TASSIE DAIRY
News
July 2019

Dairy HIGH

Dairy HIGH is jointly funded by Dairy Australia and the Tasmanian Institute of Agriculture (TIA).

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Inside The Issue

What is your farm's disease risk?

Lesley Irvine and Nathan Bakker, TIA

Do you have visitors to your farm? Do you have stock coming to your property from other farms (purchase, lease or returning from agistment)? Do you have neighbouring properties with livestock? If you answer YES to any of these questions, there is an increased risk of a disease entering your farm.

In June, DairyTas and TIA joined forces to conduct animal health workshops in the main dairying regions of Tasmania to discuss strategies that reduce the risk of diseases entering farms.

The main diseases discussed at these events were:

- Salmonella
- Johnes Disease
- Mycoplasma

Salmonella

Salmonella is a bacterial disease affecting animals and humans worldwide. Symptoms of

continued >>>

Salmonella include fever, anorexia, toxaemia, abdominal pain, diarrhoea, dehydration, abortion and death.

Salmonella bacteria can arrive on-farm in several different ways including:

- Introduction by an infected/carrier animal – infected animals can shed bacteria for up to 10 weeks
- Contaminated feed
- Contaminated environment (e.g. soil, birds, rodents, insects, water)

It is important to note that Salmonella bacteria can survive in the environment for extended periods of time. It can also become endemic on a farm, which means it is always present in the environment and only needs a trigger for a new outbreak to occur. This trigger is often stress. Stressors may be:

- Intensive farming practices (grazing, housing)
- Recent calving
- Lack of feed/water – or changes to feed/water
- Transportation
- Other diseases
- Seasonal conditions (e.g. wet/cold)

Johnes Disease

Johnes Disease is a chronic infectious wasting disease. It is caused by the bacteria *Mycobacterium paratuberculosis* living mainly in the intestines of infected animals. The bacteria cause the intestinal wall to thicken, reducing the ability to absorb nutrients from feed. Therefore, even though an infected animal may be eating enough, both in quality and quantity, it isn't able to absorb the required level of nutrients from the feed resulting in loss of production and condition. An infected animal can eventually starve to death.

Like Salmonella, the bacteria causing this disease can survive in the environment for long periods of time (longer than 12 months in cool, moist environments).

Cattle infected with Johnes Disease excrete the bacteria in their manure. The bacteria contaminates pasture and watercourses and the disease spreads to other animals when they ingest the contaminated feed or water.

Most cattle are infected when calves – calves are considered most at risk during their first 30 days of life. However, symptoms of Johnes Disease do not develop for many years. Infected cattle are likely to be shedding bacteria before clinical signs of the disease are evident.

There is no treatment for Johnes Disease although there is now a vaccine available to prevent cattle being infected.

Mycoplasma

Mycoplasma is also a bacterial disease. It is caused by the bacteria *Mycoplasma bovis*. It can affect cows in different ways and symptoms can vary from farm to farm. Symptoms include:

- Mastitis – often in multiple quarters, with a poor response to treatment
- Lameness (infected joints) in cows and/or calves
- Pneumonia in cows and/or calves
- Swollen heads
- Ear infections/head tilt in calves
- Conjunctivitis in calves
- Death

Cows may be infected with Mycoplasma but not show any symptoms (carrier animals).

Mycoplasma can spread from cow to cow through contact with contaminated milk, nasal secretions or uterine fluid. Semen, embryos and contaminated equipment are also potential sources for transmission.

Calves can become infected by consuming milk from infected cows or contact with infected animals, equipment or surfaces.

There are no effective approved treatments for Mycoplasma. Antibiotics and non-steroidal anti-inflammatory drugs (NSAIDs) can be used but animals often respond poorly.

Disease prevention

Each of these three diseases can be introduced to a farm by an infected animal (or people, vehicles and equipment contaminated with the bacteria). Good biosecurity is essential. Good biosecurity includes:

- Don't bring any animal on to your farm until you have established its disease risk. Talk with your vet about what tests can be conducted to eliminate some of the disease risks. For example, Johnes Disease is difficult to test for but the presence of Mycoplasma can be tested through a bulk milk sample from the supplying farm (because Mycoplasma bacteria is shed intermittently in the milk, it is best to conduct the test on more than one occasion).
- Quarantining and monitoring introduced animals before mixing with other stock.
- Managing visitors to ensure they don't bring contaminated clothing or equipment on to your farm. This is very important in the calf shed as calves are particularly vulnerable to diseases.

