

TASSIE DAIRY News

Produced as a part of the Dairy HIGH 2 project



August 2024

Inside this issue

- Better care gives better outcomes | pg 1-3
Jacob Lightman, TIA
- Farmlet report | pg 4
- Calving period high risk for injuries | pg 5-6
Jacob Lightman, TIA
- Impact of cold weather on calves | pg 7
Lesley Irvine, TIA
- Dairy science snapshots | pg 8



Better care gives better outcomes

Jacob Lightman, TIA

A down cow is any cow that's unable to stand unassisted. These cows require immediate and careful attention to ensure their welfare and to give them the best chance of recovery. Good management of a down cow involves timely identification, diagnosis and decision-making, and a commitment to provide the time and resources necessary (which can be significant) for good nursing care.

Timely identification

Early detection of a down cow, or a cow likely to end up down, is critical. Regularly monitoring cows for signs of distress, injury, or illness, potentially gives you the best chance

of catching an issue early, avoiding it getting to the stage of causing a cow to go down.

Safety

Before diagnosing the primary issue, thought needs to be given to safety. A down cow is likely to be distressed, which poses an increased danger to herself and anybody getting near her. Where they've gone down may also pose an increased risk to her and others' safety (e.g. if she's on the edge of a dam or waterway, under an electric fence, etc.). Care should always be taken to ensure that the management of a down cow doesn't unnecessarily increase the risk to

yourself or staff. A down cow is one thing; an injured person is another!

If the cow is in an unsafe location (including one where she might cause secondary damage) and it's possible to safely do so, she should be moved to somewhere sheltered and enclosed to keep her warm and discouraged from moving too much. Moving a down cow needs to be conducted in a way that avoids causing further damage to them, such as loading them onto a carry-all or into a front-end loader bucket and tying them securely, carrying them in a sling or an Upsi-Daisy Cow Lifter, or lifting them by a hip clamp or

➤ Continued on page 2

pelvic lifter with a strap under their chest. If there are no other alternatives and the cow needs to be moved a short distance urgently, dragging slowly by a halter or chain around the head is safe. if done correctly. Using hip clamps alone should be avoided, and a cow should never be dragged by her legs.

Diagnosis

Cows can go down for many reasons and at any stage of their lactation cycle, but it's most common around calving time. Common reasons for a cow to go down include calving injuries (e.g. calving paralysis), hypocalcaemia (milk fever), musculoskeletal injuries (e.g. dislocated hips, broken legs, etc.), and severe infections (e.g. toxic mastitis). Diagnosing the reason(s) for her going down is essential in making an informed decision about whether to proceed with treatment and care (and what type of treatment and care to provide), or whether to euthanise.

Proper diagnosis starts with a visual assessment of alertness. An un-alert cow requires immediate diagnosis as the condition is likely to be severe and often life threatening. Some likely causes are very severe mastitis, milk fever, grass tetany, severe blood loss, or nitrate poisoning. If she is alert, possible causes are a musculoskeletal injury (including fracture of, or nerve damage to the spine or one of the back legs), pregnancy toxaemia (fatty liver syndrome), insufficiently-treated milk fever, calving, or is cast (ended up on her side and can't roll up onto her chest into a normal lying position) If you're unsure, seek veterinary advice.

Management decisions - to treat or euthanise?

Cows with serious injuries or illnesses that have a low chance of recovery need to be euthanised promptly to avoid unnecessary and prolonged suffering. However, even when there is a higher chance of recovery, consideration needs to be given to whether proper care can realistically be given, because the quality of

nursing care significantly affects the likelihood of recovery.

Unfortunately, the treatment of down cows embodies Hunter S. Thompson's words well "Anything worth doing, is worth doing right." In other words, if you can't commit the time and resources required for nursing a down cow (which can be significant), it's not worth doing at all and you would be better euthanising the cow.

Regardless of whether you decide to treat or euthanise, you should make the decision promptly. Beginning treatment of the primary condition with the appropriate medication quickly maximises the cow's chances of a quick recovery, because once a cow goes down one of the biggest risks to her recovery is secondary damage - injuries she sustains while down (e.g. nerve damage, joint dislocation, or pneumonia). Research conducted on dairy farms in Gippsland found of the 218 down cows studied, secondary damage occurred in 172 (79%) of the cows.[¹]

Nursing and monitoring

Nursing strategies should aim to treat the primary condition quickly, effectively and avoid secondary damage as much as possible. Common complications that arise from prolonged lying, include muscle and/or nerve damage to the lower back, hind limbs, or forelimbs; hip dislocations, mastitis, 'bed sores', and pneumonia.

