



WGIN Management Meeting

11th November 2011, KWS Ltd

MINUTES

Attendees:

Dhan Bhandari, Simon Orford, Cathy Mumford, Susan Freeman, Peter Jack, Stephen Smith, Peter Werner, Kim Hammond-Kosack, John Foulkes, Suzanne Thrussell, Peter Shewry, Malcom Hawkesford, Simon Berry, Matt Kerton

Apologies:

Neil Paveley, Simon Griffiths, Julie Seekings, Richard Weightman, Chris Tapsell, Mike Grimmer

Welcome – Peter Shewry:

Two new assistants have joined the JIC team, Cathy Mumford and Susan Freeman.

Objectives 2, 3 and 4 - Tools and Resources – Simon Orford

[\(PowerPoint presentation\)](#)

NIL Development:

Simon Orford gave a presentation providing an update on the above project objectives.

Data are now available from the Avalon x Cadenza mapping population. Other NILs are being developed but are less advanced. Results are significant from the field trials.

Problems with the Spring sown 2011 trial, poor germination due to no rain. Have established this autumn a 3 rep trial of 1 metre plots of all material not covered in 3A 2011 trial.

Watkins collection:

Two independent core collections have been formed. This autumn has been a good drilling season with everything in the ground by early October.

Q: Do you archive material every year?

A: Yes 3kg are available from this collection and around 800g was collected last year for each line.

In 2011, there was a 40% yield reduction in the yields of Rialto x Savannah due to dry conditions.

Gediflux:

For the first time have had combinable plots resulting in stocks of around 3kg

Genotyping – have changed route and are not using DArt technology are now using Kaspar Platform.

Drought Tolerance:

A delay in germination was noted when the F2 generation was sown for Paragon x Garcia.

Q: Is there a data list available for the two diversity population for Watkins, giving a brief explanation / country of origin?

A: This can be made available to put on the website. **Action**

Q: Phenotype data will that go on website?

A: Gediflux will go up - **500, with a 60 core collection.**

Objective 8 – Nitrogen Update – Malcolm Hawkesford

[*\(PowerPoint presentation\)*](#)

Objective 8 is based around two sets of Germplasm, Diversity and Avalon x Cadenza.

Diversity trial:

Just sown the 9th trial and have settled down to 25 varieties using 4 Nitrogen levels. Have included WUE and Take-all lines. One of objectives of the project is to explore the interactions between NUE, WUE and Take-all disease.

2012 variety list, new varieties:

- Conqueror replaced Oakley
- Hereford¹ – Low level take-all in 2008 trial but has not been trialled at different Nitrogen levels. However it is not in WUE trial because of low seed availability
- Zebedee – High WUE

Removed 2 of the Avalon x Cadenza lines, however there are still 2 lines remaining.

Q: Is all of the Nitrogen that is used Ammonium Nitrate?

A: Yes

Q: What year did we change to blocking nitrogen treatments rather than randomised?

A: The N treatments were blocked within the replicates in 2004, and this design was resumed in 2010 and subsequent trials. From 2005-2009, a complete randomisation of genotypes and N-treatments within replicate blocks was the adopted design.

Presentation shows data on grain yields with nitrogen levels as well as how these data relate to previous years. Currently analysing the nitrogen data to calculate NUEs.

Avalon x Cadenza Trial:

Provided a summary of where we are. As previous years data were poor, I can confirm we will be running two further trial years. However these will not be funded by WGIN as they only funded 6 years of trials.

Forward Plans – See presentation

Q: The glasshouse trials how are they set up?

A: Hand watered weekly with fixed amount of nutrients free draining but with cups underneath so uptake is monitored.

Overall objective of the glasshouse trials is to explore early Nitrogen uptake efficiency.

Q: What information has been put on the website or is available?

A: The datasets have not been put on the website, as it is considered that without a complete set (2 x N, all replicate years) any analysis would be premature. This would compromise confidence in the experiment. Currently yield data have been obtained for 6 trials. The N analyses are still ongoing.

¹ HGCA Candidate (not on recommended list)

Q: In terms of architecture of tillers were there less leaves / tiller as it was a dry spring?

A: No tiller measurements were made in 2011 but these are planned for 2012. It was apparent that canopy density was reduced in 2011, with a lot of bare earth being visible through the canopy. This hindered vegetation reflectance measurements of senescence.

