

FEED TROUGH

VOLUME 4



Your Levy at Work

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Feed management for weaning calves

Dr Gemma Chuck, Dairy Veterinary Operations, Apiam Animal Health

The pre-weaned calf relies primarily on the digestion of milk in the abomasum and small intestines. In the very young calf, the first 3 stomachs are not developed, and the calf is considered a “monogastric or simple stomached” animal.

A successfully weaned heifer is considered a ruminant which means she relies on the digestion of plant-based food by fermentation, in a specialised stomach called the rumen. The presence of bacteria and other microbes within the rumen help this fermentation process.

At weaning, the calf no longer has access to a milk diet. To grow and thrive, the calf needs a fully functioning rumen to be able to utilise all the nutrients from a non-milk diet (forage and grain). If the rumen is not developed and prepared for weaning, then the calf will not be able to utilise these nutrients to maintain herself and grow. This can result in a decreased growth rate after weaning, the so-called “post-weaning slump”. Therefore, the primary goal of the milk feeding phase and leading up to weaning should be to promote rumen development so that weaning can occur as smoothly as possible.

THE IMPORTANCE OF RUMEN DEVELOPMENT: THE MYTH OF THE SCRATCH FACTOR

The lining of the rumen is composed of finger-like projections called papillae. These papillae increase the surface area of the rumen for absorption of nutrients. The term ‘rumen development’ reflects the number and the length of these papillae, along with the microbes present in the rumen to help fermentation.

Traditionally, it was thought that feeding roughage (fibre) to calves promoted their rumen development. This so-called ‘scratch factor’, where large particles and fibre scratch the rumen lining to stimulate papillae development, is now considered a myth. Research has shown that it is in fact grain that stimulates papillae growth by the production of volatile fatty acids, such as butyrate. High forage diets result in production of acetate, which does not promote papillae development. Therefore, to obtain high levels of butyrate, a rapidly fermentable, high quality calf starter or grain must be fed.

The earlier a calf starts consuming grain, the more quickly the rumen develops and the sooner the calf can maintain and grow on a non-milk diet. Prolonged milk feeding will not promote rumen development. This leads us to the question “When is the right time to wean?”

With our knowledge of rumen development, the best indicator for weaning is based on consumption of calf starter/grain. Size, weight and age are not accurate estimations of an animal’s rumen development and functionality. For example, the rumen of an 80kg dairy calf consuming 1.75kg of calf starter per day will be very different from an 80kg milk vealer calf on a high-volume milk diet. For calves in a group fed system, where calculating accurate grain consumption per calf can be a challenge,

it is recommended to monitor on a group basis over three consecutive days. As a guide, in a group fed system feed:

BREED	GRAIN RATION *
Friesian	1.5-2kg/day
Jersey	1.1-1.5kg/day
*Based on calf grain containing 18-20% crude protein	

THE STRESS OF WEANING

Weaning can be a stressful time for young calves as they no longer have access to a diet which they have been accustomed. Overwhelming stress can lead to disease as stress releases cortisol, a hormone which can suppress the immune system and reduce the ability to fight disease. Weaning will be more successful if calves are exposed to only one stressor at a time. Successful weaning and post-weaning growth will ultimately depend on several factors. Optimal nutrition to promote rumen development and minimising stress, will help enable the ‘monogastric’ calf to become a fully functioning ruminant, without an adverse effect on growth.

For more information on calf weaning and nutrition visit www.apiam.com.au or www.dairyaustralia.com.au/-/media/dairyaustralia/documents/farm/animal-care/animal-welfare/calf-welfare/rearing-healthy-calves-manual-2nd-ed.ashx or Jessica@westerndairy.com.au

Redlegged Earth Mites Resistant to Insecticides

Graham Mussell, Graham Mussell Consulting

Last year the high rainfall south west region of WA was included in a state wide Red legged earth mite (RLEM) resistance survey funded by the Grains Research and Development Corporation (GRDC). A higher incidence of insecticide resistance was found here than in other areas.

Two main insecticide groups have traditionally been used to control RLEM in pastures the synthetic pyrethroids (SP's) such as bifenthrin and alpha-cypermethrin; and the organophosphates (OP's) such as chlorpyrifos and omethoate. Repeated use of the same insecticide group can cause RLEM to develop resistance. Testing in 2017 found more populations were resistant to SP's than OP's, with some populations having "dual resistance" where they were able to survive exposure to both insecticide groups. Dual resistance is of particular concern because alternative control options are limited.

