

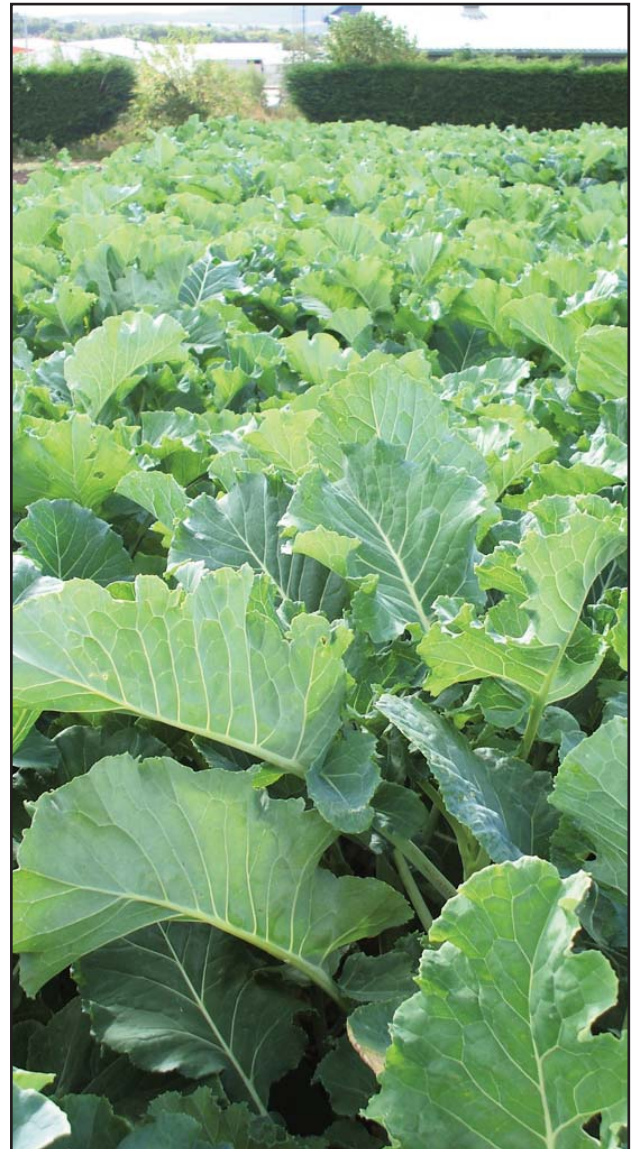


## Why Grow Kale?

- Low cost option for finishing lambs
- Buffer feed for dairy cows during dry summers
- Flexible utilisation period
- Excellent crude protein content
- High yields and economical to grow
- Outwintering systems

### Typical Yields and Feed Quality

Average Dry Matter yield	= 8-10 tonnes/ha
Average fresh yields	= 60-65 tonnes/ha
Dry Matter	= 14-16%
Crude protein	= 16-17% fresh 19-25% ensiled
Digestibility value	= 68D
Metabolisable energy	= 10-11 MJ/kg DM



### Typical Costs and Value

	Total Costs
Cost per acre	£207 (£511/ha)
Cost per tonne fresh weight	£9
Cost per tonne utilised dry matter	£68
Relative value £/tonne DM	£142
Cost per litre of milk	3p
Cost per kilo of live weight gain	19.7p



