

**WGIN 3 Management Meeting 3
28th October 2015 @ Rothamsted Research, Harpenden**

This was the third Management Meeting of the **DEFRA** funded **WGIN3**.

Minutes

Attendees:-

Peter Shewry (PS) (chair), Lesley Smart* (LS), Kim Hammond-Kosack* (KHK), Michael Hammond-Kosack (MHK) (RRes), Simon Griffiths (SG), Clare Lister* (CL) (JIC), Dhan Bhandari (DB) (HGCA), Phil Tailby (PT) (Limagrain), Lucy James (LJ) (ADAS), Sarah Holdgate (SH) (NIAB), David Cooper* (DC)(Defra)

[*=gave oral presentation]

Apologies: David Feuerhelm (Syngenta), Ruth Bryant (RAGT), Jayne Brookman (KTN), Malcolm Hawkesford (RRes), Andrew Riche (RRes), Jacob Lage (KWS), Stephen Smith (Elsoms), Giulia Cuccato (Defra),

A. Welcome – Peter Shewry

B. Presentations:

1. Review of minutes from July 17th (KHK)

Approved by all

Regarding the comment made by Alison Bentley (NIAB) about the release of new maps based on the NIAB MAGIC population, the source of this should be added. SH confirmed that this information has not yet been published.

2. Tools, Resources, Genotyping and Phenotyping (CL)

Clare gave updates on projects 1, 2, and 4 from the Griffiths lab (see below). Details in presentation online.

Unfortunately, Alba Farre-Martinez's submitted paper to TAG on the NIL based validation of Avalon x Cadenza QTL was rejected because of only two years data. This is now under review in Genetics

2.1 Dissecting drought tolerance segregation for Ppd (photoperiod) sensitivity

C. KHK –please could the weather capture monthly rainfall data be added into the slide set (put on WGIN website by MHK on January 27)

C. SG - Garcia nominated as best drought tolerant line from an earlier project lead by Eric Ober (Improving water use efficiency and drought tolerance in UK winter wheats (2007-2010, Defra-SA Link, HGCA, KWS, RAGT, Limagrain).

C. CL – there were two reps of each irrigated and non-irrigated plot. JIC need to purchase soil probes. Delta T ml3 seems the best or a similar higher spec model

2.2 Agronomic impact of WGIN target genes

For the Autumn -drilled trials, single-rep, yield trials of NILs carrying multiple alleles of Rht's, Ppd's, Vrn's, eps, grain shape, yield...DTEM, Height and Yield have been scored, TGWT is still to be measured.

For the 3-rep, spring-sown, yield-trial of subset of Paragon Library, data on DTEM, Height, Yield and TGWT have been collected. The Paragon Library subset yield trial is being repeated, also included in Drought Trial. Additionally, eight lines will be drilled under a phenotyping platform, Phenospex (2 randomised blocks of 16 +/- additional nitrogen).

Q. KHK – which company makes these platforms?

A. CL – Phenospex only produces the scanners and we buy in the hardware.

2.4 Chromosome segment substitution library for Avalon x Cadenza to create two TILING populations

Anticipated that in 552 NILs (250 BC2 NILs in Avalon background, 302 BC2 NILs in Cadenza background) every locus of Cadenza will be represented in Avalon, and vice versa. However, the marker density is considerably less for the D genome compared to A and B.

C. PS – more needs to be done to get more markers for D-genome

C. KHK – likely to hear about this at WGIN Stakeholder Meeting in Nov 2015 (Keith Edward's presentation (see (8.) below)

Q. PS – any reason for the thin coverage of D genome?

A. SG – considerably less polymorphism

C. SG – these maps are ready to go on WGIN website

Action: MHK to interact with CL regarding best format etc. [nb: already done, maps received as PDFs Nov 13th], maps will go live 27-29th January.

3. Resistance to Aphids (LS)

Q. PS – how are the wave patterns in the EPG bioassays linked to aphid behaviour?

A. LS – based on cross section microscopy. Also, the wave patterns for the different behaviours are very distinct.

Q. SG – how reproducible are the EPGs/

A. LS – the ones shown in the presentation are the best and are moderately reproducible. BUT need to train a new person to continue this work.

Q. CL – could there be a physiological difference in the leaves of the various Tm lines to account for resistance?

A. LS – light microscopy reveals no real differences

Q. KHK – might be worth crossing the resistant Tm lines to each other as well to see if there are synergistic effects.

4. WGIN in the context of Defra’s Strategy (DC)

David Cooper gave an overview of Defra’s 5 year strategy which includes:

- Unleashing the potential of food and farming
- Boosting UK productivity
- Data availability and utilisation
- Interaction with Agrimetrics and CHAP (Crop Protection) AgriTech Centres
- Better domestic regulation (involving interactions with the Food Standards Agency, CRD etc)
- Increasing domestic and export markets

For WGIN it would be most important to align with the first three objectives and the Centres. The strategic placing of WGIN within these objectives is important to ensure future funding. Although some cuts have been successfully fended off, within Defra lots of changes are imminent, and regardless of the final Spending Review settlement, Departmental R&D budgets will continue to diminish.