106 populations of RLEM were tested for resistance in WA last year, 15 showed SP resistance, 6 showed OP resistance and 4 showed both SP/OP resistance. A large percentage of the resistant populations were found in the high rainfall region including all the dual SP/OP populations. This is likely to reflect the area being predominantly permanent pasture with many paddocks having a higher frequency of insecticide applications than cropping areas.

If you have paddocks that have a history of several insecticide applications in recent years, ensure you monitor the effectiveness of insecticide applications by checking whether target insects are controlled in the days after the application. If there is a failure, undertake testing to determine if the population is resistant and what other insecticide groups might provide control.

Recent changes to the omethoate label by the AVPMA limit its use to a border spray only. This does impact on control options for RLEM in pastures, however there is a permit for the use of product manufactured up to 31/03/2017 under the old label

allowing it to be sold and used according to the instructions on that label. The permit is valid until 1/12/2018.

Farmers can use control options to slow the development of resistance by reducing reliance on insecticides. Sow clover cultivars that have some tolerance to RLEM such as Narrikup, Bindoon, Rosabrook and Prima gland clover; grazing management in the spring to keep FOO (Feed on offer) below 2t/ha dry matter will keep numbers low going into next season; controlling broadleaf weed host plants such as capeweed will reduce mite numbers, this also applies to refuge areas (fencelines, laneways etc); farm hygiene is also important to reduce movement of mites from resistant paddocks to other areas particularly during hay cutting.

Biocontrol options such as the predatory Anystis mite (Fig. 1) and snout mites are tools that can reduce the reliance on insecticides, they have been largely forgotten as insecticides became a cheap control option. Anysitis mites brought to Australia in the 1960's and released in the area in the mid 1990's have been found surviving in good numbers in an intensive dairy environment. Trials have shown that Anystis mites can be effective in reducing RLEM populations.



Figure 1. Predatory Anystis mite with a RLEM underfoot. Found surviving in good numbers in a local dairy pasture 25 year after release.

For more on life cycles and managing resistant populations of RLEM visit www.grdc.com.au/archive/key-issues/prevent-redlegged-earth-mite-resistance and contact Graham Mussell on 0437 782 272

Feed prices for dairy farmers

In the current market, the availability of hay and grain is limited, especially if you haven't contracted with suppliers. Feed prices are high due to the short supply in the market and the late start to the season.

Managing a fodder shortage - Dairy Australia has developed two helpful publications; Managing a fodder shortage, and, The impact of your feeding decisions during a fodder shortage. Visit www.dairyaustralia.com.au

Remember: Plan your feeding program, set a feed budget and regularly revise it. Feed test your feed and work with a nutritionist to feed a balanced ration. Speak with your supplier about forward planning, contracts and current prices.

WA FEED PRICES	ESTIMATED COST (EX GST, PER T, DELIVERED) *
Feed Barley F1	\$320 - 340
APW1 Wheat	\$320 - 340
ASW1 Wheat	\$305 - 315
Lupins	\$400 - 420
Canola meal	\$490
Straw	\$100 - \$150
Cereal Hay	\$250 - \$350
Pasture Hay	\$200 - \$250

* Allows for freight, prices as per 25/05/2018, average from various WA sources

A MESSAGE FROM DEAN MAUGHAN, MILNE FEEDS;

Milne Feeds are now paying \$60-80/T more for grains like lupins and barley compared to 2017 harvest. The higher grain price has pushed up the price of pellets and it is expected that the demand for feed will continue for at least 6 weeks after the opening rain.

With wheat being the same price as barley, dairy farmers will be tempted to use more wheat in the ration. The concern with this is that there is a higher risk of acidosis in the herd.

As green feed comes into the diet it is important to assess the amount of rumen degradable protein (RDP) in the diet and alter the diet accordingly. On average ryegrass pastures in winter contain 20-25% Crude Protein (CP) and an early lactation dairy cow requires 17-18% CP in her diet. Energy is required to breakdown and excrete the excess protein, which becomes inefficient for the cow, and uneconomic for the farmer. For more information contact Dean on 0419 047 417

Test your spreader pattern

Tammy Negus, Western Dairy contractor

HAVE YOU CHECKED YOUR FERTILISER SPREADER PATTERN?

Fertiliser is an essential and a significant input for productive pastures on a dairy farm. Applying it evenly and accurately to the paddock is important to deliver the nutrients in the correct amount for optimal plant growth.

