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SAGIT FUNDING BOOSTS FROST TOLERANCE RESEARCH

Frost-tolerant field peas are a step closer to reality thanks to SARDI research supported by SAGIT.

SARDI researchers at the Waite campus have made two selections of field peas with 65 to 75% more tolerance to frost at flowering and podding than the Kasper variety.

This exciting breakthrough is a direct result of SAGIT funding a postgraduate student who is working with the Pulse Germplasm Enhancement team to develop the world's first selection system for frost tolerance in field peas at the reproductive stage.

Dr Ahmad Maqbool, SA-based Program Leader for the Pulse Germplasm Enhancement Program, said the two selections, currently named SARDI 1 and SARDI 2, are the first field pea lines with measured levels of tolerance to frost at flowering and podding because there has previously been no way to measure this capability.

Visual observation of frost damage in the field is misleading and is not a reliable indicator of a line's genetic ability to withstand frost during the reproductive stage.

Assuming they perform adequately in the field this season the frost-tolerant lines will become parent lines in the GRDC-funded Pulse Breeding Australia's field pea breeding program at Horsham.

Development of a system to measure the genetic ability of peas and other pulses to withstand frost at the reproductive stage was an exciting breakthrough for his team and the industry, Dr Ahmad said.

"This selection system has the potential to stabilise and expand the field pea industry because frost-tolerant varieties would largely negate the effects of frost, which impacts on yield and quality and has the potential to wipe out a crop or make it unmarketable," he said.

"Frost can't be controlled by chemicals or other means, so we have to rely on the genetic ability of the plant to withstand frost conditions and we now have a method to measure the impact of frost and reliably select frost-tolerant plants."

SAGIT is funding the initiative of discovering the frost tolerance genes in field peas for three years.

It took a year to develop the selection process and SARDI 1 and SARDI 2 were then identified in the next year's screening using new SARDI methodology. This screening process is now being validated for lentils and chickpeas in the Pulse Germplasm Enhancement Program.

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