



Information Sheet

THE BENEFIT FROM FEEDING (LITTLE AND OFTEN) FROM A FEEDER COMPARED TO TRAIL OR TROUGH FEEDING ONCE OR TWICE PER DAY

Feeding “once a day or every second day” means that livestock need to be provided much more supplement compared to if this was offered to them through a feeder that they chose to visit 5-10 times per day. When livestock are provided with large amounts of supplemented cereal grain or composed of cereal grain, the microbes convert this fermentable carbohydrate into certain volatile fatty acids (VFA’s), which supply energy to the animal.

The process of converting fermentable carbohydrates into certain VFAs can lower the rumen pH. When a large amount of fermentable carbohydrates are fed, the resulting quantities of VFA’s and lactic acid decreases rumen pH. The optimal rumen pH level is between 6-7. When the rumen pH drops below 6:

1. The buffering capacity of the rumen reduces and the efficiency of rumen flora and fermentation decreases
2. It suppresses the appetite for 1-2 hours, affecting feed intake and performance

These rumen inefficiency issues mean that more supplement is required to be fed to meet production goals, leading to more feed costs and less profit.

However, if the supplement is provided often and in small amounts, there is less fluctuation in the rumen pH and rumen function can be maintained. This means that the rumen microbes can ferment and extract more energy from cheaper sources of feed, such as pasture.

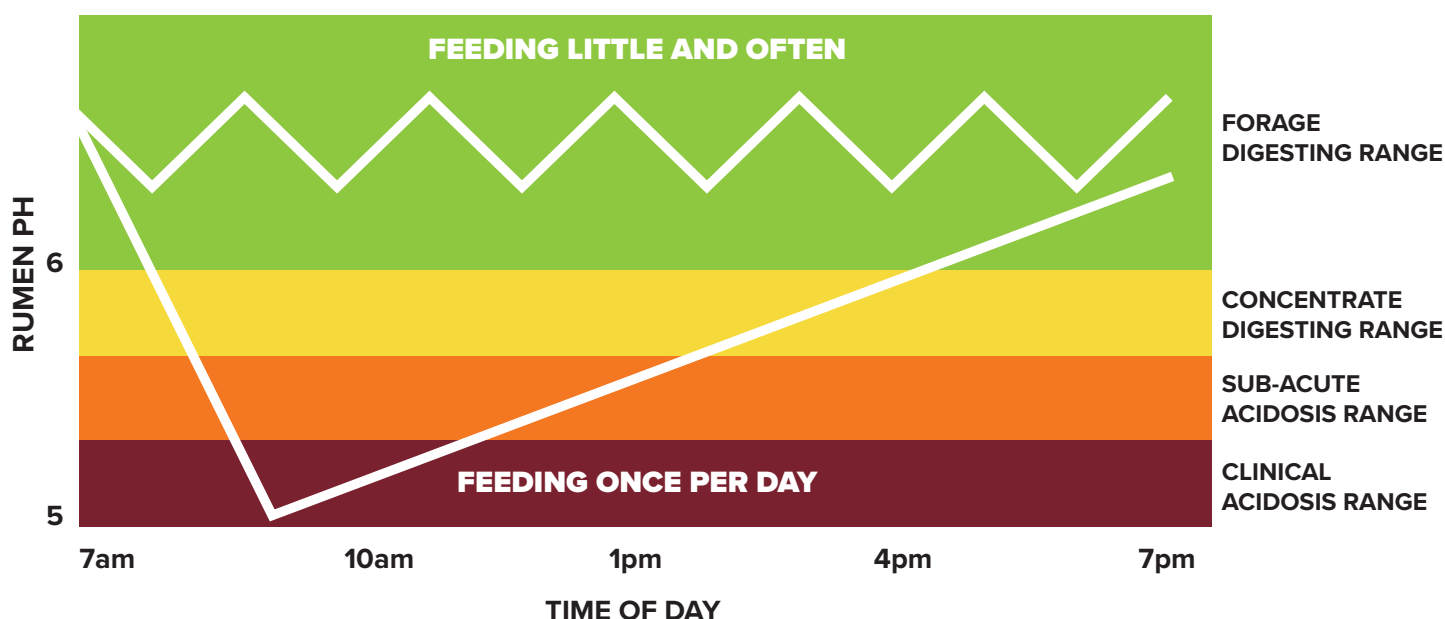
Source: www.milkproduction.com

Forage digesting microbes operate most efficiently when the rumen pH is between 6 and 7

