



## Dairying for Tomorrow Newsletter

September 2013

### Fert\$mart is live!

Farmers and advisers are accessing quality information about soils and fertilisers on the recently launched Fert\$mart website. Follow this link [www.fertsmart.dairyingfortomorrow.com.au](http://www.fertsmart.dairyingfortomorrow.com.au) for useful, up to date information about planning for fertiliser decisions, making the most of effluent, soil testing advice, understanding nutrients and plant needs and more.

Fert\$mart is a program initiated by Dairy Australia in response to a need identified by many in the dairy industry. Fert\$mart encompasses the dairy industry's national nutrient management guidelines, developed to improve the efficiency and profitability of fertiliser use, and to improve soil health on Australian dairy farms.

Fert\$mart is founded on the best available science and provides easy-to-follow planning steps to guide farmers and advisors with fertiliser planning and decision making. [Fert\\$mart Planning](#) is the key to knowing how and when to use the industry's tool box including: feed budgeting, soil and pasture condition assessment, soil and plant tissue testing, nutrient budgeting, nutrient loss risk assessment, nutrient mapping, 4Rs recommendations, record keeping, and more. [Industry best management practices](#) (DairySAT) for soil, fertiliser, effluent and irrigation have also been updated to reflect advances in science, technologies and understanding.

Fert\$mart project manager Rick Kowitz has done a terrific job over the past year liaising with farmers and advisers across Australia to build this excellent site. The project was funded by Dairy Australia and the Australian Government through the Caring for our Country program.

A key feature of the site is the updated Dairy Soils & Fertiliser manual which is a great resource with up to date information about all aspects of soil management including application of nitrogen, plant tissue testing, recommended nutrient levels for various soil types and using lime.

### 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 [www.dairyingfortomorrow.com.au](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.*

### In Brief

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## Unilever gives Australian Dairy the Sustainability Tick

The global company Unilever has accepted Australian dairy production as meeting its Sustainable Agricultural Code. This means all dairy products sourced from Australian milk production can be deemed to be sustainable. All dairy companies will be accepted as providing dairy products from sustainably sourced milk when the dairy products are made from Australian milk.

Unilever will work with dairy companies and Dairy Australia to make a joint announcement of this, once 80-90 dairy farmers have been selected to participate in a verification project, addressing the Unilever continuous improvement requirements in the areas of farm wastes, soils and biodiversity.

Unilever has a target of sourcing 100% of its agricultural raw materials sustainably by 2020. Unilever wants to source sustainable dairy by 2020, but is seeking to have 50% sustainable dairy production by 2015.

While Unilever currently only sources small quantities of dairy products from Australia, this has the potential to grow, especially if Australian dairy production meets the Unilever Sustainable Sourcing Code.

Unilever's current process for determining Sustainable Sourcing is to work with individual companies/suppliers and their farmers. Companies are required to have their farmer suppliers:

- perform self-assessments against the Unilever Sustainable Agricultural Code (SAC)
- adopt Good Practices in a wide range of areas (social, environmental and economic)
- commit to continuous performance improvement

As well, dairy companies are required to:

- capture real data on the improvements their farmers are making – to develop evidence-based progress reporting
- submit to risk-based external independent verifications (if and when requested by Unilever)

## New effluent management video series now online

Dairy Australia has this week launched a series of ten video clips outlining different aspects of effluent management. Each video clip has an accompanying printable factsheet summarising the video topic, and providing references for further reading or information on the topic.

The clips can be viewed here <http://www.dairyingfortomorrow.com/index.php?id=116>



The following topics are covered;

1. Making the most of effluent
2. Avoiding problems with effluent management
3. The values of effluent
4. Effluent system design
5. Minimising effluent volumes
6. Managing storage levels
7. Planning a new pond
8. Constructing a pond – soil testing
9. Pond de-sludging
10. Managing manure



## Project Profile: Dairy Businesses for Future Climates

Through funding from the Department of Agriculture Fisheries & Forestry's *Filling the Research Gap* program, Dairy Australia will undertake the *dairy businesses for future climates* project. A summary of this project follows;

### Key industry challenges addressed by this project

- How will the long term trend of intensification within the Australian dairy industry be impacted by increased climate variability and frequency of extreme events?
- What are the likely interactions and trade-offs between intensification, adaptation and greenhouse gas (GHG) mitigation within a farm development scenario?
- How might such interactions affect the vulnerability of different farm systems now and into the future?

