BARENBRUG

FODDER BEET

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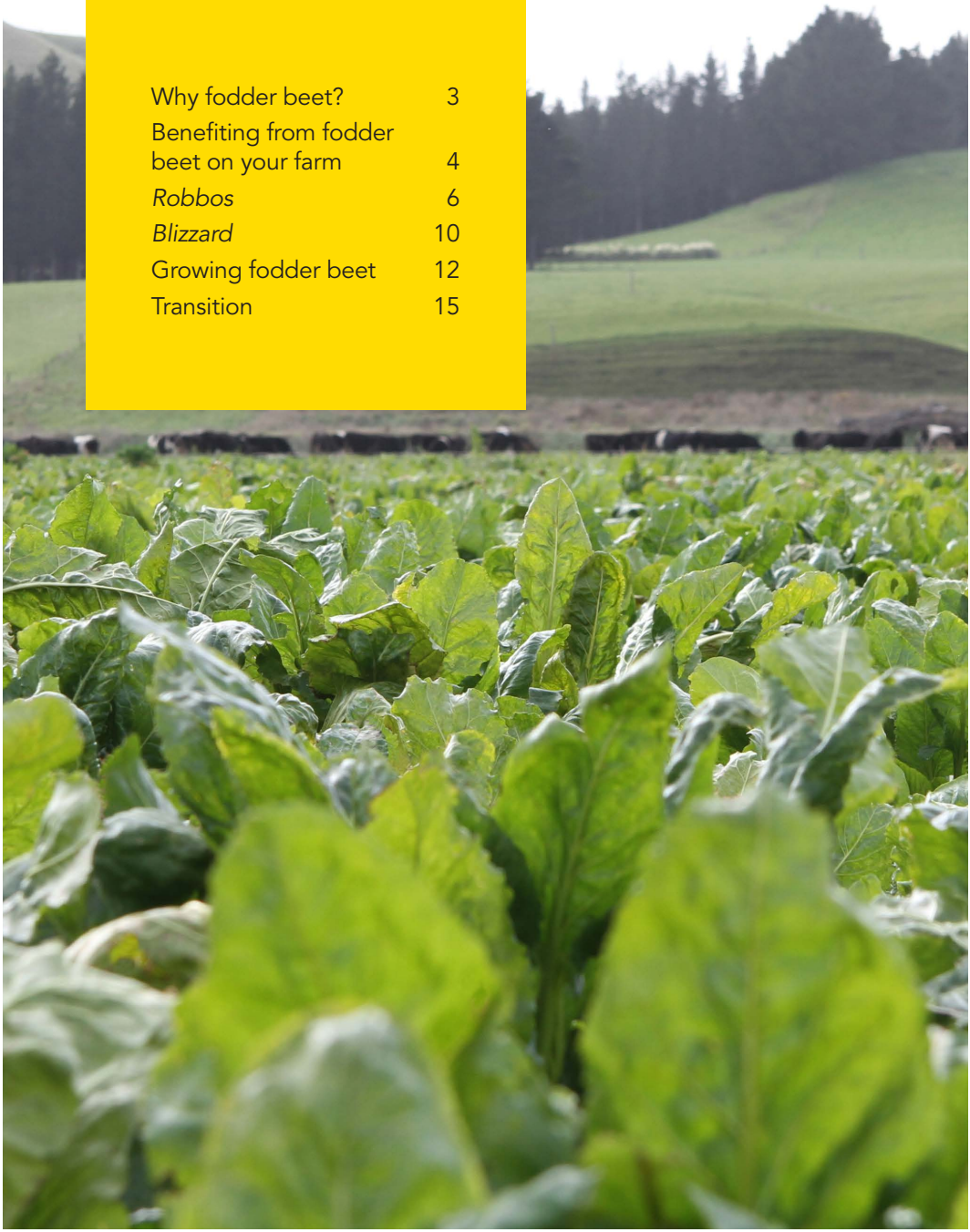


WHY FODDER BEET?

- High yield potential (20 t DM/ha+), so you need less land to winter the same number of animals.
- High ME value (12-13 MJ ME/kg DM) and utilisation (typically 90%), for improved animal performance.
- Relatively low cost c/kg DM at high yields.
- Unaffected by most brassica diseases.
- Versatility.

Fodder beet has a number of features which can benefit dairy, beef, sheep and deer farmers. Whether grazed in situ, or lifted and fed out, the potential yield, feed value, utilisation and economics of this crop stack up well in many different farm systems.

Fodder beet demands good management to reach its potential, and care must be taken with animal feeding. Brassicas like kale and swedes have lower establishment costs, and can be sown on more diverse land classes. If you're new to fodder beet, seek advice from your retailer well before sowing.

