SAGIT RESEARCH SUMMARY

S1213: Development of a strand medic cultivar resistant to powdery mildew

IN A NUTSHELL

A new cultivar of strand medic, presently known as PM-250, has been developed for commercial release, combining resistance to powdery mildew and tolerance to sulfonylurea herbicide residues for use in low-medium rainfall alkaline soil environments. Commercial quantities of seed are expected to be available to growers in 2019.

FAST FACTS

THE DATES:
Start: July 2013
Finish: June 2016

PROJECT PARTICIPANTS:
SARDI: Ross Ballard, Jake Howie, Jeff Hill, David Peck.

THE PROBLEM:
No suitable medic variety is available for Mallee environments with resistance to powdery mildew.

THE RESEARCH:
A new variety was bred and developed for commercial release in 2019.

BACKGROUND

No suitable medic variety with resistance to powdery mildew has been available for Mallee environments. Although Mallee growers value medic as a break crop, recent mildew infections have left them disappointed by the poor performance of some medic pastures in low rainfall, alkaline soil environments. The cultivars Herald, Angel and Jaguar have been the main strand medics sown in the Mallee, however all three are susceptible to fungal pathogen powdery mildew. The disease has become more common in recent years.

A powdery mildew resistant medic was identified in an earlier GRDC project that screened 'wild' medics collected from around the world. The resistant medic was used by legume breeders at SARDI to produce a group of elite medic lines combining powdery mildew resistance with other important traits.

RESEARCH AIMS

The core objectives of the project were to:

- Complete the field evaluation of a group of strand medics which have resistance to powdery mildew, improved agronomic performance, tolerance to sulfonylurea (SU) herbicide residues, aphid resistance and larger seeds, compared to existing strand medic cultivars; and
- Select and commercialise a cultivar designed for SA dryland Mallee farming systems.

IN THE FIELD

The new strand medic cultivar has been bred by crossing a powdery mildew resistant plant selected from a wild medic line with the SU herbicide tolerant cultivar, Angel.

PM-250 has been tested at 10 sites, with 34 assessments of dry matter production and 12 assessments of seed yield.

RESULTS

PM-250 produced 16 per cent more dry matter than Angel medic and similar seed yields. Where powdery mildew infections occurred in Angel and Herald, PM-250 remained free of symptoms, resulting in up to 30 per cent more dry matter compared to infected varieties.

The compound Coumestrol, which can affect ovulation in sheep, measured consistently lower in PM250 than in medic cultivars affected by powdery mildew, indicating PM-250 may also provide animal health benefits.

PM-250 has larger pod and seed size than Angel by 19 per cent and 25 per cent respectively.

VALUE FOR GROWERS

A commercial release of PM-250 is planned for 2019, by SARDI and commercial partner Pasture Genetics.

The new variety produced more dry matter, has larger pod and seed size and increased resistance to powdery mildew compared to Angel.

MORE INFORMATION:

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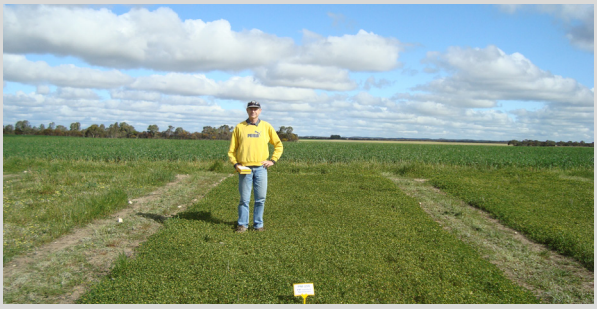
SAGIT 25 YEARS 1991-2016

PM250 growing at Netherton in 2015



Jake Howie in a plot of PM250 at Netherton, 2015