20th WGIN Stakeholders' Meeting

Monday February 6th, 2023

Registration via Eventbrite from January 3rd, 2023 at

https://www.eventbrite.co.uk/e/20th-wgin-stakeholders-meeting-tickets-503285278817

Time 09:45 am to 4.30 pm (entry via the Zoom lobby open from 9.30 am).

Please note: The Zoom link will be sent to all registered attendees by January 31st, 2023.

Agenda

09:45

0. Introduction and Welcome – **Peter Shewry** (WGIN Chair, Rothamsted Research)

AHDB section

09:50

1. AHDB wheat market outlook – **Anthony Speight** (Senior Analyst, AHDB)

A grain market update from AHDB's market intelligence: What has been driving record high and volatile grain prices, and is this expected to continue?

International section

10:10

2. The New Wheat Initiative Strategy – Coordinating Global Wheat Research – **Professor Peter Langridge** (University of Adelaide)

The importance of wheat for food security was recognised by the agriculture ministers of the G20 group of countries when they endorsed the establishment of the Wheat Initiative in 2011. The Wheat Initiative was tasked with supporting the wheat research community by facilitating collaboration, information and resource sharing and helping to build the capacity to address challenges facing production in an increasingly variable environment. Many countries invest in wheat research and innovations in wheat breeding and agronomy have delivered major gains over the past few decades. These gains are threatened by climate change, the rapidly rising financial and environmental costs of fertilizer, and pesticides, combined with declines in water availability for irrigation in many regions. The international wheat research community has worked to identify opportunities to help ensure that global wheat production can meet demand. The outcomes of these discussions have been the development of a Strategic Research Agenda with short-, medium- and long-term goals for wheat research.
https://www.wheatinitiative.org/

WGIN section

10:30

3. Exploring New Possibilities for Reduced Lodging in Wheat –

Simon Griffiths (John Innes Centre)

Lodging reduces yield and quality in wheat. Breeders face a constant balancing act between increasing yield while controlling the potential for lodging. Over the years the main tool used to achieve this has been the Green Revolution semi dwarfing gene, Rht-1. WGIN has conducted research designed to home in on some new or underutilised traits that might increase the options available in breeding and help to ensure that future UK crops lodge less.

10:50

4. New phenotypes in *Triticum monococcum* introgressed hexaploid wheat -

Michael Hammond-Kosack (Rothamsted Research)

The diploid, grass related *Triticum monococcum* harbours an unusually large number of desirable traits for introgression into hexaploid wheat, including broad spectrum resistance to many pathogens as well as specific high-level resistance to specific ones. Here we report on the successful breeding of 3 *T.mon* cultivars into Paragon and various characteristics of ~1000 individual near homozygous lines generated, including ear architecture, grain yields, coloured wheat and even 7 grain spikelets.

Designing Future Wheat (DFW) section

11:10

5. Grassroots – an online data repository – what, why and how?

Andrew Riche (Rothamsted Research)

Efficient ways of arranging, storing and making data available are current & common issues across disciplines. Within Designing Future Wheat, the Grassroots database has been developed so that data is efficiently organised, using standardised terms, has adequate background information, and is available online. This resource will become increasingly useful, e.g. for meta-analyses as the database grows, and in a future project the capability of the system should be developed to handle new data formats, such as images, with bespoke tools for data extraction.

11:25

BREAK - 10 mins – attendees please stay online.

UK wheat projects

11:35

6. Regulation of carbon assimilation by Rubisco in wheat –

Elizabete Carmo-Silva (Lancaster University)

Abstract to follow

11:55

7. Unlocking the potential of wheat grain heterogeneity using machine vision –

John Foulkes (University of Nottingham)

Grain size, composition and quality traits are usually studied at the batch scale; however, this disregards the large intra-genotypic variance of individual grains and its impact on quality. This is critically important as one grain with negative or positive traits can impact an entire batch. The project aims to develop a novel single seed characterisation technology based on hyperspectral imaging (HSI) integrated with next generation machine learning and develop the tools to upgrade significantly UK wheat grain quality (increase homogeneity of protein quality and quantity, enhance micronutrients and flavour potential). We aim to use this technology to explain the determinism of the homogeneity of single grain quality parameters and explore a

broad range of known, novel and exotic wheat genotypes for previously undefinable unique single seed traits. This will allow breeders to target grain quality uniformity traits, and speed selection from segregating populations. We will also use the biological understanding of single seed variation to implement a sorting technology at pilot production scale for wheat. The commercial imperative and timeliness of this study is demonstrated through extensive industry commitment of companies.

12:15

8. Sustainability and nutrition – why milling research is crucial – **Joe Brennan** (UK Flour Millers)

Pressure is growing from policymakers and customers alike to reduce nitrogen fertiliser use, a key input for milling wheat. Likewise, obesity rates are rising and "processed foods" such as white flour are in the crosshairs of campaigners and commentators. How is milling wheat research helping tackle the issues of nutrition and sustainability challenges.

12:35

9. Watkins and the Slug Sleuths – **Tom Allen-Stevens (**British On-Farm Innovation Network)

Abstract to follow

Morning session to finish by 13:00

Panel discussion section

Topic*:* 'The Role of Genetics in Integrated Pest Management'

Panel Chair – Professor Peter Shewry (Rothamsted Research)

How to submit your questions - Attendees will be invited to send in questions either in advance via the WGIN email – wgin.defra@rothamsted.ac.uk or during this virtual stakeholder event via the 'chat' function in Zoom.

14:00

10. Introductory Talk – **Jenna Watts** (Head of Crop Health & IPM, AHDB)

14:20

11. Discussion period – 60min

panellists

1. **Neil Paveley** (ADAS)
2. **Tom Allen-Stevens** (BOFIN, Oxfordshire Farmer)
3. **Holly Alpren** (defra)
4. **Jenna Watts** (AHDB)
5. **Phil Humphrey** (AICC, NIAB agronomist)

15:20

12. general discussion about the day

16:00 ***meeting ends***

Please contact Mike Hammond-Kosack at wgin.defra@rothamsted.ac.uk for any queries and, importantly, great questions for the IPM panel discussion.