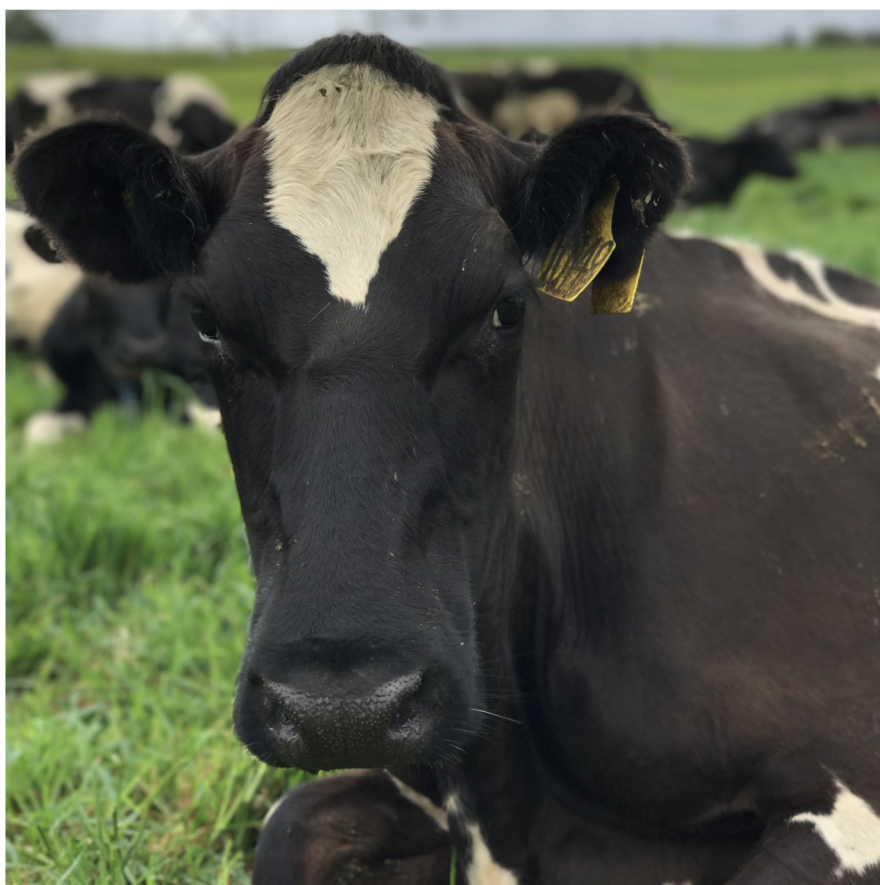
Nursing environment

To help avoid secondary damage, down cows should be confined (with barriers) to a sheltered area that prevents them from attempting to crawl around. The nursing area should have at least 30cm depth of soft bedding to help relieve pressure on the cow's body and insulate them from cold ground and inclement weather. Soiled bedding should be removed and replaced to keep the area hygienic.

Food and water

It's important to encourage the cow to continue eating and drinking, so

➤ Continued on page 3



water and feed with sufficient energy and fibre needs to be provided where she can reach it. Regular hand milking should be performed to relieve pressure in the cow's udder and teat disinfectant applied to reduce the risk of mastitis.

Rolling and lifting

If a down cow can't swap which side she's lying on by herself, she's at risk of causing muscle and nerve damage to the underneath leg. To help minimise this risk, she'll need to be rolled frequently.

Lifting is only beneficial if it's conducted properly. It should be supervised, and the cow should be able to stand in a neutral position and take some of her own weight. Down cows tire easily, and proper care and attention is required to avoid creating further problems from either improper or over-lifting. Cows that are unable or unwilling to try and take some of their own bodyweight when lifted are better off being nursed without lifting.

Dairy Australia has video resources that explain how to roll and lift down

cows.