### How will the project be carried out?

- This project is drawing upon expertise from across Australia - economists, social researchers, farm managers, technical specialists and modellers will be involved. The University's of Melbourne and Tasmania, Dairy Australia, the Tasmanian Institute of Agriculture and regional dairying communities will all play a significant part.
- Regional working groups in South Australia, Tasmania & Gippsland, Victoria will work closely with research teams (Economics, Biophysical & Social) to understand the impacts of climate variability and sequencing of various climatic events coupled with the economic variability well known to dairy farm managers.
- The regional working groups will select a range of real life farms/farming systems as the baseline operations for modelling. The research teams together with local farmers will explore as many development scenarios as possible for those farms – initially using current climate conditions, and then under a range of different and more challenging predicted future climates including extreme events. This will assist in understanding the resilience of different farming systems under various climate futures.

### What will be delivered?

- An understanding of the trade-offs between profitability, risk, social impacts and GHG mitigation within dairy businesses as they move towards intensification and the consequences for the dairy industry. Future directions for individual dairy farms and for the industry as a whole will be informed by this deliverable, independent of any assumptions about climate change or about Government attempts to reduce greenhouse gas emissions.
- The identification of the impact(s) of climate change (variability, extreme events and challenging sequences) on farm businesses.
- The identification of management strategies that provide the most effective climate change adaptation and GHG mitigation outcomes across a range of farm businesses.
- The identification of the skills and support required under different climate scenarios to build industry capacity to respond appropriately.



*This project is supported by funding from the Australian Government's Department of Agriculture, Fisheries and Forestry as part of its Carbon Farming Futures Filling the Research Gap Program. For further information contact Catherine Phelps, Dairy Australia 03 96943730*

## Energy savings in SA dairy



**Energy auditor Nick Bullock**

Dairy farmers in the Fleurieu, Adelaide Hills and Meningie regions learnt how to make savings in energy costs at a series of on-farm workshops led by agribusiness energy audit specialist, Nick Bullock as part of Dairy Australia's *Smarter energy use on Australian dairy farms* project. He drew upon his experiences in New South Wales, where over 350 dairy farmers have accessed his energy auditing service through a subsidy program.

The workshops helped farmers work out if they are paying too much for their electricity, identify inefficiencies and outline the best cost-saving options available.

“Our benchmarking on dairy shed electricity costs across Australia has found there is a large range of energy costs– between \$4 / 1000L milk to over \$14 / 1000L milk. This means at a production level of one million litres, some farmers are paying up to \$10,000 per year more than others for energy. The

first step is for farmers to know where they sit within this range, and the potential savings achievable,” Nick said. Participants heard about ways other dairy farmers have minimised energy use in milk cooling, water heating, milk harvesting and irrigation and pumping.

Regarding milk cooling, Nick indicated that experience shows 75 per cent of plate coolers are not running efficiently and chilling systems often need to be fine-tuned. He also discussed the benefits of pre-heating water with solar or heat recovery systems and using variable speed drives to reduce the cost of running the milk vacuum pump by up to 50 per cent. Talking to energy providers and comparing rates and cost of supply can also result in significant savings. Farmers went away with real case study data sheets, as well as worksheets to record costs and establish their own energy spend.

*The Smarter energy use on Australian dairy farms project is delivered through DairySA and funded by Dairy Australia and the Australian Government. For further details, contact Monique White on 0400 972 206 or [monique@dairysa.com.au](mailto:monique@dairysa.com.au)*

## Funding to reduce methane emissions from effluent in Tasmania

DairyTas has received funding from the Commonwealth Government's Action on the Ground program. \$632,000 has been awarded to DairyTas to look at whether short term effluent retention in an above ground storage tank can result in reducing methane emissions from dairy farms.

Three-quarters of Australian dairy farms direct their effluent to ponds prior to it being reused on crops or pasture. These ponds provide a very important function - reducing the risk of nutrient runoff by providing storage for effluent generated during periods when additional soil moisture is not needed. While the effluent is in storage, the organic matter or volatile solids it contains decompose under anaerobic conditions (without oxygen) resulting in the release of methane and carbon dioxide from the pond.

Methane is a potent greenhouse gas and its release from effluent ponds represents over 7% of the total GHG estimate for grazing based dairy farms. While a methodology for capturing methane from dairy effluent ponds has been approved under the Carbon Farming Initiative (see [DfT News edition 17](#) for further information) covering dairy



effluent ponds is unfortunately not currently an economically viable abatement option for many grazing operations ([Dairy Shed Effluent and Biogas - Frequently Asked Questions](#)).