Other than rumen efficiency, there are a number of other benefits of using feeders compared to trail feeding:

- No feed waste because feed isn’t put on the ground
- Reduced labour required to feed livestock as feeders may only need to be filled less than once per fortnight
- Reduced vehicle costs because feeding is much less frequent
- No contamination of grain into areas allocated for future cereal crops
- Ewes tend not to run after the feeding vehicle and increase the chance of mismothering

Rumen pH levels over time



Source: www.milkproduction.com/Library/Scientific-articles/Animal-health/Digestive-Physiology-of-the-Cow

LESS SUPPLEMENT FEED IS REQUIRED WHEN USING THE “LITTLE AND OFTEN” SYSTEM COMPARED TO TROUGH/TRAIL FEEDING

An experiment showed that when livestock are grazing dry pasture, the supplement requirement through the “little and often” system was 45% less than trail feeding every second day.

Please note that to achieve similar results to this, livestock must have access to enough dry pasture to keep their rumens full. If pasture is not available, livestock need to be provided forages, such as hay, straw or silage to achieve similar results. Advantage Feeders hay feeders can provide systems to provide these feeds with minimal feed waste.

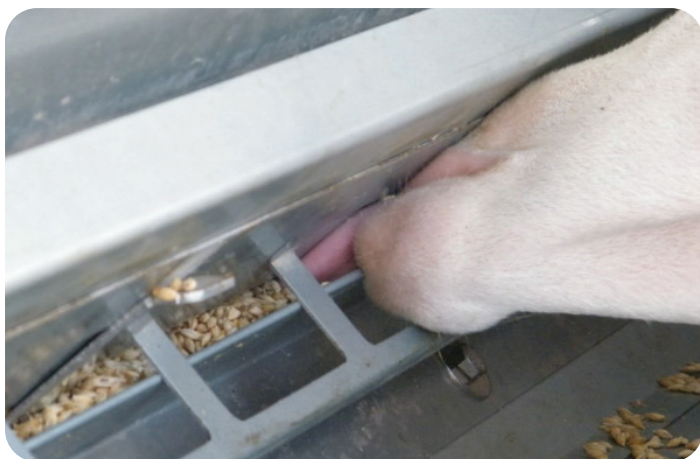
Source: Leaver experiment

Visit www.advantagefeeders.com.au/trial-results for full results.



EXPERIMENT: LEAVER

The Leaver experiment showed that 45% less feed could be fed with the little and often system of the Advantage Feeders 3-way Restriction System



THE PERIOD FOR FEEDING LIVESTOCK TO COMPLEMENT DRY FEED

This should be broken down into two components, the starting time and the finishing time.

Commencement

It starts when the quality of feed on offer does not meet your production goals.

- For young livestock that require 14-16% crude protein to continue growing, this might start at seed formation stage. This can be in October in temperate areas of Australia and April in sub-tropical areas
- The quantity and timing of rain on plants after flowering will affect the quality of the pasture and its ability to meet the production goals of animals. Dry pasture has a component of sugar. The sugar contributes to a proportion of the energy of the feed. Rain can dissolve the sugar and it can wash out of the plant reducing the quality. The amount of rain needed to wash out the sugar depends on how much UV the plant has had – the more sun a plant has had, the less rain is required to reduce its quality and the requirement of supplementary feeding becomes present. Dry pastures and stubbles can reduce substantially by January
- Livestock will selectively graze the best type of dry pasture so the quality of the pasture deteriorates over time. Farms that have a lot of dry feed on offer, particularly those with stubbles after harvest, will have better quality dry feed for longer. It is common for mixed farmers with access to stubbles to have sufficient quality dry pasture until February

Completion

When there is enough new season pasture growth to meet production objectives.