BENEFITING FROM FODDER BEET ON YOUR FARM

Fodder beet types

It's important to choose the correct fodder beet variety for your feed requirements and intended use (grazing, lifting or both). Good starting points for this decision are bulb DM content, and whether the crop is only intended to be lifted. Fodder beet can be divided into three groups based on these factors:

Low bulb DM% (12-15%)

Lower yield potential, usually with a high % of bulb above ground (50%+). Only suited to grazing in situ.

Medium-high bulb DM% (16-20%)

Higher yield potential than low DM % types, and can be grazed in situ e.g. Robbos. Some can also be successfully lifted or grazed e.g. Ribondo. Bulbs generally sit 45-50% above ground.

Lifting types

	Oct	Nov	Dec	Jan	Feb
Robbos					
Dairy	Precision sown.				
Beef/Sheep/Deer	Precision sown.				
Blizzard					
Lifting fodder beet	Precision sown.				

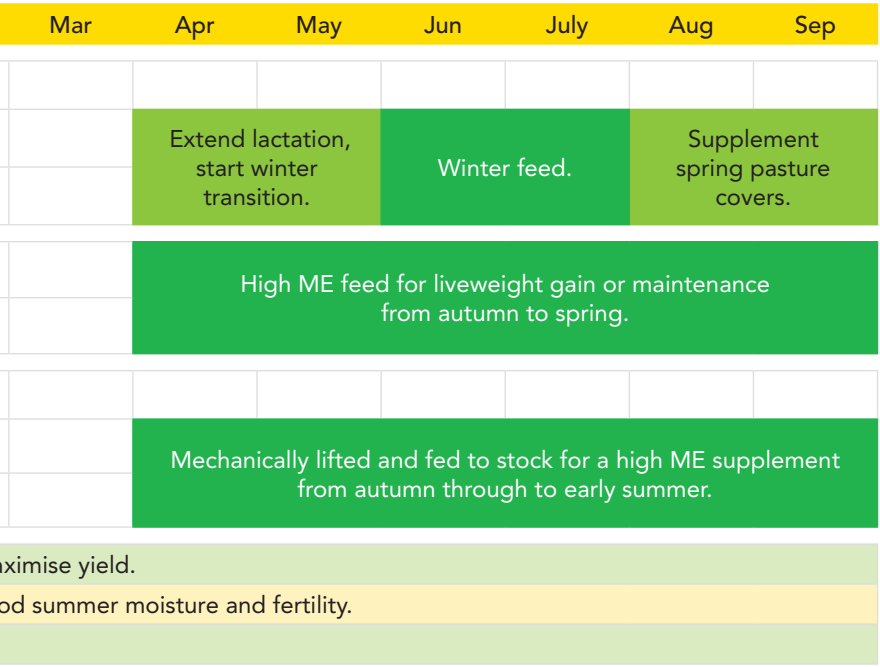
Maturity:	Once herbicide withholdings are met. 170 days+ to ma
Typical Yield	18-24 t DM/ha average. 25 t DM/ha+ possible with go
Sowing rate:	80,000 seeds/ha grazing. 100,000 seeds/ha lifting.

Bulbs sit lower in the ground, and are not suitable for grazing in situ. Very high DM % types (e.g. Blizzard) are best for maximum yield potential and increased bulb storage life.

System fit

Thanks to its ability to grow a large volume of high quality, high utilisation feed that can be used from autumn to spring, fodder beet suits several different farm systems. Its high yield potential also frees up land for other uses. Alternatively you can increase daily allowances for improved liveweight gains.

This crop provides flexible cool season grazing and can also be used to extend dairy cow lactation by either grazing in situ or lifting and feeding to stock on pasture. Successful grazing entails the correct stock transition.



