

Dairy
Australia
Your Levy
at Work



In Brief

- *Future Ready Dairy Systems update*
- *SA project to enhance soil management*
- *Nutrient management a priority in SW Vic*
- *Tasmania: Dairying in a changing climate & getting smarter with power bills*
- *10 keys to tackle livestock emissions*
- *Introducing the climate dogs*
- *QLD: Working together to beat the heat*
- *Future Ready Dairy Systems at Yarram*

About the newsletter

This newsletter is distributed bimonthly, and circulated electronically via email. We aim to include exciting and inspiring works that are being done nationally in the dairy on-farm NRM area. A copy of the newsletter can also be found on the Dairying for Tomorrow website

<http://www.dairyingfortomorrow.com.au>

We hope you enjoy it, and feel free to circulate to any interested parties. Future contributions are most welcome and can be emailed to us - contact details at end of the newsletter.

UPDATE: Future Ready Dairy Systems

Future Ready Dairy Systems is focusing on capturing on farm changes that have occurred in response to climate variability – a constant part of farming in the Australian landscape.

The project is well underway with demonstration sites selected in many regions. This will result in a national network of 15 sites in Australia's key dairying regions that will show case adaptation and mitigation strategies in action, on farm.

Regional reference group's have formed in each of the 8 dairy regions to ensure that the demonstration sites are focussed on issues that are locally relevant. Meetings with local farmers as well as surveys are informing regional needs.

The development of information resources is underway. Resources will be disseminated widely through national, state and local partners, including milk processors and Landcare networks.

Many Field Days are planned for the February – April period in 2011.

The Future Ready Dairy Systems project is funded by Dairy Australia and the Federal Department of Agriculture, Fisheries & Forestry's Climate Change Research Program (part of Australia's Farming Future).

Further details about local activities are included in this newsletter.

Nutrient Management a priority in SW Vic

Nutrient management is the highest priority issue facing dairy farms in south-west Victoria, according to a survey conducted for the Future Ready Dairy Systems project.

The survey also identified energy savings, pasture and crops, shelter and shade, and heat stress as high priority issues that farmers want to learn about.

Western Victoria's Future Ready Dairy Systems project coordinator, Louise Sheba said demonstration sites would be established in response to the survey results. "The project aims to provide dairy farmers with examples of how they can manage in a variable climate and options to adapt their farming systems to be more resilient to variable climatic conditions".

More than 65 of the 77 farmers responding to the survey listed nutrient management as a high or medium high priority. With farmers keen to learn about sustainable use of effluent and optimising fertiliser use.



Above: Dairy effluent being applied to paddocks in Victoria's south west.

Energy saving options such as solar power and heat transfer were identified as strategies requiring more information.

Regional Reference Group Chairman Tom Walsh said the group's next task was to confirm the top five priorities based on the survey results and then find farms and people with expertise to demonstrate on the topic.

"We will be analysing the results of the survey and other submissions from farmers to make sure we are providing information and demonstrations that meet the priority needs of our local farmers," he said.

Farms chosen for showcase demonstrations will be offered technical support to provide accurate information to share with other farmers. Experts in the field will also be on hand at the demonstration days to provide information.

"Farmers will be able to view the farm's chosen topic in action, discuss the benefits and savings and learn from experts in the field," Mr Walsh said.

More Information Louise Sheba, DfT Regional Coordinator m 0409 505686

SA project to enhance soil management

Dairy SA has been successful in securing \$299 520 to assist dairy farmers across the state to monitor dairy farm soil acidity and nutrient levels in order to maximise fertiliser efficiency and production and reduce nutrient loads in to the environment.

The project, "Reducing Soil Acidification through Nutrient Management in SA" is funded by the Australian Government - Caring for our Country.

Soil acidity is a significant threat to agricultural production across SA. High soil acidity has been identified as leading to the leaching of nutrients (including trace elements) and may contribute to the degradation of riparian environments and water quality.

Participating farms in the Fleurieu, South East and Barossa Mid North districts will work with local agronomists to conduct intensive soil sampling

programs in order to ascertain current acidity and fertility levels. Risk of loss of nutrients from the farm will then be assessed for each paddock that has been soil tested. Data will be used to develop detailed farm fertility maps and build targeted nutrient budgets for the farm that maximise fertiliser efficiency and reduce potential nutrient loss to the environment.

