

BBSRC Renewable Industrial Products from Rapeseed (RIPR) Programme



BB/L002124/1

Ian Bancroft 11th May, 2015

Aims

The overall aim is to underpin the economically sustainable exploitation of industrial co-products from oilseed rape whilst improving the environmental sustainability of the crop by underpinning improvement of nutrient use efficiency.

- **Phytosterols and waxes**



- **Tocopherols**



- **Functional polysaccharides**



- **Nitrogen use efficiency**



- **Micronutrient use efficiency**



Genomics platform and data management

Functional genotypes for ASSYST *B. napus* diversity panel:



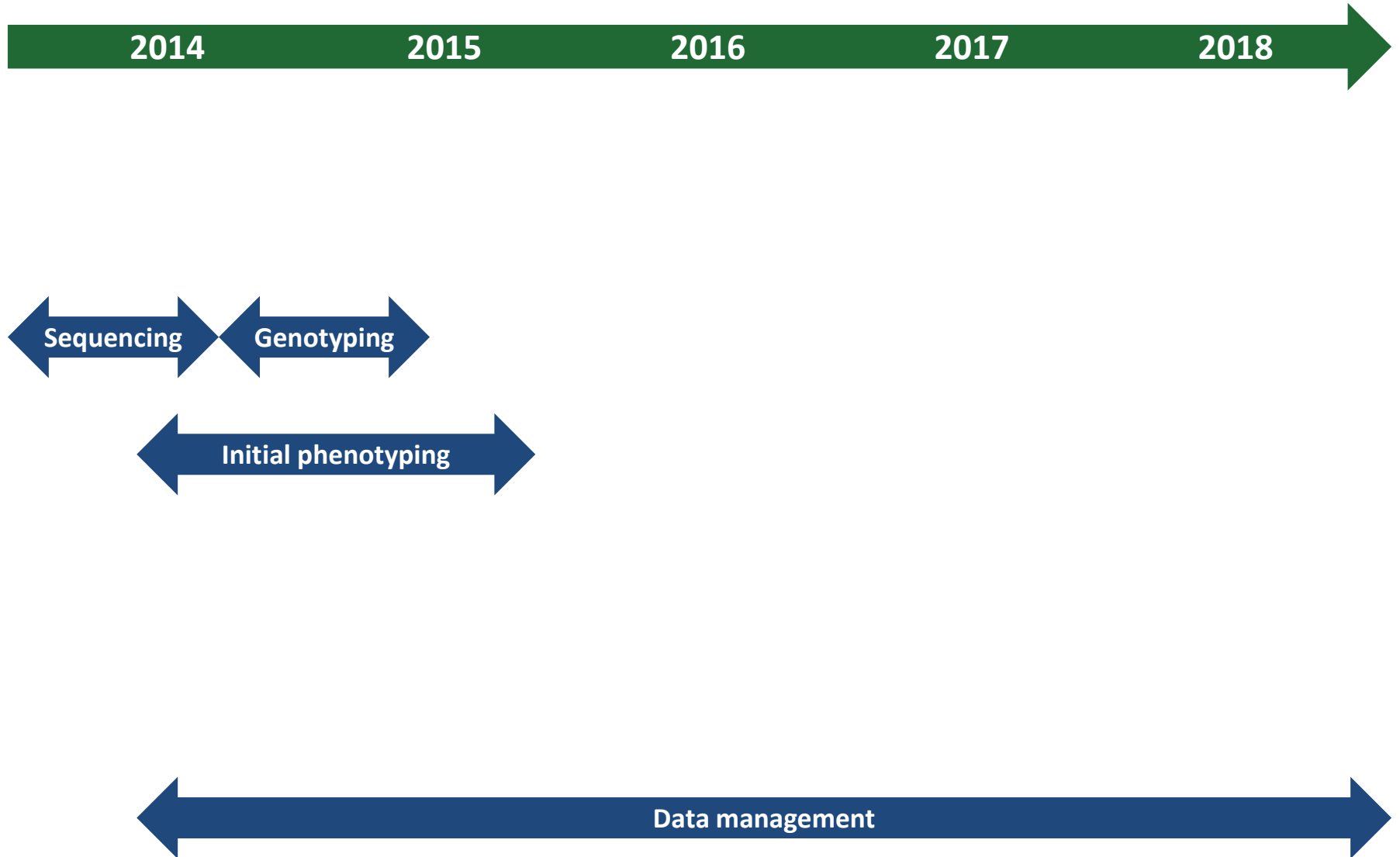
UNIVERSITY *of* York

ILLUMINA mRNAseq data obtained from 383 OP *B. napus* lines plus *B. oleracea*, *B. rapa* and other Brassicaceae to represent broader diversity