Also, an industry-led 25 year food and farming strategy is under development, and the question is how will crop genetics fit within this strategy? Research leading to innovative is an important component, however, it should not be assumed that Agritech does or is able to do everything. It is very important to constantly stress that the GINs are incubating and accelerating ideas so that WGIN stimulates innovation prior to Agritech and helps gain initial industry interest. It will be very important to emphasise in Workshops and Stakeholder Meetings what the WGIN vision for the future is, including what WGIN can do, and engaging potential participants at an early stage. Within this 25 year plan there is a real opportunity to “realise genetic potential” and “harnessing modern techniques” (including gene editing and where appropriate GM). DC emphasised that over its 13 year span WGIN in its unique position in the “translational R&D” pipeline has managed to make things flow BUT now needs to show that everything WGIN is currently working on is relevant and clearly aligned to the various pathways of the 25 year plan. It is important to constantly stress the necessity of (scientific) precursors before industry comes in to commercialise.

Defra hopes to keep things on an even keel next year, despite the Defra policy and evidence restructuring in progress. In the meantime Defra is continuing to fully support WGIN but as mentioned increasing pressure on R&D budgets means that every opportunity to show what it is delivering needs to be taken.

5. Resistance to Take-all and yellow rust diseases (KHK)

6. Exome Capture @ MYcoArray (KHK)

7. Update on Turkey Workshop (PS)

The workshop will take place from 23rd to 28th May 2016 in Konya (via Istanbul). The organiser in Turkey is Alex Morgunov (Turkey-CIMMYT, Ankara). The Thursday (26th May) has been marked for a tourist trip to Cappadocia. VISA applications can be done online.

PS has applied for funding for 12 people (£700pp) from the BBSRC, but flights need to be booked early and before the outcome of the grant application is known. All people contacted so far have agreed to self-funding if need be.

Q. KHK – what is the upper limit of UK people?

A. PS – about twenty including breeders.

C. DC – WGIN must not (be seen to) fund this in order not to appear to have any slack.

8. Update on November Stakeholders' Meeting (MHK)

All people asked to give a presentation agreed or recommended a willing colleague. The list of non WGIN (apart from Dhan) speakers now includes:

- An Overview of SARIC – *Liliya Serazetdinova* KTN
- New AHDB Strategy – *Dhan Bhandari* AHDB
- YEN and current Wheat Research @ ADAS – *Daniel Kindred* ADAS
- Innovative Farmers Network – *Tom MacMillan* Soil Association
- MAGIC – *James Cockram* NIAB
- "What does high throughput genotyping tell us about modern wheat"
– *Keith Edwards* Bristol University
- Agrimetrics: the first Centre for Agricultural Innovation is open for business
– *John Crawford* RRes
- Nitrogen availability influences Septoria defence in wheat
– *Ari Sadanandom*, Durham University

For the first time, with the help of Kim Freeman (RoCRE), an Eventbrite page has been set-up for registration. As of 28th October 21 people had registered online. [nb. this increased to 89 by November 10th]

9. Stakeholder Panel Discussion (PS)

Because of the large number of presentations the Panel Discussion has been postponed to the joint GINS (WGIN, OREGIN, VEGIN and PGIN) event to be held 22nd February at the John Innes Centre and (see below).

C. Any other business

1)

Q. PS - progress regarding the joint GIN meeting?

A. KHK – aiming to make this high profile and inviting the relevant ministers. All PIs had been contacted, but half need chasing up.

C. DC – ministers normally only come if they are directly involved.

See WGIN website for latest details of the planned event to be organised jointly. The defra minister George Eustace will be giving a speech followed by a Q&A session (10-11 am) 22nd February 2016 at The John Innes Centre

Q. DC – what is the date for this workshop?

A. KHK – aiming for late January/early February 2016 – confirmed as 22nd February 2016

C. KHK – the postponed Panel Discussion on Nutrient Uptake could be incorporated into the joint GIN workshop – confirmed to be in the afternoon.

2) CL will send marker data and list of Paragon NILs to KHK/MHK for upload to the WGIN website. Action - KHK to set up drop box for upload of anticipated huge maps [n.b. received on November 13th, all maps sent directly as PDFs (<500Kb)]

3) The usage of the WGIN website and usefulness of the Stakeholders' Newsletter were queried.

C. PT – Google Analytics could be used regarding website use (PT -> KHK)

C. PT – the newsletter could be circulated through BSPB

C. SG – volunteered to attend BSPB meetings once a year to increase WGIN awareness

C. PT – the website should clearly state “what WGIN does for farmers”.

C. SG – small breeders feel left out

4) C. SG/CL – regarding WP3.2 (retiling path) homogenous lines should be available by February 2017, ie before the end of this WGIN Defra funded period.

5) C. SG – CIMCOG (CIMMYT Mexico Core Germplasm Panel) lines available through SG/JIC. CIMCOG is a collection of sixty landmark CIMMYT varieties with high expression of yield potential traits.

6) C. MHK – resources section of website needs to be updated. This is now in progress with the help of Henry Osim, RRes.