Soil sampling will commence this summer and continue over two further years in order to track fertility change over time.

It is envisaged that the project will not only lead direct change on participating farms but will also provide a comprehensive farm fertility benchmark that will assist farmers to improve productivity and reduce nutrient losses.

For further information on this project please contact Dairy SA Verity Ingham 87660127 or Monique White 0400 972 206

Tasmania: Dairying in a Changing Climate

“What will our climate look like in 2030? How much water are we likely to have? How will our pastures respond?” These are some of the questions that will be discussed at the upcoming Dairy Industry presentation of the Climate Futures for Tasmania research, to be held at the Sir Raymond Ferrall Centre in Launceston on Thursday 2nd December 2010.



The Climate Futures for Tasmania research has used a unique downscaling approach to look at climate trends on a localised 10 km grid scale, out to 2100. Learn about the expected trends in temperature, rainfall, wind, evaporation and water availability for

Issue 12 November 2010

current and future dairying regions. Industry discussion of what this will mean for water availability, pasture growth, milk production and future investment in the Tasmanian dairy industry.

Presenters from the Climate Futures for Tasmania research team will include Greg Holz (ag impacts) and James Bennett (catchment hydrology), as well as Philip Darton from Fonterra and Richard Rawnsley from TIAR.

This will be a once-off opportunity and industry discussion will focus on how this research can be used to highlight competitive advantages for the Tasmanian dairy sector.

RSVP to DairyTas by 30th November on 64322233 or tasdairy@bigpond.com.

Get Smarter With Your Power Bill in Tassie

Tackling rising energy costs is the aim of a series of energy efficiency field days for Tasmanian dairy farmers during December 2010.



ABOVE: Tony and Melissa Fielding's farm at South Riana, hosting energy efficiency discussion day on 10th December.

Energy consultants Paul Fulton and Marc White will give farmers practical tips on getting their power tariffs right and negotiating energy contracts.

Early in 2011, Tranche 5A electricity customers (bills between \$10,000 - \$50,000) become contestable and it is important that farmers understand their options regarding power tariffs.

The days will include a detailed review of the irrigation and dairy shed set up, with commentary from the host farmers on how and why their systems have been set up and a range of irrigation and dairy industry experts giving tips on ways to save energy costs through improved system efficiencies and maintenance.

The days will be repeated at 4 dairy farms (Togari, Elizabeth Town, Derby and South Riana) from 7th to 10th December. RSVP to DairyTas by 3rd December on 64322233 or tasdairy@bigpond.com.

For further information call Dairying for Tomorrow Coordinator Rachel Brown on 0419 528 428.

10 Keys to Tackle Livestock Emissions

October 2010 saw 400 scientists and other top minds in their field gather from nearly 40 countries for the 4th International Greenhouse Gases and Animal Agriculture (GGAA) Conference in Banff, Canada. Following are ten key perspectives highlighted during the wrap-up session.

1. Avoid one size fits all mindset. Science is driving the development of many new strategies and tools for livestock producers and their industries to reduce greenhouse gas emissions, summarized Dr. Elizabeth Pattey of Agriculture and Agri-Food Canada.

The options for manure management are one example where many approaches are coming into play, including a variety of housing, grazing, storage, and treatment application options. "The progress is exciting yet we must remember there is no one solution that fits all. Options are good but we need them presented in way that allows farmers to make decisions to best meet their individual needs."

2. Use better measuring sticks in research. As a pioneering area of science, it's important that the field of greenhouse gases and animal agriculture continually improves and coordinates its approaches to measuring emissions, says Dr. Mark Powell of the USDA in Madison, Wisconsin.

Powell identified several key questions. Among them: How do we mimic natural conditions? How do we make sense of the measurements that we make? And how do we reconcile and interpret results from individual animal studies and those involving herds and plots. "There's a need to agree on the most important reporting factors that will be useful for practical applications and also to guide research."



ABOVE: Cows grazing in South Gippsland, Victoria. Managing emissions from livestock was the topic of discussion at a world conference in Banff during October 2010

3. Look for 'win-wins.' Livestock industries are faced with a number of demands and it's important to emphasize strategies that are not too narrowly focused, says Dr. Michael Kreuzer of ETH in Zurich, Switzerland.