A common supplementary feeding period can be 150 days starting in January for the temperate areas of Australia and for 180 days starting May for the sub-tropical parts of Australia.

Please note:

1. Weaned livestock may be complementary fed in advance of the flower stage of pasture to manage the excess protein of the pasture. It can be seamless with minimum management transitioning from this application to the application of complementing dry pasture.
2. New season pastures can be very high in moisture with a fast passage through the rumen and potential animal health issues. Supplementing these types of pastures can slow rumen passage and reduce feed wastage so more animals can be grazed on a set amount of pasture. Again, it can be a seamless and require minimum management to transition between the applications of complementing dry feed to managing high moisture pastures.

THE BEST FEED TO COMPLEMENT DRY FORAGE

It is a complex evaluation. Livestock have requirements for energy, protein, mineral and vitamins based on whether their objective is to put on weight, hold weight or lose weight. Other factors include the pregnancy and lactation status of an animal and the quality and availability of paddock feed on offer. Consult a livestock nutritionist or farm consultant for expert advice.

Generally, energy is the limiting factor in a diet and cost effective sources are typically, cereal grains and pelleted feeds.

How to work out the price of energy per MJ within different feed options

Formula:

$$\text{Price of energy (per MJ)} = \frac{\text{Price (per tonne as fed)}}{\text{Energy density (MJ/kg of dry matter)} / \text{Dry Matter (\%)} / 1000}$$

Examples:

1. A sample of wheat is \$300 delivered, it has 13.5MJ/kg of DM and the feed is 90% DM. The price of energy is $\$300 / 13.5\text{MJ/kgDM} / 90\% / 1000 = \0.0247 per MJ
2. A sample of barley is \$225 delivered, it has 12.5MJ/kg of DM and the feed is 90% DM. The price of energy is $\$225 / 12.5\text{MJ/kgDM} / 90\% / 1000 = \0.0200 per MJ
3. A sample of oats is \$250 delivered, it has 12MJ/kg of DM and the feed is 90% DM. The price of energy is $\$250 / 12.0\text{MJ/kgDM} / 90\% / 1000 = \0.0231 per MJ
4. A sample of pellets is \$350 delivered, it has 13MJ/kg of DM and the feed is 90% DM. The price of energy is $\$350 / 13.0\text{MJ/kgDM} / 90\% / 1000 = \0.0299 per MJ

In these examples, the sample of barley has the most cost-effective energy. Please note that the pellets could be formulated to provide the other requirements of the livestock: protein, minerals and vitamins.

The cheapest source of energy can often be the best feed to provide livestock



CLASSES OF LIVESTOCK TO PROVIDE A HIGH RETURN ON INVESTMENT

Any animal with a rumen offers a high return on investment. Any classes of livestock that is grazing pasture and not meeting requirements to obtain production goals, can be supplemented with the “little and often” system to have a profitable result.

THE RECOMMENDED SUPPLEMENTARY FEEDING AMOUNT

There is a wide range in quantity required to be fed to livestock based on whether the objective for livestock is to put on weight, hold weight or lose some weight. Other factors include the pregnancy and lactation status of an animal and the quality and availability of paddock feed. Consult a livestock nutritionist or farm consultant for expert advice.

COMMON FEEDING RANGES:

Ewes: 300-600g per day

Rams: 400-800g per day

Weaned cattle: 1-2kg per day

Cows: 2-4kg per day

LIVESTOCK PER FEEDER IN THIS APPLICATION

The main factor that influences the number of livestock per feeder is the quantity of dry feed available to livestock. When livestock can achieve rumen fill, 200 sheep per feeder and 40 cattle per feeder is a general recommendation. When livestock don't have access to enough dry pasture or forage, they will visit the feeder more frequently and the recommended livestock per feeder will reduce.

