

Out-wintering on brassicas

Kale, turnips, swedes, stubble turnips and forage rape can be very valuable in out-wintering dry cows and youngstock.

Although studies suggest brassica crops may cost more to produce and feed than ad-lib grass silage, total wintering costs tend to be much lower when the capital costs of both systems are included.

Forage brassicas do, however, require careful integration into the forage and overall farm management system if they are to be utilised to greatest effect (Table 1).

Table 1: Typical forage brassica systems

Time	Event
Kale-based systems	
May/June	Graze or take 1st cut silage
late June/July	Direct drill kale
Nov-April	Out-winter stock on kale grazing
April	Undersow grass in spring barley or sow maize.*
Aug-Oct	Harvest wholecrop cereal; spring barley or forage maize.
Swede/turnip-based systems	
April/May	Graze or take 1st cut silage
late May/June	Sow swedes/turnips.
Nov-April	Out-winter stock on swede/turnip grazing.
April	Undersow grass in spring barley or sow maize.*
Aug-Oct	Harvest wholecrop cereal; spring barley or forage maize.
Forage rape-based systems	
April-Aug	Graze or take silage cuts.
July-Aug	Direct drill forage rape.
Nov-April	Out-winter stock on forage rape grazing.

April	Undersow grass in spring barley or sow maize.*
Aug-Oct	Harvest wholecrop cereal; spring barley or forage maize.
Stubble turnip-based systems	
April-Aug	Graze, take silage cuts or grow cereal crop.
Early Aug	Sow stubble turnips.
Nov-April	Out-winter stock on stubble turnip grazing.
April	Undersow grass in spring barley or sow maize.*
Aug-Oct	Harvest wholecrop cereal; spring barley or forage maize.

* Where maize is grown it can be followed by an undersown cereal or direct grass reseed the following spring.

Planning for forage brassicas

To minimise disease risks brassica crops should not be continuously grown on the same area, a gap of 4-5 years being advisable between crops in drier areas of the UK and 7-8 years in wetter areas.

Earlier sowing leads to higher yields in both leafy and root brassica crops, with studies showing a yield response to increased N in kale crops but no marked improvement with root brassicas.

Marrowstem kale varieties are more suitable for grazing pre-Christmas before severe frosts or snows occur, while the more frost-tolerant thousand-head varieties of kale can be used throughout the winter.

Although studies comparing direct drilling with drilling after ploughing and cultivation have shown no consistent yield advantages to either technique, direct drilling improves soil moisture retention as well as producing a firmer, less poaching-prone surface for grazing.

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In all cases, brassica crops should be direct drilled into clean, open ground to aid germination.

If poaching damage is to be avoided, the selection of suitable sites for growing and grazing brassicas is vital.

As well as having a shallow slope, fields with sandy soils and good drainage characteristics are essential.

It is also important to:

- Minimise vehicular access and traffic
- Use grass strips as tramways and buffers around fields
- Avoid soil disturbance with reduced tillage (minimal cultivation) techniques
- Apply N fertiliser strategically to obtain efficient plant uptake
- Put all extra feed required (straw and silage bales) onto the field before the winter
- Provide grass runback areas to give stock somewhere dry to lie down and shelter
- Avoid overstocking any part of the ground at any time.

Planning and management should always, of course, minimise the risk of watercourse pollution and nitrate leaching.

Out-wintering cows on forage brassicas is not for everyone and fundamentally depends on having suitable ground.

Assuming soil and other conditions allow, brassica-based out-wintering is most likely to be valuable on units where housing space is limited.

The available indoor space should be used for higher producing cows and those in the poorest condition, with only stock in the best body condition kept outside.

Managing forage brassica grazing

Giving cattle access to a relatively small area of fresh crop each day with an electric fence invariably leads to the most efficient utilisation of grazed brassicas.

Farm experience in New Zealand provides the following practical management tips:

- Use long narrow breaks to give all cows access to the crop
- Calculate daily DM requirements and allocate the crop based on actual DM supplied
- Appreciate that cows may take up to 3 weeks to adapt to swedes in particular
- Only allow 'full' cows onto the crop initially and then only for short periods
- Never feed 100% brassicas, even for short periods
- Include a pasture runback area and supplement with minerals
- Identify any cows that will not eat brassicas and manage them separately
- Do not feed 'close-to' calving cows on brassica crops.

Offering the same quantity of fresh brassicas daily to the cattle should ensure the nutritional quality of the diet remains relatively stable.

However, in adverse weather conditions low intakes or the rejection of part of the brassica portion of the diet due to soil contamination can create problems.

Grass grown in late summer may be 'saved' for use alongside brassicas during winter grazing periods rather than being conserved as grass silage.

While this strategy may be preferable to relying on extended grass growth into the winter in some cases, it will be unnecessary in warmer winters where grass continues to grow steadily

Ensuring adequate nutrition

Both leafy and root brassicas are palatable and nutritious feeds.

As concentrated sources of ME and crude protein (mainly RDP), they should be seen more as wet concentrates than wet forages, introduced into the diet slowly and used accordingly.

Forage brassicas are generally lacking in structural fibre and should be supplemented with a good source of coarse fibre to maintain rumen function.

They tend to have moderate to low phosphorus and magnesium contents and can be low in the trace elements, copper, iodine, selenium, manganese, zinc and cobalt.

At the same time, calcium and potassium contents are high, so particular care is likely to be necessary in dry cow feeding – especially where cows are near to calving.

Experience suggests the following guidelines for out-wintering:

- Limit brassica intakes to approximately 50% of the total DM
- Make additional fibrous feeds (straw, silage, hay, grazing) available ad lib
- Always make minerals available
- Utilise the maximum feed intake capacity of the animal
- Supplement growing heifers with silage rather than straw for adequate daily liveweight gains.

Out-wintered cattle have a higher energy requirement than housed stock, so at least 15% more feed energy may be required.

Cows should be changed from brassica-based diets three weeks before calving and cows and in-calf heifers close to calving should be moved inside.

Ensuring health and welfare

It is important to appreciate that out-wintered stock present more of a husbandry challenge than those kept inside, where there are better opportunities for observing, handling and treating cattle.

This makes the early identification and treatment of health problems particularly vital.

Red Tractor Farm Assurance Dairy Scheme stipulate that out-wintered cattle must have access to a sheltered and well-drained lying area that is free from a build-up of accumulated dung and dirt.

Provision must be made to inspect such cattle in the hours of darkness and there needs to be a contingency plan outlining how the cattle will be managed in extreme weather conditions.

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The welfare standards also demand suitable provision of feed and water, with additional feeds presented in troughs or feeders to ensure it remains clean and excessive poaching or dung accumulation in feeding areas prevented.

Only cows and heifers with a good Body Condition Score should be considered for out-wintering, with dry cows condition scored once a week or fortnight, as a rule, to ensure any condition loss is within acceptable levels.

Weighing growing heifers monthly will, similarly, provide a good check on their performance and allow supplementation to be adjusted to maintain the required growth rates.

Prior to calving, out-wintered dry cows and in-calf heifers should be removed to a drier, cleaner and warmer area to minimise the risk of disease leading to a greater risk of calf mortality.

Studies have shown that when cows have to walk through muddy ground there is an increased risk of lameness and udder problems.

In an out-wintering system the main types of lameness are likely to be foul-in-the foot, sole ulcers, white-line disease and stones in the feet.

Keeping feet as dry and clean as possible is important to maintain the hardness of the hoof, with foot-trimming prior to the start of the out-wintering period helping to minimise the risk of lameness.