

# **21<sup>st</sup> WGIN Stakeholders' Meeting**

(Latest programme as of 23<sup>rd</sup> Jan 2024)

**8<sup>th</sup> February 2024 at the John Innes Centre Conference Facility**

**Time 09:45 am to 4.30 pm**

## **Please note:**

This will be a **hybrid event with room for 75 stakeholders to attend in person**, everyone else can join the meeting via the Zoom platform using this link and password: Topic: WGIN Stakeholder's Meeting 2024

- 1) This will be a **hybrid event with room for 75 stakeholders to attend in person**, everyone else can join the meeting via the Zoom platform using this link and password:

Topic: WGIN Stakeholder's Meeting 2024
Time: Feb 8, 2024 09:00 London
Join Zoom Meeting
<a href="https://us06web.zoom.us/j/81228737487?pwd=nsKkGio3Vtq0XmiLNs7a3NxDJtdqPy.1">https://us06web.zoom.us/j/81228737487?pwd=nsKkGio3Vtq0XmiLNs7a3NxDJtdqPy.1</a>
Meeting ID: 812 2873 7487      Passcode: 851259

- 2) All stakeholders wishing to attend this meeting either in person or online are **requested to register via Eventbrite**

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## **Programme**

**09:45**

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

### AHDB section

**09:50**

1. **UK cereals Market Update** – Anthony Speight (AHDB Market Analyst) **ONLINE**

This presentation will focus on global drivers of price movement in the major cereals markets, and how this affects domestic prices. Focus will then turn to factors impacting UK supply and demand, as well as looking ahead to what we can expect from harvest 2024.

### WGIN section

**10:10**

2. **Exploring variation in BYDV across the UK for improved knowledge and diagnostics**

– Lawrence Bramham (Rothamsted Research)

Barley yellow dwarf virus (BYDV) negatively impacts cereal crop yields, although limited information exists on UK strain prevalence and distribution. Within WGIN we have performed informative BYDV viral coat protein sequencing analyses from viruliferous aphids captured since 2020 by the Rothamsted Insect Survey's suction trap network. This data resource has enabled exploration of UK-wide trends in BYDV occurrence and the development of

improved UK-specific molecular diagnostics. This new knowledge base should prove useful for the development of robust BYDV-resistant crop cultivars and for ongoing BYDV-monitoring for new variants of potential concern.

**10:30**

**3. Breeding wheat for a hotter climate – Simon Griffiths (John Innes Centre)**

The temperature and rainfall over the wheat growing season has a huge influence on yield. Working together with the Met Office we have looked at seasonal temperature trends, using historical records and models of future climate. Growing conditions are rapidly becoming hotter and drier and will continue to do so. WGIN is discovering new genes to help breed wheat that is adapted to these conditions using wheat varieties which thrive in hotter environments.

**10:50**      [Delivering Sustainable Wheat \(DSW\)](#)

**4. Delivering Sustainable Wheat – Shannon Woodhouse (DSW programme manager)**

Wheat is an indispensable global crop and the major crop of the UK and Western Europe. With a projected population of 10 billion by 2050, the need for sustainable wheat production is urgent. The Delivering Sustainable Wheat (DSW) research programme is a cross-institute ISP that will run from 2023 – 2028. It brings together the complementary skills of four research institutes (John Innes Centre, Rothamsted Research, The Quadram Institute and Earlham Institute), five universities (Bristol, Imperial College, Lancaster, Leeds and Nottingham) and the National Institute of Agricultural Botany, to address critical challenges in wheat health, yield, and production. The DSW programme aims to address these challenges by enhancing wheat production sustainably and improving human nutrition, by applying our biological knowledge of key traits for the benefit of wheat consumers. The programme also invests in pre-breeding to ensure that the new traits, genes, knowledge, and new types of wheat are fed into breeding, farming, and food production, to help safeguard this vital crop for the future.

**11:10**      **BREAK - 20 mins** – remote attendees please stay online.

[New and ongoing UK wheat projects](#)

**11:30**

**5. Enhancing Wheat Nutritional Quality: An Atlas of QTLs for Essential Minerals from the A.E. Watkins Landrace Collection Analysis – Petros Sigalas (Rothamsted Research)**

Wheat is an important source of mineral micronutrients for humans and livestock. It is well established that commercial wheat varieties exhibit low genetic diversity compared to older varieties. We therefore developed three biparental populations by using landraces from the A.E Watkins landrace cultivar collection, aiming to elucidate novel Quantitative Trait Loci (QTLs) and genes controlling the accumulation of essential mineral in wheat grains. The identification of these QTLs with associated SNP markers and candidate genes will facilitate the improvement of wheat grain nutritional quality.

