

The background features a gradient from dark blue on the left to light green on the right, with several thin, white, wavy lines curving across the top.

Using brassicas for Better Returns

Brassicas

- Brassica crops can provide nutritious, cost-effective feeds for beef cattle and sheep
- They can increase output per hectare, in terms of dry matter (DM) and animal performance
- Feed costs can be reduced by grazing in situ as no machinery is needed and high yields can be produced quickly
- Crops can be used for out-wintering
- They can provide a good break crop in both arable and grazing systems



Bridging the forage gap

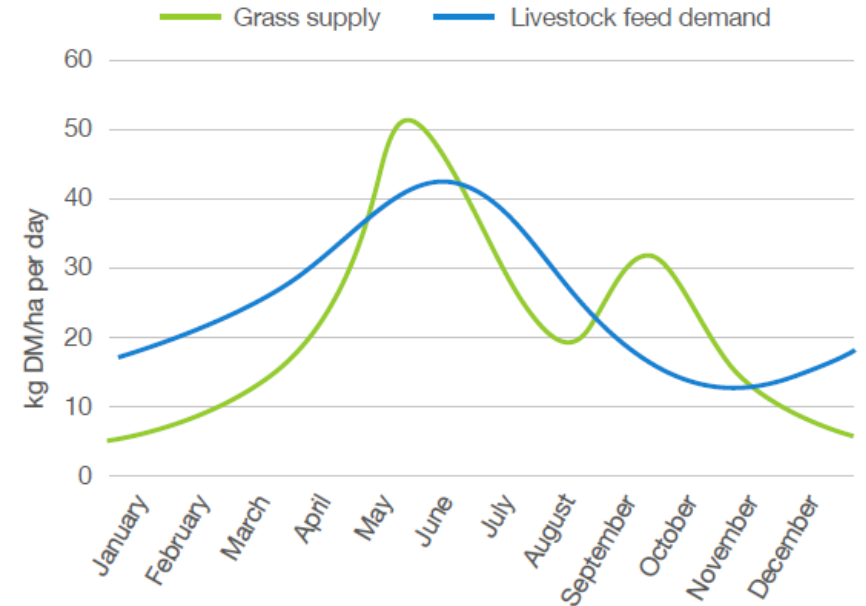
Brassicas can bridge the forage gap (when supply is below demand)

Take a whole-farm approach and consider:

- What are the total feed requirements?
- How are these requirements met?
- What opportunities do brassicas offer?
- How much feed is needed from brassicas?

Brassicas include:

- Kale, grazing turnips, stubble turnips and rape – suitable for all beef cattle and sheep
- Swedes – only recommended for mature cattle
- Fodder beet can be grazed in situ or lifted – beef cattle and sheep



Do not feed pregnant cows on brassicas and ewes on root crops will need supplementation

Crop selection



Before buying, research varieties for:

- Yield
- Regrowth ability
- Winter hardiness
- Digestibility of stems
- Disease resistance
- Leaf-to-stem ratio
- Growing height
- Versatility

The chosen crop depends on:

- When the crop will be fed
- The number and type of stock required to feed
- When the land intended for growing is vacant

Where to grow forage brassicas



Field choice and preparation:

- Choose fields where grass production is failing
- Soil must be free draining and dry quickly after rain
- Ideal sites offer shelter for livestock and have sufficient air flow to allow fields to dry
- Consider how the field will be fenced, water access and where to position a run-back
- Avoid steep fields or those close to watercourses
- Soil test 8 weeks before sowing (optimum pH – 5.8-6.2)
- Apply manures, fertilizer and lime according to soil test results
- Control weeds before sowing

How to grow brassica crops for grazing



Sowing

- Early sowing leads to higher yields. Although, crops can become less digestible as they mature so not too early
- Can be broadcast or direct drilled
- Drill into clean, open ground when soil temperatures are 10°C and rising. Sow to a maximum depth of 10mm and roll after sowing

Pest control

- Treated seed can help protect seed against insects and disease
- Control is most cost-effective if problems are spotted early and seek qualified advice
- Control weeds in previous crop or apply a pre-emergence herbicide

