Northern Australia Climate Program

NACP case study

Southern Queensland

May 2024

Producer: Terry Elliott

Property: Rowellyn

Location: Chinchilla, Qld

Property size: 418 ha

Enterprise: Cattle, grain & fodder

Land type: Brigalow-belah floodplain

Average rainfall: 660 mm

Soil type: Grey cracking clay

Main pastures: Bambatsi, Queensland bluegrass, Rhodes grass, burr medic

Key message: *You can make decisions off your own intuition, or you can make them with some insight from what the climate forecasting is telling you. And I've found that climate forecasting's been beneficial.*

Rotating paddocks and adjusting stock numbers helps maintain pasture condition and soil health

Terry Elliott operates an organic cattle, grain, and fodder enterprise on 'Rowellyn', a 418 ha property on the western Darling Downs near Chinchilla, in southern Queensland. The country is Brigalow-Belah floodplain, with fertile grey cracking clay soils and pastures comprising predominantly Bambatsi, Queensland blue grass, Rhodes grass and burr medic. Rainfall on Rowellyn is summer-dominant, with a long-term annual average of 660 mm.

Terry says that the Western Downs region offers significant advantages for agriculture, being a prominent cattle and cropping area with access to various markets and infrastructure. However, while the region offers ample opportunities, soil health issues such as soil fertility loss and soil structure degradation, due to historical cropping and grazing practices, remain a challenge to sustaining long-term productivity on Rowellyn.

Terry's farm management is based on a paddock rotation system, that aims to maintain soil cover on his pasture country, while enabling cropping when conditions are suitable. He feels that this has helped a lot with pasture regeneration and recovery. '*I've now got the program in place and, while I've got more cattle, I've also got more grass than I've ever had, and it's just got to do with that whole system*.'

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Northern Australia Climate Program

About NACP

The Northern Australia Climate Program (NACP) is a partnership between the Queensland Government (through the Drought and Climate Adaptation Program), Meat and Livestock Australia and the University of Southern Queensland (UniSQ) to help red meat producers in northern Australia to manage drought and climate risks. A core component of the program is the 'Climate Mates' initiative, which employs and trains local climate extension experts who are connected through the program to leading climate science researchers at UniSQ, the Bureau of Meteorology (BoM) and UK Meteorological Office.

The NACP Climate Mates have two key roles: to 'translate' the best available climate information for the local regional context to help producers make informed decisions; and to pass feedback from producers back to researchers to ensure research and product development is targeted to producer needs.

The Climate Mate for southern Queensland, Vicki Mayne, says '*Overall, Terry's experience with the NACP underscores the program's effectiveness in enhancing participants' understanding of climate forecasting and its practical application in decision-making. His experience highlights the importance of tailored support, structured guidance, and user-friendly tools in empowering producers to effectively manage climate-related risks and optimize their agricultural practices. Through ongoing collaboration and improvement, programs like the NACP can continue to support producers like Terry in building climate resilience and sustainability in their operations*.'

Climate Awareness & understanding

Terry has been a participant in the Northern Australian Climate Program (NACP) since October 2020 and feels he has gained significant benefits from the program and the climate services it provides. Despite having some prior awareness, he says the NACP has helped him to develop greater knowledge and understanding of the various climate drivers that influence Australia's climate and has provided him with essential insights into the factors influencing his local climate. In his view, this is particularly critical, given he lives in a region of Queensland with less reliable climate forecasting compared to other parts of Australia.

Terry is particularly enthusiastic about the NACP's role in helping him gain trust in climate forecasting and in its value in decision-making. He notes the value of adopting practical rules of thumb and regularly monitoring climate drivers, thanks to guidance from facilitators like Vicki Mayne – that regional NACP Climate Mate. Terry says he particularly values Vicki's expertise in providing structured guidance and tools for effective decision-making based on the short- and longer-term seasonal climate forecasts.

A significant aspect of Terry's learning from the program is the importance of monitoring climate drivers such as ENSO, MJO, and SAM, and their impact on weather patterns. He has integrated this knowledge into his decision-making process, using tools like the Windy™ app and the Bureau of Meteorology (BOM) website to stay informed about current and future weather conditions.

Terry acknowledges that his engagement with the NACP has made him more aware of potential climate risks and opportunities, enabling him to make timely decisions for his enterprise. He values the program's role in providing him with the necessary information to adapt his management actions based on the forecasts, whether to proceed with activities or delay them depending on expected climatic conditions.