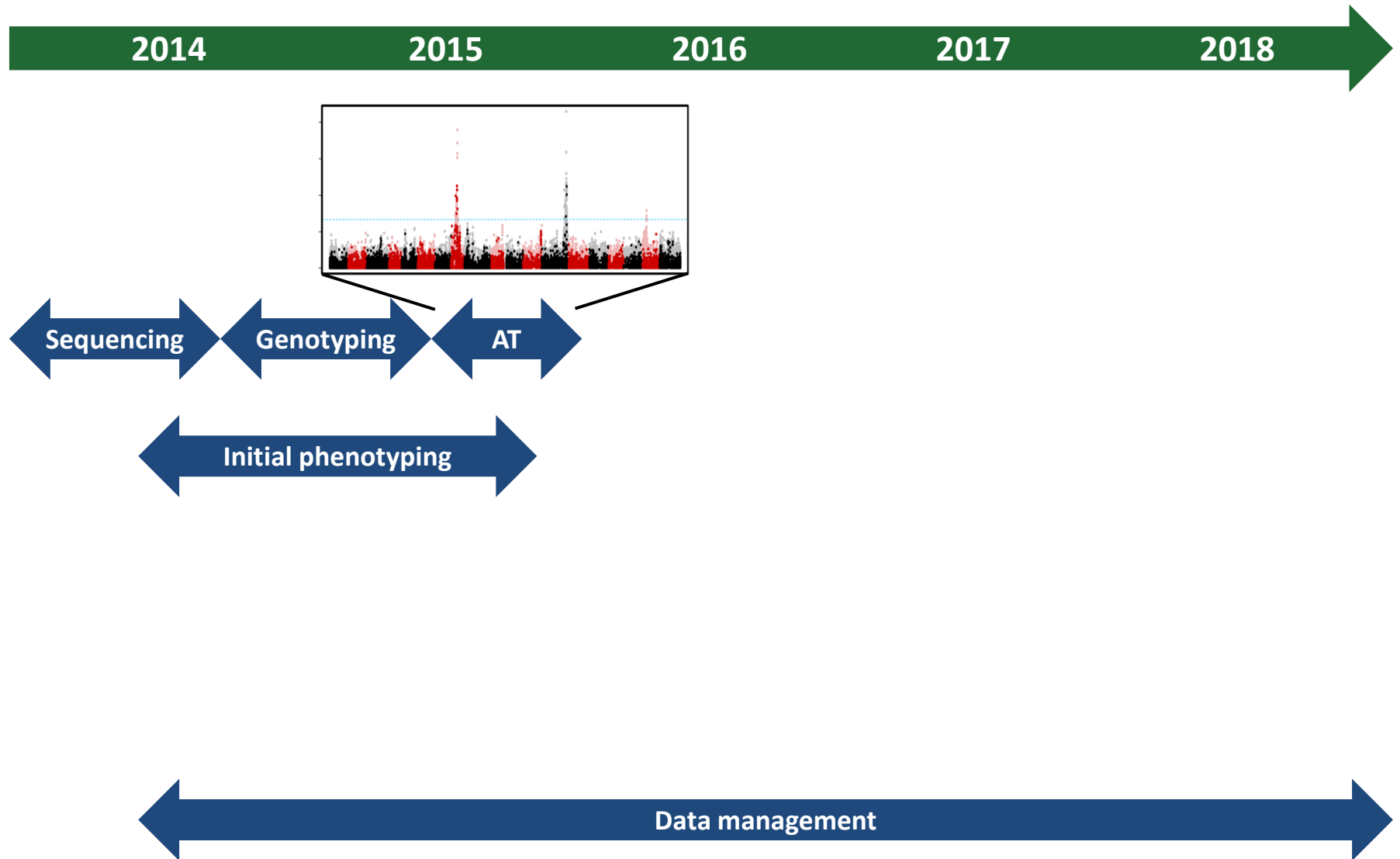
116,417 hypothetically ordered CDS models representing A and C pan-transcriptomes quantified for leaf expression and used as reference sequences with 200k – 300k SNPs scored