One promising example of a 'win-win' approach is dietary strategies that incorporate oils or oilseeds to reduce emissions. This approach may also improve the health value of resulting livestock products. "There is an incredible number of new studies and options emerging from this dietary area," he says. "One of the favourites that is holding up well is feeding linseed or flaxseed that contains oil. This has the additional advantage of increasing omega-3 fatty acids in milk and meat which is desirable from a human health perspective."

Many presenters emphasized, emissions reduction strategies that are not only effective at reducing emissions but also practical and economically feasible for producers are the most important 'win-win' of all.

4. Anchor strategies in the rumen. "What produces methane is the microbial population in the rumen, so all

of our strategies have got to have a clear anchoring in the rumen," says Dr. Jamie Newbold of Aberystwyth University, Wales. There has been enormous progress in the technology to describe the rumen microbial ecology, he says, which is driving new approaches to mitigation. "One of the keys for further progress is to move toward describing the functional genomics of metabolic inhibitors. As we get into understanding that, our ability to design new mitigation methods will increase dramatically."

5. Take advantage of heritability. One of the standout new opportunities highlighted at the conference was the apparent heritability of methane production among animal phenotypes, says Newbold. "This is enormously exciting. I think we've got to drill down to that over the next three years. That's going to require collaboration between laboratories and very much between countries, as we try to get the data sets large enough to really make strong progress."

6. Invest in modelling research to spur broad progress. Modelling livestock greenhouse gas emissions is an area of science focused on the complex task of understanding and replicating the sophisticated livestock emissions dynamic. It's also a lynchpin that supports many areas of research and applied strategies, and needs to continue as a high priority area for future work, says Dr. Odd Magne Harstad of the Norwegian Institute of Life Sciences, Norway.

He kept his assessment brief and to the point. "Enteric methane is a very important source of greenhouse gas. It is therefore very important to model livestock greenhouse gas emissions as accurately as possible, and it is critical that this area of research continues as a high priority in the future."

7. Engage the developing world. A significant point made during the conference session on big picture issues was that the majority of livestock emissions come from developing countries that don't have the luxury of focusing on emissions mitigation strategies. Unfortunately, these countries are also typically not well represented in science forums such as GGAA.

"These are the countries where most of the population growth is predicted to occur over the next

40 years, and where additional food production will have to take place to meet their needs," says Dr. Richard Eckard, University of Melbourne, Australia. "This is a challenge for us, because these are countries that are rightly more concerned about where their next meal will come from. We have a responsibility to engage more with these countries, to help them adopt the appropriate technologies and strategies as they become available."

8. Don't ignore the elephant in the room. One of the compelling issues discussed at the conference is how to achieve net reductions in greenhouse gas emissions from agriculture, while more than doubling food production by 2050 to feed the world's population. "Most of us in research are fairly reticent in making statements on such issues," says Eckard. "It's a forum such as this that should be sending a message to our policy colleagues, not to expect net global reductions in emissions from agriculture by 2050, while we have to double food production in the same time."

"Many of the papers at this conference show that we can reduce emissions per unit of food produced, and we can improve efficiency, but doubling food production in the next 40 years will mean a net increase in emissions from agriculture. I don't think there's a way of avoiding that."

The world needs realistic targets and balanced strategies, he says. "We can't let this become the elephant in the room that we avoid confronting."

9. Fix the metrics. Another important message for scientists to deliver to policy makers is that benchmarks and targets for agriculture emissions shouldn't be measured on the same metrics as those used for the fossil fuel industry. "Agriculture is unique," says Eckard. "With fossil fuels, there are options to drive the adoption of alternatives. There is no alternative to food."

10. Get aggressive at all levels. A major point emphasized throughout the conference was the need for the scientific community to ensure that policy makers are clear on realistic opportunities, challenges and timeframes for science-driven progress. "We need to be clear about what can be achieved and even what can't be achieved over the next 40 years," summarized Eckard.

QLD: Working Together To Beat the Heat

Researchers from The University of Queensland, CSIRO Climate Adaptation Flagship, and Dairy Australia have joined forces in a 2 year project to study the impact of heat stress on milk production. Climate change is projected to increase the number of days each year when dairy cows experience heat stress and farmers are going to need strategies to adapt to these changes.