Monitoring

It's extremely important to regularly monitor a down cow's response to treatment. A non-alert cow should be checked within 2-4 hours for signs of improvement, and an alert cow within 8-12 hours. Cows that are still down on the second (and subsequent) days need to be assessed at least once per day.

During this monitoring, judgements need to be made regarding the response to treatment, whether the treatment plan needs to be changed, the accuracy of the original diagnosis, the occurrence of any secondary damage and its treatment, the likelihood of recovery, and the welfare of the cow.

There's no time limit on nursing a down cow provided that her welfare isn't compromised. It should be noted though that most down cows that will recover will show signs of improvement within two weeks, and that the longer a cow is down, the increasing likelihood she will develop secondary health issues.

Prevention

Many of the reasons that cause a cow to go down can be managed. Genetics (particularly sire selection), transition cow management, and calving management are all management levers you can pull to reduce the likelihood of complications causing a cow to go down.

Resources

Dairy Australia:

[How to manage a down cow](#)



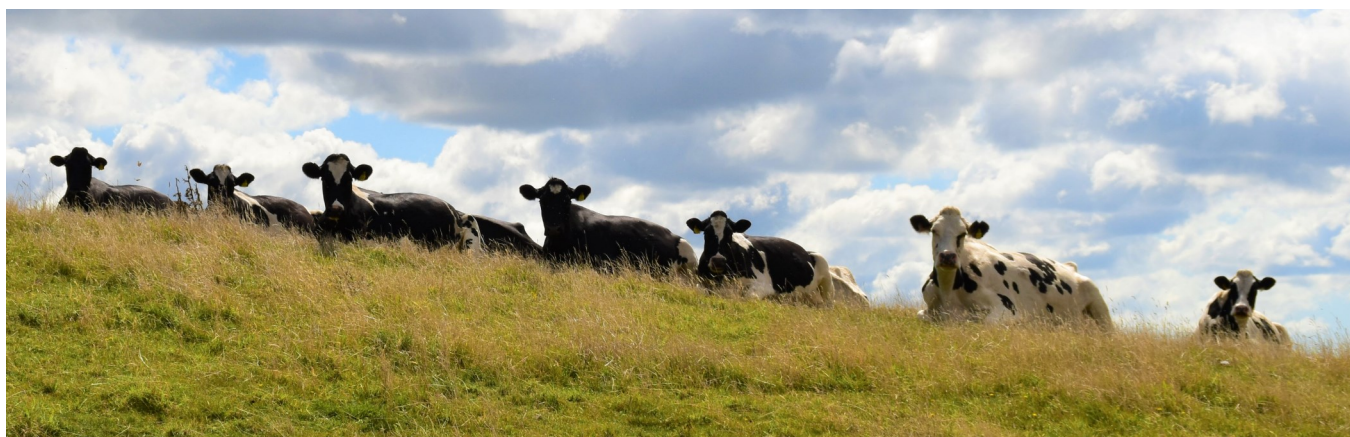
Dairy Australia:

[Down cow decision tree](#)



Dairy Australia:

[Down cows video tutorials](#)



New TIA dairy extension officer - Jacob Lightman

I'm the newbie in the TIA dairy extension team. I'm basically a hobbit at heart - I love cooking, gardening, and the simple things in life.

I was previously a Research Agronomist in the vegetable seed production industry, but I've always been passionate about the dairy industry and wanting to reconnect to

my family's long history with it. I'm hoping that in this role I can learn as much as possible to be able to help dairy farmers be more secure, sustainable, profitable, and fulfilled. Every day's a school day.

Jacob is working from TIA's Burnie office from Wednesday-Friday each week. He can be contacted by email at Jacob.Lightman@utas.edu.au.