How to grow brassica crops for grazing

Fertiliser

- Brassicas respond well to good soil fertility and are particularly responsive to phosphorous and nitrogen
- Brassicas are prone to Sulphur deficiency, shown by yellowing leaves. Tissue analysis is the best guide

Crop	Nitrogen (N) kg/ha	Phosphate kg/ha	Potash kg/ha	N applied at sowing (% of total)	N applied later (% of total)
Swedes	40–100	45–105	80–215	50%	50% at 10–12 wks
Kale	40–130	20–80	70–200	50%	50% at 10–12 wks
Stubble turnips	40–100	25–85	20–110	60%	40% at 6–8 wks
Grazing turnips	40–100	25–85	20–110	100%	Further N may be applied for regrowth
Forage rape or rape/kale hybrid	40–100	25–85	20–110	100%	Further N may be applied for regrowth

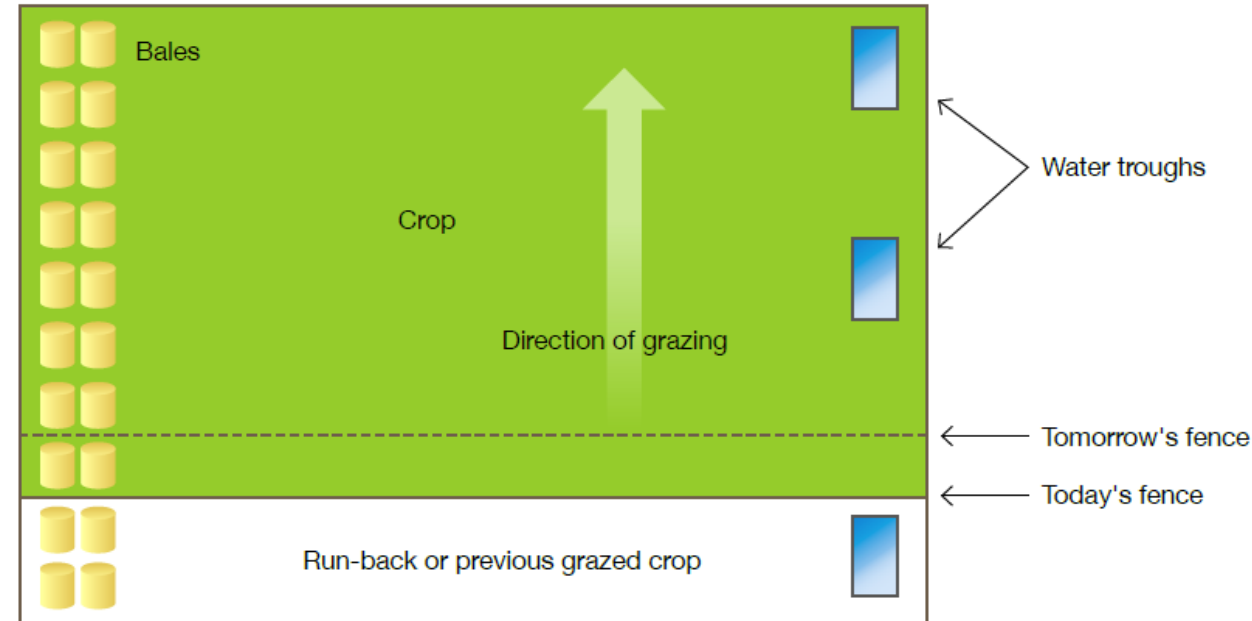
Feeding brassica crops

- Some nutritionists recommend brassicas should not make up more than 50% of DM intake
- Overfeeding can lead to reduced intake and performance
- Should always be fed with ad-lib fibrous forage such as straw, silage or hay to improve rumen 'scratch-factor'
- Out-wintered cattle have a high energy requirement than housed cattle – allocate 10-20% more energy to them