A good starting point is to develop a biosecurity plan for your farm – and then follow the procedures developed to keep your farm safe. It is also important to communicate your biosecurity plan so everyone (family, staff, visitors) understands that biosecurity is important to your business and what role they play in preventing diseases from entering or spreading on your farm.

There are online resources available to help you develop a biosecurity plan for your farm. Check out www.farmbiosecurity.com.au for information and resources. Your local vet is also an important resource in helping to identify your farm's disease risk and help to develop strategies to minimise any risk.

Healthy Calves

The workshop also provided a timely opportunity to discuss calf rearing.

Ensuring cows are in good health and condition is the first step in achieving a healthy calf. Transition cow feeding should start 21 days prior to a cow's predicted calving date.

Colostral vaccines (e.g. Salmonella, rotavirus) aim to protect the calf from that disease by increasing specific antibodies in the colostrum. These vaccines must be given to the cow at the right time to achieve maximum effectiveness. This typically means giving the booster vaccination six to ten weeks prior to calving start date so the level of antibodies are high when colostrum production starts.

It is then VERY IMPORTANT that calves drink colostrum once they are born, otherwise they won't get the antibodies and will be at a much higher risk of developing a disease.

The four Q's of colostrum management

1. Quickly. The ability of calves to absorb antibodies from colostrum quickly decreases with time. Therefore, calves need to be fed colostrum as soon as possible.
2. Quality. Ideally, colostrum should be tested using a Brix refractometer. Colostrum with readings greater than 21% is of good quality. Colostrum with readings less than 21% is of poorer quality.
3. Quantity. The amount of colostrum calves need depends on the quality – the poorer the quality, the more they need. A good rule of thumb is:
   - If you have good quality colostrum, give 2 x 2 litre feeds within the first 12 hours of life
   - If you have poor quality colostrum (or aren't testing), give 2 x 3 litre feeds within the first 12 hours of life.
4. sQueaky clean. Make sure all equipment is clean – the bucket you collect colostrum in as well as the stomach tuber, bottle or feeder. This reduces the risk of bacteria being fed to the calf.

After following the 4Qs things become easy(!). Ensure calves have access to fresh, clean water and pellets in addition to their milk. Have a system in place to monitor calf health and identify any calf that isn't 'doing well' so problems can be addressed early.

Bobby calves

Bobby calves need to be managed to ensure good welfare outcomes. If bobby calves are being sold for slaughter, they MUST:

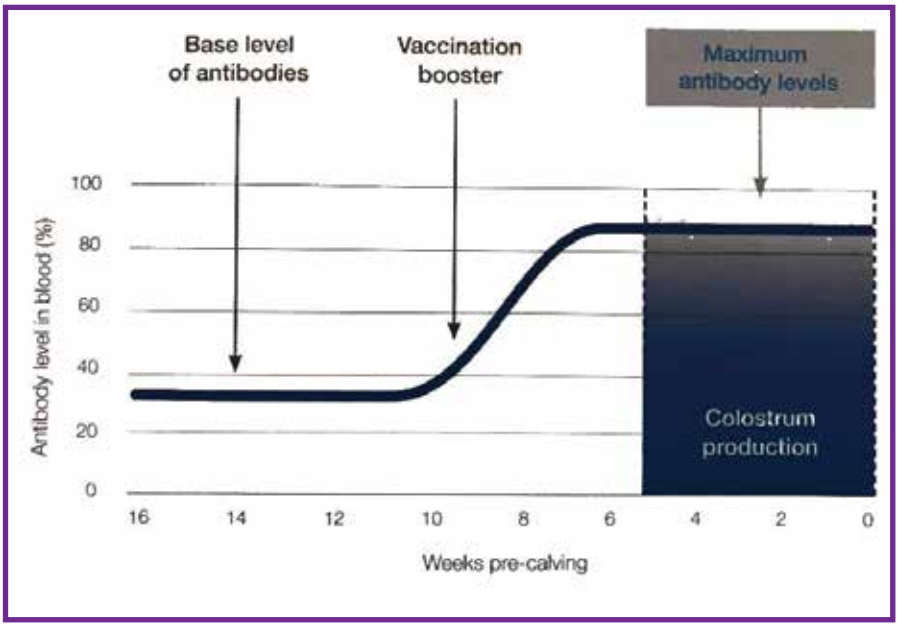
- be in good health, alert and able to rise from a lying position
- be protected from cold and heat
- have been fed milk or milk replacer on the farm within 6 hours of transport
- not spend more than 12 hours in transport
- have protection from wind when being transported