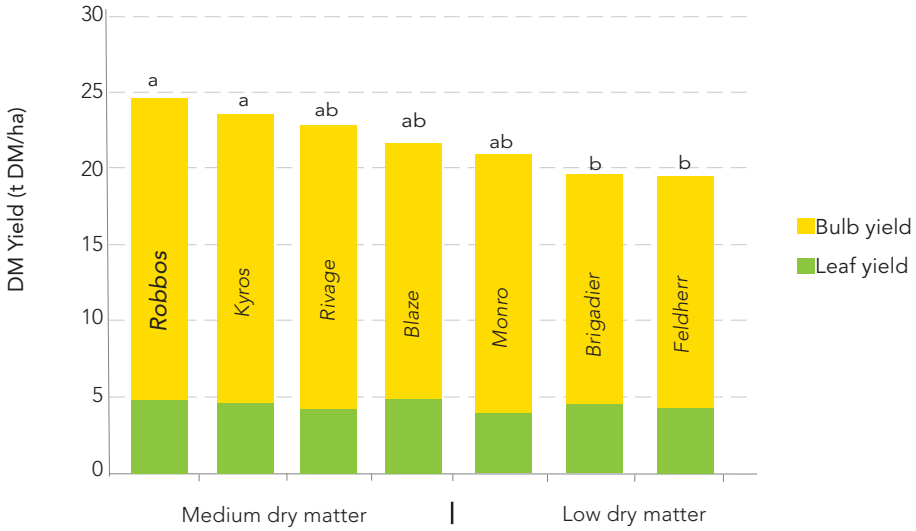
ROBBOS

Robbos is an excellent, consistent performer with more leaf protein for a better balanced diet, coupled with consistent high DM yield.

Best feeding method	Grazing (but can be lifted)
Bulb DM content	Medium (16-18%)
Sowing rate	80,000-100,000 seeds/ha
Typical yield	18-24 t DM/ha; >25 t with summer moisture

Robbos is a true mono-germ variety with DM content of 16-18%, giving it much higher yield potential than lower DM types. With a palatable, relatively soft orange-yellow bulb which sits 45-50% above ground, it is well suited to grazing by all stock types.

Fodder beet DM yields - medium and low drymatter (DM) cultivars



**Combined analysis of 5 trials from 2014-2017, varieties in two or more trials are presented. Cultivars with the same statistical significance letter are not significantly different at the LSD 5% level.*

Higher leaf protein

As fodder beet is so high in carbohydrate, *Robbos*' higher leaf protein, due to its excellent leaf quality, will provide a better-balanced diet for animals. Alternatively, this could be turned into a cost saving of around $1125/ha* by using as less expensive supplement when grazing *Robbos* crops.
Robbos leaf tested at 24.5% protein at the start of winter, versus *Feldherr, Brigadier, Monro* and *SF1505Bv* which averaged 21%.

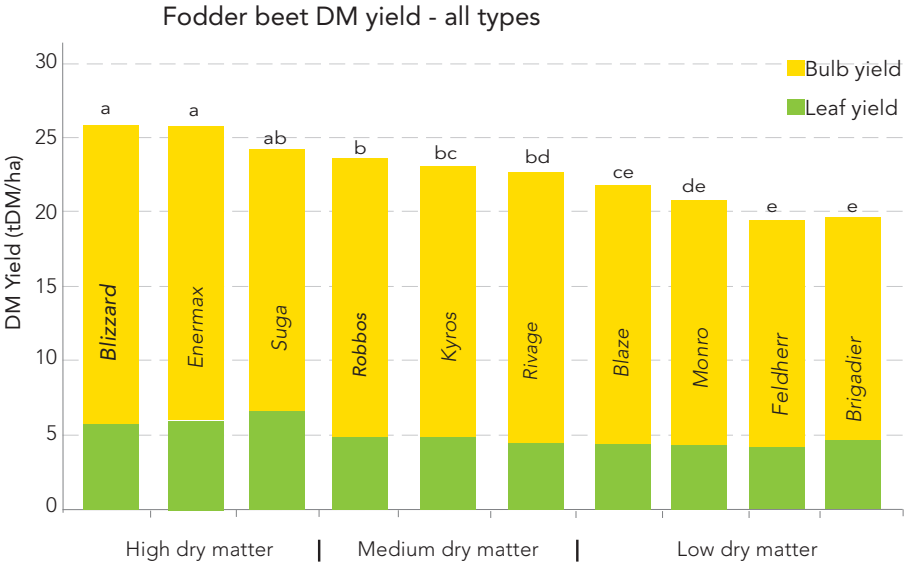
BLIZZARD

Blizzard is a very high yield/ha fodder beet suitable for lifting. It has excellent leaf holding ability and disease resistance, and a 20-22% DM content.

Best feeding method	Lifting only (specialist lifting type)
Bulb DM content	High (20-22%)
Sowing rate	100,000 seeds/ha
Typical yield	20-25 t DM/ha; >26 t with summer moisture

Blizzard is a white lifting fodder beet with high DM content (20-22%). It can produce very high DM yields, and should be used when maximum yield/ha is sought from a lifted crop. Because of its high DM content, *Blizzard* bulbs will store longer in a windrow than lower DM types when leaves are removed.

It has shown excellent leaf holding ability and disease resistance to help maximise yield potential before bulbs are lifted. Grazing *Blizzard* is not advised because a high proportion of the bulb is in the ground, reducing utilisation when fed in situ.



