



New opportunities from sensor data

The number of dairy cattle managed in confinement systems in Australia is increasing, with the trend towards intensification.

Cattle housed indoor can be fitted with sensors (in and on the animal) to monitor behaviour in near-real time.

These systems can continuously record information such as activity, rumination, feeding behaviour and temperature.

This project explored opportunities to combine sensor data with farm health and production records to better understand patterns of disease and support future development of early-intervention tools.

Research approach

The Dairy UP team established a data partnership with Moxey Farms, a large commercial dairy herd in NSW. The Dairy UP team was given access to production and management records from the farm.

The project established a linked dataset

Data, Advanced Technology and Automation (DATA)

Dairy UP's P6 project explored ways to use existing farm, climate and industry data to develop ways to monitor cows and systems. Reports and tools based on this data could be used by farmers to make better decisions, for example about heat management, health and feeding.

The Australian dairy industry collects large amounts of farm and production data. Until now this has been stored in numerous, separate databases.

This project aimed to utilise data, advanced technologies and automation to integrate information from multiple sources to enable the creation of tools that support on-farm decisions.

P6 was a suite of three projects that combined animal science and data science. Each project was undertaken by a PhD student.

P6a: Resilient Cattle (heat tolerance).

P6b: Resilient Cattle (health): early intervention for improved animal health, enabled by advanced sensing.

P6c: Digital Feeding – data-driven feeding to optimise grain allocation in pasture-based herds.

This document provides a final update on P6b Resilient Cattle (Health).

combining CowManager sensor data and DataGene records, creating a pipeline to bring together farm health, production and management information that had previously been



stored in separate systems.

Integrating these previously separate data sources created a research-ready dataset and a proof-of-concept that could support future research and decision support tools.

Results

Analysis of records from more than 3100 cows confirmed that the period immediately after calving was the highest-risk time for health events, with 40% of recorded cases occurring within the first seven days after calving.

The study also found that different health disorders followed different timing patterns after calving.

Subproject activities were delayed due to health-related interruptions to the PhD candidature. However, the project established a valuable research dataset that provides a foundation for future work developing early-intervention tools for dairy cattle health.

PhD student

Maddi Pearce, University of Sydney

Collaborators

Dairy UP participating commercial farms

Read more

Pearce M.F. — *Dairy disease associations: predicting and preventing illness incidence and impact* — Abstract from oral presentation — ADSS 2024.

More info

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[P6 final report](#)

Delivery organisations



Department of Primary Industries
and Regional Development



Partner organisations



Additional program supporters, collaborations or partnerships

Charles Sturt University | DairyBio | DataGene | Eagle Direct | Entegra
 Macquarie University | NSW EPA | smaXtec | UC Davis | University of Technology Sydney
