



Bombardier Kale

Forage brassica and herbs



600mm



5.5–8.0



Most soil types

Bombardier is a medium-tall, high yielding kale that provides excellent winter feed for cattle and dairy. Bombardier is a marrow stem variety, with soft nutritious stems offering increased overall ME and greater utilisation. It has winter hardiness and good club root tolerance. Bombardier is an excellent option for creating a high yielding crop of quality feed in mid-winter. Maturity in 5-7 months.

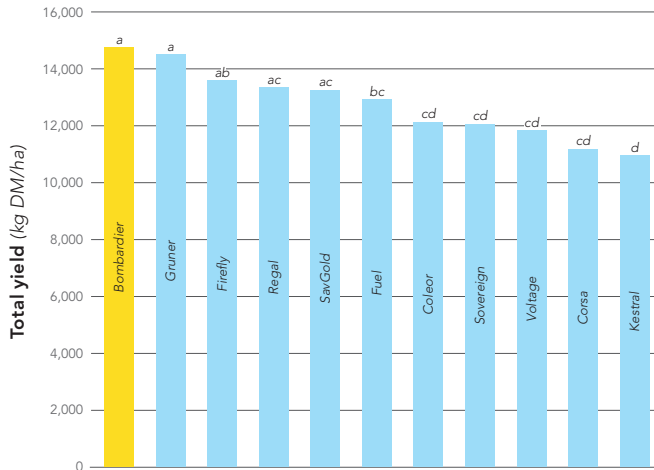
Where to use Bombardier

- Temperate higher rainfall zone (>600mm) or irrigation
- Dairy and high-performance beef production
- Over-wintering cattle in southern or elevated areas
- Standing crop for high yield, single graze
- Improved feed quality and feed-budget solutions in late autumn and winter
- Spring-sown (Oct-Dec) in mild summer areas or early autumn (Feb) in summer dry sites
- Improvement and replacement for Caledonian, with superior yield potential and feed quality.

Benefits of using Bombardier

- High yield and exceptional feed quality
- Large yield advantage over forage rape or turnips
- Reduced risk of club-root in tight brassica rotations
- Supports a high percentage of the feedbase when feed is short in winter
- Reduced reliance on feeding silage or hay
- Low cost of production, especially when compared with maize
- Helps maintain stock numbers on farm and stock condition over winter
- Marrow-stem kale:
 - High utilisation – less waste, efficient production
 - Better suits on-off grazing and potentially less mud creation
 - Exceptional feed quality – animals get more ME per bite.

Performance



*Combined analysis of 12 trials from 2006-2022, varieties in two or more trials are presented. Cultivars with the same statistical significance letter are not significantly different at the LSD 5% level.

Kale feed quality

Metabolisable energy (ME) as MJ ME/kg DM

Cultivar	ME whole plant	ME bottom 1/3 stem
Bombardier EG	12.4 a	11.5 a
Regal	11.9 b	10.5 b
Sovereign	11.9 b	10.2 b
Gruner	11.8 b	9.4 c
Corsa	11.3 c	9.6 bc
Trial mean	12.1	10.6
LSD (5%)	0.4	0.8

*From 5 trials run from 2006/7 to 2017/18. Cultivars were in at least two trials. Cultivars with the same statistical significance letter are not significantly different at the LSD 5% level.

Management and Agronomy

Bombardier kale is suited to temperate medium-higher rainfall or irrigated locations with optimal growth between 12 - 28°C. Good paddock preparation will aid establishment. Use methods such as stale-seed bed, or a targeted herbicide program to reduce the weed-seed burden in the paddock, especially broad-leaved weeds. Application of slug bait may be an important consideration. Bombardier is best sown with soil temperatures of at least 12°C in late spring or very early autumn. Kale is slow to establish and crop protection for pests is critical to protect developing seedlings.

Sowing rates:	High rainfall/Irrigated	6-8 kg/ha
	Good dryland	5 kg/ha
	Marginal dryland	4 kg/ha

Sowing depth: 5 - 10 mm

Bombardier will require good fertility to achieve yield targets. As a guide, consider making the following nutrition available through a combination of back-ground soil fertility, pre-spreading, at sowing and top-dressing:

Crop nutrition	kg	N	P	K	S
10 t DM/ha yield target		220	30	150	56
15 t DM/ha yield target		330	45	225	84

Possible co-species

Kale is relatively slow establishing and as it takes 5-6 months to achieve maximum yield, it is usually sown as a sole stand. There has been utility in sowing 0.25 - 0.5 kg/ha of a 'keeper' turnip (long-season) such as Green Globe, although benefits seem to be marginal. Kale may be sown with other faster-maturing species without any concern, although it may be more economic and of greater benefit to consider other faster establishing brassica species such as forage rape or leafy turnips. These options typically offer more feed in a shorter growing window and will offer improved prospects for re-growth and subsequent grazings.

High-yielding crops are also highly likely to require boron, molybdenum, zinc and copper where levels are historically low or these trace elements are not otherwise in the farm program. Soil and tissue testing are highly recommended to help refine the fertiliser plan. Remember that brassica crops are fed 'in-situ' so that the majority of applied fertiliser is in fact returned to the paddock. Brassica crops such as Bombardier kale therefore allow a highly productive stepping-stone to fertility improvement and a large component of the fertiliser cost may be considered a capital investment.

Brassica grazing and animal health

- Introduce animals slowly over a period of 7-10 days. Break fencing or a small paddock may assist
- Animals may not have previously grazed brassicas and may take a few days to start accepting it
- Diet 70-80% maximum as brassica for beef cattle and sheep, 30% maximum for lactating dairy stock
- A source of fibre may be needed to assist rumen function – e.g. straw, dry feed, silage, pasture run-off etc
- Measure yield and allocate feed through break-fencing and consider a second 'break-out' fence for safety
- Have ample clean drinking water available
- Animal performance may benefit from additional trace elements such as Cu, Se, I, Mg
- Stock should be up to date with vaccinations.

Seed presentation

Treatment:

- Poncho film coat.
- 8-week stock withholding period.

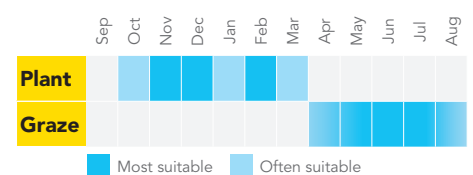
Pack size:

- 25kg net weight.



Grow with Confidence

Sowing & grazing windows



Disclaimer: The information presented in this brochure is from official and other sources and is considered to be reliable. It is provided in good faith and every care has been taken to ensure its accuracy. Barenbrug does not accept any responsibility for the consequences that may arise from the acceptance of recommendations or the suggestions made.

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