



Australian Inoculant Research Group

Quality Assured

Green Tick Inoculants



Confidence you have the right product for Australian conditions

To capitalise on significant benefits to production of legume nodulation and Nitrogen (N) fixation, it is essential that Australian farmers have access to inoculant products that are underpinned by quality research and testing.

Ensuring that new and compatible rhizobia are available to successfully nodulate Australia's evolving selection of grain and pasture legumes is critical.

Increasingly, exposure to climate variability, unpredictable weather events and disease-associated risks are considerations in the decisions made by Australian primary producers. These risks now play a major part in crop and pasture selection for increased resilience to extreme weather and constrained soil conditions. So too, the Australian Inoculant Research Group (AIRG) is playing an important role in rhizobial strain selection, testing, evaluation and recommendation for these important crops and pastures, ensuring that suitable rhizobia will be effective and persistent in Australia's challenging growing conditions. This level of independent scrutiny provides a high degree of confidence to farmers that Australian rhizobial inoculant products on store shelves are precisely "fit for purpose".

The AIRG delivers three pillars of quality assurance services to the grain and pasture legume industries that rely upon successful nodulation to drive production.





Recommendation of rigorously tested mother culture rhizobia strains for inoculant products

There are currently 41 rhizobia strains covering 100 species of grain and pasture legumes approved by AIRG and the National Fixation Steering Committee. The symbiotic relationship between rhizobia and legumes is fundamental to nodule formation and highly specific to the bacterial strain and plant species/ cultivar. Rhizobia that nodulate legumes can lose their ability to nodulate a host or fix nitrogen effectively with time. For this reason, it is critically important that cultures are tested, at least, annually and steps are taken to minimise genetic drift.

AIRG maintains the Rhizobial Inoculant Strains Table so that primary producers can easily match each legume type to the right inoculant group.

The selection of rhizobial strains is evaluated upon the following criteria:

- Effectiveness in nodulation, N fixation and their legume host range;
- Genetic stability- the strain must maintain its nodulation and N fixation performance during culture, manufacture and application;
- Potential for scale-up production as commercial inoculants; and
- Ability to survive during inoculant application- strains need to survive well on seed and in soil after sowing.

Independent Green Tick Quality Assurance Program

Primary producers can be confident that a product purchased in store endorsed with a Green Tick is optimised for success because it has been quality assured via the rigorous, independent testing process of the AIRG. Products that carry the quality assurance Green Tick logo are certain to contain the correct strain, minimum number of viable rhizobia and are free from contaminants as labelled at the point of manufacture.

Manufacturers that are signatories to the *National Code of Practice and Quality Trademark for Legume Microbial Inoculant Products used in Australian Crops and Pastures* have submitted batches of their products to be independently assessed to ensure that inoculants sold instore have:

- The approved, correct and viable strain of rhizobia for the legume to be planted;
- Guaranteed numbers of live rhizobia required to successfully nodulate the legume to be planted- this is 1,000 million/gram for fresh peat products (except Lotononis);
- Nil or minimal numbers of other non-rhizobia micro-organisms that may impact upon the performance of the rhizobia;
- Optimal moisture content for growth and survival of the rhizobia along the supply-chain until sowing; and
- Can still nodulate the intended host legume post manufacture.



Only when these standards have been met is the batch of inoculant approved for sale, with an expiry date.

Green Tick inoculants have labelling standards that require manufacturers to display the Green Tick logo and clearly indicate:

- The legume/s for which the inoculant should be used;
- Batch number;
- Product shelf-life or expiry date;
- Conditions under which the product must be stored;
- Guaranteed number of rhizobia per unit of product at the point of sale; and
- Method of application to seed or soil of the product.

Transparent labelling, underpinned by independent testing, provides a solid foundation for nodulation success and, therefore, profitable production outcomes.

Research and development

The AIRG is highly valued for its working partnerships with leading research and development organisations as well as Australia's largest manufacturers of inoculant products. It assists to facilitate the translation and transitioning between developments in legume/rhizobial research and potential for commercial scale production. Protocols for the selection and recommendation of new strains of rhizobia for use as inoculants relies upon good collaboration between all partners to ensure strain evaluation remains relevant to the highly evolving legume improvement programs around the country.

The AIRG provides ongoing support to manufacturers in validating in-house laboratory results and addressing potential discrepancies as they arise. The verification of manufacturer laboratory results means that Green Tick products have undergone two levels of quality assurance. Importantly, the AIRG provides this support in a timely manner to meet peak demand so that primary producers can access Green Tick rhizobial inoculants when they are needed.

**AIRG's valued partners and collaborators are:**

BASF Agricultural Specialties Pty Ltd
Novozymes Biologicals Ltd
Grains Research & Development Corporation (GRDC)
Meat and Livestock Australia (MLA)
AgriFutures Australia
Centre for Rhizobium Studies (CRS), Murdoch University
University of Tasmania
Western Sydney University

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