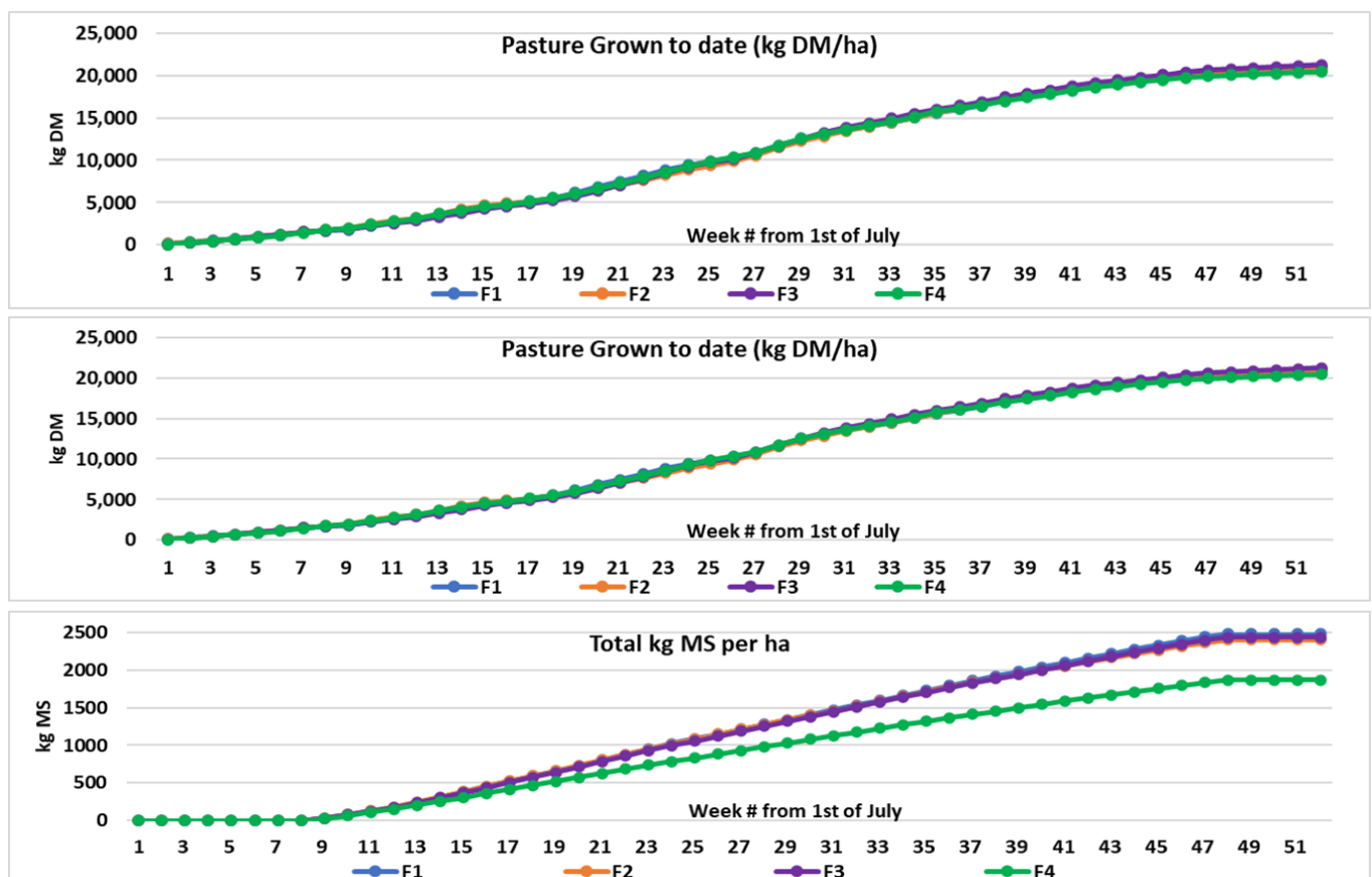


TIA Dairy HIGH2 Farmlets Monthly Report - July 2024

29/07/24 - Week 4	Farmlet 1		Farmlet 2		Farmlet 3		Farmlet 4	
# Cows	29		29		29		22	
SR (cows/ha)	3.94		3.94		3.94		2.99	
Pasture species	Perennial ryegrass & white clover		Perennial ryegrass & white clover		Perennial ryegrass, white clover & plantain		Mixed species	
Nitrogen (kg N/ha.yr)	300		150		150		0	
Daily Production								
	Per ha	Per cow	Per ha	Per cow	Per ha	Per cow	Per ha	Per cow
Litres	93.8	34.5	93.1	34.3	90.7	33.4	78.8	34.1
Protein (kg)	3.0	1.12	3.0	1.11	2.9	1.08	2.6	1.11
Fat (kg)	3.8	1.39	3.8	1.38	3.7	1.34	3.2	1.37
Milk Solids (kg)	6.8	2.51	6.8	2.50	6.6	2.43	5.7	2.48
Pasture Performance								
Pasture Growth (kg DM/ha.day)	31		28		29		23	
Pasture Cover (kg DM/ha)	2539		2419		2323		2056	

Results presented in this report cover only a snapshot in time and should not be used as indicative of long-term results.