The farm also must have an auditable and accessible record system. The records must identify the age of the calf and when the calf was last fed (i.e. within 6 hours of transport).

More details about calf rearing can be found in Dairy Australia's Rearing Healthy Calves book. This is available at www.dairyaustralia.com.au.

Happy calving!

Thank you to Colleen Stewart (Scottsdale Veterinary Service), Craig Dwyer (Smithton Veterinary Service) and Grant Rogers (Dairy Systems Pty Ltd) for their assistance with the animal health workshops. Thank you also to the farmers who spoke at the workshops about their calf rearing systems.



Discussion Group
Host Farmer Profile

Good people and relationships are a big part of the business' success. Luke highlighted he works closely with the people he trusts and who are specialists, whether it be for fertiliser or nutrition decisions.

Sam Flight, TIA

Recently, the Devonport Discussion Group met at the Bloomfield family's farm, near Railton. Below is a summary of what the group members learnt about the business.

Name:
Luke Bloomfield

Discussion Group:
Devonport

Effective Farm Area:
140 ha with 100% irrigated

Peak Cow Numbers:
650 total (split calving)

Target Production:
650 kg MS/cow

Luke Bloomfield, his father David and brother Paul run a successful dairy farming business near Railton, milking Holstein Friesians through a 54-bale rotary. They target individually feeding cows on based on production and condition score to fully feed their cows and get the most production they can.

The family's dairy farming philosophy is to:

1. Farm to their system and make decisions that work for their farm. For Luke this is about understanding their system, including the limitations and risks. The Bloomfield's do an excellent job at this and knows how far they can push the cows to meet their potential.
2. Focus on animal health, welfare and nutrition, 'cows make us the money, so looking after our biggest asset means we need to feed them well and ensure they are as happy as they can be.' This focus starts with a balanced diet. Luke feeds up to 18kg of grain to high producing cows – cows producing 75 litres milk per day. With this high a concentrate feeding level the diet needs to be carefully balanced.
3. Good people and relationships are a big part of the business' success. Luke highlighted he works closely with the people he trusts and who are specialists, whether it be for fertiliser or nutrition decisions. He made the point you can't know everything so getting the right people along for the ride is critical.

It might be a view that a higher-input system means less of a focus on pastures. However, Luke strongly believes pasture is extremely important to their business. They have a high stocking rate to utilise the pasture well.

One of the challenges of a high stocking rate is avoiding pugging damage, particularly around the calving period.

To manage this, they use a calving shed. Making the right decisions on pasture rotation length, renovation strategies and fertiliser application amounts and timing are all components of the focus on pastures.

Milk pregnancy testing in Tasmania

Symon Jones, TIA

At the most recent round of on-farm Dairy HIGH discussion groups, herd testing was one of the key discussion points.

The long-term financial advantages of herd-testing were highlighted in talks by Jo De Moel of the Herd Improvement Co-Operative (HICO) Victoria and Sophie Tilley of TasHerd.

- AI and Herd Testing accounts for about 2.7% of total farm costs (Dairy Farm Monitor Project 2017/18) but it builds value of one of the largest assets in the business, the dairy herd.
- Improving the genetic merit of the herd, through culling low producers and choosing replacements from higher producing dams, has long been considered a key benefit of herd recording.
- National statistics show that average per cow **production** from farms that herd record is **38% higher** than from those who do not.
- These gains are realised through being able to make better informed management decisions.

