



WGIN Management Meeting

21st February 2012, Rothamsted Research

MINUTES

Attendees:

Peter Shewry, Kim Hammond-Kosack, Malcolm Hawkesford, Simon Griffiths, John Foulkes, Richard Weightman, Farhana Amin, David Cooper, Suzanne Thrussell, Peter Jack, Stephen Smith, Matt Kerton, Mike Grimmer, Simon Berry, Dhan Bhandari, David Feuerhelm, Peter Werner, Claire Fremann, Cathy Mumford, Susan Freeman, Luzie Wingen, Andy Greenland, J DeSilva,

Apologies:

Simon Penson, Keith Edwards, Nick Balaam, Thomas Joliffe

Welcome – Peter Shewry:

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

[Presentation](#)

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

The overall aim is to look at traits not only quantitative but also qualitatively as the data sets increase. Based on A x C mapping population, the aim is to develop new trait NILs which will include grain length (chromosome 5A) and solid stem (3B) characteristics.

Q. Are there any advantages of the solid stem phenotype ?

A. No, none confirmed yet under UK conditions – work in progress will compare the effects of water limitation on lines +/- solid stems. There appear to be no obvious disadvantages to having a solid stem (in this respect it is like the presence or absence of awns on the ears).

Q. Does solid stem alter the harvest index?

A. No

Q. New NILs – No-one came forward with any new suggestions.

A. Agreed to continue with JIC recommendations.

Q. Can the QTL analysis be put on the website?

A. Agreed to summarise data in a table to be put on website. **ACTION 01/21.02.12 – SG to summarise the QTL analysis data**

Objective 8 – Nitrogen Update – Malcolm Hawkesford

[Presentation](#)

Malcolm provided an update on Objective 8. Information on new lines in the Diversity Trial is in the slide set.

Q. Is there merit in comparing the RRes and JIC datasets?

A. Height data have been compared, however yield data have not which may be interesting.

Q. Does increased height mean increased root length?

A. Yes the two traits are positively correlated

Q. Have you done any “digging up” of roots to validate the lab-based measurements?

A. No

Objective 9 - Drought tolerance - John Foulkes

[Presentations](#)

Q. Why is it that when yield goes up, WUE goes down?

A. This is because there is a trade-off between post-anthesis water use and WUE. Increasing stomatal conductance (i.e. accessing more water) decreases WUE but results in a proportionally bigger increase in post-anthesis water use. So under UK drought conditions the best strategy for high grain yield appears to be for plants to maintain high stomatal conductance and water use during grain filling even though there is a trade-off with WUE.

Subcontractor Project - UoN

Q. Drought tolerance index, Cadenza has one of the lowest scores- why is this so as Cadenza is solid stemmed?

A. Solid-stemmed cultivars may have with higher contents of stem structural carbohydrates rather than non-structural (water-soluble carbohydrate, WSC) carbohydrates compared to hollow-stemmed cultivars. Although stem biomass may be higher in solid- compared to hollow-stemmed cultivars, the amount of stem WSC may be similar or lower, since stem WSC (% DM) may be lower in solid- compared to hollow-stemmed cultivars.

Objective 10 & 11 – Take-all disease & Septoria– Kim Hammond-Kosack

[Presentation](#)

C. It has required a lot of work to reduce the number of lines down to 30% of the starting number in 4 years .

A. Yes. There are two main reasons for this. Firstly, the root evaluations are not completed until after the next year field trial had been sown, therefore it took 2 years to discard the susceptible genotypes. Secondly, the field season 09/10 was especially dry and there was minimal take-all disease, therefore we discarded only a few lines.

Q. How interested are breeders in the build-up in field?

A. The LowTAB trait would complement the in root resistance trait. Ideally would like all elite UK wheat varieties to possess this trait. In this scenario, the farmer / agronomist/crop consultant would not be constrained by varietal choice when considering growing in subsequent season's a 2nd or 3rd wheat crops.

There is a TSB project on the LowTAB trait which involves 3 of the wheat breeding companies.

Subcontractor Project – ADAS (Richard Weightman) with JIC, JHI and Aunir Ltd

[Presentation](#)

Data on WGIN website (excel spreadsheet format plus report)

Q. Are there further sets of material from previous years?

A. The samples were multiplied by JIC. In the future, ADAS would like to do replicated trials with better control of soil moisture and nitrogen availability. It should also be noted that simply screening samples is not an end in itself, but there is a need to do wet chemistry to confirm NIR predictions, at least on a sub-set of lines.

Q Is the NIR calibration available?

A. No it is not available to breeders because it was developed as part of Green Grain project (LK0959). The calibrations can be used in this type of project for screening other reference datasets and the data made available for public use, but the calibrations themselves should not be distributed for commercial use.

Scientific Outreach

Last year

- Workshop in EMBRAPA, Brazil. Not much output from it initially. However we are waiting for matching funds from Brazil to apply for funding for a number of projects. Three joint projects have been submitted since the workshop.

- PS has looked at the options for a joint workshop with North America. This has not taken off and we have struggled with interactions with North America in the past.
- India – PS visited in December 2011. BBSRC has arranged a joint UK-India Crop Genomics Workshop at end of May. Once this has taken place we can agree strategies to support collaborations. Promising for future. PS to lead.
- Innovate 2011 – Food Security **XXX KHK**

Current Year

- CIRC Meetings – this is a closed meeting. However WGIN could try to have a poster there. **ACTION 02/21.02.12 – KHK to ask Martin Parry to take their general WGIN poster to the next CICR meeting.**
- HGCA – Have Quarterly bulletins In Focus, could feature highlights from WGIN. **ACTION 03/21.02.12 - DB to supply details to ST for the HGCA communications team.**
- Stakeholder Meeting – the notification goes out to a wide audience
- Stakeholder Newsletter
- Eucarpia meeting in Budapest in May
- Fascination of Plants Day May 18th
- BSPB – newsletter – WGIN could produce an article **ACTION 04/21.02.12: ST to contact**
- Cereals 2012. The RRes stand to include the general WGIN poster Poster
- RRA distribution list to receive the WGIN Newsletter
- NIAB friends – **ACTION 05/21.02.12 – ST to approach to distribute the WGIN Newsletter**
- Friends of JIC – **ACTION 06/21.02.12 – ST via SG to approach to distribute the WGIN Newsletter**

All – To Let Farhana know if WGIN is mentioned at any of the above and in what capacity.