Graphs from 2023/24 season



Report comments

As we prepare for the start of the second season of the farmlet studies, we want to share a small snapshot of last season. Please note in the graphs above, week 1 is the first week in July

2023 and week 52 is the last week in June 2024. Starting with the pasture grown on each of the farmlets, the graph shows a large amount of pasture grown on each of the

farmlets with all achieving over 20 tonnes DM/ha. As can be seen from the graph, there was very little difference between the farmlets.

➤ Continued on page 5

Pasture growth rates also follow a very similar pattern between each of the farmlets. There are some differences in growth rates at different points during the year but overall, as the total pasture grown graph shows, these did not lead to any differences in the total pasture grown. Milksolids produced per hectare were similar for Farmlets 1-3 and lower for Farmlet 4. Milk production per hectare is lower on Farmlet 4 because it has a lower stocking rate to account for the forecast lower pasture growth with zero nitrogen applied. This does not

mean that everyone should immediately halve the amount of nitrogen applied, the farmlets have all new pasture with a large percentage of clover and it will take time for the pasture to adapt to the different levels of nitrogen - which is why the research is taking place over a number of years. We will discuss the Year 1 results in more detail at the annual TIA Dairy Research Facility field day in February.

For the 2024-25 season, pasture has been growing at 20-30 kg DM/ha over winter on each of the farmlets.

Farmlet 4 did have lower pasture growth rates in late June/early July. We think this is because it has a larger percentage of clover than the other farmlets and clover growth was more impacted by the multiple days of frost experienced. The growth rate on Farmlet 4 is now similar to the other farmlets. Calving is underway at TDRF and herds will be returned to the farmlets in the third week of August by which point the farmlets will have reached the target average pasture cover of 2500 kg DM/ha.



Subscribe to receive the monthly Farmlet Research report directly to your email here: <https://www.utas.edu.au/tia/news-and-events/subscribe-to-newsletter>

Calving period high risk for injuries

Jacob Lighman, TIA

Spare some time to consider farm safety

This time of year is extremely busy and stressful, and that makes it even more important to give some serious thought to how to ensure that everyone on your farm stays safe and avoids injury during this time. Farming is a dangerous occupation already, particularly when there are large animals involved, and when you add in the stress and exhaustion that comes with calving, things can easily go wrong. Just to put it into perspective, the Australian agriculture, forestry, and fishing industries had 14.7 fatalities per 100,000 workers in 2022, compared with 2.4 for mining, 3.0 for electricity, gas, water, and waste services, and 2.2 for construction (<https://data.safeworkaustralia.gov.au/insights/key-whs-stats-2023>).

Our industry also had the highest frequency rate of work-related serious injury and illness claims (10.9 serious claims per million hours worked). (<https://data.safeworkaustralia.gov.au/insights/key-whs-stats-2023>). I point this out not to try to scare you, but to really drive home the idea that farming is far more dangerous than

we often give it credit for and, as such, we really need to think about safety seriously and not become complacent.

We often hear about ways to reduce the risk of serious injury and death - things like:

- Ensuring that equipment and machinery is well maintained and used carefully
- PTO shaft and belt drives are guarded as much as possible
- Watching out for overhead power lines
- Letting others know if/where you'll be working by yourself (and have them check in with you regularly)
- Wearing helmets when driving open vehicles, quad bikes, or motorbikes
- Keeping children away from work sites, dams, roads, etc. (children account for an alarming proportion of farm fatalities and injuries)
- Making sure that you're aware of large machinery and vehicles operating nearby (and preferably have the operator know you're there)

What we don't hear much about though is the 'minor' injuries - things

like sprains and strains that are really common on dairy farms - particularly around calving time - and many of which are preventable.

