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GENETIC SECRETS BEGIN TO FLOWER

Wild lupins flowering herald more than just the arrival of spring.

They indicate the start of the most robust evaluation yet of the genetic secrets held within the Australian Lupin Collection (ALC) at the Department of Agriculture and Food (DAFWA).

As part of the evaluation, highly skilled WA researchers, working through the Centre for Legumes in Mediterranean Agriculture (CLIMA) partnership, have begun to group representative samples of the 2000 lupin lines held in the ALC.

While the ALC has already been tapped for sources of resistance to anthracnose, phomopsis and pleiochaeta root rot (PRR), creation of a core collection will cut down the time it takes lupin breeders to identify important traits for crop improvement.

Supported by the Grains Research and Development Corporation (GRDC), the project began last year on the ALC's 1300 different narrow leafed lupins and through DNA fingerprinting, created a core sample of 120 wild narrow leafed lupin accessions.

This core sample, representing the range of genetic diversity across the collection, is flowering at the University of Western Australia (UWA) Shenton Park field station.

CLIMA researcher Dr Fucheng Shan said the core would firstly be evaluated for yield and then quality and resistance to diseases such as Brown Spot, PRR and seed transmission of Cucumber Mosaic Virus.

"We will evaluate the core for 18 biotic and 21 quality characteristics which have been prioritised by lupin breeders," Dr Shan said.

"The characterised germplasm will give lupin breeding programs better access to novel traits that will allow development of superior new cultivars to benefit the Australian lupin industry."

Dr Shan said representative core collections would also be developed from the Yellow, Albus and Pearl lupin collections within the ALC.

The ALC, built up since 1958 from local collecting missions abroad and germplasm imports from overseas breeding programs, is the most comprehensive lupin collection in the world and includes a substantial representation of nearly all other lupin species from the Mediterranean area and North Africa.

Other researchers working on the collection include Dr Jon Clements (UWA and DAFWA) and James Ponds, a PhD student from UWA.

Dr Clements said while there had been previous morphological and geographical evaluation of subsets of the ALC in the early 1990s, this was the first time it had been attempted using combined morphology and DNA techniques.

Image: Dr Jon Clements (left), Dr Bevan Buirchell and Dr Fucheng Shan with the flowering wild narrow leafed lupin accessions at the University of Western Australia Shenton Park field station.

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