



THE ROLE OF NATURAL RESOURCE MANAGEMENT IN DROUGHT RESILIENCE

Farmers across Australia are experiencing more frequent and severe drought conditions. Short term assistance packages can help farmers through the worst of these periods however, [a recent research report by the University of Canberra - commissioned by NRM Regions Australia](#) - has highlighted the importance of natural resource management (NRM) in improving resilience to drought conditions over the long term.

NRM programs are typically designed to improve environmental and/or land management outcomes, but often yield additional benefits. These can include improved social connections, farm financial performance, confidence in land management, health and wellbeing. Interventions to increase groundcover and water use efficiency, planning for risks associated with drought, and reducing loss of pasture during dry times have been a part of land management programs for many years. These outcomes improve overall resilience on farms – which can be critical in times of external stresses such as flood or drought.

This study investigated which NRM strategies have the most potential to improve drought resilience – from a social, economic and environmental perspective. Resilience was measured as a component of individual wellbeing alongside resilience in the context of farm performance. The concept of resilience is important as, although having high resilience does not prevent all negative impacts in events such as drought, it does help farmers to minimise the size and duration of these impacts.

The research found that many NRM investments improved resilience to drought. One of the most important actions identified was helping farmers to plan for and manage risk. Other activities that can help farmers cope better with drought include control of feral animals, improved water use efficiency, and supporting graziers to manage groundcover and build feed reserves. This research report provides additional evidence to support the work already underway and provides scope for improvements to how such programs are rolled out or adapted. The measures used in the study were broad and future work could use more specific measures to better assess how NRM contributes to drought resilience – for example, improving soil health. However, the study has provided useful data to support evidence that NRM activities have been, and will continue to be, an important tool in responding to the ongoing challenge of drought in Australia.

Climate models predict more frequent warmer and drier periods across Australia, and helping farmers better prepare for this eventuality is critical to sustaining our industry. NRM bodies across Australia are responding to this challenge via a range of targeted programs including grants and landholder workshops, and improved soil, water and grazing management. Learning more about what NRM actions bring the most benefits in combating the effects of drought will help in building more robust and targeted programs in the future.

The selected case studies that follow highlight how NRM outcomes are improving drought resilience. They represent just a fraction of the wide range of activities taking place across Australia.

FORWARD PLANNING

Survey results showed that risk planning, rather than drought planning, was the stronger predictor of drought resilience. This suggests that it is important to engage not just in specific planning for drought but in realistic assessment of the range of risks that could occur on the farm, enabling farmers to better develop strategies to address all risks.

CASE STUDY: GRANTS AND FACILITATOR SUPPORT FOR DROUGHT PLANNING



ACT Rural Grant - before (left) and after (right) - second year of oats cropping/pasture establishment to address African Lovegrass infestation.

Support packages rolled out by the ACT's NRM organisation included an Australian Government funded grant program to support landholders in on-ground works for drought and climate change preparedness and planning. Funding supported actions such as fencing to manage stock more effectively and establishing a drought feedlot. The ACT NRM Regional Agriculture Landcare Facilitator also provided drought preparedness training and support to landholders via workshops including how to manage stock during dry periods, feed budgeting, grazing management, soil testing, stock management and land use mapping. [For highlights from the grants program, click here.](#)

MAINTAINING GROUNDCOVER

Graziers with a strong focus on maintenance of groundcover have improved resilience to drought. Specific strategies and practices to maintain groundcover vary depending on location, and more analysis is needed (incorporating soil health, water quality and livestock wellbeing and productivity) to identify if some of these are more useful for improving resilience to drought than others in dry times.

CASE STUDY: A LESSON IN PERENNIAL PASTURES



Two months after sowing (August 2014)

Established pastures January 2017

After carrying out a three year perennial pasture demonstration on his farm in Manjimup, WA, the advice from beef producer Kim Skoss is that preparation is key. While perennials are seen as a solution to maintaining groundcover and reducing the need for supplemental feed, Mr Skoss advises that before sowing perennials, it is important to properly control annual grasses and address fertility issues. The outcomes of the trial, supported by South West Catchments Council through funding from the Australian Government's National Landcare Programme, highlighted the importance of not rushing into planting perennial pastures, but instead focusing on preparing the soil for at least one year in advance of seeding. [For more information, click here.](#)

CONTROLLING WEEDS AND FERAL ANIMALS

Collaborative pest control programs have been a common feature of NRM investment. Report findings suggest that this is an effective strategy in reducing the financial impacts caused to graziers by feral animals during drought, and can be particularly effective where animals congregate around water sources during dry periods.

CASE STUDY: WEED AND PEST ANIMAL DROUGHT PROJECT



Image credit: NSW Dept of Primary Industries

Fourteen groups and organisations shared in a \$1.5 million in Australian Government funding as part of the 2018 Pest and Weed Drought Funding Program. Funding is supporting a suite of projects across NSW that target pest animal (wild dogs, feral pigs, rabbit, deer) and weed management to build drought resilience. These projects will help land managers reduce grazing pressure and stock losses caused by pest animals, as well as to manage the spread of weeds. [For more information, click here.](#)

CASE STUDY: PRICKLY ACACIA CONTROL PROGRAM



The Desert Channels NRM group in Queensland have been assisting landholders in control of prickly acacia in the northern Lake Eyre Basin region. This assistance has helped landholders save time and money in controlling this weed and restoring vital pasture areas, critical to farmers during periods of drought. [For more information, click here.](#)

INCREASING WATER USE EFFICIENCY

Improving water use efficiency has financial benefits for irrigators in drought, as it enables higher volumes of production from lower amounts of water.

CASE STUDY: ON-FARM IRRIGATION EFFICIENCY PROGRAM



Conversion to drip irrigation is one of the infrastructure improvements that farmers have made using OFIEP funding

The South Australian Murray-Darling Basin NRM Board funded over 380 projects across the first four rounds of the program. The OFIEP assisted communities with on-farm irrigation infrastructure modernisation projects. Huge water savings have been made since the program began with reports of reduced leakages since upgrading submains. A strong increase in irrigation efficiency was noted by growers, with those converting from sprinkler irrigation reporting less run off and no longer any need to manually check sprinklers (a labour/time saving). Crop quality also increased with some irrigators noticing an increase in crop yield and crop evenness (less patchy). [For more information, click here.](#)

BUILDING NETWORKS

While not specifically identified in the survey, farmers working together and forming networks are natural consequences of NRM activities (such as workshops or weed control at a landscape level). Where farmers are able to support each other, and share resources and knowledge, overall wellbeing and resilience is improved.

CASE STUDY: KNOWLEDGE SHARING TO IMPROVE SOIL MANAGEMENT



In Victoria's Goulburn-Broken Catchment region, farmer Brad Watts has been practicing rotational grazing to help improve his pastures. A relative newcomer to the farming industry, Brad is part of the Yea Soilcare group where a group of local landholders meet regularly to discuss challenges and solutions. The diverse group includes large and small farmers with a range of experience levels.

Through this network, Brad has been able to learn about and trial new ideas, and access workshops and emerging technology. This initiative, supported by Goulburn Broken CMA through Australian Government funding, is helping to improve landholders' capacity to build strong community networks and prepare for land management challenges. [For more information, click here.](#)
