

**WGIN management meeting**

**12th August 2010, JIC, Norwich**

**MINUTES**

**Attendees:**

Peter Jack, Peter Werner, James Holmes, Andy Greenland, Ian Mackay, Jayne Brookman, Paul Nicholson, Chris Burt, John Snape, Rowan Mitchell, Neil Paveley, Keith Edwards, Sarah Holdgate, Simon Griffiths, John Foulkes, Simon Orford, Graham Moore, Peter Shewry, Martin Parry

**Apologies:**

Lesley Smart, Ruth Gordon-Weeks, Malcolm Hawkesford, Andy Phillips, Dan Bandhari, Mike Grimmer, David Feuerhelm, Thomas Jolliffe, Elke Anzinger, Kim Hammond-Kosack

**Welcome – Peter Shewry**

**Simon Griffiths: Objectives 2, 3 and 4 - Tools and Resources***Power Point presentation (001 SG WGIN August 2010 JIC)*

Developing NILs for impact QTL from Avalon x Cadenza: we are now selecting homozygotes from BC2. These QTL regions represent regions of interest for height, flowering time, or yield but they might coincide with regions of interest for other traits. See presentation for marker intervals.

The Watkins collection has been expanded to 1088 lines by including *Triticum compactum* lines. We have crossed 10 Watkins lines with Paragon, 8 F5 populations have been developed for mapping. We have also crossed Paragon X CS and Paragon X JIC synthetic. We are mapping the diversity of the Watkins collection using 59SSRS and COS markers (but not DarT). Will allow for the selection of genotypically defined core sets and a similarity matrix for association analysis.

Question: Where is molecular diversity within the Watkins collection?

Comment: John Foulkes is scoring physiological traits in Watkins to identify candidate parents for mapping populations for the study of drought tolerance.

Question: Why is there a 50/50 split in the Watkins population?

Answer: Early stage of analysis, some markers seem to highlight this division.

Comment: What about an interaction between LoLa and WGIN? They are highly complementary.

Michael McKay (AUS) with duplicate set of Watkins mentioned by JWS.

**Chris Burt: Eyespot resistance in the Watkins Collection**

*Power Point presentation (002 CB WGIN August 2010 JIC)*

Eyespot had a 1.2% impact on UK wheat yields in 2008.

Resistances currently used are *Pch1* from *Aegilops ventricosa* and *Pch2* from Cappelle Desprez. A further QTL on 5A of Cappelle Desprez is also believed to be widely used. However, all resistances have limitations.

In a search for novel resistances, Richard Gutteridge screened 740 Watkins lines in a field trial for take all and other stem base diseases. A heavy and uniform natural eyespot infection identified some lines with a high level of eyespot resistance. Chris applied markers for knownresistant genes *Pch1*, *Pch2* and the 5A QTL to a subset of 45 resistant and 33 susceptible lines.

*Pch1* was, as expected, not found as it was introduced into wheat in 1967

*Pch2* was identified in both resistant and susceptible lines and did not account for any observed resistance.

The 5AQTL was present in five of the resistant lines and may be responsible for some of the observed resistance.

Watkins 827 was in the resistant group, but has none of the known resistances. This has been used to create a Paragon x Watkins 827 F2 population, currently in SSD.

Discussed possibility of screening LOLA population as a side project

Question: – How many markers for *Pch2*?

Answer: 2 flanking plus a third closely linked

Question: – Is this a conservative test? What are the chances of false positives? -

Answer: Unknown. However, there could be both false negatives and false positives. missed

5AQTL is only present in the resistant group of the collection.

Question: How many markers?

Answer: 2 only as there is not a high marker density

Question: Do you have data on the whole collection?

Answer: Genotype data only on extreme types and we need to validate resistance.

Watkins line 827 – no known resistances present, so Paragon x 827 is potentially interesting population for following up.

Comment: These are interesting leads, what next?

The population needs to be developed through LOLA – supply of germplasm by Simon Griffiths

Comment: Need to test resistances observed, particularly in 827 in replicated experiments in controlled environment as this work is all based on 1 years field data with a highly variable pathogen.

Comment: assess what we can study in further on WGIN over next 9 months

***Jayne Brookman*: Update on the Crop Improvement Club**

*Power Point presentation (003 JB WGIN August 2010 JIC)*

The Crop Club is a response from the BBSRC to the requirement to provide support to underpin industry needs and also includes a separate training initiative in the form of additional Crop Club-specific studentships.

The Industry clubs aim to develop industrial academic links within communities although this is very well established in the plant breeding area compared with other sectors such as biorefining.

Industry members contribute a fixed sum for a period of up to five years to belong to the club, this total is then increased by a factor of 10 from the BBSRC plus additional funding from the Scottish Government to give a total of approximately £6.5M. New members are welcome to join and the BBSRC will provide additional funds to match their contribution.