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Storage

The higher DM content of *Blizzard* enables it to be kept for longer in a windrow after being lifted. When leaves are removed. *Blizzard* can be stored for up to 5 months, but bulbs will dry out over time, so DM % may need to be re-tested to allow for accurate feed allocation.

GROWING FODDER BEET - SUMMARY

Planning

Plan ahead
Soil test 6-12 months before sowing. Choose suitable paddocks(s). Correct issues early (e.g. soil pH).

Pre-sowing

Select cultivar fit for use e.g. grazing, lifting or both. Let spray and planting contractors know your plans.

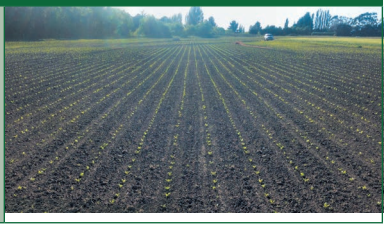
Spray paddock(s) out 6 weeks before sowing. Cultivate to a fine, firm seedbed. Apply and incorporate base fertiliser.

Sowing

Plant at soil temperature > 10°C with a precision planter.

Post-sowing

Apply pre-emergence chemical + well timed post emergence sprays. Check crops weekly for weeds and pests. Apply post emergence N.



SOWING FODDER BEET

Summary

Industry regulations and guidelines, mean many physical features need to be considered in selecting paddocks for winter grazing fodder beet. Planning ahead with these in mind will improve environmental, animal and management outcomes.

The lay of the land

Land contour is a key factor. If the slope of the proposed fodder beet paddock is 10% or more, a resource consent may be required.
Critical sources areas (CSA) must also be evaluated. Where are potential overland water paths, low points and other CSAs in the proposed paddock? Can these be mitigated by planting other species, or restricting stock access?

Waterways

If crop is sown close to a waterway, a consent may be required. Check current rules. Best practice is to create buffer areas to reduce potential sediment and nutrient run-off during grazing.

Sowing direction

Can the crop be drilled easily across slopes or parallel to CSAs or waterways to reduce run-off risk during grazing?

Soil type

Ideally crop paddocks will comprise soils with less risk of pugging damage in winter. This reduces risk of excess mud during grazing, and allows faster re-sowing after grazing, e.g. catch crops.

Shelter, water & space

Animals on crop become susceptible to cold stress in cold, wet, windy conditions. Access to good shelter is critical. Stock must also have access at all times adequate supplies of clean fresh water, and have dry space for lying time (8 hours daily).

Adverse weather events

Ensure there is an adverse weather grazing plan. This could entail utilising a winter crop paddock that is set up for such conditions, or ear-marking other areas of the farm to move stock onto while an adverse weather event is occurring.

For more specific regional information, go to DairyNZ, Beef and Lamb, or your local Regional Council website.

SOIL FERTILITY

Summary

Fodder beet requires certain nutrient levels to yield well.

Soil test paddock(s) 6-12 months before planting to 150 mm depth. This allows time for pH or nutrient issues to be addressed. All base fertiliser should be applied prior to planting and incorporated.

pH

The soil pH should ideally be 6.0-6.3. It can take 6 months or more for lime to act (depending on incorporation, weather, and the type of lime used), so apply this as early as possible. As a rule of thumb, 1 t/ha lime raises the pH by 0.1.

Phosphorus

Phosphorus is an essential element for plant establishment and overall yield. Target Olsen P level for fodder beet is 15 or higher. Typically crops benefit from applications of 25-50 kg P/ha as a base dressing.

Nitrogen

Before cultivation, soil test to 15 cm deep for anaerobically mineralisable nitrogen (AMN). As a guide:

- If AMN >80 ug/g, 50 kg N/ha is required.
- If AMN <80 ug/g, up to 100 kg N/ha may be required.

Research has shown there is no yield advantage to applying more than 100 kg N/ha. Timing of N application is important - 50% at sowing and 50% before canopy closure.

Potassium

Fodder beet requires soil potassium quick test levels of 5 or higher. As a rule of thumb, if the soil test result is lower than 3, apply 100 kg K/ha. If it is 3-5, apply 50 kg K/ha.

Sulphur

If the sulphur quick test result is below 5, apply at sowing.

Magnesium

Recommended quick test soil levels for fodder beet are 8+. If magnesium is required apply 25-30 kg Mg/ha as a base fertiliser.

Sodium

If quick test soil values are less than 5, apply 150 kg NaCl/ha as a base fertiliser.

Boron

Boron is essential for root crop development. If soil test result less than 1 parts per million (ppm), include 1.5 kg B/ha in the starter fertiliser, e.g. granular boron (15% B) at a rate of 10 kg/ha.

ESTABLISHMENT TECHNIQUES

Summary

Fodder beet is a specialist crop which is more intensive and expensive to grow than other forage crops.