This project will trial an alternative strategy for managing effluent. Researchers have estimated that methane emissions from ponds can be substantially reduced by distributing effluent more frequently; avoiding the long solids retention time common under a more typical approach to pond management. This project will develop a ‘hybrid’ system as effluent will continue to be stored during the winter period, but during the remainder of the year, it will be distributed as frequently as possible (whenever there is a soil moisture deficit greater than the minimum effluent application depth).

Above-ground effluent storage tanks are becoming more common on farms in New Zealand where high rainfall, high

water tables and highly permeable soils mean that excavated, earthen storage ponds are not appropriate. The project will run until early 2017 and will involve a number of open days on the Tasmanian co-operating farm (to be announced).

*This project is supported by funding from the Commonwealth Government’s Action on the Ground program. Contact Scott Birchall on 0458 210 604 for more information.*

## Dairy Farmers work to improve Corner Inlet

More than \$220,000 in funding has been given to local farmers to help improve the health of Corner Inlet by reducing the amount of nutrient and sediment entering waterways. West Gippsland Catchment Management CEO, Martin Fuller, said the funding was given under a program called CORE 4 which had been a fantastic success.

“Twenty-three landowners have been involved in this program with more than half of them receiving funding for works on their properties,” explained Mr Fuller. “The funding will be used by farmers for projects like increasing the storage capacity of effluent ponds and upgrading effluent disposal systems. Farmers are contributing some of their own money and time towards these projects. “We’ve worked with the dairy industry targeting farms in the Agnes, Franklin and Yanakie catchment areas,” said Mr Fuller.

Nutrient and sediment from the catchment have a huge impact on the seagrass meadows in Corner Inlet. The meadows provide feeding and breeding grounds for many marine organisms, particularly young and newly hatched fish. With an extensive network of roots, seagrass meadows also play a role in stabilising mudflats and sediment within the wetland system.



CORE 4 has been funded through the Australian Government's, Caring for our Country program through Corner Inlet Connections.

"Each farm involved in the project was visited by an agricultural specialist to help the farmer work out where the best nutrient savings could be made," continued Mr Fuller. "The cooperation of dairy farmers in the CORE 4 program is a real credit to the dairying community. It shows a willingness not only to improve their farm but to contribute to the health of Corner Inlet, a priority area under our Regional Catchment Strategy."

"Corner Inlet is the only place in Victoria where the Broad-leaved seagrass (*Posidonia*) grows. It is a vulnerable species and is susceptible to changes in pollution and sediment levels entering the inlet," explained Mr Fuller.

*For further information contact Gillian Hayman, NRM Technical Specialist with Dairy Australia, Gippsland 0428345493.*

## Positive Results from Targeted Soil Nutrient Delivery

A large dairy business at Parawa has used soil testing to guide and prioritise fertiliser inputs on their farms, with marked improvements in soil test results and better winter pasture growth over two years.

The team at Williams Farms were concerned about soil fertility on their paddocks and how to most cost-effectively use fertilisers to grow more grass. Consequently they undertook soil tests for a series of farm paddocks in early 2011, as participants in the SA Dairy Soil Nutrient project. This project work was supported by DairySA through funding from the Australian Government's Caring for our Country program.

Angus Williams explained how testing work revealed some marginal deficiencies of phosphorus (P). More significantly, over half the paddocks were seriously low in potassium (K) and sulphur (S), however, actual test results varied markedly between individual paddocks so it was not appropriate to use the same fertiliser program over all paddocks.



**SA Farmer, Angus Williams**

In response to the 2011 soil test results, Angus reported how;

- P fertilisers applied to deliver an average 14 kg P/ha each year.
- K fertiliser inputs increased but only on the 50% of paddocks recording low soil K.
- S inputs increased a bit, but spread over three smaller applications each year to reduce leaching losses.
- Paddocks used for silage production changed each year, but trying to avoid cutting any low-K paddocks (because silage harvests removes a lot of K from harvested areas).
- Most of the silage is conserved in above-ground stacks, which cows directly self-feed from during summer. These silage stacks were deliberately sited in less fertile paddocks, so the concentrated summer stocking would return a lot of nutrients onto these paddocks.