Sequences, genotypes, trait data to be made available via Ensemble and CropStore

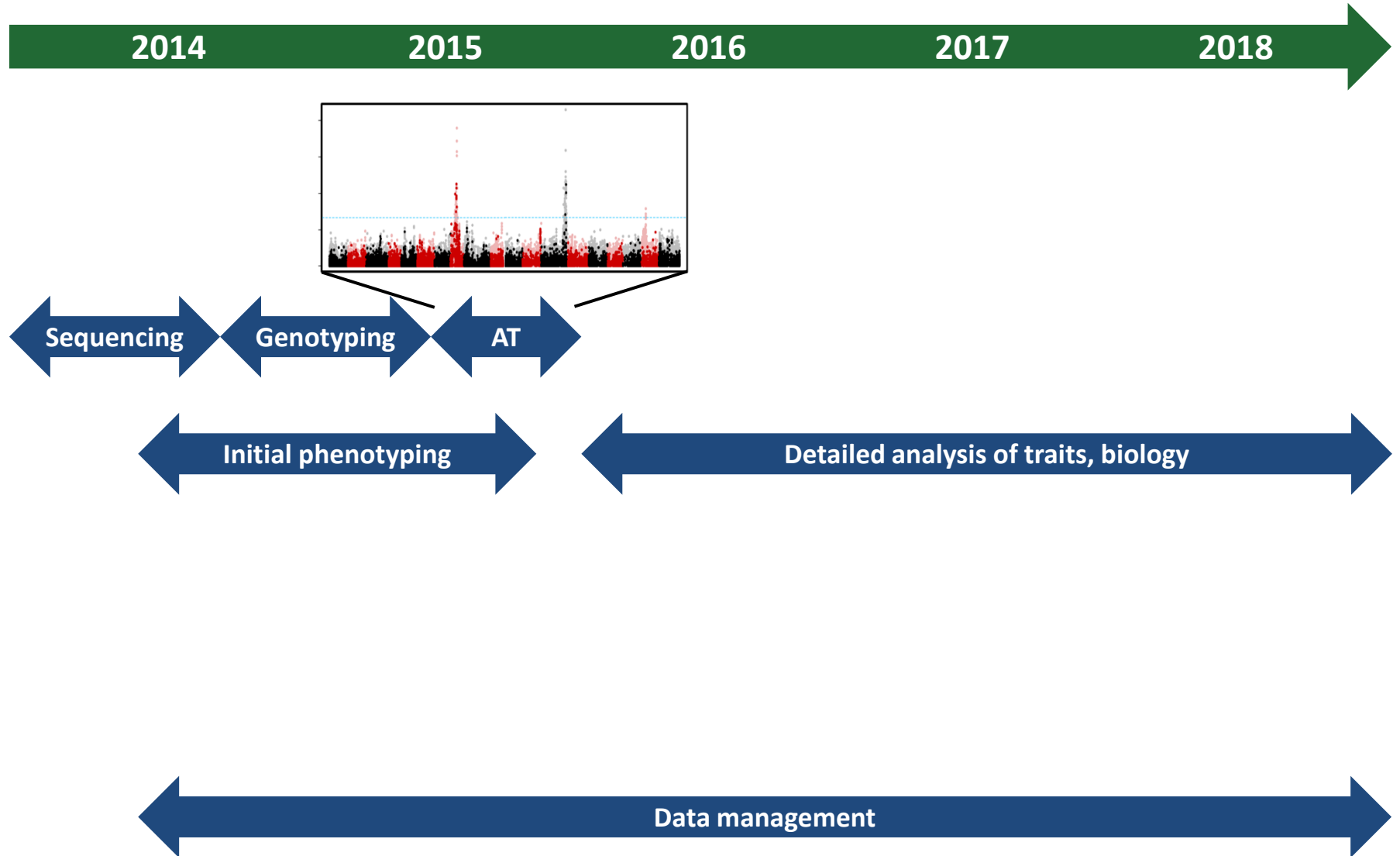
RIPR project activities



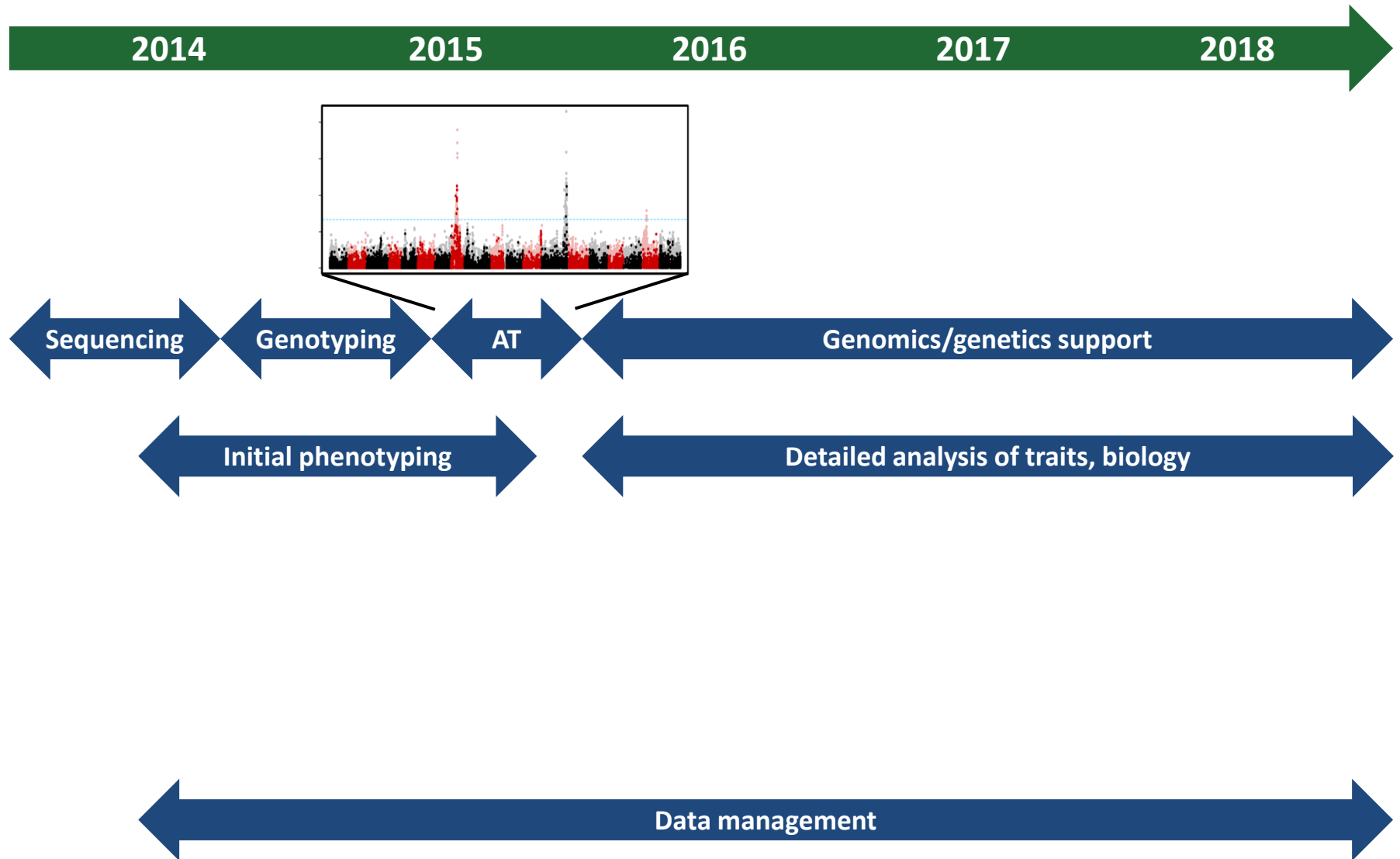
RIPR project activities



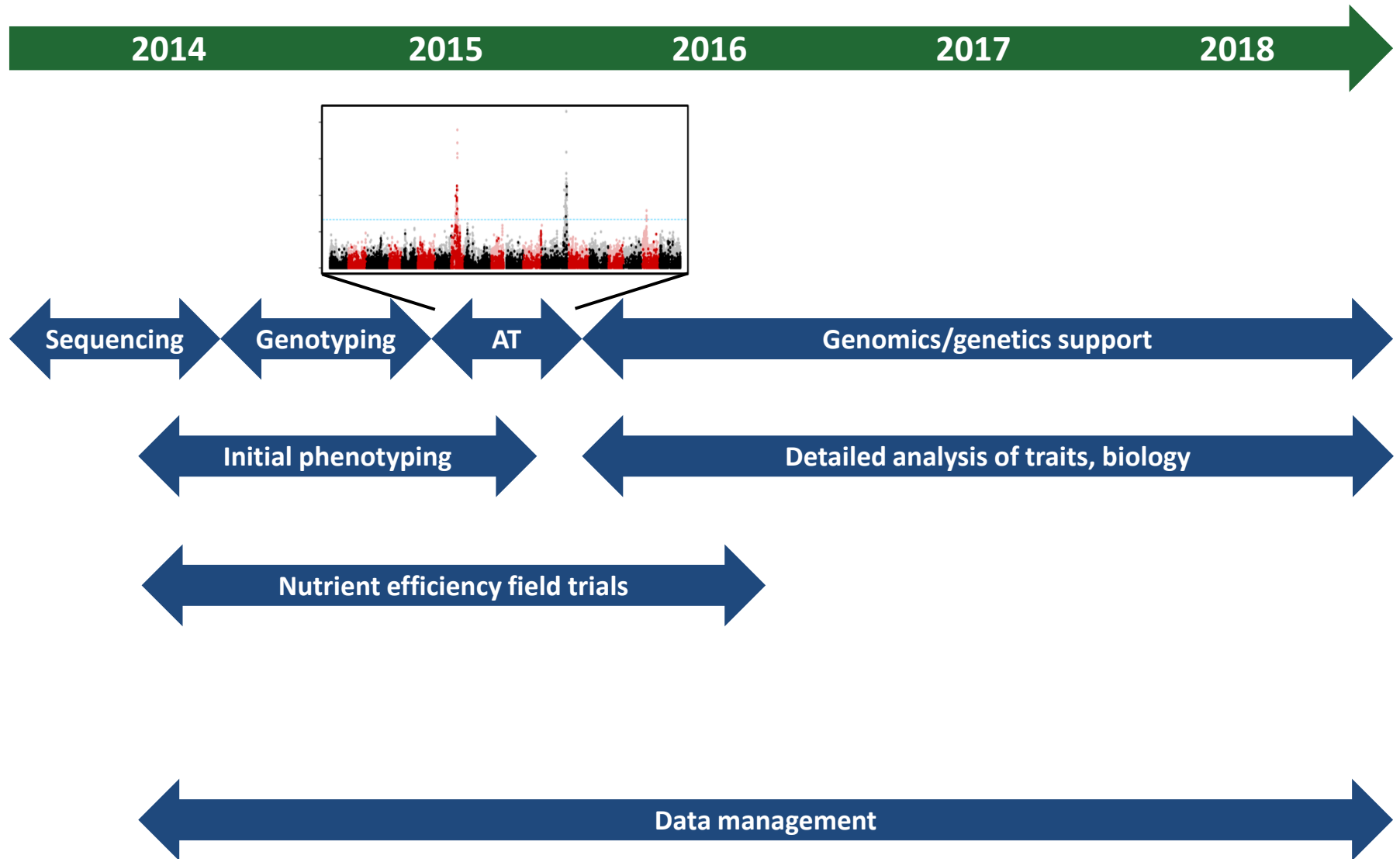
RIPR project activities



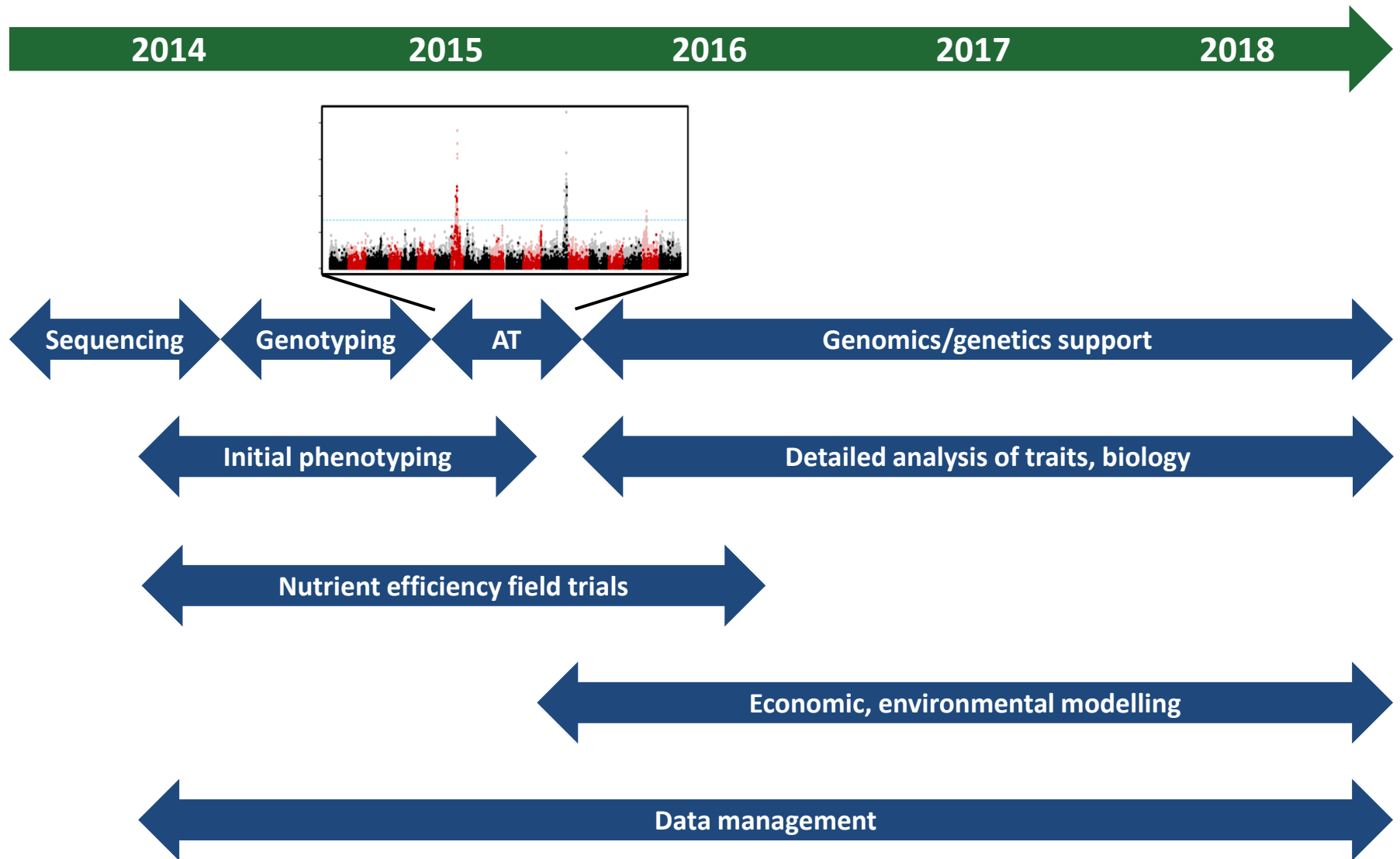
RIPR project activities