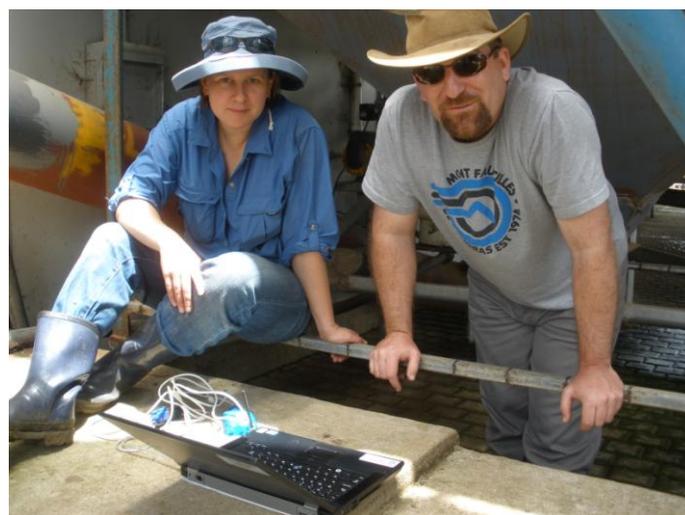
In Queensland, farm demonstration sites have been established at The University of Queensland Gatton campus and Janke's dairy farm near Westbrook. Six climate stations have been installed at each demonstration site to log temperature and humidity. The stations are set up on different parts of the farm including in full sun, under constructed shade, under trees, under sprinklers and in the dairy. Measurements are taken hourly, stored on a master logger and retrieved remotely by the CSIRO team in Canberra every fortnight. The data will be shared by all organisations involved in the heat stress research.

The University of Queensland researchers are developing a new heat load index to measure the accumulative effects of heat and humidity on dairy cattle. Dairy Australia and CSIRO will use historical trends of the Temperature Humidity Index (THI) to generate colour coded THI and milk impact maps for each region. The milk impact maps, expressed in litres of milk lost per cow per year, will be based on the number of days when the THI exceeds 75. The maps will also be scaled for low, moderate and high heat stress susceptibility herds.

The combined research will not only improve the industry's knowledge of regional heat stress impacts, but will provide far better tools for farmers to assess the cost and benefits of the various options available to manage heat stress.

The Queensland Dairy NRM team, a partnership between Queensland Dairyfarmers' Organisation and Subtropical Dairy, has played a key role in coordinating collaboration between researchers and finding suitable demonstration farms. The

Queensland Dairy NRM team will also coordinate Cool Cows Infrastructure field days in the new year, where farmers can talk directly to the researchers and discuss the best options to manage heat stress. The field days and demonstration sites is supported by funding from the Australian Government Department of Agriculture, Fisheries and Forestry under FarmReady, part of Australia's Farming Future.



ABOVE: Alison Laing and Steven Crimp from CSIRO check weather station data at Janke's dairy farm Westbrook.

More information: Rick Kowitz, Queensland Dairyfarmers' Organisation 07 32362955.

Meet the Climate Dogs



New climate animations have been launched by Victoria's Department of Primary Industries as part of their Future Farming climate extension work. The animations have been used as a tool to distil the

complex science behind Victoria's key climate drivers into a short 60 second animation, found at; <http://new.dpi.vic.gov.au/agriculture/climate/understanding-weather-and-climate/climatedogs>

The dogs are named as follows;

Enso who rounds up the tropical moist air in the Equatorial Pacific Ocean.

Indy (representing the Indian Dipole) delivers moisture from the Indian Ocean.

Sam (representing the Southern Annular Mode) influences the strength & frequency of cold fronts over Victoria.

Ridgy (representing Sub Tropical Ridge) & high pressure systems can block rainfall in Victoria.

Future Ready Dairy Systems: Yarram

The Future Ready Dairy Systems project is up and running in Gippsland. Driven by a strongly focused Regional Reference Group, led by farmer Tyran Jones, plans are underway for some exciting learning opportunities.



ABOVE: Farmers at Yarram in Gippsland discuss changes they have made to adapt to the variable climate in the region.

First stop was to ask farmers what they want the project to deliver. Ten farmers met at Yarram in October to discuss the changes they have made to date to tackle the challenging seasons and what they are planning to consider into the future as they adapt their dairy farming businesses to the variable climate.

Common themes were how best to feed dairy cattle through the longer, drier summers whilst meeting milk production goals; whether to shift calving patterns to match the changed growing conditions; how best to conserve soil moisture; managing farm finances through the volatile seasons as well as managing risks across the farm business system.

A field day is planned for February on a farm close to Yarram. The focus will be on feeding through the season and changes to calving patterns.

