

New project aims to strengthen drought and climate resilience in Australian sheep systems

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Improving the resilience and productivity of sheep in low rainfall farming systems is the focus of a new national collaborative research project.

The *Drought and Climate Resilient Sheep Farms and Landscapes* project (shortened to 'Climate Resilient Sheep Systems') is being led by Adelaide University and Murdoch University, together with researchers, farmers and industry partners from across the country. The goal is to develop practical solutions to improve the long-term resilience and sustainability of sheep and their pasture systems under drought conditions.

Funded through the Australian Government's Future Drought Fund, the project will run until October 2030, with trials established across South Australia, Western Australia, and New South Wales.

Adelaide University project lead Associate Professor William van Wettere said sheep production remains critical to farming systems and regional communities, particularly in low rainfall zones.

"Sheep enterprises in many low rainfall regions are being increasingly challenged by drought and extreme heat," Associate Professor van Wettere said.

"These conditions impact pasture and shrub growth, soil stability and overall feed consistency, which can then impact sheep performance, so we are exploring integrated, long-term solutions."

The project will investigate climate-resilient sheep genetics for heat and drought resilience characteristics, along with tactics to improve drought-tolerant pastures, shrubs and trees to improve feed availability, grazing landscapes and animal welfare.

"By integrating adapted sheep with more resilient feed base systems, we aim to create more stable and productive farming systems," Associate Professor van Wettere said.

"This includes improving feed consistency, creating better microclimates for livestock, and supporting overall landscape health."

A feature of the project is its focus on farmer-led research, with at least 26 regional trial sites to be established on operating farms, including 8 in South Australia, 10 in Western Australia, and 8 in New South Wales. These sites will be tailored to local conditions in collaboration with local producers and farming systems groups.

"Working closely with farmers and farming systems groups ensures the solutions we develop are practical, relevant and suited to local environments and regional conditions," Associate Professor van Wettere said.

Controlled research sites at Adelaide University's Roseworthy campus and the Muresk Institute near Northam in WA, plus collaboration with ram breeders throughout the country, will identify

key traits that are genetically linked to heat tolerance and drought adaptation in sheep. There will also be a comparison of different fodder systems at Roseworthy.

The researchers will collect detailed data across both environmental and livestock factors such as soil health, vegetation performance, animal behaviour, heat and drought tolerance and reproductive outcomes.

“This project is about understanding the whole system, from soils and plants through to animal performance and genetics,” said Murdoch University project lead Professor Andrew Thompson.

“By bringing all these elements together, we can identify strategies that farmers can adopt to manage climate change and make real gains in resilience and productivity.

“Projects like this are critical to ensuring Australia’s low rainfall livestock systems continue to be productive into the future.”

The Drought and Climate Resilient Sheep Farms and Landscapes project (Climate Resilient Sheep Systems) received funding from the Australian Government’s Future Drought Fund.

The project is led by Adelaide University and Murdoch University, and involves collaboration with AIR EP, Central West Farming Systems Group, Grower Group Alliance-SW WA Drought Hub, LegumeN Pty Ltd and Farming Systems Analysis Service, Liebe Group, Livestock SA – SA Sheep Industry Fund, Mallee Sustainable Farming, Merredin and Districts Farm Improvement Group, neXgen Agri, Pinion Advisory, Red Centre Enterprises (a First Nations-owned enterprise), SA Drought Hub, Southern NSW Innovation Hub, the University of Western Australia, Upper North Farming Systems Group, and the Western Australian Department of Primary Industries and Regional Development. In WA, funding was also provided by Western Australian Agricultural Research Collaboration.

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