Fodder beet can produce high DM yields, but yields vary widely. With good establishment techniques, management and moisture it can produce 30 t DM/ha, with typical yields of 18- 24 t DM/ha. In summer dry situations yields are lower.

Pre-sowing

Fodder beet is sown at a very low sowing rate compared to other forage crops, so a fine, even, weed free seedbed is essential for optimal germination. Fodder beet is particularly vulnerable to dry conditions and competition from weeds during establishment. A good way to reduce this risk is to use the 'stale seedbed' technique i.e. prepare the seedbed 4-6 weeks before sowing.

To achieve a stale seedbed, spray out the selected paddock(s) with appropriate herbicide/s ideally 6 weeks before planting. This gives time to implement a double spray programme and retains soil moisture.

Paddocks are typically ploughed to bury existing plant material and break up any compaction or sub-soil pans, then surface cultivated to produce a fine, even seedbed. A second non residual weed spray (e.g. glyphosate) can then be applied just prior to sowing, or included in the pre-emergence application just after sowing.

Sowing date

This is location and season dependent, but in general October to late November is recommended, once soil temperatures are consistently above 10°C. Sowing too early (< 10°C) can result in uneven germination, making spray timings difficult. It can also risk vernalisation, causing plants to flower prematurely in late summer, known as 'bolting'. Later sowing may jeopardize germination rate (due to lack of soil moisture) and shortens the growing season, so reducing yield potential.

Precision sowing

Precision sowing is recommended for fodder beet. This ensures seeds are planted with appropriate spacings, enabling each bulb to grow to its potential. Seed should be sown 15-20 mm deep, with rows typically 500 mm apart and 250 mm between plants in the rows (depending on sowing rate and planter row spacing). The drilling speed needs to be slow (5 kph) to ensure accurate seed placement. How the crop is to be fed should determine the planting layout.

Precision sowing (cont'd)

Strip tillage is gaining popularity for fodder beet, with the aim of reducing soil disturbance, weed germination and wind damage to establishing fodder beet plant.

Fodder beet is normally sown at 80,000 seeds/ha for grazing, or 100,000 seeds/ha for lifting. This higher rate will restrict bulb size producing a more uniform crop which is easier to harvest.

Rolling the paddock immediately after drilling with a Cambridge roller can help maximise seed to soil contact giving a more even germination, and increasing the effectiveness of pre-emergence herbicide.

Weed/pest control

As fodder beet is sown at a very low plant population, and seedlings are slow to establish, the crop is very susceptible to weed competition during establishment. The stale seedbed method will get the crop off to a good start, however it alone rarely provides enough weed control.

The first herbicide is typically pre-emergence, applied immediately after sowing. An insecticide can also be incorporated. This should be followed by selective post-emergence herbicides as required until the crop reaches canopy closure. Seek professional advice on chemical choice, rates and timing.

Fodder beet is very resistant to most brassica pests, except for Nysius, slugs and springtails which are typically found at drilling. See page 208, 191 and 209 for more information on control of these.

Bolters

A fodder beet crop will always have a small population of plants which flower prematurely (known as bolters). These should be removed during January or February before they drop seed in the paddock. If left uncontrolled, bolters will each drop up to 1500 seeds which can survive in the soil for many years, and germinate as the soil is disturbed. These areas can become thick with weed beet in future years, depressing future crop yields. Bolters can be reduced by not sowing fodder beet too early

If the sulphur quick test result is below 5, apply at sowing.

ASSESSING FODDER BEET CROP YIELD

Summary

Knowing the crop yield prior to the start of feeding is essential to ensure the correct daily DM allowance and transition. Measuring DM % is recommended as it varies widely between paddocks. Estimating it can result in greatly under or overestimating the crop yield.

Crop allocation

For transitioning, assess crop yield at the end of the paddock where livestock will start grazing, because correct crop allocation is paramount during this period.

How to assess yield

- Determine the crop row spacing: Measure across 10 rows of the crop from the centre of the first row to centre of row 10; divide the distance by 9.
- Take at least 5 separate yield samples that are representative of the area being measured.
- For each yield sample: Sample a 2 m^2 area. For a 50 cm row spacing remove 4 m of a row; or 4.44 m for an 45 cm row spacing.
- Measure fresh-weight: Scrape any soil from the bulbs by scraping with a blade, separate the leaf and bulb by cutting as close to the crown of the bulb as possible, and weigh the leaf and bulb separately.
- Collect DM sample: Select approximately 300 g of representative leaf from multiple plants and place in a sealed, airtight plastic bag. Use a corer to sample through at least 12 separate bulbs and place cores into a separate sealed, airtight plastic bag. Send samples to lab for DM determination.