Feeding brassica crops

Strip grazing

- Is key to successful feeding with brassicas, using an electric fence to maximize utilization
- Ideally, move the fence daily
- Introduce stock to the crop slowly to avoid digestive upsets
- Allow a wide-access run-back area for good welfare
- Measure the DM yield of the crop to establish the area of the feed face and how much to move the fence



Feeding brassica crops



Making fibre and minerals available

- Generally no additional concentrates should be needed whilst grazing brassicas but minerals should always be available
- Brassicas are high in calcium which may pre-dispose pre-calving cows to hypocalcaemia if not fed low calcium forage
- Livestock must have access to hay, straw or grass to promote saliva production and healthy rumen function
- Dry cow rations may require additional phosphorous and magnesium
- Adequate water supply essential

Feeding brassica crops – top tips



Cattle

- Identify animals that won't eat brassicas and manage separately on different system
- Do not feed to cows close to calving
- Do not out-winter old or thin cows
- Be careful out-wintering in-calf heifers don't get fat
- Beef cattle must be fully functioning ruminants, above 200kg liveweight before grazing brassicas

Sheep

- Remove any lame sheep quickly from the crop for regular treatment
- Do not graze older ewes or breeding stock on roots as they may damage their teeth
- Clip bellies and crutch to reduce fleece contamination
- Lambs for slaughter may need removing from the crop a few weeks before marketing to ensure they are clean

Feed value of brassicas

- Energy level of brassicas is on par with high quality conserved forages but lower than cereals and concentrates
- High crude protein content – 14-20%
- High readily digestible carbohydrate content
- Low fibre
- Should be fed with a straw or hay to stimulate the rumen



Feed value of brassicas



Measuring Dry Matter

To measure DM you will need: a 1m square frame, seed bag, pair of garden shears and scales.

A number of samples should be taken from each field.

1. Place frame in the forage crop
2. Use shears to cut each plant within the frame (about 10cm from the ground). Put the harvested crop in the bag
3. Hook bag onto scales and record the crop weight per metre squared (kg/m²)
4. To calculate DM yield/ha multiply the fresh weight per m² by 10,000, then multiply by the expected crop DM percentage (see table on page 10)

For example:

Kale from 1m² = 5kg fresh weight x 10,000 = 50,000kg fresh weight/ha

Average kale dry matter = 16% 50,000 x 0.16 = 8,000kg (8t) DM/ha

Performance and financial implications



Suckler cows

- Non-lactating, spring-calving suckler cows can be out-wintered on kale and stubble turnip systems with no concern BUT must be in good condition at the start of the winter

Growing cattle

- Growth rates for cattle out-wintered on brassicas are 0.6-0.9kg/day. Gradual introduction helps to prevent growth checks. Additional forage must be supplied
- Trials show the time spent moving fences etc. is similar to the time taken feeding housed cattle

Performance and financial implications



Finishing lambs

- Brassicas are potentially cheap sources of feed for finishing lambs or cull ewes
- Growth rates up to 250g/day
- Utilization is optimized when grazing pressure is high

	Short keep lamb on forage rape	Short keep lamb on concentrates	Long keep lamb on swedes
Growth rate (g/day)	273	133	243
Hay fed (kg/lamb)	–	3.0	23.1
Concentrates or cereals fed (kg/lamb)	5	66	15
Total variable costs (£/lamb per day)	0.20	0.39	0.27
Total variable costs (£/kg LWG)	0.75	2.94	1.11

Source: SAC Consulting, The Farm Management Handbook 2015/16.

Health issues



- **Photo-sensitisation** – brassicas can cause skin to sensitive to light if grazed before maturation
- **Nitrate poisoning** – nitrates can accumulate in the leaves, usually in fast growing crops
- **Bloat** – due to brassicas being rapidly digested in the rumen
- **Goitre** – contain glucosinolates which block the uptake of iodine risking iodine deficiency
- **Kale anaemia (redwater)** – excess levels of amino acid compound S-methyl cysteine sulphoxide can cause anaemia and appetite loss

If any of these health issues occur, remove stock from the brassica and seek advice from a vet.