



Pulses for healthy guts: Global Opportunities

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tom.wood@niab.com

Pulse production

- High protein (20-40%), carbohydrates, fibre, rich in micronutrients, symbiotic nitrogen fixation
- Important source of nutrition and income in developing countries
- Marginalised, inconsistent yields, pests and disease issues
- Less investment in R & D than cereals and oilseeds
- Limited use of pulses, pulse products as foodstuffs in the UK
- 1/3 UK faba bean crop is exported as premium to N. Africa for human consumption
- Over-dependence on soya
- Limited utilization of 'home-grown' pulses



Improving pulse crops

- *Accessing and exploiting genetic diversity*
 - Natural diversity in gene banks, germplasm collections, landraces
 - Crossing, selection for novel phenotypes
 - Protein/starch content
 - Induced diversity: Mutagenesis, GM, gene-editing
- *Developing genomic tools, molecular breeding resources*

Pulse Crop Genetic Improvement work (*V. faba*, *P. sativum*)

 - Public genetic markers, transcriptomics datasets
 - Mapping populations, Inbred line production
 - Screening diverse germplasm (>900 accessions)
 - Direct interaction with plant breeding industry

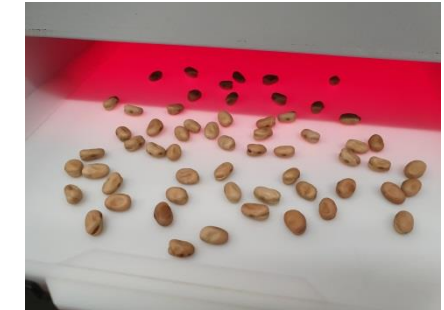


<https://www.jic.ac.uk/pulse-crop-genetic-improvement-network-pcgin/>

NIAB
world-class experience,
skills and resources

Opportunities

- *Apply classical & novel breeding and analytical technologies to expedite improvement of legumes species (HTP genotyping, GWAS, Genomic selection, Speed breeding, CRISPR)*
 - Screen for natural diversity, pre-breeding for important traits
 - Enhance productivity, quality, yield stability, disease/climatic resistance
 - Preventing displacement of legumes in developing countries
 - Improving fundamental understanding regulatory networks controlling quality characters
- *Exploiting pulses constituents- protein, starch, fibre and oils*
 - Assessing health benefits, sustainability criteria to demonstrate benefits
 - Enhanced functionalities?
 - Viable soya alternatives?
 - Development of new healthy, nutritious, consumer-focussed products



Opportunities

- *How to add value across the supply chain?*
- *How to improve utilization to grow market, promote wider consumption of pulses?*
- *Continue to develop collaborative networks linking producers, researchers and industry to build viable production pipelines to deliver healthier food and ingredients*
- *Securing funding for new pulse work?*