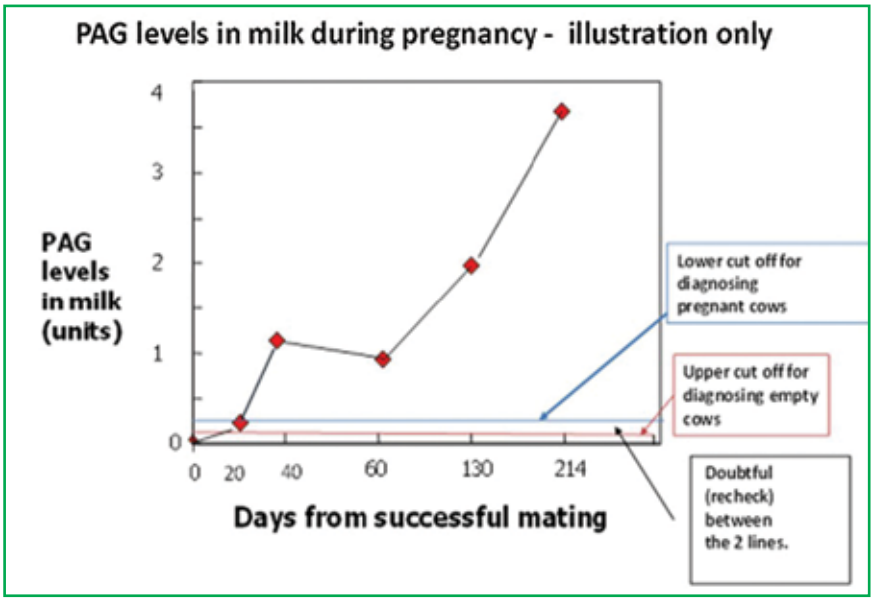
Milk pregnancy testing

The advantages of the non-invasive milk pregnancy testing were discussed by Ian Lewis, MVSC, PhD (Pacific Biotech/ TasHerd). For 15 years, Ian has been involved in researching, developing and marketing non-invasive pregnancy diagnosis using hormones and proteins found in the milk of dairy cattle.

The test, called **PregCheck30** in Tasmania, has been available to Tasmanian dairy farmers for 5 years and uptake has been rapid, with word-of-mouth recommendations from many Tasmanian dairy farmers who have used the test successfully.

The test measures the concentration of pregnancy associated glycoproteins (PAGs) in milk. The protein can only come from a pregnant cow's placenta and is released into the cow's blood stream as pregnancy progresses. In the diagram:

- If PAG levels are above the blue line, the cow is pregnant.
- If PAG levels are below the red line the cow is not pregnant or is very early in pregnancy (less than 30 days post mating)



- If the PAG levels are between the two lines, the results are ambiguous, and the cow should be retested at a later date. 2-3% of cows will give a doubtful reading.

Reliability and Accuracy

Ian discussed how **PregCheck30** is reliable and accurate when key requirements are followed:

- Accurate cow identification.
- Cows at least 30 days past their last mating date.
- Maintain good records of mating dates to calculate predicted calving dates and dry off dates.

The prime consideration for any method of pregnancy testing is "accuracy" and **PregCheck30** has proved itself to be more than 97% accurate at detecting both pregnant and empty cows that are at least 30 days post-mating. Over 50,000 **PregCheck30's** have now been conducted on individual cows since 2014, and with very few exceptions, farmers have reported very high (97% plus) accuracy rates.

It is important to recognise about 5% or more of cows that are diagnosed pregnant between 30 and 70 days will slip their calves. This happens naturally, whether or not the cows are pregnancy tested. This figure is much higher in American dairy herds, mainly because of higher levels of grain inputs.

After 70 days of pregnancy the chance of calf losses reduce to 2% or less. Therefore, it is important to recheck cows 70 days after their last mating in case they have slipped their calf.

