

Increasing Drought Resilience of Broadacre Farming through Digital Support Tools

A Future Drought Fund Innovation Project



When drought events occur at a high frequency or intensity, they not only lead to immediate and sizeable financial losses in the affected season but may also cause negative long-term environmental impacts, such as loss of soil organic matter, reduced soil fertility, and less soil water-holding capacity.

Actively managing these diverse risks from drought exposure is an ever-increasing aspect of successful Australian agribusinesses.

Overview

This project provides farmers and agronomists with digital agriculture tools that evaluate the drought resilience of alternative cropping strategies. The project assists farmers in choosing cropping systems that have both a high level of drought resilience and perform well across further target indicators, such as profitability.

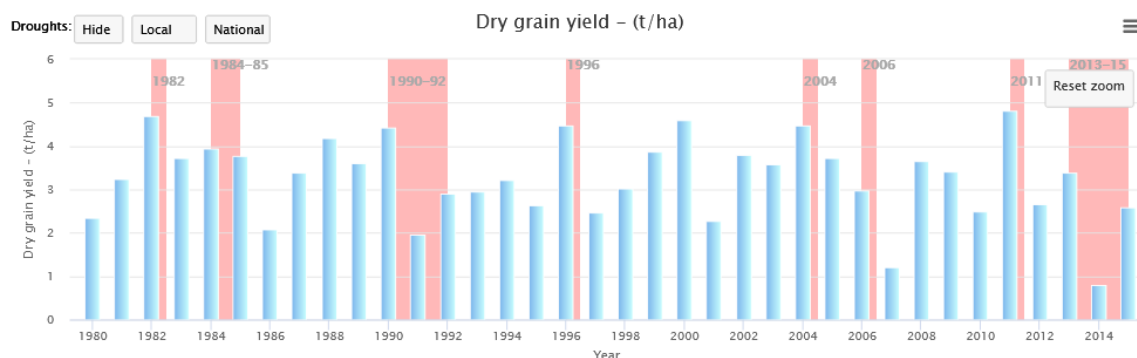
Context

Drought features as a major risk to the financial profitability and environmental sustainability of broadacre enterprises across Australia.

Study sites in Queensland and New South Wales



Sorghum yield and drought occurrence at Dalby (QLD) since 1980



Problem Statement

When farm managers make major decisions on crop choice and management at the season start, they only have indicative information on the forthcoming drought risk based on seasonal forecasts. Accordingly, farmers commonly want to know which cropping strategies perform satisfactorily under a range of seasonal climates. If farmers instead anticipate a wet season and plan to implement a cropping strategy that relies on sufficient water supply, they are keen to have a clear estimate of how much losses they would incur in case an unexpected drought materialises.

Digital Agriculture Tools

The digital agriculture tools **Crop Analysis for Risk Management (CropARM)** and **Rotation Analysis for Risk Management (RotationARM)** allow farmers and agronomists to quickly simulate the likely performance of diverse cropping strategies without the risks and costs associated with testing them on a portion of their farm.

They provide farmers with an understanding of the risks and rewards associated with specific cropping systems across 60 years of climate records and on a range of performance dimensions. These include profitability, downside risk, drought resilience, and environmental sustainability indicators.

Capacity-Building Workshops

This project provides farmers and agronomists with the opportunity to attend eight participatory capacity-building workshops across Queensland and New South Wales. The workshops enable participants to apply the digital *Agricultural Risk Management* tools to their own farm business context. The workshops facilitate an adult learning experience where farmers develop their own conclusions and rules-of-thumb for decision-making to achieve drought resilience.

Project Impacts

By training more than 160 farmers in the use of digital drought resilience tools and by providing a permanent online tool that assists growers in drought resilience planning, the project is providing a lasting contribution to increased drought preparedness and resilience in Queensland and New South Wales.

Funding Bodies

This project is jointly funded through the Australian Government's Future Drought Fund, the Queensland Government's Department of Agriculture and Fisheries, and the University of Southern Queensland.

Want to know more?

Access the tool:

www.armonline.com.au

Visit our website:

www.unisq.edu.au/research/institutes-centres/ilse/centre-for-sustainable-agricultural-systems

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