UNIVERSITY of TASMANIA

TIA

Tasmanian Institute of Agriculture

TASSIE DAIRY

News

Produced as a part of the Dairy HIGH 2 project

August 2023

Inside this issue

Tassie Dairy News returns

Lesley Irvine, TIA

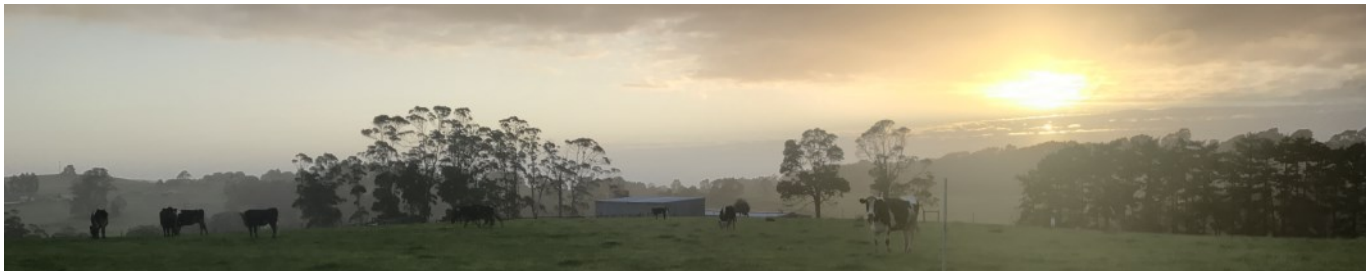
It's back!

After a three-year hiatus, the TIA dairy extension team have re-started the Tassie Dairy News newsletter. This newsletter will be published monthly and will have a focus on Dairy HIGH 2 research, development and extension activities. A major feature for the newsletter will be the farmlet studies starting at the TIA dairy research facility this month (see page 2).

The newsletter will also provide information on other local TIA activities, research from other regions, and technical information.

Newsletter format

The newsletter will be available in electronic format as well as in hard copy. We encourage people to sign-up for the electronic version as this saves paper, postage and is delivered the fastest. But, we understand some people prefer it in hardcopy format. If you need to update your delivery preferences or address, please contact Lesley Irvine at Lesley.Irvine@utas.edu.au.



Nitrogen farmlets

Lesley Irvine, TIA

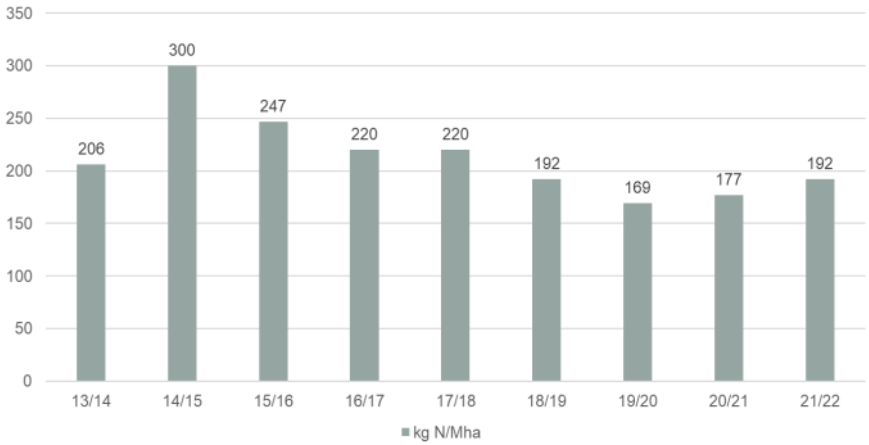
Fertiliser regulation

Around the world, the use of fertiliser is becoming increasingly regulated. For example, the European Commission aims to see a reduction in nutrient losses of at least 50% by 2030.

Nitrogen is a key focus for regulation because of the negative impact it can have on the environment. For example, the Netherlands government has a target of a 50% reduction in nitrogen emissions and a one-third reduction in livestock by 2030.

In 2021, New Zealand implemented a synthetic nitrogen fertiliser cap. This limits the amount of nitrogen that can be applied to one hectare of pasture at 190 kg per year. That is, no hectares of pasture are allowed to exceed this level without resource consent.