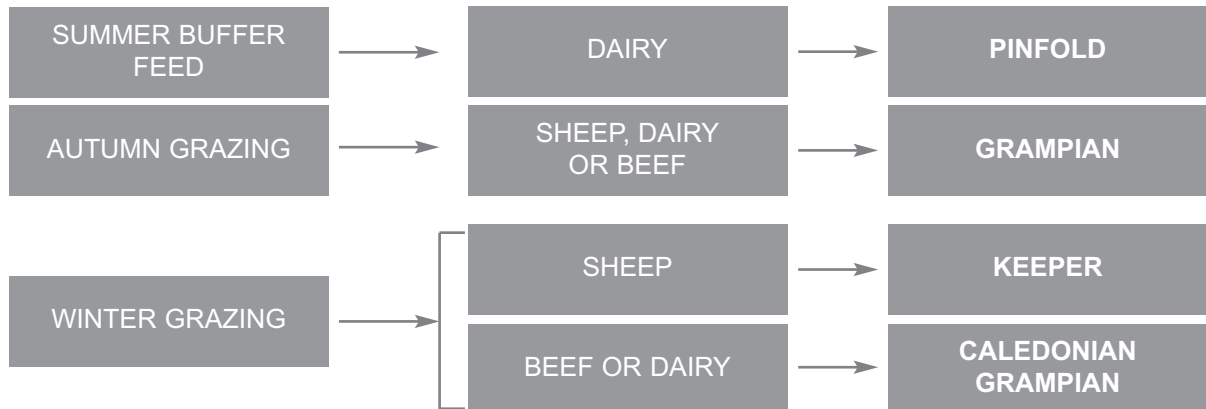
## Sowing, Growing and Feeding

<b>SOWING</b>	<b>Timing</b>	Spring - after an early 1st cut
	<b>Sowing Period</b>	April - early July.
	<b>Variety</b>	Choose varieties to suit desired grazing period, considering the following. Winter hardiness, height, lodging resistance, disease resistance, palatability and digestibility.
	<b>Seed Rates</b>	Precision Drill = 2 kg/ha (750g/acre) Grade J Direct Drill = 4-5 kg/ha (1-2 kg/acre) Natural seed Broadcast = 8 kg/ha (3 kg/acre) Natural seed
	<b>Rotation</b>	Do not grow continuously, ideally at least on a 5 year rotation, especially if Clubroot has been a problem. Club root resistant varieties are now available.
<b>GROWING</b>	<b>Fertiliser</b>	Check P & K status and adjust accordingly. 60-70units N per ac (75-85kg N/ha) may be incorporated into the seedbed, though account for muck applications. Lime at 1t/ac (2.4 t/ha) to keep pH between 6.0 and 6.5 Refer to DEFRA's RB209 for more details
	<b>Pests</b>	Watch out for flea beetle attack, spray at the first sign of trouble. Look out for slug damage in direct drilled crops.
<b>FEEDING</b>	<b>Method</b>	Allow 12-14 weeks from sowing to feeding. Strip grazing cattle is essential to minimise waste, move the fence daily to allow cows to feed under the fence. Give cows 2 hours of access before moving them to grass. Provide lambs and beef stock with a grass area and plenty of straw or hay as a fibre source.



# KALE VARIETY SELECTION

## Choose varieties to suit your desired grazing period



## Variety Features and Benefits



### CALEDONIAN

Caledonian was the highest yielding kale in our trials. Caledonian is **club root resistant**, which now enables growers to continually sow kale on club root infected sites. Caledonian's huge yields makes it ideal for utilisation by dairy and beef cattle.

Bred by SCRI  
living technology



### KEEPER

Keeper is very winter hardy and exhibits excellent lodging resistance. Keeper is a medium/short type ideal for fattening lambs and providing high quality winter keep. It has **low SMCO and improved nutritional value**, and is an excellent replacement for Maris Kestrel. Bred by Advanta.



### GRAMPIAN

This is a new variety bred by SCRI which will produce excellent autumn or winter feed for both sheep and cattle. Grampian exhibits very **high dry matter yields** combined with some **club root resistance**. Bred by SCRI  
living technology



### PINFOLD

Pinfold is a very palatable kale ideal for fattening lambs and producing high quality autumn and winter feed. Pinfold can produce **excellent dry matter yields** combined with a good DM content. Bred by Advanta.



# KALE TRIAL DATA

Variety	Type	Total Dry Matter Yield %	Total Fresh Yield %	Dry Matter %	Leaf:Stem Ratio (Fresh)	Height (cm)
100%=Tonnes/Ha		9.4 t/ha	69.4 t/ha			
Caledonian	Improved M/Stem	121	124	13.7	0.6	103
Grampian	Intermediate	118	118	14.1	0.6	99
Marrow Stem	Older Standards	116	110	14.3	0.4	113
Pinfold	Intermediate	112	101	15.6	1.0	100
Bittern	Intermediate	110	102	15.5	0.8	92
Keeper	Short Grazer	102	91	15.7	1.2	83
Maris Kestrel	Short Grazer	100	100	14.0	1.1	72
Thousand Head	Older Standards	99	84	16.6	1.2	97

Data Source: Limagrain UK & SCRI trials 1991 - 2008

## Financial Value of Each Variety

Variety	Dry Matter Yield %	Dry Matter Yield t/ha	Dry Matter Value £/ha	Extra £/ha against Maris Kestrel
Caledonian	121	11.37	1615.11	280.31
Grampian	118	11.09	1575.06	240.26
Marrow Stem	116	10.90	1548.37	213.57
Pinfold	112	10.53	1494.98	160.18
Bittern	110	10.34	1468.28	133.48
Keeper	102	9.59	1361.50	26.70
Maris Kestrel	100	9.40	1334.80	0.00
Thousand Head	99	9.31	1321.45	-13.35

The dry matter value £/ha is calculated by using the Kingshay relative value of kale at £135 per tonne of dry matter.