Objective 9 - Drought tolerance - John Foulkes **(PowerPoint Presentation)**

9.1 Trait Identification:

Collaborations with JIC, 18 cultivars in second year. Addition of Sterling instead of Cappelle Deprez.

1st year trial – Harvested in 2010. Looking at variations from the norm and if these are repeated in second year.

Assessing same traits as in year one, dry spring, average rainfall before anthesis.

Overall, there was a 2 tonne yield difference between irrigated and non-irrigated diversity trial. Consistent interactions relating to year one of trial particularly with Hobbit and Xi 19. Yield in unirrigated treatment were higher than anticipated.

Trait data not analysed fully yet and is ongoing.

9.2 QTL Detection:

Two sites Nottingham and JIC.

3 tonne difference between unirrigated and irrigated plots for Rialto x Savannah DH Population. Presentation shows grain yield responses to irrigations.

9.3 Develop new SSD Pop:

Ongoing at JIC so reported in Paragon x Garcia update from Simon.

Presentation gives a brief summary of ongoing analysis.

Q: When did you start irrigation?

A: As soon as SMD went below 50%, which occurred in late April.

Q: Did Irrigation affect the Nitrogen?

A: This was not a large effect as there was 23 mm of rainfall in April, which occurred before the first irrigation application was applied on 29 April.

Q: What was the pattern of applying Nitrogen?

A: All applied as split application 40kg beginning of March, the rest split between grow stage 31 and 33.

Cross year analysis still ongoing but seems to be in agreement with year on year data

Q: How many markers available on Rialto x Savannah?

A: Over 250 (including Dart and SRR markers)

Objective 10 & 11 – Take-all disease & Septoria– Kim Hammond-Kosack
[\(PowerPoint presentation\)](#)

Take-All:

Major problem for 2nd and 3rd wheats. Often referred to as 2nd wheat syndrome. The disease levels in the crop are dependent on amount of fungal inoculum in soil at the time of sowing.

2012 trial – 104 Watkins and 36 Gediflux lines

Plus most resistant 144 lines have gone into the replicated pre-breeding Lola field trials

Previously hand sown – 60 seeds per plot, now combined drilling – 200 seeds per plot.

Diploid Wheat – consistency year on year. Glasshouse crosses – large single plants in pot are being used to bulk up the F₆ seed generation

Hexaploid Wheat – Inoculum build up in 1st wheats.

Results 2010 no build up as dry winter/spring. In 2011 the take-all build up in the soil is looking more promising and is currently under assessment.

Kim will report on 1 or 2 reps at next MM. **Action**

Q: With Take-all what is the mechanism for fungus build up if it is not in 1st wheat?

A: The fungal biomass build up is believed to be occurring either in close proximity to roots or via growing on detached root debris. But it does not appear to be occurring in the bulk soil away from the root.

In another project we are beginning to explore what facilitates Take-all build up.

Septoria:

Q: Line 43 has been switched to 308 for the fine mapping?

A: Yes, this is because MDR is actually DV 92 for which a Cosmid library is available, In both the MDR43 x MDR002 and MDR308 x MDR002 F2 populations the same QTL region has been confirmed

WGIN Impact - Review funded project table

Background:

Details of any grants, projects or visitors that are using or have used WGIN Data were originally captured in 2008. This helped to show Defra the value of WGIN to the community and the projects ability to generate extra funding.

We would now like to update the data from 2008 including new projects that have been funded.

Kim went through those projects we know about that are using WGIN data. However we know that there are projects missing. It is Important to know what other projects are using WGIN data.

Suggestions:

West Link – Steve Hoad Scottish Agricultural College

Link Simon ADAS

BBSRC Project on grain shape – Peter

Peter Jack knew of another project

Suggestions for as new Table 2 - utilising the material for projects that haven't been funded for grants

NIAB - Andy

Crop Science Initiative project

Q: Why is there a funding column for data on Table 2 which contains projects/grants that haven't been funded?

A: This will be removed.