As part of the DairySA project, paddocks were tested again in early 2013. Greg Mitchell (FP-AG Pasture Agronomist) collated these results and was impressed with how Williams Farms had used the initial soil test information. Greg reported;

- Williams Farms had markedly improved and evened out soil fertility levels across their paddocks.
- The proportion of low P-testing paddocks had diminished over two years, from 35 to 7%
- The incidence of low K paddocks also dropped, from 57 to 43%.
- The proportion of low-S paddocks had dropped markedly, from 85 to 30% of paddocks over two years.
- The siting of the Williams' self-feeding silage stack in infertile paddocks had been very successful in quickly correcting any major nutrient deficiencies and boosting pasture growth from these areas.

Collectively, improved nutrient management has boosted pasture productivity on the Williams' *Cape View* dairy farm, with extra winter growth particularly evident. Greg reported how whole-farm pasture growth rates averaged an impressive 30 kg/ha/day right through winter 2012 on *Cape View*.

"This is pretty impressive given the really cold winter weather that year and that the Parawa district is not renowned for strong pasture growth during winter", he commented.

Angus noted how they still spent a lot of money on fertilisers, but were happy how soil test results and pasture production had responded from more targeted fertiliser use. "The soil tests have simply given us more confidence about where to best spend money on fertilisers for the best response" he said.

Williams Farms had previously invested a fair amount in lime spreading on the farm and soil acidity was not currently a major problem. "However, we have seen how our farming soils have continued to acidify over the two year study period, so we will probably need to continue liming work on an ongoing basis here", Angus concluded.

For further details, contact Monique White on 0400 972 206 or [monique@dairysa.com.au](mailto:monique@dairysa.com.au)

## Soils Conference Digs Deep in Western Victoria



Don Cook talks Fert\$mart

Farmers and service providers gained information on soil management and soil function at the 2013 South West Soils Conference held in Warrnambool on 4<sup>th</sup> and 5<sup>th</sup> September.

With 7 speakers providing insights on soil management, conference attendees had plenty of information and ideas to take home for reference and/or implementation. MC, Declan McDonald, Soils specialist with Department of Environment and Primary Industries led the two day event which included a bus tour to two farms and a dinner with special guest speaker Christina Hindhaugh.

The conference was opened by Alice Knight, Chair of Corangamite CMA who spoke of the need for CCMA to work closely with farmers to get the best outcomes for soil health and productivity.

Alice also spoke of the Brown Book which is in development and shall be a quick reference for soils in the CCMA region.



David Marsh, Soils for Life Board member, outlined the projects led by Outcomes Australia of which Soils for Life is one. The Soils for Life project aims to identify current practices in landscape regeneration with 19 case studies now available on their website [www.soilsforlife.org.au](http://www.soilsforlife.org.au)

Cam Nicholson, landowner and part of the Woody Yaloak Catchment Group, provided his valuable learning's from 30 years of experience in improving soil function. Cam emphasised the need to manage grazing and to get the conditions right for soil biology so they maintain the 'capital in your soil'. Soil type and environment are two things we cannot easily modify however if we do things well that are in our control then ultimately good soil function will be sustainable.

Conference attendees were given an update on understanding the complexities of soil lab test results. Graham Lancaster, Director of AEL Laboratory, showed the audience soil test results from two farms visited as part of the conference. Graham recommended soil tests be conducted at least every couple of years as a source of information to assist in gaining improvements in soil function and fodder production.

Fert\$mart featured at the conference with Don Cook (Farmright Technical Services) giving a summary of the development of the Fert\$mart tool and outlining the trials and activities which led to its release. The Fert\$mart tool was funded by Dairy Australia with assistance from the Federal Government's Caring for Our Country program. The website has many valuable resources for farmers and service providers including checklists, soil fertility guidelines, planning tools, fertiliser advice, case studies, research and trial and reference material. Fert\$mart is available on the [www.dairyingfortomorrow.com.au](http://www.dairyingfortomorrow.com.au) website.

*Contributed by Louise Sheba, Dairy Australia NRM Technical Specialist, Western Victoria*

## Tasmanian Dairy NRM Update

The past year has seen lots of activity in Tasmania

- Over 80 energy audits were conducted through the Smarter Energy Use in Dairies Project (Australian Government funding). Key issues were correct tariffs and contracts and servicing of plate coolers and refrigeration systems. Funding for more audits for 2013/2014 has been confirmed.
- Over 30 renewable energy site assessments were conducted looking at feasibility of solar, solar hot water, wind and mini-hydro on dairy farms - funded by NRM North. Upfront capital costs in a low milk price year meant few farmers were able to take up options but we have a better understanding of what opportunities are available.
- DairyTas was successful with a funding application for farmers on King Island to install solar hot water systems.
- Effluent field days were held to raise awareness of issues important for TDIA effluent system audits.
- An effluent systems design course was run in Tasmania.
- NRM North and Aust Govt Caring for our Country program funded soil testing and nutrient management plans for 20 farmers in Meander and Brid Catchments.
- DairyTas funded Serve-Ag to conduct a biological farming monitoring and demonstration trial in NE Tas.



