

Soil Conservation Adoption Decisions and the Impact of Climate Change

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Background

Australia's poor soil conditions pose a significant challenge. Although the value of soil conservation practise is widely recognised, its adoption remains insufficient.

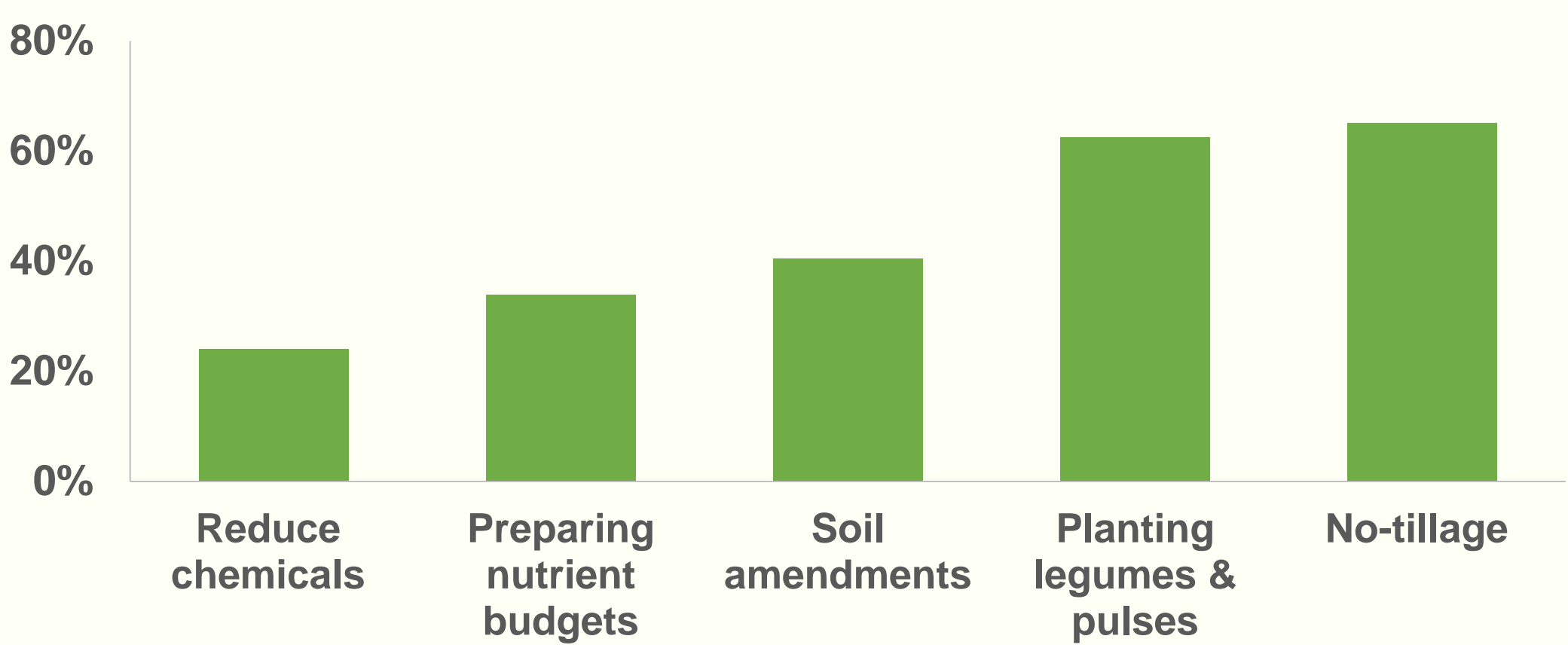


Figure 1. Adoption rates of soil conservation practices across NSW, WA & SA

Research Questions

- What are the gaps in the current soil conservation adoption behaviour research?
- How do farmer identities shape their decision-making?
- What influence does farmers' climate risk-perception have on their adoption of soil conservation practices?
- What is the impact of climate change on future wheat yields?



Data and methodology



Systematic literature review

Analysis of Scopus farmer adoption research from 2010 to 2024.



Farmer identity

Data: Survey dataset of Australian farmers from Soil CRC.

Statistical estimation: Principal component analysis and Multivariate Probit regression.



Climate risk perception

Data: Survey dataset of Australian farmers from Soil CRC.

Model: Poisson Regression.



Wheat yield prediction

Data: ORM farm yield data and CSIRO climate forecast.

Statistical estimation: One-way and two-way fixed effects models. (Estimation in progress).

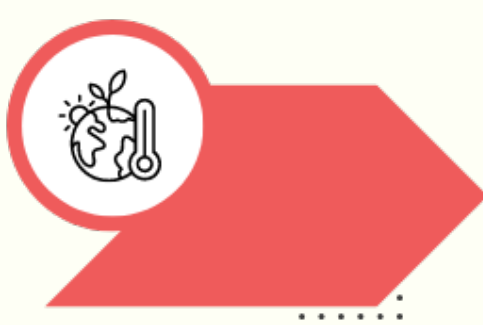
Results



Soil conservation research predominantly focuses on economic, innovation diffusion, and socio-psychological paradigms, with a gap in identity-based research.



Farmer identity (Productivist, Conservationist, Civic-minded) independently influenced soil conservation adoption but was moderated by risk aversion.



Factors impacting adoption decisions include risk aversion, innovation attitude, rainfall zone, training, demonstrations and farm walk participation, and age.



Despite farmers' recognition of climate change risks, there was a significant gap between perceived risk and the adoption of soil conservation practices which is one of the adaptive measures.

Policy implications

Risk management

- Develop appropriate risk management strategies.
- Create an insurance scheme for adopters.

Education & training

- Enhance knowledge of conservation practices.
- Provide more hands-on training, demonstrations and farm walks.

Targeted support

- Address barriers for different farmers.
- Offer incentives based on on-farm characteristics (such as rainfall zone).

Identify strategies

- Identify diverse farmer identities.
- Tailor communication strategies.

Climate change adaptation

- Integrate climate projections in policies.
- Promote adaptive management strategies.