A new lupin hybrid with excellent seed quality could provide an alternative to WA’s traditional lupin species and deliver up to $100 per tonne in grain premiums.

Leveraging international and local expertise, the University of WA based Centre for Legumes in Mediterranean Agriculture (CLIMA) has commenced an ambitious project to cross WA’s incumbent commercial lupin with the exotic mutabilis species of South America.

“Mutabilis has up to a third more protein and up to three times more oil than narrow leaved lupin, but its adaptation to WA’s mediterranean environment has not been fully assessed,” CLIMA researcher, Jon Clements said.

“Mutabilis oil is high in unsaturated fatty acids, low in erucic acid and compares favourably to canola oil, while protein quality would suit stock and aquaculture feed industries.”

To adapt the variety to local conditions, CLIMA hopes to cross mutabilis with the narrow leaved and albus lupin species that can thrive across southern Australia.

Success, however, with interspecific lupin crosses has been limited throughout the world, prompting CLIMA to link with Ewa Sawicka-Sienkiewicz, of the University of Wroclaw, Poland, who has achieved unprecedented success with interspecific crosses.

Refined over several years, her breeding techniques produce hybrids from up to seven per cent of the lupin flowers she cross-pollinates.

Supported by CLIMA start-up funding, UWA’s Dr Clements and the Department of Agriculture’s Dr Mark Sweetingham will employ many of Professor Sawicka-Sienkiewicz’s techniques to cross mutabilis with locally adapted species.

“Cultivated for centuries by the indigenous people of Ecuador, Peru and Bolivia, mutabilis has so far displayed poor agronomic adaptation to WA. Efforts now focus on crossing it with adapted domestic varieties and performing embryo rescue to develop a WA suited mutabilis cousin to boost profitability for lupin growers,” Dr Clements said.
“One of the first steps has already been achieved by cross-breeding mutabilis lines to combine early flowering and low seed alkaloids.”

www.clima.uwa.edu.au

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