Isolation of Genetic Variation for Flowering Morphology for Hybrid Wheat Production

Project Lead

Name: Julie King
Institution: University of Nottingham, GBR

Principal Investigators

Name: Ian King
Institution: University of Nottingham, GBR

Name: Surbhi Grewal
Institution: University of Nottingham, GBR

Name: Stella Edwards
Institution: University of Nottingham, GBR

Name: Bhoja Raj Basnet
Institution: CIMMYT, MEX

Name: Masahiro Kishii
Institution: CIMMYT, MEX

Abstract

It is predicted that hybrid wheat could lead to yield increases of between 3.5% and 15%. Hybrid wheat production requires that a female plant is pollinated by a genetically different male parent. However, since wheat is an in-breeder it does not have the correct floral morphology required for out-breeding. Furthermore, it is debatable that the required genetic variation for the traits required for out-breeding are available in modern day wheat. In this project we will identify genetic variation for both male and female floral morphology required for out-breeding and hence hybrid wheat production. This will be achieved by analysis of key target traits in the wild relatives of wheat with particular emphasis on out-breeding species (developed at Nottingham in

the BBSRC WISP/DFW programme). A range of screening procedures will be exploited in combination with genetic markers and molecular cytogenetic techniques. The research undertaken will lead to the identification of genes/wild relative introgressions that control target floral traits that will be incorporated into elite varieties that will facilitate hybrid wheat production.