

Minutes of OREGIN Management Meeting May, 2025

Date: 2025-05-19

Time: 11:00 AM - 1:00 PM

Location: Elsoms (in person + online)

Chair: Andrea Harper

Attendees: Ian Bancroft, Fay Stemp-Walsh, Zhesi He, Tom Crocker, Coretta Kloeppe, Tom Wood, Steve Penfield, Andrea Harper, Bruce Fitt, Yongju Huang, Chinthani Karandeni-Dewage, Charlotte White, Florentina Petrescu, Kristina Grenz, Louise Everest, Nigel Padbury, Sarah Hawthorne, Tom Wood, Mark Nightingale, Peter Bancroft **and others from in-person group**

1. Welcome & Introductions

Andrea Harper opened the meeting. Brief introductions were made.

2. Minutes and Action Points from Previous Meeting (Ian Bancroft)

- **Accepted without amendments.**
- Several previous action points to be addressed within the relevant part of the workplan.

Updates on action points:

- Subcontract discussions around genome editing are ongoing; DEFRA awaiting proposed wording.
- Pathogen populations and isolates from John West and Yongju Huang will be covered under project updates.
- Fungicide resistance data discussed; concern over increasing fungicide resistance and dry spring impact.
- Seed sources with different levels of resistance to LLS pathogen are being explored, but genetic sources remain confidential.
- Genomic resources (e.g., pure Imola mutants) were discussed — no additional seed needed.
- UMAMIT gene variation studies postponed for later in project.
- Gene editing target finalisation and transformation background to be addressed in Steve Penfield's update.
- Climate modelling data sharing still pending.
- Ian Bancroft: Submitted DEFRA milestone claim invoices, including partial milestone claims.
- Steve Penfield: To follow up with legal teams on subcontract progress.
- Mark Nightingale: Attempted to obtain seeds with LLS resistance — no confidential sources confirmed; suggested sourcing commercial varieties for comparison.

- Yongju Huang & John West: Updated on pathogen populations and isolate work during the session.
 - Tom Crocker: To circulate regionalised climate projections for arable areas.
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3. Project Management & Administrative Matters

Lead: Ian Bancroft, Fay Stemp-Walsh

- Subcontracts:
 - Rothamsted: Sent for signature.
 - Limagrain: Minor issue regarding direct commercial use; pending resolution by Florentina's legal team.
 - JIC: Awaiting legal resolution between York and JIC. Steve to follow up if needed.
- Publications: DEFRA requires acknowledgment in OREGIN-funded papers — pre-submission review appreciated.
- OREGIN5 final report **accepted** by DEFRA; no further changes required.

Action Points:

- ✓ Steve Penfield: Email JIC legal team to escalate subcontract delay.
 - ✓ All PIs: Send publication drafts to DEFRA for review prior to submission.
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4. Updates on Work Programme

A) Oilseed Rape Network & Traits

i. Physical Resources (Yongju Huang)

- MAGIC field trial isolates collected.
- Significant light leaf spot insensitivity issues noted despite fungicide application.
- Data on disease severity across genotypes from field sites collected.
- Proposal to investigate new pathogens (e.g., mycoviruses) as PhD topics.
- A short review article has been accepted in *Plant Health Cases* journal.

Action Points:

- ✓ Yongju Huang: Share newly sequenced pathogen genomes and comparative field images.
 - ✓ Yongju Huang: Provide isolate and severity data to the central resource hub.
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ii. Information Resources (Yongju Huang)

- Project website regularly updated with meeting schedules, data, and documentation.

Action Points:

- ✓ Yongju Huang: Maintain updates on data and project milestones.
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iii. Mutagenesis for LLS Resistance (Peter Bancroft)

- 1500 Gy gamma-irradiated Imola panel harvested for seed.
- 1750 Gy failed; 2000 Gy had heavy contamination.
- Work to identify genuine Imola using PCR screening completed.

Action Points:

- ✓ Peter Bancroft: Keep Coretta and others informed on seed availability for testing.
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iv. Hybrid Vigour (Peter & Ian Bancroft)

- 131 hybrids created via CMS crosses with both parents (from 141 lines).
- Rooting trial at ADAS planned for autumn 2025.
- Selection of subset based on phenotypic diversity.
- Clarification given: 50–100 seeds per line for field trials, not thousands.

Action Points:

- ✓ Peter Bancroft: Coordinate hybrid subset delivery for autumn 2025 pretrial.
 - ✓ ADAS/Mark: Plan pretrial in October and confirm ADAS capacity.
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v. Glucosinolate-Based Pest Deterrence (Madeleine Berger)

- 72 F1 plants replanted; currently flowering.
- Follow-up phenotyping and compound quantification ongoing.