Stakeholder Meeting Nov 2011

Feedback received was very good with many people commenting very positively on 'the growing successful 2nd/ 3rd wheat' panel discussion in the afternoon.

It was agreed that although it was a long day the panel session was well supported and a highlight of the day. It was agreed that we should reduce the total time by 30 min.

A new Topic for the panel discussion in 2012 was discussed, options were:
Drought
Nitrogen
Consensus so far : Optimising Inputs in Dry years

Suggestion - to reduce the panel size to 6 persons

It was agreed to look for a date in November for the 2012 meeting ensuring that it doesn't clash with:

Oregon Stakeholder

[Breeders Variety meeting?](#)

Nabim meeting

ACTION 07/21.02.12 : ST to book date by end March 2012

New Projects

Phytopath

See [presentation](#) and link to [website](#).

Q. Is the genome of only one race per species displayed?

A. Yes, one race acts as the reference genome and is displayed in the browser as the completed genome. If other races have been sequenced then the variant sequences are displayed below.

GRASP

See [presentation](#)

Not funded at the moment. The aim is to look at different types of information from databases and assemble them together. An International Workshop has been funded for one day for about 30 people to take place in Autumn 2012.

If anyone is interested then they should contact [Rumiana Ray @ UoN](#).

WGIN 3

Background by David Cooper (Defra)

Defra is undergoing a period of change which will continue over the next year that will see a new structure due to be rolled out in April 2011 and major new Policy Programmes. These are as follows:

Rural Development Sustainable Development & Crops – Lead Sarah Hendry
Sustainable Land Management & Farming – Lead Robin Mortimer

A joint evidence team will serve both areas.

Other new policy programmes which are less applicable to WGIN are:

Food and Green Economy (to include food policy, pesticides & GM)

Climate Change

Water Flood

Marine & Fisheries

Animal Health & Welfare (to include Plant Health)

Existing projects will be allocated into one of the above sectors and, as normal with re-organisations, questions will inevitably be asked in the future as to what are the priority projects and why is it important that Defra be involved.

At this stage WGIN need to build up evidence for a case to continue with WGIN 3. It is important to do this now before next June when Defra will call for future bids. Defra require written evidence to support the statement **“What can WGIN provide that cannot be provided elsewhere?”**

WGIN is considered broad – and a pioneer in applied research that feeds into policy and collaboration research to end user. It has strong network and Knowledge Transfer aspects with workshops and has a large legacy to build on, however questions will be asked that is it something:

- That is nice to know
- Necessary to have
- Really needed and appreciated by stakeholders
- Essential acting as a catalyst

Industry views will be important – and any constructive views should be sent to DC + FA.

ACTION 08/21.02.12:

Written evidence of support on “Why does the UK Wheat Industry want WGIN 3” should be put together and include support from Breeders, BSPB support? HGCA? Main Contractors and Individual stakeholders. **Defra are looking for a Mini Link Completion Form.**

Stakeholders felt that WGIN should look at all aspects including positive areas and those areas that could be improved upon and compile a collective view. Stakeholders’ views from the meeting were:

Positives

- WGIN has a unique Role in Network Collaboration
- Meetings are more open and stakeholders have more meaningful conversation than when we started.
- Resources A x C
- Flexibility in bringing back neglected topics such as Take-all with new technology
- Overall Flexibility – Things change in 5 years
- Co-ordination
- Spin-off projects
- Streaming of deliverables
- Resource built up over years that is now becoming useful
- Stakeholder meeting – kept up to date with issues
- Breeders targets compare with own
- Good at producing things to build on
- Keystone that holds other activities together

Could Improve Upon

- Slow in sharing data + combine datasets + willingness to do that
- Some missing people - don't know it is happening – IMPACT
- Understanding where WGIN operates and ends and where BBSRC operates - Clear Distinction

WGIN 3 – What we could provide for the future

- Subcontract service options flexibility to look at new things – Resource to phenotype NILS?
- To start some sub-contractor projects mid-way through the project, not all at the beginning
- 90k Chip co-ordinator role in co-ordinating genotyping
- Time to build up resources commitment to fund for a reasonable amount of time things are now coming out of pipeline.
- As climate gets more variable long term datasets available will become invaluable.

DC commented that WGIN have proved in the past, each time questions arise we do answer them and there is a need for WGIN.

It was agreed that Rothamsted would compile a collective view to send to Farhana; however any letters of support will benefit our case. (see Action 08/21.02.12 above)

Broadbalk Experiment

About 2 years ago Rothamsted sought advice from some of the Breeders about changing the variety on the Broadbalk long term wheat experiment. Rothamsted usually do this about every 10 years but have been growing Hereward since the early 1990s. They now need to change to a modern high yielding breadmaking wheat and wish to select a variety which is likely to be grown for some years.

Current options are:
Hereward – no change
Crusoe
Gallant
Another Variety

ACTION 09/21.02.12: If any of the breeders have any recommendations then please send to Peter or Malcolm by early March

AOB

Date of next meeting is 28th June 2012 at JIC. This meeting will include a visit to the field trials at JIC.