Like all applications, the amount of livestock/feeder can be increased but it increases the risk of uneven consumption because there is more competition for trough space. The increase in risk requires more oversight/management to identify a potential unevenness in feed consumption.

Experiment livestocking rates per feeder

- Porter – 50 mixed sex weaned cattle per feeder
- Marshall – 50 mixed sex weaned cattle per feeder
- Leaver – 200 ewes per feeder

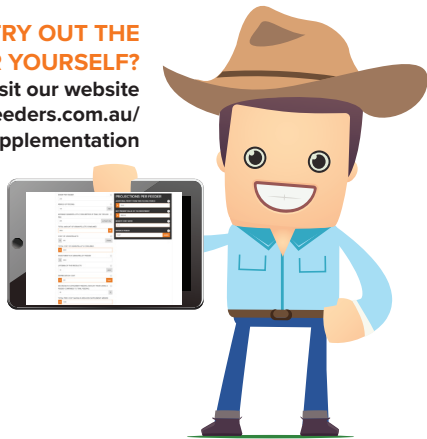
Recommend 200 sheep per feeder

Recommend 40 cattle per feeder

CALCULATING THE RETURN ON INVESTMENT FROM DRY FEED SUPPLEMENTATION

WANTING TO TRY OUT THE CALCULATORS FOR YOURSELF?

Visit our website www.advantagefeeders.com.au/roi/dry-feed-supplementation

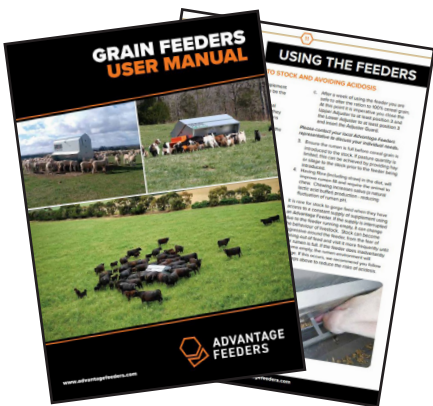


EDUCATING UNTRAINED LIVESTOCK TO THE FEEDER

As explained above, cereal grains are frequently used in this supplementary feeding application. If livestock don't have sufficient training to the feeder and gorge the supplement, this can lead to acidosis and potentially, the fatal.

Acidosis issues can be avoided if untrained livestock are provided a safe feed, like high fibre pellets, in an ad-lib setting to encourage and reward their eating behaviour at the feeder. Once feeding behaviour is consistent, the ration can transition to the cereal grain ration. While this process comes at a cost, time and time again, this has proved to have great results with little cost and minimal rumen upsets.

For the full explanation, see page 11 of the Advantage Feeders User Manual, which can be downloaded from our website.



USER MANUAL

MINIMUM RATIIONS ACHIEVED FROM ADVANTAGE FEEDERS

There are a number of factors that influence the minimum consumption achieved with the 3-way Restriction System. For this application, the most important two factors are:

- Size of the feed ration: The smaller the feed particle size, the more restricted the 3-way Restriction System can be set while allowing an unimpeded feed flow. Please note that any trash in a sample can impede its flow
- Quantity of dry feed on offer: Without full rumen fill, livestock will visit the feeder more regularly and need to achieve rumen fill from the contents of the feeder

SUGGESTED MINIMUM RATIIONS OF DIFFERENT FEEDS			
	Cereal grains (clean sample)	4mm pellets	6mm pellets
Mature sheep	250	400	600
Weaned sheep	150	250	350
Mature cattle	2000	3500	5000
Weaned cattle	1000	1750	2500

*Please note this is a guide only

Experiment rations with different feeds and livestock

- Porter – 1.1kg per day of barley fed to mixed sexed weaner cattle
- Leaver – 200g per day of barley during summer and then 400g per day of barley in autumn fed to mature ewes
- Marshall – 0.8kg per day of sorghum fed to mixed sexed weaner cattle
- Veale – 300g per day of wheat fed to mature ewes



EXPERIMENT: PORTER