

GROWING KALE & RAPE

*Fact Sheet
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June 2013*

Kale

Lime: A pH of 6.5-7.0 is ideal.

Fertiliser: A NPK compound is normally broadcast at sowing and a top-dressing of nitrogen is applied when the crop is emerged. Slurry or FYM pre ploughing will normally provide enough Boron or use a fertiliser with Boron included. Kale is not as sensitive to Boron deficiency as other brassicas.

Sowing & Yields: Previous DAFM variety data for kale gives yield figures of 4 - 6 t DM/ha, however recent trial and survey work done in Moorepark has shown that high yielding (8 -12 t DM/ha) kale crops are achievable. Kale needs to be sown by mid June for high yields. Sowing date will also determine maturity. Crops take approx 150 days to maturity. *Sow rape from July to mid August.*

A fine, firm seedbed (like grass) and moisture is essential for rapid emergence as kale & rape have small seeds. All brassicas will yield poorly where compaction has occurred. Placing some fertiliser at sowing may aide establishment.

Ploughing and powered cultivation is the surest method of establishment but in well structured soils, direct drilling will also be successful. With direct drilling, it is essential to achieve a good weed kill with glyphosate pre-cultivation.

Kale may be precision drilled at 3kg/ha or direct drilled at 4kg/ha or broadcast usually with the fertiliser at 5-6kg/ha. Some seed merchants are recommending higher seeding rates to promote more leaf growth and less stem. *Rape is sown slightly heavier.*

Forage Crop	Varieties	Sowing Date	Sowing Rate	Fertiliser Requirements at Sowing* kg/ha	Weed Control
Kale	Grampian Caledonian Keeper Alize Maris Kestrel Polycaul Pinfold	Early May To Mid June	4.5 kg / ha	130 Kg/ha N 30 kg/ha P 170 kg/ha K + Boron	Butisan S Pre-em 1.5 l/ha. Follow label.
Forage Rape	Interval Hobson Emerald Barcoli	Mid May to Mid August	6.5 kg / ha	120 kg/ha N 20 kg/ha P 50 kg/ha K + Boron	N/A

*Assumes soil index 3 for P & K, N Index 2

Redstart and Interval are hybrid crosses between kale and rape. They will be grazed mid-summer or will be used in the autumn. Interval comes dressed with a bacterial seed dressing which claims to enhance rooting.

There is no independent data on frost hardiness but location seems to be more critical than variety based on field experience in 2009 and 2010.

Weed Control:

Weed failures are becoming common in early sown Kale as germination may be slow and weed seeds are more likely to germinate in May than June, thus increasing weed pressure.

Perennial weeds such as Scutch grass, docks and thistles **must** be controlled by a glyphosate application pre sowing and a 'stale' seedbed may reduce weed burden.

April/May sowing - apply 1.5 l/ha Butisan S pre-emergence of the crop (cannot be applied onto broadcast crops). Rainfall and soil cover are critical for safe use – see label.

June sowing - should not need weed control.

The following herbicides are cleared for use on kale.

- **Butisan S** at 1.5 l/ha must be applied pre-emergence and within 48 hours of sowing. Beware of heavy showers after spraying as it can reduce germination and vigour of the seedling.
- **Croplink Clopyralid & Whelehan Shield** at 1 - 2 l/ha is applied post-emergence and is very good on thistles, mayweed, marigold, groundsel etc. It will also help 'stunt' very small (<1 pair true leaves) weeds (see chart).
- **Lentagran** @ up to 2.0 kg/ha is applied from the 6 leaf stage of the kale. It can be hard on crops under stress and needs the leaves to be 'hardened-off'. It is useful where broad-leaved weeds are getting ahead of slowly growing kale. It is not label cleared for rape
- **Fusilade Max** @ 1-3 l/ha or **Aramo** @ 1.0 - 1.5 l/ha (kale only) are used post-emergence and are solely for controlling grass weeds.

No weed control should be needed for rape.