Example of calculating yield

Calculate the DM yield for each separate sample, and plant part, then average as in the following example. The DM % comes from the lab, from the DM samples sent in.

Fresh weight	x	DM%	
30kg bulb	x	0.14 DM	= 4.2 kg DM
6 kg leaf	x	0.09 DM	= 0.54 kg DM
Add the average bulb and leaf DM yield together;			
4.2 kg DM	+	0.54 kg DM	= 4.74 kg DM/2m^2
Convert to ha to determine the kg DM/ha yield:			
4.74 kg DM/2m^2	x	5000	= 23700 kg DM/ha or 23.7 t DM/ha.

ENVIRONMENTAL CONSIDERATIONS

Summary

Fodder beet can have both positive and negative impacts on the environment, and these need to be weighed carefully depending on individual farm systems. Research into environmental outcomes is still evolving.

Impacts

Positives	Negatives
Low crude protein (N) feed. Reduces urinary N excretion by animals. Lower nitrate leaching per ha than kale observed in grazing trials.	Potential soil compaction under grazing due to higher stocking rates. Remedial cultivation may be required before sowing subsequent new pasture or crop.
Established crops do not need to be sprayed for white butterfly or diamond back moth (less insecticide).	Full cultivation required for best fodder beet establishment. Associated risks include loss of soil N and CO^2, topsoil disturbance, erosion and run off.
Catch crops (e.g. oats, Italian/annual ryegrass) sown immediately post autumn grazing soak up excess soil N and mitigate leaching.	Poorly planned and managed winter grazing can cause of loss of sediment and nutrients to waterways.
High DM% bulbs can be lifted and stored – or left in the ground and lifted when required – for feeding out on pads or in wintering barns. Feed quality remains high; urine is captured away from soils.	Generally a higher number of herbicide applications is required.

FODDER BEET & ANIMAL HEALTH

Summary

Fodder beet bulbs are very high in water soluble carbohydrate (WSC) and low in protein. This can create animal health issues including rumen acidosis.

Fodder beet in the diet

The daily allocation of fodder beet fed will depend on the stock class, age, desired LWG and the amount of crop available. After transitioning stock onto fodder beet it is recommended to continue feeding ≥30% of the animals' diet as high quality supplement to minimise potential animal health issues. However, it is acknowledged that experienced farmers are successfully operating systems at higher feeding levels.

Where high levels of fodder beet are fed over a 24 hour grazing period, the risk of animal health effects (rumen acidosis) are reduced, as stock intake rates are much slower than when feeding over a 4-5 hour period.

High utilisation rates (e.g. 90%) can be achieved on fodder beet, even with high crop allocation levels, as the feed quality of the whole plant is high.

Low levels of fodder beet in the diet are sometimes targeted due to performance levels required (e.g. maintenance feeding), or when fodder beet does not meet the nutritional needs of the stock. This is the case for lactating dairy cows, where it is suggested that no more than 4 kg DM/cow/day is fed, due to low protein levels in fodder beet.

Feeding supplement

Fodder beet is low in fibre (NDF) and crude protein (CP), and high in water soluble carbohydrate (WSC). This means animals can require more fibre and protein than when grazing brassicas, depending on stock type, age and LWG expectations.

Normally it is best to supplement stock on fodder beet with good quality pasture silage because it contains both fibre and CP, rather than supplements with a low CP content (straw, cereal silage), particularly for young growing animals. A feed test will help farmers choose the right supplement for animals grazing fodder beet.

Significantly changing livestock diet raises health risks as animals adjust to new feed. This is particularly so for fodder beet due to the risk of rumen acidosis.

FODDER BEET NUTRITION

Feed value

Nutritional composition of fodder beet (FB) versus brassica.

	DM %	CP%	NDF%	WSC g/kg DM
FB average	14-20	11-13	11-16	500-700
FB leaves	10-15	19-23	30	100-120
FB bulb (low DM variety)	10-13	7-8	13-15	500-650
FB bulb (high DM variety)	15-20	7-8	13-15	500-700
Swedes	9-12	12-20	16-30	450-500
Kale	11-15	12-18	20-35	350-400

Rumen acidosis

Rumen acidosis is caused by animals eating diets high in water soluble carbohydrates (WSC) or starch too quickly.

Acidosis is most likely in hungry animals, during the transition period, or where crop allowance is suddenly increased (e.g. cows break out, or break size is mistakenly increased).

With acidosis, rapid fermentation of the WSC causes rumen pH to drop rapidly, often below pH 5.5. The change in acidity alters the rumen flora, with acid-producing bacteria taking over, exacerbating the problem. Low rumen pH can result in rumen stasis (no rumen contractions), reduced fibre digestion and depressed appetite, all of which affect production. In severe cases acidosis can lead to death.