Ian highlighted the benefits of using **PregCheck30** for pregnancy testing as:

continued >>>

- Zero stress on dairy cows and farmers (just tick a box on those cows to be pregnancy tested when they are herd tested)
- Individual cows can be tested even if you are not herd-testing
- None of the mess that is often associated with manual testing
- No additional labour costs
- No lost production
- **PregCheck30** can be used strategically with ultrasound testing to maximise outcomes and minimise costs.

One of the challenges of using **PregCheck30** as opposed to manual pregnancy testing is determining the date of conception. To be able to do this using **PregCheck30** good record keeping is essential along with strategic timing of the tests. See the table for timing suggested by **PregCheck30**.

PregCheck30 1. Mid-December. This will pick up all cows pregnant to AI. May also pick up a few bull pregnancies.

PregCheck30 2. Mid-January (2 months after bulls are put in with the herd). This will pick up cows pregnant in the first month of the bull mating period.

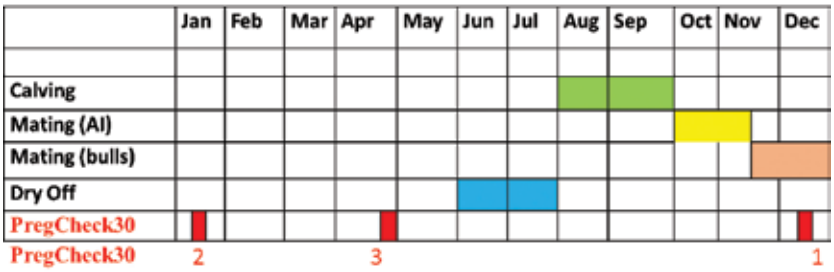
PregCheck30 3. Final **PregCheck30** is conducted 60 days after bulls come out. This will detect cows pregnant to the final few weeks of bull mating pick up those cows that have slipped their calf after being tested positive earlier in their pregnancy.

Pregnancy testing to determine accurate calving date is a highly recommended industry practice that has a lot of on-farm benefits.

The method of pregnancy testing used is an individual farm decision and will be based on many factors including accuracy, cost and fit with the farm system and decision-making needs.

More information about pregnancy testing through milk tests can be obtained by contacting TasHerd. Other pregnancy testing options can be discussed with your local vet.

PregCheck30 testing options (Seasonal herd calving August -September)



Grim news

Rachel Brown, Sustainable Dairying Adviser

Cape Grim Air Monitoring Station at "Woolnorth" is one of three baseline stations around the world that monitor greenhouse gas levels in the atmosphere. Cape Grim Baseline Air Pollution Station first began measuring the changes in the composition of Earth's atmosphere in April 1976 and has been in continuous operation ever since.

Greenhouse data from Cape Grim is updated monthly and is available at https://www.csiro.au/en/Research/OandA/Areas/Assessing-our-climate/Latest-greenhouse-gas-data. Graphs are available for carbon dioxide, methane and nitrous oxide.

Figure 2 indicates carbon dioxide levels in the atmosphere at Cape Grim are above 406 ppm (parts per million). Atmospheric carbon dioxide concentrations were reasonably stable (typically quoted as 278 ppm) before industrialisation during the 1800's.

Since industrialisation (measured from the mid-18th century), atmospheric carbon dioxide concentrations have increased by t 46%, as recorded in measurements from Cape Grim and from measurements obtained from Antarctic ice cores.

The molecular shape and structure of greenhouse gases means they trap solar heat radiating from the Earth's surface, acting like a giant blanket surrounding the Earth. The Earth's climate is changing as oceans that drive our climate systems are warming.

