

FEEDING EARLY DRY COWS WELL

What do I need to consider when feeding my early dry cows?

The early (sometimes called "far off") dry period is from the day of drying off to the start of the transition period (3 weeks before calving). When there is not much pasture around, it is common to feed these cows pasture hay or other lower quality forage available on farm and save higher quality feed for milkers. Whilst practical, it is critical to ensure the nutritional requirements of dry cows are also being met. Too often, poor quality feed with not enough energy and protein is fed to early dry cows.

Fibre

Moderate to poor quality pasture hay is particularly high in fibre (measured as neutral detergent fibre or NDF), and low in energy and protein. Fibre is the main limiting factor when it comes to a cow's feed intake. The more fibre, the longer it takes to digest in the rumen and the more space it will take up. Cows consuming high fibre feed will therefore eat less than if it were a lower fibre forage source. In addition, forages high in fibre are almost always lower in energy.

Wastage

Wastage rates can be hugely variable for forages such as hay or silage. Generally, the poorer the quality of the forage, the greater the amount that is wasted. Up to 10-50% of hay or silage fed in a typical dry cow paddock may be wasted. This needs to be included when working out how much to feed out to ensure cows' minimum requirements are being met.



Example of high wastage feeding in a paddock

KEY POINTS

Dry cows need more attention than you think – don't underfeed them!

Aim for:

- A daily intake of 2% of bodyweight on a dry matter basis
- 12–14% crude protein (CP)
- Enough energy for maintenance, pregnancy, growth (young cows) and body condition gain (if required)

Starvation ketosis, when dry cows go down, can be a problem in underfed dry cows

How much to feed out?

A good rule of thumb is to aim for cows to consume at least 2% of their bodyweight on a dry matter basis during the early dry period. For example:

Mature cow weight (kg)	Kg of dry matter to be fed (2% of bodyweight)
450	9
550	11
600	12
650	13

EXAMPLE

A 5 x 4 round bale of pasture hay may weigh around 300 kg on a dry matter basis. Let's assume 30% will be wasted. The remaining 200kg will therefore feed around 18 medium framed (550kg) Holstein-Friesian or crossbred dry cows. This assumes no other feed is on offer.

Energy

Energy is essential for maintenance, activity and pregnancy during the dry period. Adding body condition to cows in the early dry period will require additional energy. Young cows are also still growing and will need some extra energy during their first dry period.

Minimum daily energy requirements for dry cows:

Mature cow weight (kg)	Metabolisable energy requirement (megajoules (MJ) per day)				Total ^{1,2}
	Maintenance	Pregnancy	Activity		
450	52	25	8		85
550	60	25	9		95
650	69	25	10		104

1 Assumes no change in body condition during dry period.

2 Account for an extra 10 MJ for young cows (e.g. first lactation) to account for growth during their first dry period.

EXAMPLE CONTINUED

The pasture hay from the example above is poor quality and contains only 8 MJ of metabolisable energy per kg DM. Therefore, even though the cows could be eating up to 2% per day (11kg) the poor quality means they will only be consuming 88 MJ (11kg x 8 MJ = 88 MJ). The other 7 MJ, to make up a total requirement of 95 MJ, will need to be made up elsewhere in the diet.

Other considerations:

The high fibre content of this hay will also mean the cows are unlikely to be able to eat 11kg. Seven or 8 kg is much more likely, before the excessive amounts of fibre start to limit intake. So, without a high energy supplement, these cows are at a high risk of developing problems.

Protein

Dry cows need a minimum of 12% protein (measured as crude protein or CP) in the diet. Young cows (under 3 years old) require a minimum of 13% CP.

Cows are programmed to never compromise on the protein supply to the developing calf. Therefore, underfeeding protein will deplete the cow's protein reserves and result in significant negative impacts on milk yield and fertility in the next lactation.

EXAMPLE CONTINUED

Even very good quality pasture hay will often contain no more than 10% CP. Therefore, the cows in the example above will also need protein to be made up elsewhere in the diet.

What happens if I don't feed my dry cows well?

When the energy and protein requirements of dry cows are not met they are at risk of going down due to a condition called protein-energy malnutrition (sometimes called "starvation ketosis"). Young cows are particularly susceptible because of their higher requirements and will often be the first within a group to go down.



A dry cow with protein-energy malnutrition. Image courtesy of Dr Phil Poulton (Gippsland Veterinary Group)

What you will see:

- One or more pregnant cows going down
- Affected cows still have a good appetite and are bright and alert
- They are often able to walk away when assisted to stand with hip lifters
- Failure to respond to calcium/4-in-1 treatment

Usually no abnormalities are found when cows are examined by a vet, and blood tests are normal. The diagnosis is usually made when the dietary intakes of energy and protein is calculated and found to not meet requirements.

The prognosis is very poor once cows go down, particularly if they are unable to stand or walk for long after being lifted. Therefore, strong consideration should be given to euthanasing the cow. If treatment is attempted, it must involve good nursing care (including placing the cow onto soft bedding), provision of high-quality feed and propylene glycol ("pink drench") supplementation. Inducing affected cows to calve is no longer recommended.

If cows are going down with protein-energy malnutrition, urgent action is required to increase the nutrition of the remaining animals and prevent further cases. This may be as simple as feeding 2-3kg of high energy concentrate either through the dairy or in the paddock. Cows in poor body condition should be separated from the rest of the group and preferentially fed. During severe feed shortages, culling of some animals should also be considered.

CONDITION SCORE 5.5 All breeds

1st observation

Area between tail and pins is slightly sunken to filled in



Image courtesy of DEPI (Vic.)



Image courtesy of DairyNZ

2nd observation

Depression between hip and pin is shallow



Image courtesy of DEPI (Vic.)



Image courtesy of DairyNZ

What if my cows are too skinny or too fat when I dry them off?

To set cows up well for their next lactation, aim to dry off your cows in a body condition score of 5 to 5.5 (8 point scale).

If your cows are too thin at dry-off, you will need to add condition during the first few weeks of the dry period. This will boost milk production and fertility of these cows in the following lactation. In practice, this might be a couple of kg/day of grain or a grain-based concentrate during the early dry period. It is very difficult to put condition on once cows are within 3-4 weeks of calving regardless of the feeding rate, so the early dry period is the last opportunity to reach the target BCS at calving.

Over-conditioned cows should be still be fed at the maintenance levels above. Underfeeding these cows may result in starvation ketosis or other metabolic problems.

Planning for next year

It is much more efficient to add condition to cows in the last 2-3 months of lactation than during the early dry period. The table below shows the extra metabolisable energy (MJ) required per day to add one condition score to a lactating cow compared with a dry cow over a 45-day period. This is in addition to the ME requirements outlined earlier for maintenance, pregnancy and growth.

Mature cow weight (kg)	Additional metabolisable energy (MJ per day) to gain one body condition score over a 45-day period*	
	Lactating cow	Dry cow
400	33	45
550	45	63
650	53	74
750	60	85

*CSIRO (2007) – Nutrient requirements of domesticated ruminants

FOR FURTHER INFORMATION

Visit dairyaustralia.com.au for more information on feeding cows during the transition period (three weeks before calving) and nursing of downer cows