RIPR project activities



RIPR project activities



Acknowledgements

Science Advisory Board:

Richard Mithen (IFR), Johnathan Napier (RRes), Rod Snowdon (U. Giessen) Martin Trick (JIC)

Partners, subcontractors:

Sarah Ayling (TGAC), Ian Bancroft (UoY), Fred Beaudoin (RRes), Pete Berry (ADAS), Martin Broadley (UoN), John Foulkes (UoN), Mark Nightingale (Elsoms), Keith Waldron (IFR), Philip White (JHI)

Academic collaborator:

Stan Kopriva (U. Cologne)

Industry collaborators:

Henri Benats (Cargill), Jo Bowman (Limagrain), Matthew Clarke (Monsanto), Sebastien Faure (Biogemma), Vasilis Gegas (Limagrain), Harley Stoddart (HGCA), Peter Tollington (Cargill), Andy Whiley (Case IH)

Linked projects and collaborations:

Genome evolution (ERA-CAPS), Disease traits (OREGIN), Cold tolerance (IB Catalyst), Micronutrients in seeds (U. Aberdeen), Oil profile (Limagrain), Glucosinolate profiles (YESI)

Oilseed Rape Genetic Improvement Network (OREGIN) – Phase 3



CH0104

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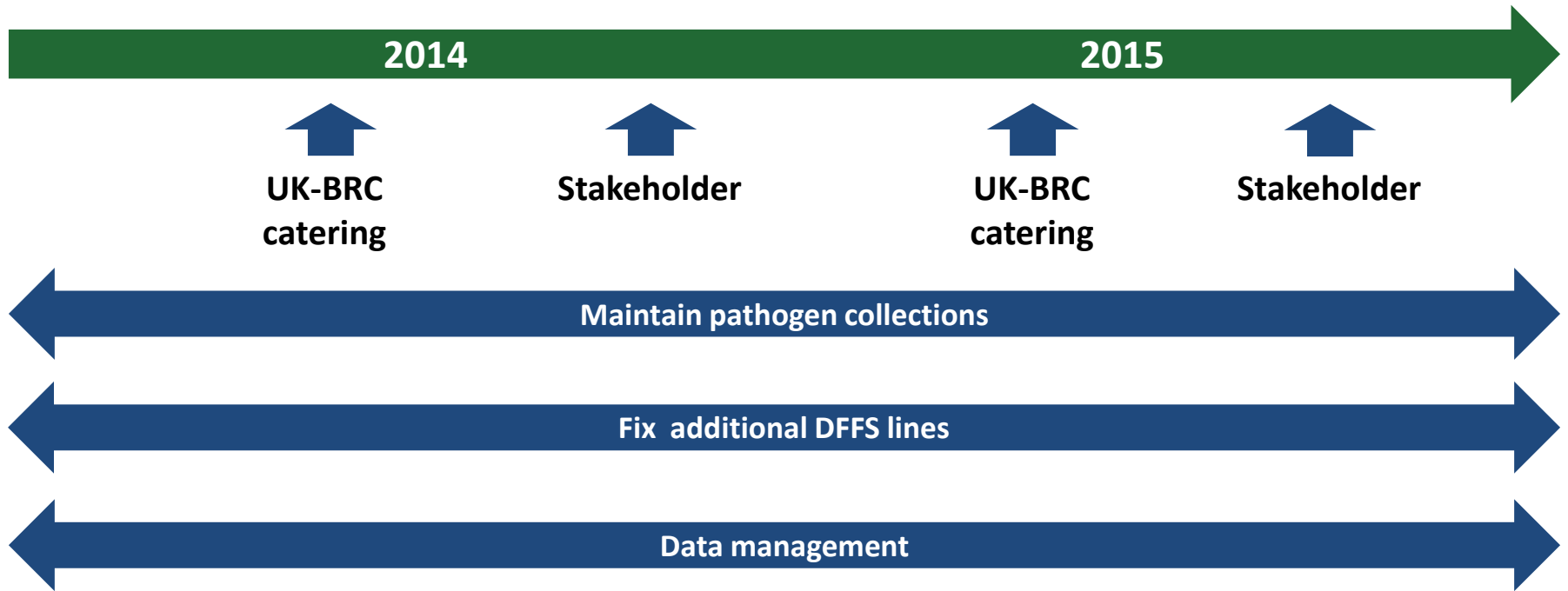
Aims

