

Media Release



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New rhizobia discoveries to boost acid tolerant lucerne development

A recent field trip by FFI CRC researchers has uncovered 17 new strains of rhizobia with the right tolerance and suitability to help breed new acid-tolerant lucerne varieties.

Rhizobia are bacteria that live on plant roots with the ability to fix atmospheric nitrogen which can then be used by the host plant.

The new rhizobia strains were discovered as part of a recent follow up sampling program where lucerne was observed persisting in 22 highly-acidic soils throughout New South Wales (NSW).

Led by Alan Humphries (SARDI), the project leader of FFI CRC's *Acid Tolerant Lucerne Rhizobia* project, said soil acidity and aluminium toxicity has seriously limited the wider adoption of lucerne – a hardy perennial with a reputation of staying green in the driest of conditions.

“By collecting rhizobia from lucerne that we know can survive in these trying acidic conditions puts us in a better position from which new lucerne cultivars with a higher acid stress tolerance can be developed,” Alan said.

“Improved performance of lucerne on acid soils will ultimately lead to a significant increase in the acreage in which lucerne can be used in dryland farming systems. This in turn will improve productivity and sustainability, especially in a drying and variable climate.”

During the field trip more than 150 new rhizobial strains were collected. These strains were then screened in a low pH nutrient solution system, which resulted in the selection of 17 unique strains known as rhizobium isolates with the highest acid tolerance.

“A series of glasshouse pot experiments are now underway to determine if these new strains can nodulate lucerne in a range of acidic soils taken from NSW, Victoria (Vic) and South Australia,” Alan said.

“We are also conducting some field trials in 2009 in NSW and Vic to determine if the solution culture results can be repeated in the field.”

This research follows on from the research originally done as part of the CRC for the Plant-based Management of Dryland Salinity's *Acid Tolerance in Lucerne* project.

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