

KIT 3.6

Improve nitrogen and phosphorus availability by:

- greater capture of value from soil biota
- optimisation of nitrogen-fixing legumes in rotations
- soil amelioration to improve nutrient availability.



Impact	Growers have access to new options to increase nutrient availability and uptake through enhanced soil biological processes, nitrogen fixation and soil management practices, leading to greater profitability.
Summary	Growers have access to novel tools, technologies and information to assist in capturing greater profit from increased supply, reduced losses and greater crop uptake of nitrogen, phosphorus, potassium and sulfur. This is achieved by: <ul style="list-style-type: none">• exploiting an improved understanding of nutrient-cycling processes driven by soil biota• increasing the contribution of nitrogen fixation to farming systems through improved symbiosis and the inclusion of legume options in rotations• optimising soil management practices to increase the availability of phosphorus and other nutrients.

SCOPE

INVESTMENT OUTCOMES

Improved understanding of nutrient cycles, availability and crop uptake

Knowledge of the cycling, availability and crop uptake of nutrients, and the role of soil biota in those factors under field conditions, is increased.



- 3.6.1. Growers and their advisers have an enhanced fundamental knowledge of the role of soil biota in the cycling, availability and crop uptake of nutrients across different farming systems.
- 3.6.2. Growers and their advisers have a greater understanding of symbiotic and non-symbiotic nitrogen fixation, the cycling of organic matter and the nitrogen contribution of fixation to crops, across different farming systems.
- 3.6.3. Growers and their advisers have an improved understanding of the effects of soil management practices on the cycling, availability and crop uptake of nutrients.

Innovative options to improve nutrient availability

Nitrogen fixation and the availability of phosphorus, nitrogen and other nutrients are maximised through the development of novel tools and technologies that harness soil biota and the adoption of enhanced soil management practices.



- 3.6.4. Growers and their advisers have access to innovative practices that exploit soil biological and amelioration processes to increase nutrient supply and uptake and reduce nutrient losses and, in doing so, reduce reliance on inorganic fertilisers.
- 3.6.5. Growers and their advisers have access to information, tools and technologies for enhancing nitrogen fixation, supply and uptake through organic matter cycling, while reducing nitrogen losses within farming systems.

Adoption of novel technologies to enhance nutrient availability within farming systems

The adoption of innovative and integrative options to enhance nutrient availability as influenced by soil biota and soil management, within a range of farming systems, is enabled.



- 3.6.6. Growers understand the effects of soil biota and soil amelioration on nutrient cycling and whole-farm profit and risk, and are motivated to adopt innovative practices that exploit biological processes and nutrient availability.
- 3.6.7. Growers can estimate the benefits of nitrogen fixation on whole-farm profit and risk and are motivated to adopt novel and integrative nitrogen fixation practices to enhance nitrogen supplies within farming systems.