The overall aim is to underpin the genetic improvement of the UK rapeseed crop by:

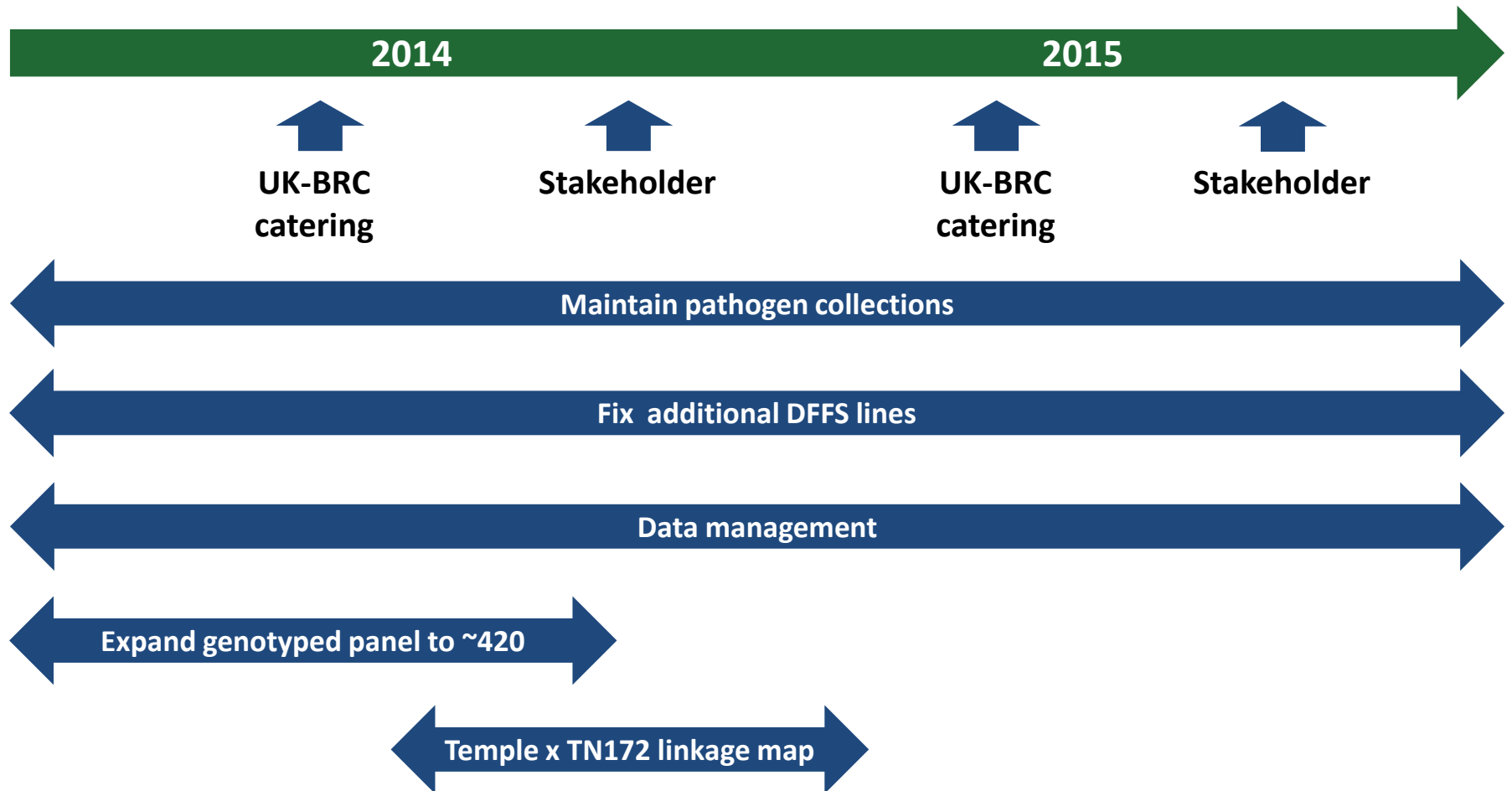
- Maintaining and expanding interactions between stakeholders and academics
- Provide freely-available physical resources to underpin rapeseed breeding
- Provide freely-available information resources to underpin rapeseed breeding
- Associate trait variation measured in field trials with molecular markers