Despite his growing confidence in understanding climate drivers, Terry acknowledges the ongoing need for further improvement in his knowledge and skills. He says he would like to see a more structured approach to accessing climate forecasting information, suggesting the development of a concise roadmap that directs users to relevant resources and provides clear linkages between different climate drivers. Vicki says she values such feedback from participants in the program and is currently working on developing the suggested guidance.

Climate risk decision-making

Terry's approach to drought management and organic farming reflect a sustainable and adaptive approach to agriculture in the face of climatic variability, characterised by his understanding of climate patterns, strategic feeding and cropping practices, and a commitment to soil health.

Terry emphasises the importance of monitoring the El Niño-Southern Oscillation (ENSO) for drought predictions and agricultural decision-making. He maintains a feed reserve to support livestock during dry periods and has a supplementary feeding strategy that involves feeding cattle for 60-90 days before selling them, using his understanding of climate drivers to determine the timing of feeding. However, Terry also admits that, while an El Niño event was widely predicted last year, he went against the grain, choosing to retain cattle instead of selling, a decision that proved beneficial as the El Niño was milder than expected. Terry says that this decision was informed by his growing confidence in interpreting ENSO signals and making informed choices.

In terms of weaning, Terry says he pays attention to weather forecasts, and, as at Easter time this year, will postpone weaning to avoid the complications of managing weaners in wet conditions. He also takes note of Green Dates in his decision-making, though says that, interestingly, different Green Dates are indicated by the grazing for-profit course he recently attended as part of the NACP and Resource Consulting Services (RCS).

As a certified organic farmer, Terry doesn't use herbicides and his operational crop management decisions are largely determined by climate and weather conditions. The inability to use conventional pest control methods influences his choice of crops, with a preference for cowpeas rather than sorghum as a summer crop, followed by winter cereals. He also practices intercropping, undersowing cereal crops with legumes such as snail medic and barrel medics. This method enhances soil nitrogen through the symbiotic relationship between legumes and *Rhizobium* bacteria, compensating for lower yields by naturally improving soil fertility. Terry also uses green manure crops, such as cowpeas and summer grasses, to enrich the soil, and he minimises cultivation and carefully manages grazing on cultivated land to preserve soil organic matter and nutrients and avoid soil compaction, especially when wet. By aligning his planting schedules with favourable weather conditions, he is able to minimise the risk of crop failure and maximise productivity.

Terry (far right) at a recent NACP workshop

Snail medic nodules in a green manure crop

Triple bottom line

In reflecting on the benefit he has derived from using climate forecasting services in his enterprise, Terry highlights several areas where he believes these services have had significant impact.

Firstly, he notes the value of climate forecasts in supporting decisions regarding supplementary feeding for his cattle as a drought management strategy. He says that by using his understanding of climate drivers, he can make better decisions around when to introduce feed in order to maintain cattle weight gain while optimising resource use and minimising expenditure. Economically, Terry says he aims for self-sufficiency in hay production and cattle breeding; he purchases supplies as they become available and stores them until needed, and feels that this, and the strong relationships he has with buyers on the organic market, contributes to a stable cash flow.

Overall, Terry also takes a proactive approach to managing soil cover and his pasture rotations, again using climate information to guide his decision-making. His paddock rotation system means he can reduce grazing pressure during dry and wet periods, which has significantly aided pasture regeneration and recovery. He also strategically relocates cattle between paddocks and to neighbouring properties, adjusting grazing pressure based on weather forecasts to promote pasture regeneration and maximise pasture growth and soil health, thus contributing to improved land condition and resilience to climate variability. He says that this system enables him to maintain soil cover, and has resulted in more grass than ever before, even with an increased number of cattle.

Finally, Terry says that, by using climate information, he feels less stress and increased confidence in his decision-making. He also values the opportunity to exchange ideas with other producers through networks such as Landcare. He believes the knowledge-sharing and collaboration within his local Landcare group, which includes other producers involved in the NACP, to be mutually beneficial, enhancing the collective knowledge and practices of the group.

Overall, Terry says that, in his experience, there are a range of benefits - from improved understanding of climate tools to greater community engagement and environmental stewardship - of integrating climate forecasting services, such as those provided by the NACP, into agricultural decision-making. He feels that, not only do these services benefit his enterprise, but they will also increasingly play a vital role more broadly in supporting sustainable and resilient farming practices and agricultural production systems.