Last year, Ireland released their Fifth Nitrate Action Plan. This involves a whole range of measures but includes a register of chemical fertiliser sales to provide for accurate tracking of fertiliser sales (started 1 January 2023) and a reduction in national nitrogen allowances of 10%.



Average nitrogen use on milking area in Tasmania (kg N/ha) from 2013/14 to 2021/22. Source: Tasmanian Dairy Farm Monitor Project

Could this happen in Australia?

Yes, it could. This is one of the reasons why a farmlet study investigating nitrogen use has been set-up at TIA's Dairy Research Facility, Elliott. The farmlets will investigate the impact of different rates of synthetic nitrogen on pasture growth using different species within the feedbase to see if this can counter the effects of reducing nitrogen inputs. There will be four different farmlets and the

Nitrogen use in Tasmania

Nitrogen is used extensively in the Tasmanian dairy industry as a tool to increase pasture growth (as it is around the world). The average amount of nitrogen used on Tasmanian dairy farms participating in the benchmarking program in 2021/22 was 192 kg N/ha. This is just over the New Zealand Synthetic Fertiliser Cap. However the range on these Tasmanian farms was zero kg N/ha up to 327 kg N/ha with 10 farms out of 26 exceeding 190 kg N/ha.

Farmlet	Synthetic nitrogen rate (annual)	Target pasture composition (%DM basis)	Pasture design features
1	300 kg N/ha	80% grasses (perennial ryegrass) 20% legumes (white clover)	Industry standard mixture
2	150 kg N/ha	80% grasses (perennial ryegrass) 20% legumes (white clover)	Industry standard mixture
3	150 kg N/ha	40% grasses (perennial ryegrass) 30% legumes (white clover) 30% herbs (plantain)	Significant biological N fixation (legumes), reduced bloat risk (condensed tannins in plantain), reduced environmental nitrogen losses (plantain)
4	0 kg N/ha	40% grasses (summer active tall fescue, perennial ryegrass, summer-active cocksfoot) 30% legumes (clover—red, strawberry, white) 30% herbs (plantain, chicory)	Significant biological N fixation (legumes), reduced bloat risk (condensed tannins in plantain), reduced environmental nitrogen losses (plantain), high species diversity, deep-rooted species (tall fescue, plantain, chicory)

Table 1 *Details of Dairy HIGH 2 farmlets beginning in August 2023*

› Continued on next page.

details of each farmlet can be seen in Table 1. Pasture growth will be measured weekly and milk production from each cow will be recorded at each milking. Botanical composition of the pasture will be measured on a regular basis. There will also be a lot of within farmlet research undertaken to better understand the impact of the different nitrogen levels and pasture species.

The TIA research team are working closely with scientists in Ireland and New Zealand to maximise what we can learn.

Stay up-to-date

We will be publishing information about the farmlets in each issue of Tassie Dairy News, however if you would like to receive the monthly farmlet report directly, please send an email to Lesley.Irvine@utas.edu.au and you will be added to the monthly report email list. We will also be holding field days and discussion groups at the TIA dairy research facility so you can see the farmlets in action.

What are farmlets?

The TIA Dairy Research Facility (TDRF) was established in the 1980's to undertake farmlet research. Back then it was managed by the State Government and known as Elliott Research Station. The first farmlet study undertaken compared profitability and production of autumn calving farmlets to spring calving farmlets. Farmlets are basically mini-farms. Paddocks on the research farm are allocated to a specific farmlet. This is done in a way to ensure the farmlets are similar as possible i.e. rather than all the paddocks of a farmlet being together, they are randomised within blocks so one farmlet doesn't have all the hills or wet areas and cows from each farmlet have similar distances to walk. Each farmlet is allocated a herd of cows which have been matched for breed, age, milk production and body condition. Each farmlet has management protocols to be followed. Farmlet studies have not been conducted at the TDRF for over ten years but recent upgrades funded by the State Government, University of Tasmanian and Dairy Australia mean this whole-of-system research can be undertaken again.