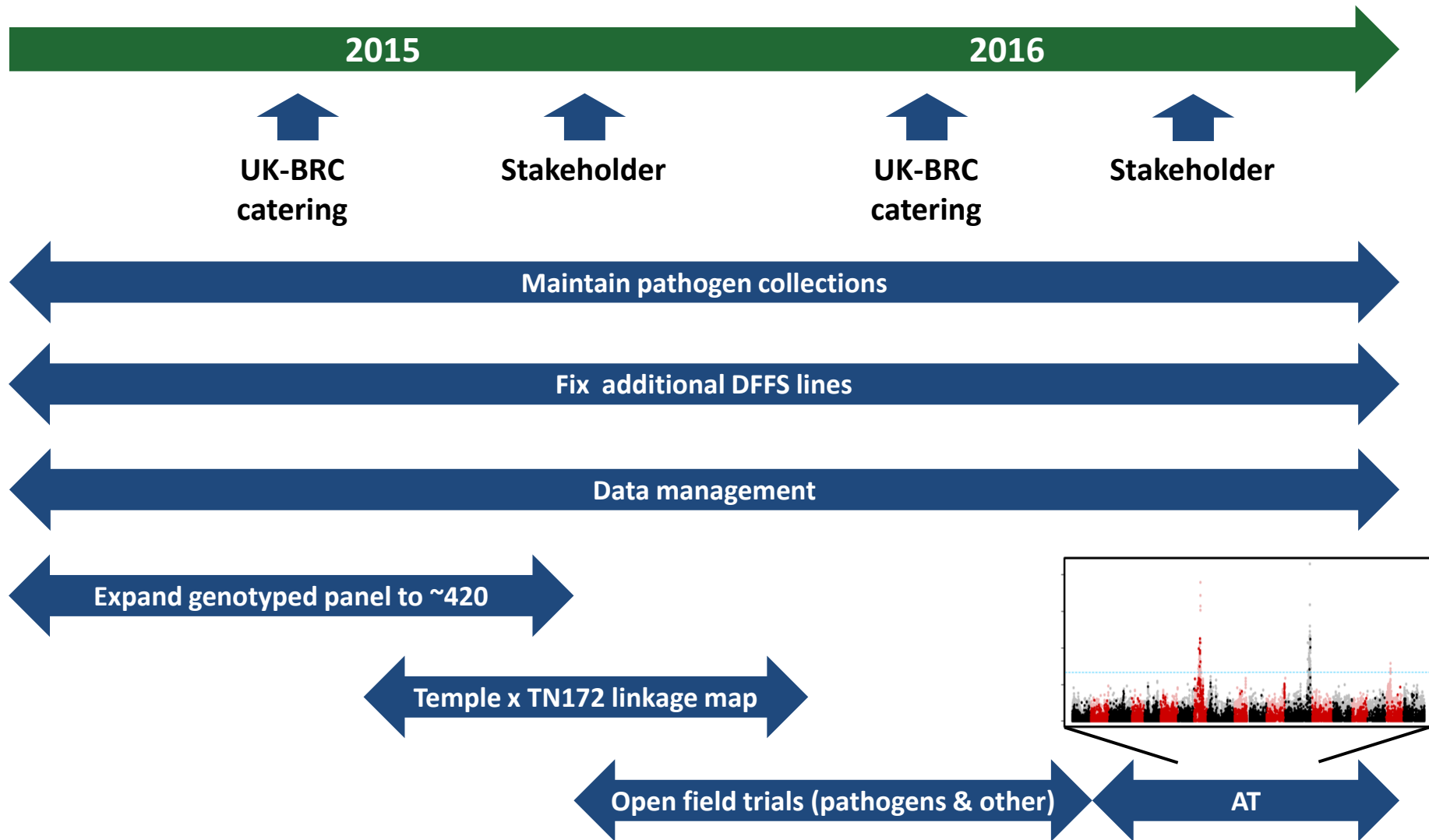
OREGIN project activities



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Partners, subcontractors:

Sarah Ayling (TGAC), Ian Bancroft (UoY), Pete Berry (ADAS), Martin Broadley (UoN), Bruce Fitt (UoH), Vasilis Gegas (Limagrain), John Hammond (UoR), Mark Nightingale (Elsoms), Graham Teackle (UoW), Jon West (RRes), Tom Wood (NIAB)

Management committee members:

Partners plus Rachel Wells (JIC), industry stakeholders, Giulia Cuccato (Defra)