

SOIL CRC

Performance through collaboration



10
YEARS'
FUNDING



\$39.5_m
AUST GOV
INVESTMENT



39
PARTNERS



37
SUPPORTING
PARTNERS

PROGRAMS



4
86
PROJECTS

MORE THAN

\$180_m

CASH &
IN-KIND
INDUSTRY
SUPPORT



40
PHD
GRADUATES



7
TRADEMARKS
REGISTERED



Our future starts with the soil

The Cooperative Research Centre for High Performance Soils (Soil CRC) was established in 2017 to equip Australian farmers with the knowledge and tools needed to address complex soil management challenges.

Through a nationally coordinated program of research and innovation, we have developed new solutions that will unlock the potential of Australia's agricultural sector.

Our practical, real-world outputs will allow farmers to optimise their productivity, yield and profitability, and ensure the long-term sustainability of their farming businesses.

Bringing together researchers, grower groups, industry and government, the Soil CRC represents the largest collaborative soil research effort in Australia's history.

Our partners



20
FARMER
GROUPS



8
UNIVERSITIES



4
GOVERNMENT
AGENCIES



7
INDUSTRY
PARTNERS

Research program highlights

Investing in high performance soils

1

Professor Catherine Allan, Charles Sturt University

Program 1 recognises that effective soil management is not only a scientific challenge but also a social, economic and policy issue. The program has advanced understanding in three key areas:

- Developing ways to reward good soil stewardship through financial, consumer and property markets
- Creating a comprehensive national dataset on farmer knowledge, values and intentions relating to soil management
- Identifying effective approaches to support practice change through research on knowledge sharing, farm economics and innovation systems.

The program is also creating practical resources, including public data dashboards and practitioner guides, to support researchers, extension staff and policymakers in adopting a more integrated approach to soil management.



Soil performance metrics

Associate Professor Nathan Robinson, Federation University

Program 2 has delivered a suite of practical soil performance tools that combine advanced soil indicators, sensing technologies, AI analytics and digital decision-support systems to improve soil assessment and management across Australian farming systems. Key achievements include:

- Identification of robust chemical, physical and biological indicators of soil performance
- Development of innovative sensor technologies, with the BILBY® soil data transmitter, BANDICOOT® soil probe, QUOLL® electronic nose and Lab-on-a-Chip in-field nutrient test progressing toward commercial deployment
- Creation of AI-enabled tools and data platforms that predict key soil properties and improve access to soil information.

These adoption-ready innovations provide an integrated framework linking soil measurement, data analytics and decision support, helping farmers make more informed decisions to enhance productivity, resilience and sustainable soil management.

New products for soil fertility and function

3

Professor Megh Mallavarapu, University of Newcastle

This program has provided a range of innovative soil products and management technologies that improve soil fertility, function and sustainability while applying circular economy principles. Key developments include:

- Engineered slow-release fertilisers, derived from biochar, nanoclays, organic wastes and biosolids, that enhance nutrient use efficiency, reduce phosphorus stratification and improve crop productivity
- Novel soil amendments that enhance nutrient availability and biological activity
- Biosolids-derived biochar with considerable potential as a safe and sustainable soil amendment
- New soil amelioration technologies to address challenges such as acidity, sodicity, sandy soils and water limitations through clay-based composites, hydrogels and organic moisture-retention materials
- Peat-free microbial carrier products that maintain rhizobial viability, enhance biological nitrogen fixation and perform as well as conventional alternatives.

Continued field validation, commercialisation and industry partnerships will accelerate adoption of these technologies, contributing to more resilient, productive, and environmentally sustainable farming systems across Australia.



4

Integrated soil management solutions

Dr Lukas Van Zwieten, NSW Department of Primary Industries & Regional Development

Program 4 has delivered evidence-based soil management solutions that improve soil productivity, resilience and profitability across Australian farming systems. Through extensive field research and collaboration with our partners, the program has:

- Identified management practices (such as minimum tillage, cover cropping, liming and strategic ripping) that strengthen soil resilience, while demonstrating how factors such as compaction and excessive tillage can reduce soil function
- Generated practical knowledge on managing soil constraints, including nutrient limitations, subsoil constraints and sandy soils, through the use of amendments such as composts, lime, gypsum, clays and nutrient-balanced organic products
- Developed a co-designed web-based decision-support tool that integrates Soil CRC research, modelling, and field data to help growers and advisers identify soil constraints, prioritise amelioration options, and assess likely returns on investment.

Together, these outcomes provide farmers with practical, science-backed solutions to build healthier, more resilient soils and improve long-term farming performance.





Our PhD Program

The Soil CRC's PhD student program underpins our 4 research programs to build capability for the future of Australia's soil research.

The Soil CRC has a huge wealth of knowledge, experiences, professional networks and capabilities for our PhD cohort to engage with and learn from.

Students are enrolled at 11 universities across Australia and reflect a wide range of disciplines and cultural backgrounds.

Our Adoption Plan

The Soil CRC's Adoption Plan is helping to translate research into practical outcomes for farmers by ensuring new knowledge, tools and innovations are effectively shared and adopted. Developed with industry, grower groups and regional partners, it aims to strengthen collaboration between researchers and farming communities, support better soil management decisions, and drive lasting improvements in productivity, resilience and sustainable soil management.



SUPPORTING
14
GROWER
GROUPS



DELIVERING
105
EXTENSION
ACTIVITIES



INVESTING
\$500k
IN EXTENSION



Visit our Knowledge Hub

The Soil CRC's Knowledge Hub is an online repository of our research publications and includes over 450 resources, from project fact sheets and research reports to webinar recordings and videos.

Go to soilcrc.com.au/resources

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