

Information & Performance Guide





Sarge is a short to medium type kale, which offers an alternative to Kestrel kale when a high degree of weed control is required via the Cleancrop™ system. Sarge has a high leaf-to-stem ratio and is soft stemmed which leads to improved crop utilisation. Due to its stem softness and later flowering, Sarge can be sown to supplement diets of grazing animals not only in winter but can be utilised as an alternative late autumn forage and if lightly grazed can regrow for winter feed. The second kale to be part of the Cleancrop™ Brassica System, Sarge has been bred with a herbicide resistant trait which allows the application of Telar® herbicide at both pre- and post-emergence for excellent weed control.

- High yielding, short to medium height kale
- Excellent stem softness to promote crop utilisation and good stem quality to enhance animal performance
- Large paddle shaped leaves provide exceptional leaf yields and a very high leaf to stem ratio
- Versatility to be used as an autumn forage
- Very good winter hardiness, and late winter leaf percentage
- Late flowering to increase the period of feeding late winter
- First and second crop option

Farm type



Days to grazing



**LATE NOVEMBER
ONWARDS SOWING**
150-220 days

LATE OCTOBER SOWING
**100-140 days till
first light grazing**

Sowing rate



4 kg/ha



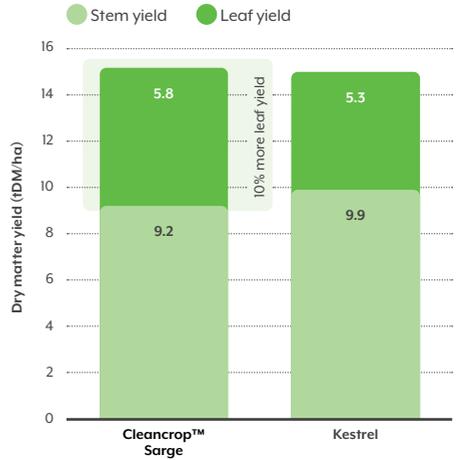
Trial results

DRY MATTER PRODUCTION

In a multi trial analysis across years and sites from Canterbury and Southland, no significant differences in yield were found between Cleancrop™ Sarge and Kestrel kale. However, these trials do not take into account the benefits afforded by the use of the Cleancrop™ System as both cultivars are treated the same in trial head-to-head comparisons.

Whilst total yield was the same, the leaf yield of Cleancrop™ Sarge was significantly higher ($P < 0.01$) than Kestrel (10% higher). Meaning Cleancrop™ Sarge has a higher ratio of dry matter as leaf relative to stem.

Leaf and stem yield (tDM/ha) of Cleancrop™ Sarge and Kestrel

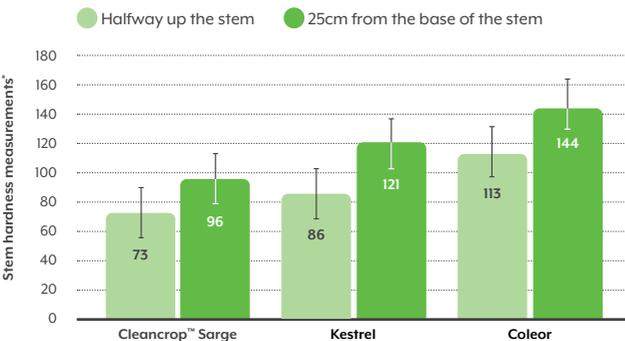


Head to head analyses showing leaf and stem yield results for Cleancrop™ Sarge compared to Kestrel over multiple years at multiple sites. $P=0.01\%$. Duncan scoring used to indicate statistical differences between cultivars.

STEM SOFTNESS

One of the most prized characteristics of Kestrel kale was its well known softness of its stem, which was associated with greater utilisation when feeding to livestock. Cleancrop™ Sarge, has trended to having even softer stems than its predecessor Kestrel as shown in the graph where the lower the value, the lower the stem hardness.

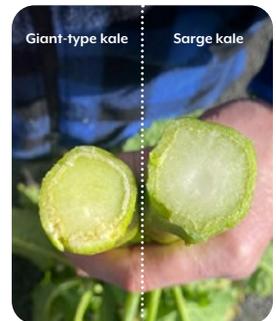
Stem hardness of kale cultivars plant and food research, Lincoln 2020



* Lower value = softer stems

Average stem hardness measured by Instron 1140 tensile tester in Lincoln, Canterbury 2020.

Differences between cultivars must exceed the LSD (5%) to be statistically different. '25cm from base of stem' LSD 5% = 34.0. 'Halfway up stem' LSD 5% = 34.4.