More information: Gillian Hayman, DfT Coordinator Gippsland 0428345493.

Future Ready Dairy Systems: Murray Dairy

The Murray Dairy region has seen substantial and rapid change over the last 3 to 4 years. Final irrigation allocations by Goulburn-Murray Water since 2006/07 had averaged 68% on the Murray system and 48% on the Goulburn system prior to the current season. For NSW farmers supplied by Murray Irrigation Limited, the average had been just 11% and included two years with zero allocation. This reduction in water availability has been a powerful driver of change to farming systems.

Initial work within the Future Ready Dairy Systems project has focused on getting a gauge of the changes that have already been made by farmers before determining the direction of the project.

19 farmers recently participated in 5 farmer forums across the region to provide input into the project. Variable attendance rates mean that the relative weightings of the issues nominated do not necessarily reflect the priorities of the region as a whole.

After discussing the objectives of the project, farmers were asked four questions;

- i. What changes have you made to better cope with seasonal variability?
- ii. What changes are you considering making?
- iii. What topics would you nominate as areas for FRDS to focus on?
- iv. Can you suggest any farms that you consider a suitable 'demonstration farm' showing some of these changes in practice?

Farmers were also asked to classify their feeding system according to the 5 main types identified by Dairy Australia. Most of the responses were system type 2 or 3, however a significant number of farmers reported that this had changed from year to year in response to season and all of those that had been operating a hybrid system (type 4) in recent years were currently 'unwinding' to a less complex system.

Responses to the questionnaire included:

What changes have you made to better cope with seasonal variability?

Feedbase	Increased area of annuals and/or lucerne to make up for the reduction in area of perennial pasture, mixed brassicas with ryegrass or annuals at sowing, oat/ryegrass rotation, dried off perennials over summer, Feeding Pastures For Profit course
Feeding systems	Conserved or bought in more feeds (including by-products), fed more grain, invested in feedpad and infrastructure, hay caps, purchased larger machinery, employed labour
Business/risk management	Carrying-over irrigation water, sold water, bought/leased more land, reduced debt, built relationships with suppliers/contracts
Irrigation	Re-lasered flood irrigation, upgraded outlets, installed pipe & riser, developed bore/used more groundwater, developed water budget
Herd management	Adjusted stock numbers – up or down, changed calving patterns, additional stock water storage

What changes are you considering making?

Theme	Examples identified
Feedbase	Increasing the area of perennials (including lucerne), long rotation pasture, maize silage
Feeding systems	More conserved forage, 2-3 year feed wedge, permanent feedpad & loafing area, cheap feedpads, consolidate current system
Business/risk management	Buy more land, keep up with policy changes
Irrigation	Carrying-over water, selling or buying water, high flow irrigation and automation
Herd management	Increasing stock numbers, increasing spring calving, moving autumn calving forward, running a split herd (on 2 farms), shelter to reduce heat stress, improve stock water supply
Fertilizer management	Using liquid fertilisers
Energy	Efficiency audit

What topics would you nominate as areas for FRDS to focus on?

Theme	Examples identified
Feedbase	Drying pasture off over Jan/Feb, complimentary feed system/cropping systems, direct grazed forages, integrating opportunistic irrigation, dryland crop rotations
Feeding systems	Building flexibility into system with large capital input or infrastructure change
Business/risk management	Managing labour during changes, water trading, limitations and risks using carry-over, economics of risk management using carry-over water and additional conserved fodder
Herd management	Managing mastitis on feedpads, loafing areas, heat induced infertility
Fertilizer management	Using liquid fertilisers
Energy	Efficiency audits; use & technology, cost, feasibility of renewables

The project's Regional Reference Group will now prioritise the issues identified. It is noted that the list of issues nominated by the RRG in a preliminary poll almost matches those identified by the farmer forums. One notable exception was that the farmer forums omitted considering the use of dietary additives as a potential means of pursuing both production and mitigation benefits.

Further information from Scott Birchall, DfT Coordinator 0458 210 604



Dairying for Tomorrow

Cathy Phelps cphelps@dairyaustralia.com.au

Newsletter editor

Gillian Hayman ghayman@dcsi.net.au

Level 5 IBM Tower
60 City Road
Southbank, Victoria 3006
Ph: +61 3 9694 3777
Fax: +61 3 9694 3733
www.dairyaustralia.com.au