

Seasonal climate forecasting to improve dairy farmers' feedbase management

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Location: Wollongbar Agricultural Institute, Northern NSW

Principal investigator

Katrina Sinclair, NSW Department of Primary Industries

The need

Dairy farmers in the coastal regions of New South Wales and Queensland are under pressure from a deregulated domestic market and increased competition for land and water from urban development and other intensive agricultural enterprises. This is resulting in farm rationalisation and intensification on existing farms. Intensification is being achieved by increased herd sizes, higher stocking rates and greater input of fertiliser and supplements.

Rainfall is high and seasonal along the subtropical eastern coastline; it is also highly variable and unreliable. Irrigation is used to overcome water deficits, but with the imminent implementation of Water Sharing Plans, irrigation water will be restricted or unavailable. Managing the feedbase will become increasingly challenging for dairy farmers. A lack of knowledge and understanding of climate variability, seasonal weather patterns, seasonal climate forecasting (SCF) tools, and their implications for production is currently limiting their capacity to meet these challenges.



How this project fits with MCV objectives

This project addresses the MCV objectives of providing tools and services for managing climate risk, and increasing the adoption of climate risk management by farmers.

Project objectives

1. Investigate the opportunity for dairy farmers to use climate variability and seasonal forecasting data in their feed management strategies
2. Evaluate the skill and usefulness of integrating climate variability and SCF with a feed modelling capability, for investigating seasonal pasture and fodder production options for the sub-tropical dairy region
3. Provide dairy farmers with an education and training package on accessing and using climate and weather information
4. Develop a learning package on feed management options in association with SCF; deliver it to sub-tropical dairy farmers, their advisers and the dairy industry sector

Methods

- > Investigate historical weather data for variability and the predictive skill of the SOI and SST for representative coastal zones within the sub-tropical dairy region
- > Conduct climate risk management workshops to educate farmers in accessing and using weather and climate information
- > Form discussion groups for sub-tropical dairy farmers to identify their need for SCF
- > Investigate existing feedbase growth models such as APSIM and DairyMod for their potential and suitability for use in conjunction with climate variability information, and to develop 'what-if' scenarios for farmer discussion

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- Hold regular sub-regional meetings to refine feedbase tool to ensure industry relevance
- Using e-mail, www.dairyinfo.biz and dairy print media, undertake extension to a wider audience in the region

Desired outcomes

1. Dairy farmers are using climate variability and seasonal forecasting data in their seasonal feed management strategies, thereby reducing their exposure to climate-related risk.
2. Dairy farmers know how to access and use weather and climate information.
3. A seasonal feed forecasting tool is available; it offers seasonal pasture and fodder options while incorporating climate variability and SCF information.
4. An understanding of the critical success factors influencing subtropical dairy farmers' adoption (or non-adoption) of seasonal forecasting tools and information for informing their feedbase management practice.

Achievements to date

- Conducted a series of climate risk management workshops to educate farmers in the sub-tropical dairy region on accessing and using climate and weather information
- Conducted a technical workshop, 'Integrating climate science into dairy farming systems', to update knowledge on available climate tools, and pasture and fodder crop models
- Held two regional climate change forums: 'Climate change and coastal communities in northern NSW and SE Qld' and 'Impacts of changing climate on north coast agriculture'
- Reported on:
 - the regional historical weather data for seasonal climate patterns and variability
 - the need by subtropical dairy farmers for climate information in their farming systems
 - the predictive skill of the SOI and SST for representative zones in the region
 - trends (1957 – 2004) for temperature, rainfall and temperature-humidity index in the subtropical dairy region and implications for the dairy industry at Casino

What is left to do?

- Develop a service that provides climate information specifically for the subtropical dairy industry
- Evaluate climate tools that are in use or in development by other agricultural industries
- Determine relevance of the skill of climate forecasting predictors of median rainfall to the timing of feedbase planning and tactical management decisions
- Develop seasonal 'what-if' scenarios for farmer discussion
- Evaluate Dairy Predict for optimising feedbase planning.
- Analyse trends for Atherton Tablelands and Taree; communicate to the dairy community expected changes due to changing climate and implications for farm management
- Investigate how farmers incorporate climate information and tools into decision making

MCV is a collaborative program between the Grains, Rural Industries and Sugar Research and Development Corporations; the Australian Government Natural Heritage Trust and Department of Agriculture, Fisheries and Forestry; Dairy Australia; Meat & Livestock Australia; and Land & Water Australia. The National Farmers Federation and Australian Wool Innovation Limited are associate partners.

For more information on MCV, visit <http://www.managingclimate.gov.au>
 Land & Water Australia is the managing agent for MCV.
 Land & Water Australia
 Level 1, 86 Northbourne Avenue, Braddon ACT 2612
 GPO Box 2182, Canberra ACT 2601
 Phone: +61 2 6263 6000 Email: managingclimate@lwa.gov.au