Studies have shown that even fertiliser spreading contributes to farm profit in grazing systems. Jeff Kraak (Fertilizer Australia) and Chris Lightfoot (Independent Farm Economist) reported that uneven urea spreading on dairy pasture can result in \$15 - \$40/ha reduction in the value of dry matter (DM) for a single application*. This means you can have a significant effect on profitability by ensuring fertiliser is being spread evenly on dairy pasture.

This year Western Dairy supported the local catchment councils and the Department of Water, Environment and Regulation (DEWR) to facilitate demonstrations of how to test and calibrate fertiliser spreading equipment. The workshops were hosted by 4 dairy farmers and landholders were invited to bring their fertiliser spreader along for testing with Accu-spread trainer Russell Nicholl.

The Accu-spread testing methodology was used to evaluate the spread patterns for a range of fertiliser products. The workshops revealed that most fertiliser spreaders are delivering a high level of variation in spread pattern. This means

some parts of the paddock receives too much fertiliser and others not enough. Testing has also shown that a new spreader machine is no guarantee of an even application.

Farmers were provided with data on two driving patterns; race track (around the paddock) and back and forth across the paddock. The first graph (fig1.) plotted the CoV (Coefficient of Variation) against the bout width for the product spread with the test spreader and compared it to the target industry benchmark (CoV 15%). The distribution graph (fig.2), shows the evenness of spread in a single pass behind the machine.

Participating farmers were given tips on how to improve their spreader. Spreader modifications and adjustments can result in wider bout width while still achieving an acceptable spread pattern.

The Accu-spread graphs in this example, indicates the recommended maximum spread width for both racetrack and back/forth is 34m. Increasing or reducing the bout width to wider (eg 36m) or narrower (25m) would result in a sub-optimal urea spread pattern for this machine. Alternatively spreading at bout widths of 17m or less would produce an acceptable spread pattern.

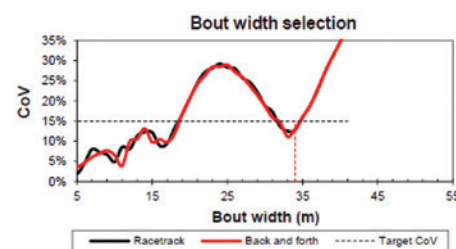


Fig 1. An Accu-spread graph showing the recommended maximum bout width for this example.

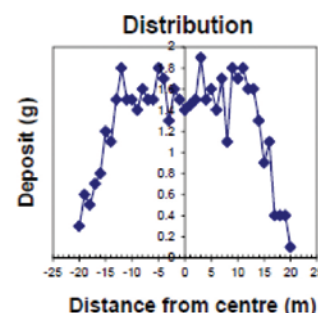


Fig 2. An Accu-spread graph showing the distribution of fertiliser behind the example spreader in one pass.

Understand your fertiliser spreader pattern when using different products. This will help you get higher productivity out of your machine, fertiliser, pastures and keep your waterways healthier.

For information on Accu-spread testing, to find accredited spreading contractors and for the report - * Even Fertiliser Spreading Contributes to Farm Profit in Grazing Systems (2015, Jeff Kraak and Chris Lightfoot) visit www.fertilizer.org.au or www.fertcare.com.au

Rumen8 update results in even more users

Richard Morris, Western Dairy Contractor

Rumen8, the free easy to use dairy ration software provided by Dairy Australia, has had a sizable increase in the number of users since a large update earlier in the year. Rumen8 now has over 900 users, and while most of them are in Australia, the software is being used by farmers and consultants in 59 countries around the world.

The March update brought diet, PMR and mixing reports, the ability to share feeds easily between users, creation of diets for split calving herds, diets for heifers along with a target growth rate calculator, and milk fever risk warnings amongst many other improvements. You can see the complete list of changes and download the latest version from www.rumen8.com.au as usual.

Rumen8 allows the user to quickly design a diet from up to 15 feeds or mixes to ensure your cow's dietary needs are being met. Multiple diets can be stored and compared and the difference between feed price and return from milk calculated to help you minimise feeding costs. As with any tool, some nutrition knowledge is required so contact the Hub for information about using Rumen8.

To get the most out of it we recommend using Rumen8 with your nutritionist. For assistance with Rumen8 contact Richard Morris richard@rwmorris.com.au or visit www.rumen8.com.au

Getting your grazing right

Kirk Reynolds, Western Dairy Agribusiness Leader

There are 3 aims when establishing a rotation after the break or when introducing an annual crop:

1. Set up a rotation that allows you to get as much pasture consumption as possible.
2. Try to achieve even feed allocation from pasture (to allow even supplement use).
3. Avoid overgrazing damage to new pastures.