Whilst we might call them 'minor' injuries, they can still impact farm workers and farm productivity significantly. In a study by DairyNZ on preventing sprains and strains, which accounted for around 40% of injuries on dairy farms in New Zealand, they found that half of the (370) farmers they surveyed reported that it took more than 30 days to recover fully from a sprain or strain. That represents a significant impact, not just on the individual, but on the business. In the Tasmanian dairy industry in the five years from 2016-17 to 2021-22, 91 out of 261 (35%) of injury claims were caused by traumatic joint/ligament injuries or muscle/tendon injuries, and 25 (10%) due to musculoskeletal and connective tissue diseases (mostly arising from the constant stress put on the body from repeated handling, lifting, carrying, or putting down of objects). Common causes of these injuries include :

- picking up calves in the paddock, lifting heavy buckets of milk or meal,

➤ Continued on page 6

slipping or tripping in the calf shed, climbing over gates, or slipping on uneven ground (e.g. in the paddock). Some things you can do to help reduce the risk include:

- Use a good lifting technique when picking up heavy objects (bend your knees and keep your back as straight as possible)
- Don't lift calves over gates/trailer cages – use gates
- Find ways to reduce heavy lifting, for example by piping/pumping milk for calves directly into feeders rather than using buckets, and using trolleys, hoists, carts, pallet jacks, front-end loaders, etc. where possible
- Upgrade infrastructure to make calf-rearing easier (e.g. hands-free calf pen gates, easy-entry (hands-free) calf trailers and carry-all pens)
- Ensure that the milking area is well-lit and that hoses are kept out of the way when not in use (tripping on hoses is a common cause of injury)
- Get the best footwear you can (good grip and ankle support) and replace it before it becomes unsafe

- Use lifting equipment to take some of the strain off your body, e.g. lightweight exosuits. These aren't common in Australia (*yet*), but they're rapidly gaining in popularity overseas, particularly in industries like construction and warehousing, where workers are frequently lifting heavy objects and the strain in their bodies is high. It's similar to how weightlifters use lifting belts and knee braces.

- Have a good roster system for the calf-rearing team to allow for adequate rest, and share calf collection duties across the team

Small improvements can make a big difference in the long run. Talk to your team regularly about where they experience discomfort, particularly if it's recurring, whether any jobs seem harder to complete than they should do, and whether they have any ideas for making these jobs easier or less risky. Even if it's not something that you can change immediately, it might be something that can be implemented before next season. Accidents happen, but we can stack the odds in our favour by being vigilant, prioritising safety, and

looking out for each other. We want everyone getting home safely.

Some stats from DairyNZ:

- Sprains and strains represent roughly 40% of injuries on dairy farms
- Around 25% of sprain and strain injuries occur during calving
- injuries are to the back (25%), knees (14%), and ankles (14%)
- % of strains or sprains are from a slip, trip, or fall
- 50% of all milking injuries are from slips or trips
- 60% of all paddock injuries are from slips or trips
- 50% of farmers report it taking them more than 30 days to recover fully from a sprain or strain

Some stats from Safe Work Australia

(TAS, Dairy, FY2016-17 to FY2021-22)

- 91 out of 261 (35%) of injury claims were caused by traumatic joint/ligament injuries or muscle/tendon injuries
- 25 (10%) due to musculoskeletal and connective tissue diseases
- 41.2% of these came from body stressing (repeated handling, lifting, carrying, or putting of objects)
- 28.1% came from falls, trips, and slips

TIP



Lifting new-born calves causes many back injuries.

If you have to lift a new born calf, use your legs and keep the back as straight as possible.

Squat down beside the calf, pull it in close with one arm around the front and the other around the hind legs, hold the calf firmly then straighten the knees to lift.



Source: WorkSafe New Zealand (Safe Cattle Handling Guide)
www.worksafe.govt.nz

Resources:

- People in Dairy - <https://thepeopleindairy.org.au/farm-safety/>
- Dairy Australia - <https://www.dairyaustralia.com.au/people-skills-and-capability/farm-safety-and-wellbeing>
- Safe Work Australia - <https://www.safeworkaustralia.gov.au/safety-topic/industry-and-business/agriculture>
- Farm Safe Australia - <https://www.farmsafe.org.au/>
- AgHealth Australia - <https://aghealth.sydney.edu.au/?id=5040>
- DairyNZ - <https://www.dairynz.co.nz/research/science-projects/reducing-sprains-and-strains/>

Impact of cold weather on calves

Lesley Irvine, TIA

Just like people, calves (and cows) have an ‘ideal’ temperature. This temperature is known as the thermoneutral zone. When the temperature is within a calf’s thermoneutral zone, it means the calf doesn’t have to use any additional energy to warm-up or cool down (see Figure 1).

