

FACTSHEET

Feeding fodder beet to pregnant ewes

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The fodder beet revolution

As a forage crop, fodder beet has grown in popularity in recent years. With its characteristic high dry matter yields, fodder beet crops can provide feed for a large number of stock within a small area. This also makes fodder beet a low cost per unit of feed crop to grow. While the bulbs have a high energy content, they are low in crude protein. For growing or pregnant animals, protein needs to be supplied to maximise growth rates and to meet the animal's nutritional requirements.

Research findings

A recent study, carried out by AgResearch and funded by Beef + Lamb New Zealand, aimed to identify nutritional consequences of feeding fodder beet on the survival and performance of twin-bearing ewes and their offspring.

The main results from the study are:

- Grazing fodder beet (plus ad-lib access to ryegrass/clover hay) was unable to meet the ewe's crude protein and fibre requirements from mid-pregnancy to lambing.
- Compared to grazing ryegrass, ewes grazing fodder beet (plus ryegrass/clover hay) in mid-to-late pregnancy had lower live weight gains and body condition scores as a result of mobilisation of both muscle and fat stores.
- Compared to lambs born to ewes grazing ryegrass, lambs born to ewes grazing fodder beet had lower birthweights, had lower pre-weaning growth rates, and had increased mortality from pregnancy scanning to weaning (overall lamb

losses of 31% vs. 14%, for fodder beet and ryegrass treatments, respectively).

- Ewes fed fodder beet were iodine deficient and needed treatment.
- Body composition and blood parameters indicated that ewes in the fodder beet compared to ryegrass grazing regime were subject to undernutrition.
- Thermoregulatory capacity of lambs born to ewes in the fodder beet compared to ryegrass grazing regime was also evident 12 hours post-birth with twice as many lambs (15.6 vs 8.4%) at risk of hypothermia which is a leading cause of lamb mortality.
- Subsequent research by AgResearch using a triplet model system indicates the negative effects of feeding fodder beet to ewes in mid- to-late gestation on ewe liveweight and condition and lamb birthweight can be mitigated with additional protein, mineral and fibre supplementation to meet nutritional requirements.

Recommendations from this study:

- Avoid feeding fodder beet as a sole feed source for mid-to-late pregnancy ewes – additional sources of protein and fibre are required to provide a better balance and meet feed requirements.
- Find the balance between per hectare and individual performance. Remember you are feeding future generations.
- Possibly feed fodder beet to ewes earlier in pregnancy, although further investigation of this is needed.

Protein requirements of pregnant ewes

In late pregnancy, twin-bearing ewes require 16-18% crude protein and yet the protein in the bulb only contains around 7-9% crude protein. In absence of a protein-rich supplement, ewes will mobilise their own protein reserves which can result in low birthweight lambs, as seen in the AgResearch study above.

While the leaf on fodder beet crops contains 22-25% crude protein, by the end of winter, most of the leaf has typically disappeared. This means a protein-rich supplement – such as grass or lucerne silage or baleage – is required to meet the nutritional requirements of pregnant ewes grazing fodder beet, particularly in the later stages of pregnancy.

Grazing management: transitioning on and off

As with all diet changes, care is required to appropriately transition animals to a fodder beet diet so that the animal and its rumen microbes can adjust. Ease ewes onto the crop carefully over time and ensure they have access to baleage. Similarly, ewes should be transitioned off fodder beet crops gradually, ideally onto strip-grazed pasture.

Vaccinations critical

It is vital that sheep are vaccinated against Clostridia, Salmonella and Campylobacter diseases before going onto fodder beet.

One-day breaks

Ideally, breaks should be shifted daily to ensure ewes are getting access to protein through the leaf and bulb. With longer breaks, the sheep will only eat the leaf on day one and then spend subsequent days just eating the bulb. This grazing behaviour can cause metabolic disorders such as sleepy sickness.

Selecting varieties

When selecting a fodder beet cultivar for sheep, farmers should be looking for varieties with low dry matter and a high proportion of good quality leaf.

These varieties sit higher out of the ground, making them more accessible to sheep (and young cattle), but most importantly they produce a lot more protein-rich leaf and will hang onto that leaf into winter when managed correctly.



Benefits to the farm system

Fodder beet has the ability to provide high yields of dry matter in winter when pasture growth is poor. It also has competitive costs for establishment, compared to other forage crops and supplementary feeds, consistent quality, and emerging environmental benefits by reducing the amount of nitrogen eaten by ruminants, which is known to be the main driver of nitrogen excreted by the animal. A well-grown fodder beet crop can carry 150-200 ewes/ha and it's the crop's ability to hold a large number of animals for around three months over winter that is its greatest appeal. This frees up feed for other enterprises or allows pasture covers to be built for lambing and lactation.

As long as farmers grow high-yielding crops, they don't require a lot of land for sheep-specific fodder beet crops.



B+LNZ resources

 www.knowledgehub.co.nz

PDF downloads

- Summary of the fodder beet profit partnership experiences resource book
- Winter forage crops: management before grazing fact sheet
- Winter forage crops: management during grazing fact sheet
- Winter forage crops: management after grazing fact sheet
- Innovation farm programme 2012-16 resource book

Podcasts

- 'Break-Feed': Feeding lambs on fodder beet with Scott Linklater

Videos

- Linklater: Fodder beet trial
- Maximise lamb production on fodder beet
- Strategic grazing of winter crops

Acknowledgements and more information

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AgResearch trial published in the Proceedings of New Zealand Society of Animal Production.

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