**11:50**

**6. Hi-Fi Bread - Increasing the fibre content of the Great White British loaf**

– **Marcus Tindall** (University of Reading)

Fibre intake is critical for human health, yet in the UK we simply don't get enough. I will discuss our current UKRI Transforming UK Food Systems looking at increasing the fibre content of the Great White British loaf using high fibre white flour cultivars developed at Rothamsted Research. The project is taking a whole UK wheat supply chain approach (farmers to consumers), to understand views on developing a new high fibre white loaf via consumer survey work, within chain behavioural analysis and mathematical modelling to inform the transformational process.

**12:10**

**7. Linking ambient temperature to crop growth and phenology on a cultivar specific basis**

- **Lukas Kronenberg** (JIC)

Temperature has a strong impact on plant growth and phenology. Using drone photogrammetry, we can measure plant growth at high accuracy and high temporal resolution. We can then model the measured growth using available ambient temperature data. From these models, we can derive cultivar specific temperature response parameters. These parameters may be useful in breeding (i.e. to select for a specific response) or in crop modelling (i.e. to predict phenology for a given environment more accurately).

**12:30**

**8. Q&A plus closing remarks on the morning session – Peter Shewry (Rothamsted Research)**

**LUNCH BREAK 12:40 – 13:45** lunch will be provided for registered in-person attendees only.

**13:45**

**9. Introduction to afternoon activities – Peter Shewry**

[Panel discussion](#)

**Topic: 'Climate change: the implications for breeding and the wheat crop – 10 years plus'**

**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](mailto:wgin.defra@rothamsted.ac.uk) or from online attendees via the 'chat' function in Teams or will be taken directly from the audience at JIC.

**13:55**

**10. Introductory Talk 1 – “Future changes in the UK climate and the implications for wheat production”**

- **Thomas Crocker (MET Office)** **ONLINE**

The Met Office have been working with Defra and WGIN on using data from climate projections to gain greater insight into the details of changes in the UK climate at key stages in the wheat crop lifecycle. This talk will explore some

of the expected changes in potential abiotic hazards in the future, which could be used to help inform future breeding and genetic improvement research.

## 14: 15

### 11. **Introductory Talk 2** – “A grainy future? - The impact of fungal disease and climate change on wheat”

- Sarah Gurr (University of Exeter)

Monoculture cropping practices have inadvertently provided a feeding and breeding paradise for the proliferation of fungal pathogens. In consequence we have seen a rapid rise in fungicide resistant and virulent isolates. In this talk I shall evaluate the usefulness of our correlative and data-driven models, which consider the global movement of crop pests and pathogens, in the face of climate change. I shall then adopt a more UK-centric focus and look at fungi on wheat. Finally, the talk will consider our various disease mitigation strategies.

**Panel Chair – Professor Peter Shewry (Rothamsted Research)**

## 14:35

### 12. **Q&A session on Climate Change from the Farmers’ perspective: Richard Cross (ONLINE) and Joe Stanley (ONLINE) in conversation with Tom Allen-Stevens**

## 14:50 **Panel Discussion period – 60 min**

### panellists

1. **Thomas Crocker (MET Office) ONLINE** - Tom has worked at the Met Office for 11 years and leads the Climate Security team which conducts research on understanding the impacts of weather and climate change on aspects of human security.
2. **Academic - Sarah Gurr (University of Exeter)** - Plant pathologist interested in fungal diseases of crops and in disease mitigation across the scale of sizes (from cell and molecular biology of the pathogen to data-driven predictive modelling of movement of crop pests and pathogens across the globe).
3. **Quality - Joe Brennan (UK Flour Millers)** – Joe covers technical and regulatory affairs at UK Flour Millers, the trade association for the milling industry, where he covers variety development, grain quality and food safety.
4. **Crop Physiologist - Oorbessy Gaju (Reshmi) (University of Lincoln)** – Reshmi is a wheat physiologist based at the Lincoln Agri-Robotics (LAR) Centre focusing on using high throughput techniques to screen for phenotypic traits to improve wheat yield.
5. **Breeder (TBC)**
6. **Joe Stanley (ARAgS, The Allerton Project) ONLINE**

## 15:50

### 13. **General discussion about the day - Peter Shewry (Rothamsted Research)**

## 16:05 *Coffee and Tea*

## 16:30 depart

### **Eventbrite links:**

**In person** <https://www.eventbrite.co.uk/e/21st-wgin-stakeholders-meeting-in-person-attendance-only-tickets-796046445347>

**Online** <https://www.eventbrite.co.uk/e/21st-wgin-stakeholders-meeting-online-attendance-only-tickets-796074188327?aff=oddtcreator>