

DESIGNING FUTURE WHEAT

Wheat is a vital commercial crop and essential calorie source in the UK and globally. As the global population increases towards 10 billion people, with most increased consumption expected to occur in developing countries, the world will need to produce 60% more wheat by 2050 to meet global demand.



The BBSRC-funded Designing Future Wheat (DFW) programme is supporting eight UK research institutes and universities, including NIAB, to develop the germplasm and techniques required by plant breeders to sustainably face these future production challenges. DFW continues the work started under the BBSRC-funded Wheat Improvement Strategic Programme (WISP) (www.wheatisp.org).

focus on NIAB research

Increasing efficiency and sustainability

The DFW programme will develop improved germplasm for better yield, resistance to disease and a changing climate using high-throughput field technology and the genetic dissection of key traits. As part of this programme NIAB will be applying its extensive phenotyping expertise to maximise output from germplasm used within DFW, whether it be for drought tolerance or within hybrid wheat breeding programmes.

Adding value and resilience

DFW aims to enhance grain quality for human health, combat diet-related diseases and improve the resilience of wheat to biotic stresses. As part of this programme NIAB is developing germplasm with starch characteristics that improve the processing ability and digestibility of wheat.

Germplasm development for trait dissection

NIAB is characterising the novel genetic diversity captured from resynthesised wheat (SHW) and tetraploid wheats. This diversity is now in an elite wheat background and is available for exploration by the wheat research and breeding community. This is part of DFW's target to accelerate the discovery and deployment of genes and alleles of high value for breeding, particularly from other parts of the DFW programme and previous BBSRC-funded research.

