Symbioses of native legumes and rhizobia: methods to quantify N$_2$ fixation effectiveness

- Many agricultural legumes have been continuously cultivated for centuries and display little genetic or phenotypic variation.
- A popular method to measure the N$_2$ fixation effectiveness of these legumes with their symbiotic partners is to measure the yield of the plant.
- This method may or may not be suitable to Australian legumes due to variation in species populations and differing survival strategies.

In this project, you will investigate methods to quantify N$_2$ fixation by:

1. Grow various Australian native species inoculated with effective and ineffective rhizobia
2. Assess nodule occupancy (by rhizobia)
3. Utilise several methods to quantify N$_2$ fixation including plant yield, acetylene reduction, chlorophyll and nitrogen contents.

Techniques you will learn:

Germination and propagation of Australian native legumes, glasshouse experiments, PCR techniques, acetylene reduction, chlorophyll assay, statistical analysis, gel electrophoresis, microscopy and microbiology.

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