KALE & RAPE

Lime

A pH of 6.5-7.0 is optimum.

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

Old (1990's) DAFM variety data for kale gives yield figures of 4 - 6 t DM/ha, however recent trial and survey work completed in Moorepark has shown that high yielding (8 -12 t DM/ha) kale crops are achievable.

Utilisation in Moorepark experiments is generally taken to be 80%. 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 summary of the Moorepark fodder brassica experiments is available at: www.teagasc.ie/publications/2013/2920/TResearch_Autumn2013.pdf

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

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*.

Table 1: Guidelines for sowing rape and kale

Forage Crop	Sowing Date	Sowing Rate	Fertiliser Requirements at Sowing* kg/ha
Kale	Early May To Mid June	4.5 kg / ha	130 Kg/ha N 30 kg/ha P 170 kg/ha K

			+ Boron
Forage Rape	Mid May to Mid August	6.5 kg / ha	120 kg/ha N 20 kg/ha P 50 kg/ha K + Boron

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

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

A well-established crop is critical to weed control and every effort should be made to have an excellent seed bed and vigorous early growth as herbicide options are very limited.

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.

Pests (Kale)

Flea beetles can attack at emergence - eat small holes in the leaves. Diamond Back Moth is the most damaging caterpillar. It lays its eggs on the underside of each kale leaf. It is particularly damaging in warm weather. Other caterpillars (e.g. Large White) will concentrate on eating plants in a particular area of a field but control is rarely necessary.

TABLE 2: QUICK GUIDE TO WINTER FORAGE CROPS

Forage Crop	**Sowing Date**	**Sowing Rate**	**Fertiliser Requirements at Sowing* kg/ha**	**Feeding Period & yield potential**
*Assumes soil index 3 for P & K, N Index 2				
Swedes	Mid May To Mid June	3-5 kg/ha Broadcast 0.5-1.0 kg/ha	70 kg/ha N 40 kg/ha P 60 kg/ha K	November to February 6-9 t DM/ha

		precision drill	+ Boron	
Kale	Early May To Mid June	4.5 kg / ha Drill direct	130 Kg/ha N 30 kg/ha P 170 kg/ha K + Boron	November to February 6-9 t DM/ha
Forage Rape	Mid May to Mid-August	6.5 kg / ha Drill direct	120 kg/ha N 20 kg/ha P 50 kg/ha K + Boron	October to February 3-5 t DM/ha

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 Caledonian 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

Table 3: 2019 Forage Crop Margins

Variable Costs excl. VAT (€/ha)							
	F. Beet	Wholecrop W. Wheat	Wholecrop S. Barley	Kale	Rape	Arable silage*	Maize
MATERIALS	974	810	558	489	320	340	1020
Seed	173	84	98	78	20	120	188
Fertilisers	526	439	326	351	300	220	462
Plastic Film	0	0	0	0	0	0	260
Sprays:							
Herbicides	205	56	45	60	0	0	110
Fungicides	30	193	91	0	0	0	0
Insecticides	40	23	5	0	0	0	0

Growth regulator	0	15	0	0	0	0	0
HIRE MACHINERY	995	615	557	215	195	497	672
Seedbed prep + sow	250	177	177	177	177	177	337
Spray	81	101	60	20	0	0	0
Fertiliser spreading	35	52	35	17	18	35	35
Harvesting	300	285	285	0	0	285	300
Washing and chopping	330	0	0	0	0		0
Interest 6%	34	33	15	24	16	15	27
TOTAL VARIABLE COSTS	2003	1458	1152	729	530	852	1718
Fresh green yield t/ha	75	37	27	50	42	35	55
Dry matter %	19	40	40	15	12	20	30
Utilisation %	90	85	85	70	70	85	85
Dry matter yield t/ha (utilised)	12.8	12.6	9.2	6.0	3.5	6.0	15.0
Dry matter cost €/tDM (utilised)	154	117	120	121	151	142	115
Cost /1,000 UFL utilised	138	146	171	115	137	202	143
Assumed UFL	1.12	0.8	0.7	1.05	1.1	0.7	0.8

*Peas 40% & barley/oats 60% mix

Harvesting costs in this table are based on standard short field to yard haulage. Additional transport costs must be added for further haulage.

No land charge included