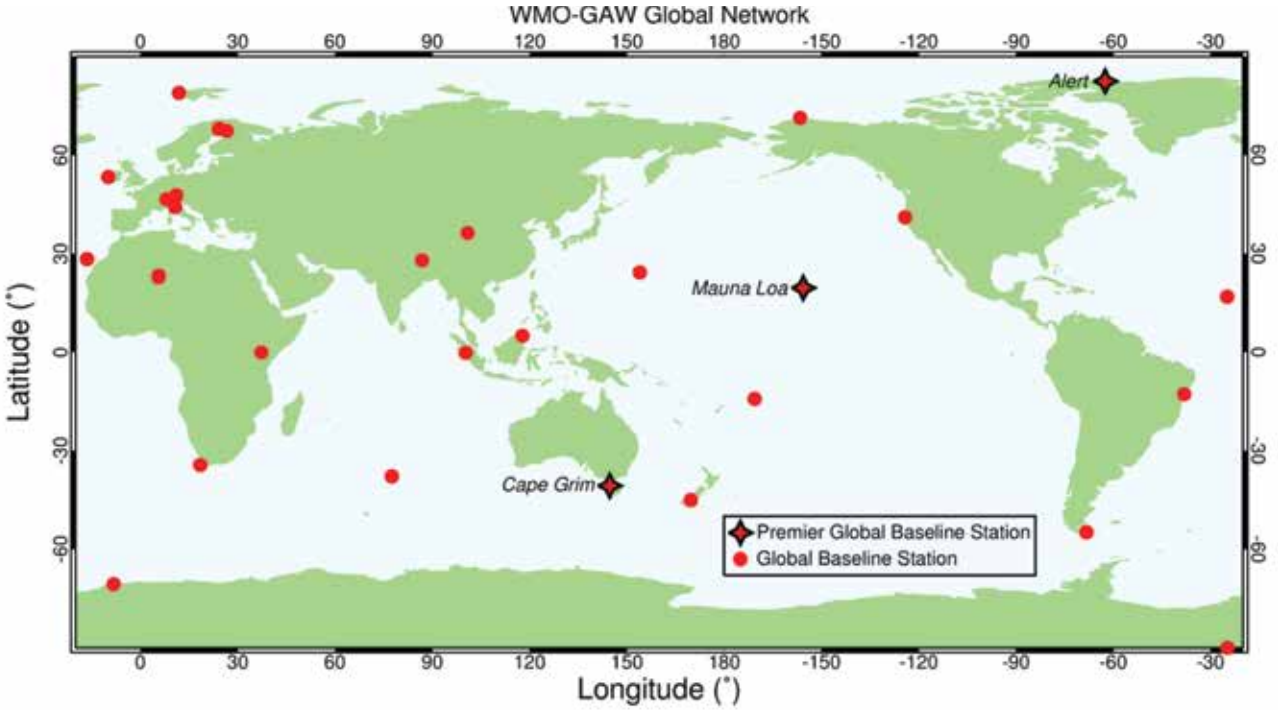
It is estimated the current rate of warming will result in an increase in world temperatures of 4°C by 2100 which is drastically above the Paris Agreement goal of keeping the global temperature rise to 1.5°C above pre-industrial levels.

A recent article in the Australia Financial Review (November 2018) has warned that at 4°C of warming we will be at the point where the world is "pretty much uninsurable".

The latest report from the Intergovernmental Panel on Climate Change (IPCC, October 2018) states that to limit warming to 1.5°C we need a 97% reduction in energy from coal and a 97% reduction in carbon dioxide emissions.

We are at the point where everybody needs to know. In the words of Professor Mark Howden (agricultural scientist and IPCC climate scientist): **Each year matters ▪ Each half a**