Pests

Flea beetles can attack at emergence - eat small holes in the leaves. Control is rarely warranted in a fast growing crop. Control is by spraying with contact insecticide e.g. Decis 0.25 l/ha in 200 l/ha water.

The most damaging of caterpillar is the Diamond Back Moth which will lay eggs on the underside of each kale leaf. It is particularly damaging in warm weather. Decis at 0.3 l/ha in 600 l/ha water will give good control. Use an organo-silicon based wetter e.g. Slippa, SW7, Breakthrough etc. A repeat application may be necessary.

Other caterpillars (e.g. Large White) will concentrate on eating plants in a particular area of a field but control is rarely necessary.

The following insecticides and herbicides are cleared for use on Kale;

Product Name	PCS No.	Function	Comment
Aphox	90070	Insecticide	
Decis EC	90496	Insecticide	
Movento	04101	Insecticide	
Pyrethrum 5 EC	92317	Insecticide	
Butisan S	90342	Herbicide	
Croplink Clopyralid	04171	Herbicide	In use up period, can be used in 2013
Devrinol	91627	Herbicide	
Fusilade Max	01472	Herbicide	
Whelehan Shield	04178	Herbicide	In use up period, can be used in 2013

Aramo (03099), Dual Gold (04192), Lentagran (03082), CaLypso (02441), Plenum (02238), Sumi Alpha (02334) and Tracer (02649) have off-label clearance for Kale.

Croplink Clopyralid (04171) and Whelehan Shield (04178) are in use up for Kale. Both can be used on kale crops in 2013 but not thereafter.

Disease:

Club root is the main threat but kale is not as prone as other brassicas. A one in five year rotation for brassicas is suggested to keep Club root levels low. Club root can last 20 years in soils.

Grampian and Caladonian are **tolerant** of Club Root but do not reduce the levels of the pathogen in the soil so another brassica grown in the future will suffer from the disease.



Classical feeding (window-pane) damage from Diamond-back moth larvae in kale

Inspect crops regularly and apply a suitable insecticide as soon as damage is seen



Club-root symptoms (swollen roots) in fodder rape

Do not sow brassicas in field for 10 years and widen rotation of brassica crops



Redshank taking over kale, July 2011

No 'late' control options available, apply Butisan S pre-em. and Shield post-em. in future years



Creeping Bent taking over kale, July 2010

Apply suitable grass herbicide or graze with kale

Weed Chart for Kale

Weed Name	Butisan S 90342	Croplink Clopyralid 04171 Whelehan Shield 04178	Lentagran 03082	Fusilade Max 01472	Aramo 03099
Black-bindweed	MS	MS	MS	-	-
Charlock	MR	-	MS	-	-
Chickweed, Common	S	-	MS	-	-
Cleavers	MS	-	S	-	-
Dead-nettle, Red	S	-	S	-	-
Fat-hen	MS	-	S	-	-
Fumitory, Common	R	-	S	-	-
Groundsel	S	S	S	-	-
Hemp-nettle, Common	MR	-	-	-	-
Knotgrass	R	-	R	-	-
Marigold	S	S	S	-	-
Mayweeds	S	S	MS	-	-
Meadow-grass, Annual	S	-	R	MR	S
Nettle, Small	MS	-	-	-	-
Pansy, Field	MR	-	R	-	-
Poppy, Common	S	-	-	-	-
Redshank	MS	MR	MS	-	-
Shepherd's-purse	S	-	MS	-	-
Speedwells	S	-	S	-	-
Spurrey, Corn	MS	-	-	-	-
Thistles	-	S	-	-	-
Volunteer barley & wheat	MR	-	R	S	S
Wild-oat	MR	-	R	S	S
Rye Grasses	-	-	R	S	S
Scutch	-	-	R	S	S
Creeping Bent	-	-	R	S	S

S - Susceptible; **MS** - Moderately Susceptible; **MR** - Moderately Resistant; **R** - Resistant

Read and follow all labels of plant protection products applied.

Keep prescribed chemical records of all plant protection products applied.