Visual symptoms of acute rumen acidosis in cattle are:

- Scouring
- Reduced appetite
- Loss of body condition
- Bloating
- Dehydration
- Laminitis
- Rumenitis
- Milk fever

Clinical rumen acidosis is usually only the tip of the iceberg; with every clinical case sub-clinical cases are likely to go unnoticed. Reduce this risk through proper transition, and avoid any sudden increases in daily intake.

TRANSITIONING STOCK ONTO FODDER BEET

Summary

Transitioning stock well onto fodder beet can take up to 3 weeks and requires careful management. This information is a guide. Seek further advice if new to grazing fodder beet.

Transition planning

How the crop is to be fed should determine the planting layout. Provide good access for stock and allow enough room for the entire mob to get on the crop, but without over-allocating the amount of feed. This can be a challenge in very high yielding crops in the early stages of transition.

One way to achieve this is to plant a greenfeed crop in a headland (e.g. 6 m wide) parallel to the rows of fodder beet. The greenfeed can then be used during transition as an alternative feed source, which is not high in readily fermentable carbohydrate.Alternatively fodder beet in the headland can be lifted mechanically or manually and fed to the animals at a low level to start transition. Both options can ensure enough space is available for stock in the fodder beet paddock to help manage transition.

Typically, grazing occurs parallel to the rows to make allocation of feed easier. Long narrow breaks, where animals are eating under the wire, are best as this helps ensure that animals have equal access to the crop and none is pushed to the back. It also improves crop utilisation, with less treading of the crop.

Transition in practice

Dairy cows

For mature dairy cows it is advised to start transition by allocating 1-2 kg DM/day per animal and gradually increase the amount of fodder beet offered by 1 kg DM every 2 days until the desired allocation is reached. This will take 14-21 days depending on the final allocation. In early transition a high proportion of supplement will be required, and this will decrease over the transition period as fodder beet intake increases. Supplement should be fed in the three hours before fodder beet to ensure good gut fill. This will slow the rate of fodder beet intake and minimise gorging.

For the first days of transition fodder beet is often lifted and fed to stock (e.g. on grazed pasture) as it is hard to ensure very low intake levels of all stock when break feeding, because some dominant cows may gorge themselves.

During this initial stage close monitoring is required. Ensure stock are eating everything allocated to them, and do not let a bank of uneaten bulbs accumulate in previous breaks. Individual animals transition at different rates, so even with a good transition process rumen acidosis can still occur in some stock. If stock show any signs of acidosis remove them from the crop straight away. Drenching with sodium bicarbonate (baking soda) can help increase the rumen pH. If animals are off the crop for more than 2 days re-transitioning will be required, the speed of which will be determined by how much they were being offered previously.

TRANSITIONING STOCK ONTO FODDER BEET

Transition in practice (cont'd)

R2 heifers & steers

For R2 heifers and steers it is advised to start by allocating 1 kg DM/day per animal, and gradually increase allowance as outlined above for mixed aged cows.

R1 heifers & steers

Transition timing for R1 heifers and steers is the same (14-21 days), however feed quantities are halved. It is advised to start by allocating 0.5 kg DM/animal/day on day 1, then increase by 0.5 kg DM every 2 days until the desired allocation is reached. All R1s should be vaccinated for clostridial diseases (e.g. 5 in 1) before going onto fodder beet.Young growing animals have a higher demand for protein, so this should be fed as a supplement to calves grazing fodder beet (e.g. high quality grass silage).

Deer & beef cattle

Deer and beef cattle which are to be ad lib fed on fodder beet are less susceptible to rumen acidosis once transitioned because they graze over a 24 hour period, rather than eating an allocation of fodder beet in 4-5 hours. However, deer and beef cattle do require a 14-21 day transition onto fodder beet.

Sheep

Sheep do not require the full 14-21 day transition phase. They can be satisfactorily transitioned by giving them access to fodder beet for a few hours each day for 3-4 days and then locking them on the crop. Ensure all sheep are fully vaccinated for clostridial diseases (e.g. 5 in 1) before grazing fodder beet.

Young sheep

For animals new to fodder beet, particularly younger stock, transitioning may require the bulbs to be chopped or smashed before the stock will try them. This can be done with a Cambridge roller. Fodder beet is not typically fed to lambs.

Plan ahead

Winter grazing practices are changing in NZ farming, for both environmental and animal welfare reasons. Before sowing, check paddock contour, size, slope, critical source areas (CSAs), soil type, stock access, water access, grazing pattern and nutrient loss buffer zones.

