

## SCOPING STUDY TO IDENTIFY AND PRIORITISE REGIONAL SOIL CONSTRAINTS

### KEY POINTS

- This study identifies and prioritises what farmers regard as a high performance soil and what limits their ability to achieve this.
- Participants believe that managing the physical, chemical and biological attributes of their soil is the key to producing high performing soil.
- Farmers are prepared to invest in, and explore various options to improve their soil.
- Key attributes of high and low performance soils have been identified, with soil 'chemical property' constraints found to be the most difficult to address.



### THE CHALLENGE

There is no single definition of a high performance soil as soils across Australia vary widely in their capacity to perform. Similarly, soil constraints vary in type and severity even within a single region.

Underlying levels of performance are the inherent characteristics of soils that farmers manage in order to achieve the best possible production outcome.

Soil type alone, which has been subject to a range of classification and mapping schemes, does not provide a clear indication of where soil constraints may exist.

### THE OPPORTUNITY

Determining what farmers regard as the best attributes of a high performance soil will both help identify what soil constraints may exist and guide further activity needed to maximise the degree of practice change.

### OUR RESEARCH

This study developed a framework for farmer discussion groups in consultation with farmer groups and key science personnel. It established a uniform structure to collect consistent data from farmers through the farmer discussion groups.

There were nine farmer discussion groups involving both farmers and key personnel from Soil CRC participating research institutions. Farmer discussion group activities involved completing a survey, face-to-face discussions and identification of soil constraints. In the groups, the farmers were asked to prioritise soil constraints to inform future soil CRC investment strategy plans.

## OUTCOMES

- A framework was developed for focus group meetings, which can be applied and adopted for future farmer group activities and which will better extend key messages and research findings to Soil CRC farmer participants.
- There is a need for major outreach campaigns of known and current research, rather than complete new research, to address some knowledge gaps and farmer perceptions.
- Soil physical properties are responsible for nearly half of all soil constraint issues, however participants experience more trouble trying to combat their soil's chemical constraints.
- There is a strong desire for farmers to have access to regionally relevant information.
- Of the farmers surveyed, 70% consider 'medium investment/medium return (2 to 4 years) as the best Return on Investment strategy.
- Beliefs and values have great impact on business decisions, and even with the 'hard' evidence' of science, some may not change their practice.
- The Soil CRC engaged with farmer groups and established positive working relationships.

## Next Steps

This report identified current gaps of knowledge. Potential further research could include soil acidification remedies, the benefit of legume crops in low rainfall areas, improving soil physical properties and soil nutrition measurement metrics.

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## Project Reports/Publications

Harbison D., Parsons D., Haigh Y., Rose M., Armstrong R., Harley K. (2018) *Scoping study to identify and prioritise regional soil constraints*. Final Project Report, Soil CRC

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The CRC for High Performance Soils (Soil CRC) is bringing together scientists, industry and farmers to find practical solutions for Australia's underperforming soils. The CRC aims to enable farmers to increase their productivity and profitability by providing them with knowledge and tools to improve the performance of their soils. The Soil CRC is the biggest collaborative soil research effort in Australia's history. The Australian Government and the CRC's 39 participants collectively contribute \$164 million to the Soil CRC through both cash and in-kind contributions. The Soil CRC has funding until 2027.