Action Points:

- ✓ Madeleine Berger: Present update in December meeting.
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B) Novel Technologies in WOSR**i. Wild Relative Introgression (Ian Bancroft)**

- Zhesi produced data to support breakpoint identification.
- Automated detection development in progress.

- High homology between C genome and introgressed regions is a key challenge.

Action Points:

- ✓ Ian/Zhesi: Develop heuristics for breakpoint identification by end of 2025.
 - ✓ Zhesi He: Support with automated scripts once initial logic is defined.
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ii. Radiation Mutagenesis (Peter Bancroft)

- New gamma panels (Mazovievsky and Duplo) established and flowering.
- Seeds will be harvested soon.

Action Points:

- ✓ Peter Bancroft: Store and document new mutant panel seeds.
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iii. Genome Editing (Steve Penfield)

- Focus on UMAMIT transporters (multi-gene knockouts).
- Constructs to be assembled in Campus background.
- Strategy: reduce guide count to avoid promoter silencing.

Action Points:

- ✓ Steve Penfield: Conduct transient assays for guide validation in campus genotype.
 - ✓ Steve Penfield: Assemble multiplexed construct and initiate transformation.
 - ✓ Steve Penfield: Submit summary case for additional funding support, if appropriate.
 - ✓ Fay Stemp-Walsh: Review Steve's funding case (if one is submitted) with committee for early release of reserved resources.
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iv. ML for Variant Detection & Association (Zhesi He)

- AI-based tools (XGBoost, DeepVariant) being evaluated; pipeline optimisation ongoing.

Action Points:

- ✓ Zhesi He: Update pipeline and ML workflow.
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C) Alternative Oilseed Crops

i. Climate Modelling (Tom Crocker)

- Regional prediction maps not yet shared; requested from Bong.

Action Points:

- ✓ Tom Crocker: Share regional maps and outputs with Mark Nightingale by July.
 - ✓ Tom Crocker: Meet with OREGIN team to align hazard priorities via stakeholder input.
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ii. Hemp Evaluation (Mark Nightingale)

- Planning 2026 demonstration trial.
- Timeline dependent on seed availability.

Action Points:

- ✓ Mark Nightingale: Confirm seed origin and availability for 2026 planting.
 - ✓ Ian Graham: Clarify trial intent and align with OREGIN plans by autumn 2025.
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iii. Sunflower Evaluation (Florentina Petrescu)

- RNA prep seed and 2027 trial seed needs discussed.

Action Points:

- ✓ Florentina Petrescu: Confirm seed availability and diversity panel design by Q3 2025.
 - ✓ Ian Bancroft: Coordinate transcriptomic pipeline to align with 2026 seed batches.
 - ✓ Florentina Petrescu: Engage with colleagues to clarify number of seeds/line required for trials.
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5. Knowledge Exchange & Dissemination

- Combined **OREGIN Stakeholder Forum & UK-BRC Meeting** planned for **University of Hertfordshire**.
- Format: Two-day hybrid event.

Action Points:

- ✓ Yongju Huang: Confirm venue availability and logistics by early July.
- ✓ Yongju Huang & Zhesi He: Support event setup and communication.
- ✓ Ian Bancroft: Recommended focus for Stakeholder Forum to be on novel crops, gene editing, and climate modelling.

- ✓ Mark & Coretta: Coordinate relevant speakers and develop program outline for Stakeholder Forum.
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6. Social Value & Training

Andrea Harper:

- OREGIN training courses, ECR events, and student placements progressing.
- More detail to follow in December 2025 meeting.

Action Points:

- ✓ Coretta Kloeppe: Plan 2026 training on hybrid production (glasshouse-based).
 - ✓ Andrea Harper: Plan York-based bioinformatics course.
 - ✓ Yongju Huang: Consider disease phenotyping course.
 - ✓ All PIs: Notify Fay Stemp-Walsh of any student placements or PhD applications.
 - ✓ All: Report all SME engagements.
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7. Publications & Data Sharing

- Three publications accepted:
 - Short review on LLS in *Plant Health Case Studies* (2025).
 - Collaboration with Japanese group on new viral discovery Archives of Virology 2025
 - Genome release of LLS pathogen isolate, published in IMA Fungus 2025

Action Points:

- ✓ All: Email Ian Bancroft publication drafts and presentation slides for DEFRA reporting.
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8. Next Meeting

 December 2025

 Host TBD (venue offers welcome; hybrid option to be offered for all future management meetings)

Action Points:

- ✓ Zhesi He: Poll for suitable December dates (aim: early December).