In 2021, the National Academies of Sciences, Engineering, and Medicine published an updated Nutrient Requirements of Dairy Cattle in which it was outlined there are two different Lower Critical Temperatures for calves. If the effective ambient temperature drops below the Lower Critical Temperature (LCT), the calf will use energy to try and maintain its body temperature. The LCT for calves younger than 21 days of age is 15°C. The LCT for calves older than 21 days is 5°C. Remember this is the effective ambient temperature - the temperature the calf actually experiences. For example, in my weather app, it lists the temperature and then what the temperature ‘feels like’. The effective ambient temperature is equivalent to the ‘feels like’ temperature. So far, it seems relatively simple - if a calf is younger than 21 days of age, once the effective ambient temperature drops below 15°C, the calf will be using energy to keep warm. For a spring calving herd

in Tasmania, if the calves are outside before they are 3 weeks old, it is highly likely they will be experiencing effective ambient temperatures below 15 °C most of the time. If they are inside, it is still likely they will be using energy to stay warm at least some of the time.

Calf researcher, Jim Quigley, has delved into the LCT for calves in more detail. He explains in Calf Note #249: “The heat produced by an animal is

milk per day and eating 250g concentrate per day, no wind and a dry coat has a LCT of 2.4°C. This same calf, if it is wet and muddy, has a LCT of 20.4°C. If there is a 10 km/h wind, it has a LCT of 21.7°C.

What is the practical application of this information?

- The older calves are, the lower their LCT.
- The more milk calves are fed, the

Table 1 Calculated LCT of calves (°C) in calves at various ages and intakes of whole milk

Days of age				
L whole milk	7 days	14 days	21 days	28 days
4 litres	17.0	16.0	8.3	5.0
6 litres	10.8	9.8	1.6	-1.7
8 litres	4.6	3.5	-5.0	-8.3
10 litres	-1.6	-2.8	-11.5	-14.8

Calves assumed to eat 0, 0.1, 0.4 and 0.6 kg of calf starter per day at 7, 14, 21, and 28 days of age, respectively. Calves assumed body weight of 45, 50, 55, and 60 kg at 7, 14, 21, and 28 days of age, respectively. Table sourced from www.calfnotes.com

highly related to the amount of energy it consumes and the amount of energy that it can retain in the body.” This means that calves fed higher volumes of milk, have a lower LCT (see Table 1). Jim Quigley also developed a calculator which looks at a few other factors impacting on LCT. For example, a Friesian calf at 30 days of age weighing 55 kg, drinking 5 L

- lower their LCT.
- If they are provided with shelter so they can stay dry and out of the wind, they will have a lower LCT.

Information for this article was sourced from Calf Note #249 available at www.calfnotes.com. A link to the LCT calculator is in the calf note.

