

SCOPING SYSTEMS OF ACCEPTANCE OF IMPROVED SOIL MANAGEMENT, WITH A FOCUS ON DECISION SUPPORT SYSTEMS AND TOOLS

KEY POINTS

- Decision support systems (DSS) and tools (DST) can become dated, unusable or unavailable over time.
- Decision support tools should be designed from the user perspective, not from the perspective of soil scientists, policy makers, or the short term funding providers.
- To encourage adoption of new DSS and DST, farmers need to hear a unified, clear message or set of messages.
- Making decisions about soil management, and whether or not to adopt certain practices or ideas, is as much a social, as an individual activity.

THE CHALLENGE

Soil research and extension has traditionally assumed linear models of farmer decision making and practice adoption, and has rarely been practiced as part of a wider social ecological system in Australia. For innovative approaches such as new decision support tools (DST) to have lasting impact, they must be developed and used with an understanding of the dynamic complex social and cultural systems of which they are part. DSS and DST adoption is often patchy and short lived because the social and cultural context is not adequately considered.

THE OPPORTUNITY

The Soil CRC has the opportunity to produce a guided, critical explanation of the social research fields and key understandings needed to ensure long term impact of introducing innovative approaches aimed at increasing the performance of soils.

OUR RESEARCH

A desktop review was completed by a team of experts in the range of discipline areas needed to explain the social and cultural context of decision making for Australia soils in the 21st century.

The review considered (i) supporting farmer decision making on good soil stewardship (ii) context for the very human act of decision making and (iii) systemic approaches for improved soil management.

This included determining the range, availability and suitability of existing DSS and DST relevant to soil management in relation to social research. An inventory of DSS and DST was compiled in conjunction with Project 4.1.01. This inventory was sorted into three categories: DST primarily intended for research purposes; DST intended for 'expert' users or those considered to be specialist advisors; and, DST primarily intended for Australia's 85,000 farmers to use directly.

OUTPUTS

The project delivered the following outputs:

- An indication of the scope for the Soil CRC to use existing farmer decision support interfaces for the uptake and use of research outputs.
- A comprehensive review of decision support for soils (systems and tools).
- A set of criteria for assessing the adoptability of soil related technologies or approaches.
- An online tool with further relevant information about adoption and decision making.
- A conceptualisation of the relationships among the social influences on individual decision making (Figure 1).

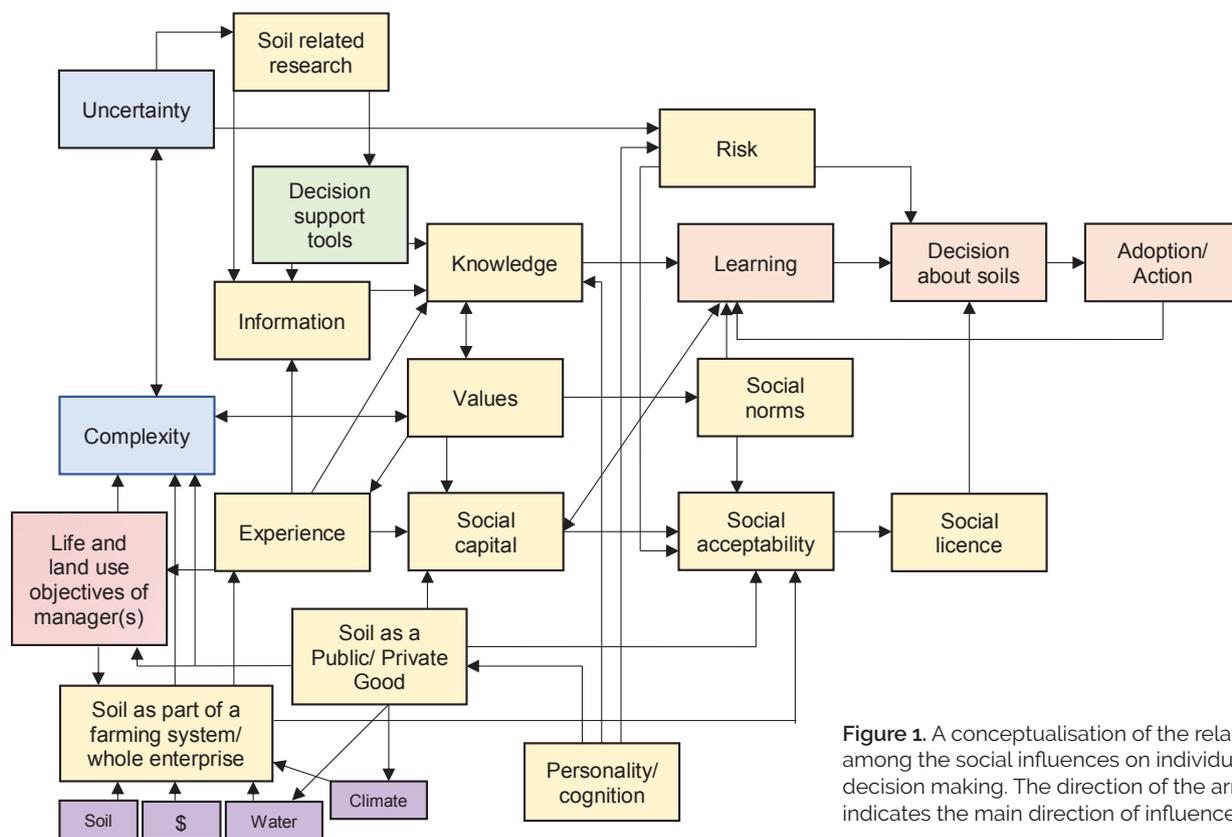


Figure 1. A conceptualisation of the relationships among the social influences on individual decision making. The direction of the arrow indicates the main direction of influence.

Next Steps

The project team identified nine recommendations for future research and have encouraged the Soil CRC to use the conceptual framework (Figure 1) when considering and determining future CRC project investments. The recommendations included further analysis of DST and stakeholder behavioural change, better understanding the social norms of soil practice, community influences and appetites for soil stewardship.

The team of experts established in Program 1 are able to provide assistance in social skills across the Soil CRC membership through the continued improvement and use of the online tool.

Project Team

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Report/Publications

Allan C., Beange L., Bi R., Cockfield G., Dalhaus P., Duan S., Falepau D., Friend J., Higgins V., Jenkins A., Leith P., Luke H., Miles M., Minkey D., Pembleton K., Saravanamuthu K. Doran-Browne N. (2018) *Scoping systems of acceptance of improved soil management, with a focus on decision support systems and tools.* 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.