



CLIMA Media Release

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CLIMA CLAIMS METRIBUZIN MARKER

International collaboration by the Centre for Legumes in Mediterranean Agriculture (CLIMA) has delivered WA lupin breeders a new molecular marker to lock metribuzin tolerance into their breeding program.

WA produces 85 per cent of the world's lupins, which fix more than \$100 million worth of nitrogen in WA soils, figures likely to rise if higher yielding cultivars tolerant to the post-emergent herbicide metribuzin become available.

Dr Hongxu Yuan, visiting CLIMA for six months from the Department of Biotechnology, Zhanjiang Ocean University, China, applied DNA fingerprinting technology to discover the marker, which will fast track lupin breeding and selection.

Department of Agriculture molecular geneticist, Dr Hua'an Yang said the technology was an accurate, cost-efficient alternative to traditional screening in nurseries.

"The marker has the desirable technical features for large scale implementation in applied plant breeding programs and will allow breeders to select individual plants containing the metribuzin tolerance gene," Dr Yang said.

Previously, lupin crops suffered yield losses of 10 per cent or more when metribuzin was applied to lupin cultivars with little tolerance to the chemical.

To ensure lupin yield is not compromised by metribuzin application, breeders seek natural tolerance from the lupin germplasm, which involves tedious screening in glasshouse and field trials.

By using the new marker, plants not having the tolerance gene are identified and eliminated at the early stage in the breeding cycle.

"It means more efficient genetic improvement, as breeders won't waste time and resources growing and testing lupin plants without the target gene," Dr Yang said.

Demand for Mandelup, the first metribuzin tolerant cultivar available in WA, has been unprecedented, with many 2005 seed orders unable to be filled.

Dr Yuan has been conducting the molecular research at the Department of Agriculture and CLIMA with Dr Yang and Dr Guijun Yan of the School of Plant Biology, University of Western Australia.

CLIMA Director, Professor Kadambot Siddique commended Dr Yuan's revolutionary discovery as a highly significant achievement within such a short period of time.

"The visit has also helped establish a good relationship between China and CLIMA," he said.

Dr Yuan returns to China in May 2005.

Caption: Professor Kadambot Siddique, Dr Hongxu Yuan and Dr Hua'an Yang discussing the development of the molecular marker for herbicide resistance in lupins at CLIMA genetics laboratory

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