New Defra Requirements

KHK read out how WGIN addresses Defra's current policy priorities. These policies should be taken into consideration as detailed below:

1. Support and develop British farming and encourage sustainable food production.

Help to enhance the competitiveness and resilience of the whole food chain, including farms and the fish industry, to help ensure a secure, environmentally sustainable and healthy supply of food with improved standards of animal welfare

2. Help to enhance the environment and biodiversity to improve quality of life.

Enhance and protect the natural environment, including biodiversity and the marine environment, by reducing pollution, mitigating greenhouse gas emissions, and preventing habitat loss and degradation

3. Support a strong and sustainable green economy, resilient to climate change.

Help to create the conditions in which businesses can innovate, invest and grow; encourage businesses, people and communities to manage and use natural resources sustainably and to reduce waste; work to ensure that the UK economy is resilient to climate change; and enhance rural communities

As we develop project material, Defra have asked this information on their policy be weaved into talk Introductions, for example the Stakeholder Meeting.

Although BBSRC has had major inputs into wheat research recently, Defra have confirmed they are still committed to wheat research and wheat improvement via genetics and are already talking about WGIN 3.

WGIN already has strong network activity. In WGIN 3 Defra want to enhance this by bringing in KTN (Knowledge Transfer Network).

Next Year's WGIN Field Trial Visit

The Summer Management meeting normally includes a trip to view the WGIN Field trials. Last Year this was hosted by Rothamsted, and the year before JIC.

JIC are holding a PBI event to celebrate its one hundred year anniversary. Event will take place on 20th June 2012, SO to confirm with SG the details and disseminate to all. **Action**

Agreed to hold summer 2012 meeting at JIC End of June / Beginning of July dates to be circulated via email.

Plans for Cereals 2012

Rothamsted are focussing on new 20:20 wheat project including pathogen and Pre-Breeding Lola with some drought work. However there will be the usual WGIN Take-all display.

JIC are stepping back from Cereals and concentrating on their own PBI Centenary event.

Nottingham will have a stand with a poster of WGIN trial.

Coordination of HGCA and Rothamsted stand. HGCA have finalised plots and MH and DB to liaise. **Action**

Stakeholders Meeting

If anyone would like to display a poster than send details to Suzanne.

In relation to the afternoon panel discussion we were seeking a commercial agronomist. We now have two nominations, one from Masstock and one from The Arable Group. Agreed to ask both nominations to sit on panel.

Poster on Good 2nd Wheats:

Data have been put together from the HGCA Recommended List and from individual variety cards.

Comments:

Chilton Eyespot score down to 4.

Show the drop in yield between 1st and 2nd wheat.

Add in health warning that comments found on variety leaflets should be read as "Commercial Comments".

Discrepancy between cards / recommended list data noted, as the RL data was explored.

New data is due out next Wednesday for recommended list. Suzanne to update. **Action**

Stakeholder Panel Discussion - Questions:

The questions received have been organised into five categories:

Agronomy

Plant Breeding

Yield and yield quality

Soil Fertility / Soil Structure

Pathology

Some key question identified during the discussion:
Do we need different agronomy fertiliser, irrigation etc.
Plant breeders say that some varieties are good 2nd wheats but why – how do you identify they are different?
Final performance is based on yield
Pathogens - what is the role of disease on second wheat performance?

Introduction to the discussion panel should include slides showing 1st & 2nd Wheat data – could we use Broadbalk data experiment? **Action**

PJ – Speak to Ed Flatman

Suggested speak to Masstocks

Send questions out to Panel and ask them to identify questions that are relevant to their expertise. Any data they would like to provide for intro.

Is there a national record of how many 2nd and 3rd wheats are grown? Dhan suggested Bill Handley RL Technical Manager may have the required facts and figures. **Action**

Meeting Feedback

ITMI Mexico –feedback to be rolled over to stakeholder meeting and Graham Moore to include in his talk an update on Wheat Improvement– **Action** KHK to speak with GM

BBSRC CIRC – No representation of GINS at first dissemination meeting, Defra felt that there should be participation. PS said that the meeting was for people involved in the club. Suggested that we have a poster at the meeting on WGIN rather than attending. Interaction should be through Jayne or Steve.

ITMI – Keith co-ordinating a 50k wheat chip – but the UK needs to avoid duplication of activities possibility ongoing elsewhere.

AOB

Date of next meeting Tuesday 21st February at Rothamsted.