Question: How are the projects distributed?

Answer: Assessments are made from the proposals received. There are no quotas.

Question: I can see there are no proposals for seed composition in oilseed rape (OSR). Has OSR a long way to go in research terms?

Question: What is the earliest start date?

Answer: We are looking at July 2011

Question: field material for September sowing?

Answer: difficult to organise trials

Question: historical process?

Answer: Refereeing will take place immediately in September

Comment: It is difficult to plan now for costings.

Answer: Organise yourself appropriately once referees report is received add another A4 update.

Question: Will you respond to referees comments?

Answer: Yes

Question: Will today’s information be available to all?

A: Yes, the presentation will be available on the WGIN website shortly.

**Peter Shewry: Report from the Serbia wheat workshop**

Additional Information:

Serbia visit:

Three UK breeders were present as well as representatives from ADAS, the University of Nottingham, RRes, JIC and NIAB

We were impressed with the work done at Novi Sad and Martonvásár

Other labs are having difficulty – communication is a problem (Estonia Bulgaria etc)

How to help?

Answer: We have received a proposal from Boris – a round robin approach

We will make an effort to follow up promises/ideas

Question: What about Lab placements from country in question?

Answer: Alex in KG group at RRes

There is funding to send people. £2K per person. (10 people)

Brazil at forefront of people’s thoughts – extensive wheat programme – Nick Talbot interested

Graham Moore, no others approached yet

Need to be professional – no false promises

JWS to circulate proposal with Boris

Comment: What about collaborations with India?

Comment: PS Struggled to get links in past

Comment: BBSRC keen for China/India links

JWS – links with India by the end of this month

**Keith Edwards: Update on sequencing project**

Deliver within next week 5 august 27th fully screenable and fully downloadable – 400GB big

Change of objective to sequencing project – online 50bp reads CS \* 5 to \* 20.

End of year – full coverage of 5 genomes

SNPs – none defined yet

700,000 transcripts mined

We have 7500 SNPs, 5300 are available to laboratories as database.

We are validating for polymorphism at moment.

For Lola the hope is to have 10,000 validated Snps – little knowledge of where he’ll be next March

SNPs will not be an issue, more how to use them in academia

Comment: The project has moved forward quickly.

Answer: The technology moved quickly, we cannot plan to far in advance due to this speed of technology change. In 12 months time it will be possible to sequence individual genomes at £15-20K.

Of 5300 SNPs : ½ will be validated

Question: When will they be validated?

Answer: within existing programme

Question: Are there predictor gene models?

Answer: Yes.

**Ian Mackay: Community efforts on phenotyping**

*Power Point presentation (004 IM WGIN August 2010 JIC)*

High throughput field phenotyping - Why, how, what next

Is phenotype data the bottleneck?

It was proposed 10 years ago that phenotype data would race ahead

There is a need for large populations

Multiple QTL reactions over time/space

Effects of QTL are changing over time: e.g. “functional mapping”

Lemma Tec. Platform

Question: Relevance of data in small scale?

Answer: further meeting of relevant parties will take place on the 31/8 at Sutton Bonnigtom.

Question: What relevance of wheat in glasshouse?

Answer: To validate what is being seen on field basis.

Comment: Nottingham/Aberystwyth potential ??? Lemma Tec

LOLA proposal – below ground rooting links only with Aberystwyth

The UK is behind in the field of developing mobile systems for analysis in the field.

Question: Could we benefit from international initiatives?

Question: What should be measured?

Answer: The problem is that there is a lot to choose from for measurements.

Comment: It would be ideal to create a tool that can be used for all purposes and that can be moved between research sites rather than everyone having their own.

Comment: We have prototypes of our own developed using past ideas/problems.

This prototype is not site specific, but organisation specific

Comment: data relevance issue

Comment: Everyone has his own wishlist.

Comment: e.g. canopy reflectance

Comment: Fertile ears are a problem to measure

Comment: source/sink effect of QTL need vast amount of measurement

Comment: There are niches and opportunities for this in breeding programmes

PW Series of simple devices (tractor, ?, etc)

IM theoretical requirements at the moment

Comment: Application probably not possible within LOLA advancement. What about a workshop

Answer: Not moving fast

Comment: A small group is needed from community

Comment: Industrial focus from workshop would be good.

Comment: We will address this are the next Monogram meeting.

Question: Do research councils want to see this?

Answer: Yes.

Comment: It would be good to have the workshop before Monogram

JWS can use of contacts with INRA

Comment: Can volunteers to get group together? Membership of a small committee to progress ideas: Andy Greenland, John Foulkes, and Martin Parry

Equivalents of St. Petersburg in Cambridge 4 yrs time