic and environmental contributions of barley to wort ionic composition, impacting brewing process and flavor.	Hannah Turner
11:10	Early stage detection of pre-harvest germinated barley through spectral imaging and multiblock data fusion discriminant analysis	Sebastian Orth*
11:30	Effects of genotype, environment, and their interaction on yield and malting quality traits in Californian barley	Maany Ramanan*

**11:50 Short Lunch****Session 11 - All things quality 2****Chair : Scott Heisel**

12:45	Interaction of Pre-harvest sprouting, germination rate and malting quality for winter and facultative malting barley	Karl Kunze*
1:00	Genetic dissection of metabolite production during malting	Joseph Jensen*
1:15	Transcriptomics of Conrad malt quality	Marcus Vinjie
1:30	Presence of 3-Methyl Indole in Beers and Brewing Ingredients	Karsten McDonell
1:45	Close	Glen Fox

\*Student presentation

Program current as of 15 July 2022: Subject to change

**Posters**

P1	Exploring the genetic limit of winterhardiness in cultivated barley	Ahmad H. Sallam
P2	Survey of fungal endophyte microbiome diversity of barley genotypes grown in	Ana Badea
P3	The effect of field nitrogen on distilling malt quality specifications of winter-habit barley lines that are non-producers of glycosidic nitrile.	Campbell Morrissy
P4	Genetic dissection of forage quality in a world core population of spring 2-row barley	Traci Hoogland
P5	Sensitivity of the western Canadian <i>Cochliobolus sativus</i> population to propiconazole, pyraclostrobin and fluxapyroxad fungicides	D.D. Adihetty
P6	Genome-Wide Identification of Active Transposons for Barley Genomics and Genetic Improvement	Dongying Gao
P7	Effect of Terroir in Whisky Production	Dustin Herb
P8	Development of scab resistance in barley lines adapted for the state of South Dakota	Tasneem Fathima
P9	Even barley gets the blues: Effect of blue aleurone on Quality	Harmonie Bettenhausen
P10	UC Davis Malting Barley Varieties	I.A. del Blanco
P11	Location, location, location: Identifying precise, repeatable, and representative real	Kevin P. Smith
P12	<i>Hordeum jubatum</i> as an alternative host for fungal diseases attacking cultivated	Oadi N. Matny
P13	Development of molecular markers for glycosidic nitrile content in Barley ( <i>Hordeum</i>	Nicole Pretini
P14	Barley of the Future: Facultative, Naked, and Flavorful	Patrick Hayes
P15	Optimum seeding rates for hulless barley production in eastern Canada	R. Khanal
P16	Pathogenicity of <i>Fusarium graminearum</i> and <i>F. poae</i> Causing Fusarium Head Blight on	K. Hudson
P17	<i>Fusarium</i> head blight and <i>Xanthomonas</i> may compete for the same niche on barley	Thomas Baldwin
P18	Development of diagnostic DNA markers for <i>X. translucens</i> pv. <i>Translucens</i>	Eunhye Hong
P19	Association mapping of micronutrient and $\beta$ -glucan content in barley	Charli Faris
P20	Development of a rapid screening method to assess grain processing responses of	Renee Bierworth

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| P21 | Development of diagnostic DNA markers for <i>X. translucens</i> pv. <i>translucens</i>                                       | Zhaohui Liu    |
| P22 | Barley as a habitat for <i>Fusarium</i> , and impacts of <i>Fusarium</i> on malt quality                                     | Matthew Bakker |
| P23 | Influences of variety and growing location on barley quality, its malting and brewing performance and beer flavor attributes | Yueshi Li      |