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New research to unlock mystery of black pod syndrome

25 May 2009

The Department of Agriculture and Food's new lupin variety Jenabillup is helping keep lupins in high rainfall cropping rotations.

Low yields associated with black pod syndrome nearly forced Darkan farmer Ray Harrington to abandon lupins from his rotation if not for the ability of Jenabillup to withstand the disease.

In some seasons black pod syndrome can shave up to 40 per cent off the yield potential of lupins in high rainfall areas.

In a 2008 demonstration trial by the Darkan Farm Improvement Group, Jenabillup produced more than two tonnes of seed per hectare – five times more than the susceptible variety Belara, which struggled to yield just 400 kilograms per hectare.

Department lupin breeder Bevan Buirchell said Jenabiillup was consistently the least affected by black pod syndrome among lupin varieties and breeding lines. But how it withstood the syndrome was currently unknown.

"We need to understand how Jenabillup resists black pod syndrome so that we can more accurately breed resistant lupin varieties suited to high rainfall areas," Dr Buirchell said.

"For years breeders and agronomists have suspected black pod syndrome may be caused by infection with bean yellow mosaic virus (BYMV), which is harboured in pastures in southern Western Australia.

"We know that all lupins are susceptible to BYMV infection, but that some varieties like Jenabillup are able to withstand it for longer. The benefit of this is that late infections do not get a chance to express themselves in the crop before the season ends."

To test their suspicions, Dr Buirchell and legume agronomist Peter White will infect Jenabillup and susceptible variety Mandelup with BYMV at varying growth stages during the 2009 season and measure how long it takes for black pod syndrome to be expressed.

"The trial will establish whether there is a definite link between BYMV infection and the development of black pod syndrome and, whether Mandelup and Jenabillup respond differently to the virus when they are infected at the same time," Dr Buirchell said.

"If we can establish a distinct link between BYMV and black pod syndrome we will be a step closer to eventually being able to screen lupin breeding lines for resistance."

Results from the trial will be available in late 2009.

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Darkan farmer Ray Harrington with his dog Roundup is happy with the new lupin variety Jenabillup.

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