Figure 1

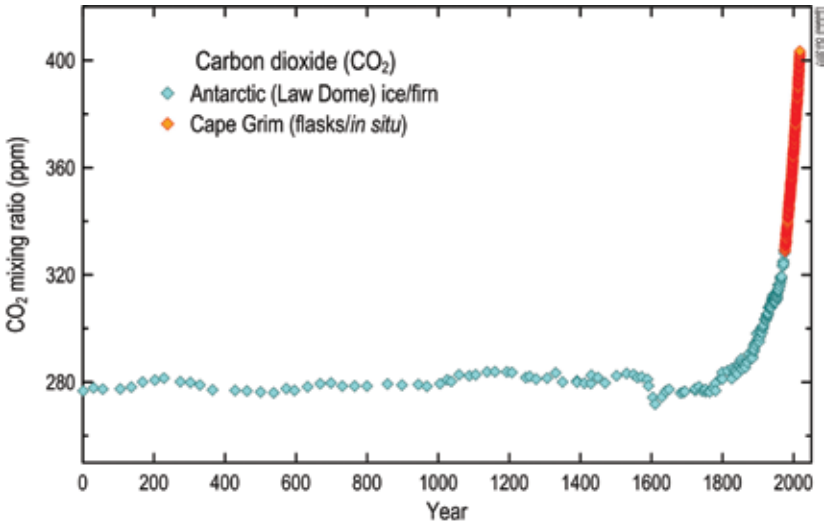


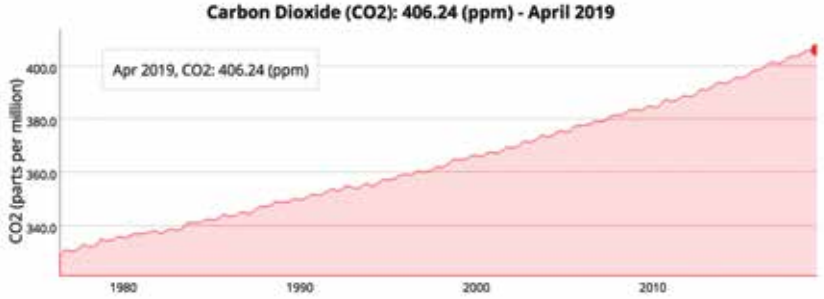
A network of measurement stations is the backbone of the Global Atmosphere Watch (GAW) programme. This network consists of GAW Global and Regional measurement stations with additional measurements from Contributing stations.

degree matters ▪ Each choice matters

Farmers for Climate Action is a movement of farmers, agricultural leaders and rural Australians working to ensure farmers are a key part of the solution to climate change. Check out their website (www.farmersforclimateaction.org.au) for excellent resources about managing climate risk in agriculture.

Figure 2





Some things you can do to reduce greenhouse gas emissions on your farm:

- **Feed stock high quality, balanced diet**
- **Manage a healthy cow to promote longevity**
- **Avoid over application of nitrogen fertiliser – right product, right rate, right time, right place**
- **Conduct an on-farm, all fuel energy assessment to identify energy saving opportunities**
- **Use renewable energy technologies**

Get involved

Pasture coaching

Would you like to be part of a pasture coaching group? Pasture coaching groups meet on-farm (10 meetings in 12 months) to discuss practical pasture management topics such as – measuring pasture, determining leaf stage, calculating cow requirements, nitrogen use, irrigation start-up and scheduling and silage conservation. The groups are a great way to improve or refresh your pasture management skills. Participation in the groups is free.

Benchmarking

Benchmarking provides the opportunity to asses how well your business has performed over the past season for a range of measures. The TIA dairy extension team is now collecting data for the 2018/19 season. The benchmarking program is free and participation does NOT mean you have to go in the Dairy Business of the Year Award. You can just participate in benchmarking for your own information.

If you are interested in getting involved in either a pasture coaching group or the benchmarking program, please contact **Lesley on Lesley.Irvine@utas.edu.au or 0428 880 287.**

DAIRY DIARY

August	
1 Aug	Quad Bikes, Burnie (TasTAFE)
6 Aug	Healthy Calves workshop, Dairy Plains Hall (TIA)
6 & 7 Aug:	ChemCert, Launceston (TasTAFE)
28 & 29 Aug	ChemCert, Burnie (TasTAFE)
28 & 29 Aug	Machine Management – Diploma Workshop Series, Deloraine (TasTAFE)
September	
3 & 4 Sept	ChemCert, Launceston (TasTAFE)
12 Sept	Quad Bikes, Hagley (TasTAFE)
18 Sept:	Farm Business Management Training for Service Providers (DairyTas)
18 & 19 Sept:	TopFodder Workshop, Dairy Plains Hall (TIA)
25 & 26 Sept:	Marketing – Diploma Workshop Series, Deloraine (TasTAFE)
25 & 26 Sept:	Tractor Training, Burnie (TasTAFE)

Contact us

Dairy HIGH is provided free to all Tasmanian dairy farmers and is funded by Dairy Australia and the Tasmanian Institute of Agriculture (TIA).

For more information, please contact a TIA Dairy extension officer, phone 6430 4953 or email tas.dairynews@utas.edu.au.

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

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