If the bulk of the annual pasture has been started at the same time (irrigated up, or rain-fed), you will need to 'manipulate' the rotation length during the first rotation (first grazing of the annual area) to set up the pasture wedge. If you wait and graze the first paddock when it is at the ideal stage to graze, then the last paddock will be well past the ideal grazing stage when you put the cows into it. If you have had a 'staggered start' (usually via irrigation or by sowing different areas at different times) it is easier to manage as some paddocks will be more advanced than others will – but you still need to compromise.

DECIDE ON HOW MANY DAYS YOU CAN TAKE TO GRAZE YOUR WAY ACROSS THE ANNUAL AREA.

The starting point is to be able to answer the following 2 questions:

1. How long do I want to take to graze the new paddocks? (time taken from grazing the first paddock to grazing the last paddock)
2. What date do I think I can start grazing on?

HOW LONG DO I WANT TO TAKE TO GRAZE THE NEW PADDOCKS?

This is always a compromise. The longer that you leave it before the first grazing on the new pastures, the quicker you will need to get across them. This will mean a fast rotation when you are wanting to slow down for the cooler months – a contradiction. A good strategy is to work out the rotation speed you want, say 30 days, and then use varying rotation speeds so you get across the area allocated in 30 days.

For example if you had 100 ha's of relatively even feed coming on as a "block of feed". You could run the first 7 days at 20 days rotation speed (5ha/day for 7 days is 35ha), second 10 days at 30 day speed (3.3 ha/day for 10 days is 33 ha) and last 13 days at 40 day speed (2.5ha/day for 13 days is 32 ha). As you can see you get over your 100 ha's (35+33+32) in 30 days (7+10+13) so your

rotation speed is correct when you get back to your first paddock. Hopefully the cows will receive a similar amount of feed each day as the 5 ha's of "early grass" will provide a similar amount of feed per animal as the 2.5ha of "later grass".

WHAT DATE DO I THINK I CAN START GRAZING ON?

This is usually driven by when the first annual paddock is ready to graze. The new plants must pass the 'pluck' test so that the cows do not pull them out.

A FEW IMPORTANT POINTS ABOUT THE FIRST GRAZING:

A newly sown ryegrass pasture can sustain more than 3 actively growing leaves before the first grazing (but not in subsequent grazings). The new seedling will tiller well without needing to be grazed to stimulate tillering. Until the plant reaches the 'canopy closure' stage, it will continue to accumulate high quality feed at an exponential rate. In theory it is better to leave the new seedlings/plants to grow out close to canopy closure before they are grazed. Practicality will overrule the theory in most cases. Good management is about making the right compromise.

If a paddock has been oversown, the new seedlings could easily be shaded out by the existing ryegrass plants, so graze earlier to ensure that this shading does not set the new seedlings back. If the seedlings are going to be shaded out by weeds, it is better to graze earlier so that the seedlings are not shaded out and consider chemical weed control.

THE IMPORTANCE OF THE FIRST GRAZING – GETTING THE RESIDUAL RIGHT.

It is often difficult to get the cows to leave a 4-6 cm residual at the first grazing. This new pasture is of high quality right to the ground as there is no 'residual' sheath that was left behind from last grazing. Cows will find it easy to graze hard and we need to avoid overgrazing.

In many cases the best option is to use the **on-off grazing technique**. This is where the cows are put onto the grazing area for a short period, and then remove them from the paddock as soon as they have grazed down to the desired residual. If this technique is to be used, it is best to treat the new pasture (the pasture to be on-off grazed) as a supplement for the first few grazings.

For more on grazing and setting up pasture rotations contact Kirk.reynolds@westerndairy.com.au

GETTING IT RIGHT WITH FFPF

Would you like to participate in a series of workshops to help you improve your grazing techniques, pasture production and pasture utilisation? Western Dairy successfully ran several Feeding Pastures for Profits (FFPF) workshops throughout the WA dairying region in 2017 and are planning to run them in 2018.

"I thought I knew a fair bit about growing grass, but I learnt some great tips from FFPF and saw immediate results"

Michael Giumelli, 2018 DID host.

If you are interested in attending a Feeding Pastures for Profit workshop, please contact kirk.reynolds@westerndairy.com.au

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