

Lupin industry avoids devastating disease

February 25 2016, by Jo Fulwood, Sciencenetwork Wa



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Credit: Alias 0591

Western Australia's lupin (*Lupinus*) industry has narrowly dodged a bullet through the rediscovery of the potentially devastating grey leaf spot disease (caused by the plant fungus *Stemphylium* spp.).

A recent study has shown the disease can wipe out up to 60 per cent of

yield in some susceptible lupin varieties, significantly impacting on a crop that many farmers consider only marginally profitable at best.

Lupins are commonly used in broadacre agricultural rotations as a legume break crop to control disease and provide subsequent crops with improved access to soil nitrogen.

While the disease was prevalent in narrow leaf lupin varieties in the early 1970s, genetic resistance was introduced to all-but wipe it out.

However, with the recent introduction of new wild variety genetics to broaden the breeding gene pool, some commercially available varieties have been found to be highly susceptible.

The study, which has provided scientists with the first data set of its type in WA, will now assist plant breeders to re-introduce resistance in order to combat the potentially devastating disease.

The rediscovery of grey leaf spot in trial work beginning in 2007, was a critical turning point for the future of the industry, Department of Agriculture and Food WA (DAFWA) Plant Pathologist Geoff Thomas says.

Mr Thomas says the study determined the disease was a stubble-borne pathogen, thriving in higher rainfall areas, particularly in paddocks with high trash, or stubble loads.

The study had validated DAFWA's decisions to label *Stemphylium* susceptibility on newly released varieties, he says.

"We acknowledge that unless susceptible varieties, such as PBA Gunyidi, are widely planted in a high rainfall region, the risk of infection is probably relatively low," he says.

"However, the threat is there and the yield loss in susceptible [varieties](#) can be significant and the findings from this study have helped avert a potential problem for the future of the lupin industry."

Mr Thomas says the study has also provided scientists with data on the spread of the disease, including how and when fungal spores are most effectively released.

"Spore trapping has shown the inoculum is released from infected lupin stubble following rainfall," he says.

The study has also shown that grey leaf spot thrives in warmer higher rainfall areas, such as cropping regions north of Perth where lupins are popular on sandplain soils but is less likely to impact on the medium to dry areas which comprises the bulk of the Wheatbelt.

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