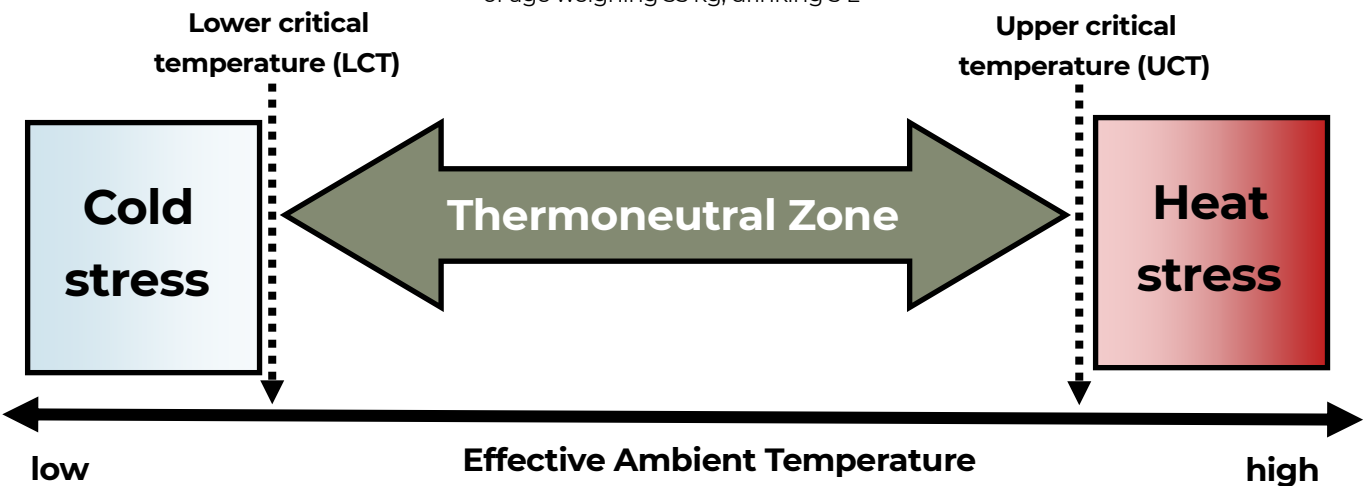


Figure 1. Schematic of relationship of temperatures to thermal zones. From 1981 NRC Subcommittee on Environmental Stress. Effect of Environment on Nutrient Requirements of Domestic Animals. Washington (DC) National Academies Press. <https://doi.org/10.17226/4963>. Sourced from www.calfnotes.com

Dairy Science Snapshots

A summary of some recently published dairy research articles

Pasture = better butter

A research team in Ireland studied the effect that cow diet had on butter properties. They compared three feeding systems: outdoor pasture grazing (high pasture allowance); indoor total mixed ration (no pasture allowance); and a partial mixed ration (medium pasture allowance). They found 'increasing pasture allowance resulted in significant differences in the proportions of 26 individual butter fatty acids, with a subsequent reduction in crystallisation temperatures and butter hardness, and improvements in the nutritional indices of butter.' The improvements in the nutritional properties of butter was primarily a result of increased proportions of unsaturated fatty acids. Also, the more pasture there was in the diet, the more "yellow" the butter appeared.

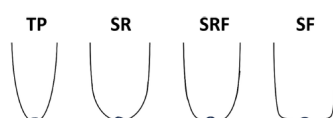
Mark Timlin et al. 2024. *Journal of Dairy Science* 107:5376-5392. Pasture

feeding improves the nutritional, textural, and techno-functional characteristics of butter.

Teat shape may impact milking efficiency

A research team from Cornell University studied teat shape and the impact on milk flow in a 4,100 cow Holstein Friesian herd in New York. They found cows with flat-ended teats were more likely to have bimodal milking (delayed letdown). 'Bimodality has been associated with decreased milking efficiency, reduced milk yield and impaired teat and udder health.' However the authors do caution more research needs to be done as they have only looked at one herd and milking system.

M. Wieland et al. 2024. *Journal of Dairy Science* 107:6278-6287. The association between teat shape and



bimodal milk ejection in Holstein dairy cows.

Keep feeding milk

This isn't recent research but it is timely. A research team in Illinois investigated what happened to calves after they started scouring if they were treated in one of three ways: (1) stop feeding milk and give electrolytes only for 2 days and then gradually reintroduce of milk; (2) reduce quantity of milk fed plus give electrolytes; and (3) continued feeding milk plus give electrolytes. They found that calves fed milk plus electrolytes did NOT have prolonged or worse scouring. Calves that were fed the full diet of milk plus electrolytes had higher growth rates than the other two treatments.

B.D. Garthwaite et al. 1994. *Journal of Dairy Science* 77: 835-843. Whole milk and oral rehydration solution for calves with diarrhea of spontaneous origin.

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

Phone:

TIA (03) 6226 2121
DairyTas (03) 6432 2233
TasTAFE 1300 655 307
Rural Alive & Well 1800 729 827

Socials:

@TasInAg
TasInAg
Tas Dairy Discussions

Disclaimer

While the Tasmanian Institute of Agriculture (TIA) takes reasonable steps to ensure the information in its publications is correct, it provides no warranty or guarantee that information is correct, complete or up-to-date. TIA will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the information contained in this publication. No person should act on the basis of the contents of this publication without first obtaining specific, independent, professional advice. TIA and contributors to this publication may identify products by proprietary or trade names to help readers identify particular types of products. We do not endorse or recommend the products of any manufacturer referred to. Other products may perform as well or better than the products of the manufacturer referred to.