Dairy pasture soils under the microscope

Rohan Borojević, TIA

Soils under permanent pasture are often thought to be in reasonably good condition. Mainly, this is due to less frequent cultivation, allowing ground cover and soil structure to be maintained or even improved. But, can different pasture species and amounts of applied fertiliser further improve these soils? These are some of the questions that will be answered through the farmlet research studies starting this month at TIA's Dairy Research Facility (TDRF).

The main purpose of the farmlets is to understand the effects of different pasture species and fertiliser applications on above ground measurements such as milk and pasture production, as well as financial performance and viability. In this additional project researchers will be looking to see if changes occur in the soil as a result of the different farmlet treatments.

Several different carbon and nitrogen measurements will be taken from 600 mm deep cores. These tests will also be conducted at 100 mm depth, with additional biological measurements. These will include DNA sequencing of the soil microbial community to see what species are there, earthworm species identification and counts, as well as other tests to try and explain the potential differences in these biological measurements.

It's hoped that the findings from this project will support dairy farmers make decisions on what pastures will be best for their animals, business, and the soils that drive these businesses. The project will also provide baseline soil data which will allow changes to be tracked into the future.

Soil core sampling at TDRF. Photo by Adam Langworthy.

Meanwhile as things are kicking into gear on this project, if you'd like to know more about soils, carbon and what you can do as a farmer, check out this podcast with Dr Richard Eckhard. It has some great information and recommendations for farmers.

AgTalk S2E12 - Soil Carbon - Sorting the wheat from the chaff with Professor Richard Eckard.

https://podcasters.spotify.com/pod/show/marcus-oldham/episodes/AgTalk-S2E12---Soil-Carbon---Sorting-the-wheat-from-the-chaff-with-Professor-Richard-Eckard-e1ad2ec/a-a2i4vrk

Non-replacement dairy calves

Lesley Irvine, TIA

There have been significant changes in the dairy industry over the past few years with regards to non-replacement dairy calves (NRDCs). In 2018, 14% of NRDCs were sold to a rearer or reared on-farm.[1] In 2023, 54% of NRDCs were sold to a rearer or reared on-farm.[2] This increased rearing of NRDCs has been driven largely by interest in finding alternative markets for NRDCs and high beef prices. This year beef prices are lower, impacting on buyer interest and consequently calf prices. For some farms, this is being compounded by the lack of a heifer export market. I wish I had a brilliant solution to these challenges, but I do not. The reality is, dairy beef calves will be sold at lower prices than have been received in previous years and there most likely won't be a market for all dairy beef calves. For the calves that can't be sold, the decision needs to be made to sell them as bobby calves, euthanise, or rear them.

Bobby calves

If you haven't sold bobby calves in a while, check-in with the bobby calf transporter as soon as possible to check they have capacity for your calves. And remember to sell bobby calves they **must**:

- be at least 5 days old
- be fit and healthy
- have been adequately fed within six hours of transport

Euthanising calves

Calves must only be euthanised using a captive bolt or rifle. Ensure people responsible for euthanising calves are appropriately trained and the 5-finger check is conducted on all calves. Be aware of the mental toll euthanising calves can have on people.

Rearing dairy beef

If you have the capacity to rear extra calves, this is an option to consider.

While beef prices are low at the moment, they will increase (but no, I don't know when). Just keep in mind this season is predicted to be drier and warmer than usual which will impact on pasture growth, particularly on the non-irrigated areas of the farm. It may also make purchasing hay and silage more expensive/challenging.

Welfare

It is important that whatever decision is made, the welfare of the calves is looked after. It is also important to look after your own welfare and that of your team.

More information

Dairy Australia has a wealth of information on their website about bobby calves, euthanasia and dairy beef: https://www.dairyaustralia.com.au/animal-management-and-milk-quality/calf-rearing/surplus-calves

[1] *Calf utilisation survey conducted by Tom Snare, TIA (2018)*
[2] *Calf utilisation survey conducted by Shilpa Thakur, PhD candidate, TIA (2023)*

Contact us

Tassie Dairy News is provided free to Tasmanian dairy farmers and is funded by Dairy Australia and the Tasmanian Institute of Agriculture (TIA) as part of the Dairy HIGH 2 project.

For more information, please contact Lesley Irvine on 0428 880 287 or email Lesley.Irvine@utas.edu.au

Electronic copies of this newsletter are available at utas.edu.au/tia/resources

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