**Energy assessor training day**



- DairyTas has received funding to trial an above ground effluent storage tank and conduct a research project measuring methane emissions (see article in this newsletter for more details).
- NRM North funded property management plans for 19 dairy farms and invested around \$300,000 in on farm activities such as fencing off waterways and installing water troughs and stock crossings.

## Gippsland's Giant Earthworms

On September 9, down in a quiet valley on a soggy south facing slope of a Gippsland dairy farm, interested farmers met in the hope of hearing the gurgles of the Giant Gippsland Earthworm (GGE). They were rewarded after performing the special 'gum boot dance' with the mud squelching, frog like, stomach rumbling sounds of the giant worms moving through the soil beneath.

The Giant Gippsland Earthworm (*Megascolides australis* McCoy) is one of the largest earthworms in the world, with an estimated average length of 80 cm and a diameter of 2 cm. The GGE is found in a limited area of south western Gippsland, mostly on private land.

The interested group met on Peter & Wilma Mackay's dairy farm to learn more about this curious creature. The day was part of a Caring for our Country project undertaken by the Triholm Landcare group, *Building capability to Manage GGE Habitat on farms*. The project, coordinated by the South Gippsland Landcare Network will help farmers undertaking revegetation projects to design plantings to protect soil moisture regimes around GGE habitat.

An important part of the project is around sharing knowledge about the worm, its habitat, protection and appropriate land management practices. Dr Beverley Van Praagh has studied the worm for over 20 years. Beverley gave a terrific presentation at the field day and is playing a key part in the project. A web site about the worm has been built <http://www.giantearthworm.org.au> and contains very useful information.

*GippsDairy is a partner in this Caring for our Country project, funded by the Australian Government. For further information contact Gillian Hayman, NRM Technical Specialist with Dairy Australia, Gippsland 0428345493.*



L-R: Walking quietly across the hill slope listening for worm movements, Dr Beverley VanPraagh inspecting a worm burrow, A burrow was exposed to assist land owners understand how to identify whether worms may be present on their land.



## Fert\$mart Success in SA

DairySA's Fert\$mart Regional Pilot in Mt Torrens provided dairy farmers with preliminary results, along with a review of effluent management and its relationship to soil fertility over two workshops held in the Mt Torrens region.

The national Fert\$mart project is essentially a whole-farm planning exercise. It provides an opportunity for participants to get baseline information for nutrient management. Each farmer involved in the DairySA Fert\$mart project received an individually-tailored report on their own soil testing. As a discussion group, all the farmers were able to consider key nutrient management areas including the calcium to magnesium ratio and potassium, sulphur and magnesium levels.

The initial Fert\$mart workshop was held in February, with farmers being updated on the project's progress by coordinating agronomist Bryan Robertson. Bryan introduced the information that had been collected, including DairySAT, soil characteristics, pasture characteristics, farm feeding system, pests and weeds. Each farm had 12 soil tests and Bryan's sampling strategy aimed to ensure that they were taken from each different land area in the farm: irrigated, dry land, hay paddocks and so on.

Through the project, it was identified that improved use of effluent could assist with some of the fertiliser problems that are being encountered. Following guidance by NRM Coordinator and DairySA project coordinator Monique White, the farmers in the group participated in an effluent management workshop led by Scott McDonald from the Department of Primary Industries Victoria.

Participants heard that effluent can be used to supplement fertiliser applications and is particularly useful to increase potassium and phosphorus levels. They were quick to recognise that changes to their effluent application strategies could help them address fertility issues that were identified during the soil testing phase.

The project went on to deliver individual farm plans and assist participants to consider their lime and fertiliser strategies for 2013.

*This DairySA project is funded by the SA Department of Environment, Water and Natural Resources, the Commonwealth Government's Caring for Our Country Program and Dairy Australia. Contact Monique White 0400 972 206 or [monique@dairysa.com.au](mailto:monique@dairysa.com.au)*

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