For more detail on best practice winter grazing, visit www.dairynz.co.nz, wwwbeefandlamb.co.nz or local council websites.

WINTER FEED CONSIDERATIONS

Summary

When winter pasture growth falls short of what is needed to keep livestock well-fed, feed must be transferred from times when supply exceeds animal demand.

This process entails considering many factors at all levels of the farm business, from day to day management to the overall farm system.

Crop type

Swedes, kale, fodder beet, rape and turnips are commonly used to supply high volumes of winter feed when animal demand exceeds pasture supply. All these crops have pros and cons which are covered in other sections of this Manual.

Deciding which crop is sown is based on several factors including the local environment; availability of reliable summer moisture (either natural or via irrigation); aims of the winter feed; prevalence of snow, and targeted animal performance, to name a few.

On-farm of off-farm

With increasing regulations around wintering stock on crops, it may be preferable to move stock to land better suited to winter crops than the home farm. For example, this might mean soils that are less prone to pugging, with less potential for sediment run-off, and paddocks with more shelter than can be provided on-farm. Such a decision may provide financial, animal health, soil quality and environmental benefits.

All grass

This choice is strongly influenced by local winter pasture growth rates. If there is little winter growth, supplements and sacrifice paddocks must be used to ensure two things – enough feed to achieve desired stock performance through winter, and adequate pasture and other feed to meet the demands of lambing and/or calving.

All grass wintering is an ideal way of limiting mud, sediment run-off and the issue of bare paddocks after grazing a winter crop (prior to establishment of the following crop or new pasture).

There are two issues, however:

1. Available yield: limited to approximately 2.5-3 t DM/ha maximum before perennial pasture gets too long, and starts rotting underneath (maximum 3.5-4 t DM/ha for annual ryegrass). Overlong grass limits utilisation, feed quality and regrowth. So compared to 12 t DM/ha for kale, for example, all-grass wintering requires 4-5 times the grazing area.
2. Early spring covers: will be much lower at calving/lambing, because such a large portion of the farm has been grazed in winter.

WINTER FEED CONSIDERATIONS

All grass (cont'd)

The consequence of these two issues is typically a less profitable system because it necessitates lower stocking rates (with less potential income); more supplement made and fed (increasing cost), and greater restrictions either side of winter (e.g. calving/lambing later, or drying off/selling lambs earlier).

Animal monitioring

Ensuring all stock are healthy, with access to water; a full, balanced diet; shelter, and dry areas for lying is a vital part of successful wintering.

Catch crops

Following crop grazing, a crop such as cereals can be sown to soak up nutrients before they are lost – these are catch crops.

Adding catch crops to the rotation may mean slight changes to the farm system to maximise their financial and environmental value. They replace what historically would be bare paddocks and the feed they grow will need to be utilised either via grazing or machine harvesting.

Transition requirements

When changing from one diet to another, all ruminants require a transition time to ensure they can properly digest and utilise the new feed without adverse health effects.

Animals have different sensitivities to different winter crops in this regard – fodder beet for example has a very controlled transition period, while the transition to brassicas is less controlled (but still required).

Making sure a farmer has the ability and/or desire to complete the required transition must be taken into account when planning winter feed decisions.

Adverse events

These are periods of unusually high rainfall, snowfall, wind and/or extreme cold that fall outside what is considered 'normal' for the local area. Stock need to be more carefully looked after in these events, with extra shelter, water and feed because their maintenance requirements increase in such conditions.

A designated 'adverse events' paddock or paddocks may be necessary, where animals can either graze feed growing in situ or can be fed supplements.

Wintering plan

A specific wintering plan is now required for all winter crops, including an animal wellness plan.

Staff wellness

Winter is often a tough time of year. Looking after farm staff is essential for the sake of their health and productivity – both physical and mental. Sharing details, objectives and expectations of the wintering plan will help ensure understanding and buy-in.

Communication

Where two or more people involved in crop decisions, it's important all parties understand what the desired outcome is, and what expectations need to be met.

On-off grazing

This is a very effective tool to reduce pugging damage and stock health issues caused by wet weather. In normal winter conditions, cows will eat their daily intake allowance in 6-8 hours so once that is achieved they can be removed to a better area.

Having suitable areas to stand stock off into is important – these can include races, sacrifice paddocks, and yards (ensure that they are stone-free to minimise lameness). Always check local council regulations that apply to stand-off areas.

Break sizes

This decision may vary depending on the weather, and animal performance goals over the winter feeding period. Larger break sizes (2-3 days) will reduce pugging risk, but generally reduce crop utilisation (particularly with cattle) because of preferential grazing.

Larger breaks could be an option during adverse weather events to reduce pugging.

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