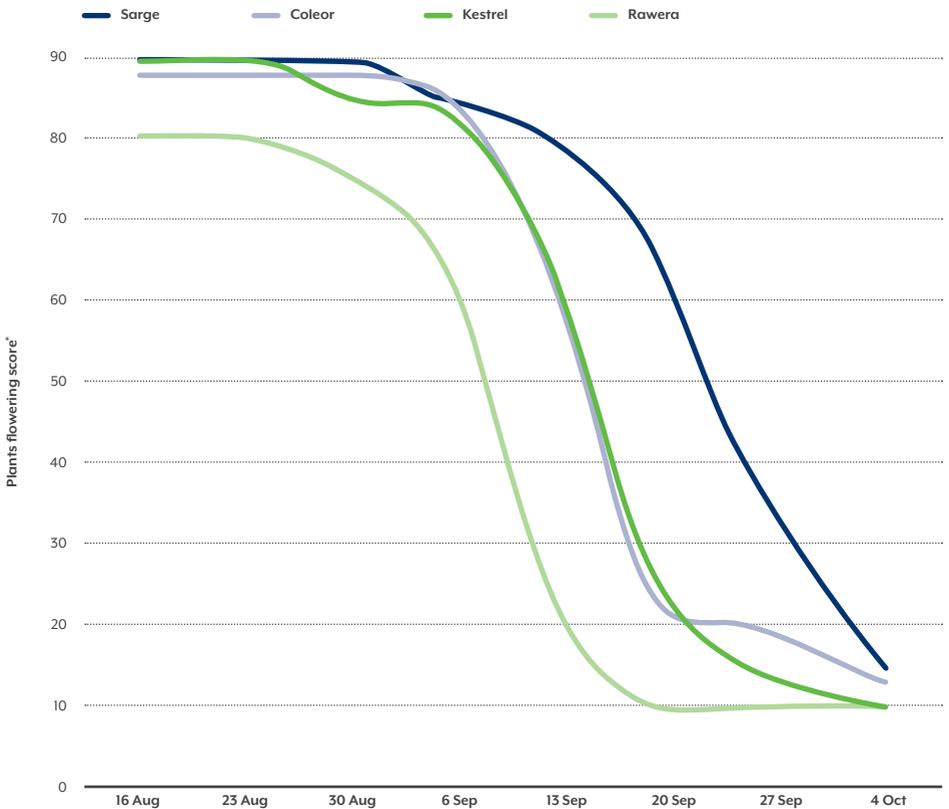
Giant-type kale compared to Sarge showing significantly less lignin

Trial results

FLOWERING DATE

Cleancrop™ Sarge was selected to have a later flowering date than Kestrel, as shown in the graph this delay is at least 7 days. This extends the grazing window at the end of winter to reduce the risk associated with flowering kale crops.

Flowering Date of Kale Cultivars, Lincoln 2020/21



*1 = 80-100%, 9 = 0%



Cleancrop™ Brassica System

**THE CLEANCROP™
BRASSICA SYSTEM
IS A CROP AND
WEED MANAGEMENT
SOLUTION ALL IN ONE.**

Only Cleancrop™ combines the power of broad-spectrum herbicide Telar® and plants bred to resist it. Telar® takes care of 23 hard-to-control weeds at the time of sowing, freeing up moisture and nutrients to give your crop the best chance of maximising performance and delivering superior returns on your seed investment. Once Telar® is applied grazing should be withheld for 28 days for Cleancrop™ kale.



Cleancrop™ brassica seed

Cultivars that have been BRED to be resistant to the sulfonyleurea herbicide Telar®



Telar® herbicide

A broad-spectrum herbicide that provides EXCELLENT control of broadleaf weeds from the pre-emerge stage

Cleancrop™ Sarge is part of the CleanCrop™ Brassica System and sold as a package. i.e. Seed + Chemical (Telar®) is one item and cannot be purchased without the other.

To order Cleancrop™ Sarge please contact agents/retailers who have been accredited to sell the CleanCrop™ Brassica System.



For further information on the CleanCrop™ Brassica System please go to www.pggwrightsonseeds.com or **talk to your local accredited CleanCrop™ seed retailer.**

Kale overview

Kale is generally a late spring/early summer sown, single graze option providing late autumn/winter feed from May to August. You can also sow mid spring for an earlier autumn feed.

Selecting a kale cultivar is a balance between dry matter (DM) yield and forage quality determined by leaf percentage and stem softness. Giant (tall) kale types provide bulk feed but lower forage

quality and crop utilisation, while short types provide a lower DM yield and higher forage quality. Intermediate types offer a balance between DM yield and feed quality.

WHEN TO SOW?

Spring/summer

	Exceptional yield and good quality	Exceptional quality	Exceptional yield	Exceptional yield and more leaf	Exceptional yield and quality with Telar [®] herbicide resistance	Exceptional quality with Telar [®] herbicide resistance
						
Kale type	Intermediate height	Short height	Giant type	Giant type*	Intermediate height	Short height
Potential yield (tDM/ha)	16	14	17	17	16	14
Winter leaf retention	★★★	★★★	★★	★★★	★★★	★★★
Leaf percentage	★★★	★★★	★	★★	★★★	★★★
Stem quality	★★	★★★	★	★★	★★	★★★

*A new generation giant kale with higher leaf-to-stem ratio and softer stems than traditional giant kales.

STAR CHART KEY

— = None | ★ = Moderate | ★★ = Good | ★★★ = Very good

Note: a difference of one ★ means that there is statistically significant difference.



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FURTHER INFO:

Refer to the Cleancrop™ Brassica System Guide on our website for more information or email us with your details and we'll send you a copy.



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