

BRASSICAS

On many farms, brassicas are a critical part of the annual feed plan. They provide high-quality feed, at times when pasture quality and quantity can be lacking. Brassicas can be sown in spring or autumn, for summer or winter grazing. They are usually grazed in situ, i.e. the cows are taken to the brassicas (rather than the brassicas being harvested and taken to the cows). Brassicas commonly grown in New Zealand include kale, Pasja, turnips and swedes.

Brassica crops can provide a high yield, but to deliver this they need to be well managed. This includes the following steps:



BEFORE SOWING

Brassicas are usually planted as part of a pasture renewal cycle, so they're often going into poor-performing or low-yielding paddocks. Unless both the physical state and the nutrient status of these paddocks are addressed before crops are sown, yields will be low.



What
Soil test.



When
At least 6 months before sowing. If possible, 12 months before sowing.



Why
Soil pH has an impact on crop yield. The ideal pH range is 5.8-6.2. If soil pH needs adjusting, lime needs to be applied – it will take at least 6 months to have an effect on soil pH. Soil testing early also allows time to correct the nutrient levels with a suitable base fertiliser.



How
Use a 150 mm auger. Soil test a transect (line) across the paddock. Avoid areas that are not typical of the paddock, e.g. stock camps, gates, fence lines, urine patches. Take the samples in either autumn or spring. Do not sample within 3 months of applying fertiliser or lime.

CAUTION!

Do not add S unless levels are extremely low (<Quick Test 2) or unless they are higher than Quick Test 10. Where S levels are between these two values, adding fertiliser S can promote the formation of SMCO, an antinutritional compound that causes stock health issues.

PRODUCTS

Lime

Choose good-quality ag-lime. As a rule of thumb, it takes 1 tonne lime/ha to raise the soil pH by 0.1 unit. So if soil pH is 5.6, apply at least 2 tonne lime/ha.

Base fertiliser

The actual product needed and the rate to be applied will depend on soil test results. However, products in the **superten** range are generally suitable, as they supply phosphorus (P), sulphur (S) and can be blended with potassium (K) and Granular Boron. Serpentine Super may be used if magnesium (Mg) levels are low.

TEST	TARGET LEVELS
pH	5.8-6.2
Phosphorus (Olsen P)	15-20
Potassium (QTK)	4-8
Sulphur (sulphate-S)	2
Magnesium (QTMg)	8-10
Boron (mg/kg)	1.1

Target soil test results for growing brassica crops. If levels are lower than this, address with lime and/or base fertiliser applications.

HOW MUCH OF EACH NUTRIENT WILL CROPS REMOVE?

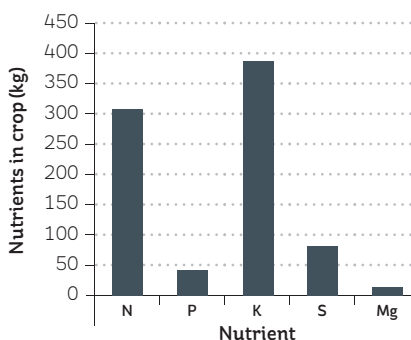


FIGURE 1 - KALE

Typical nutrient uptake by a kale crop yielding 15 t DM/ha, with 20% of the crop being leaf

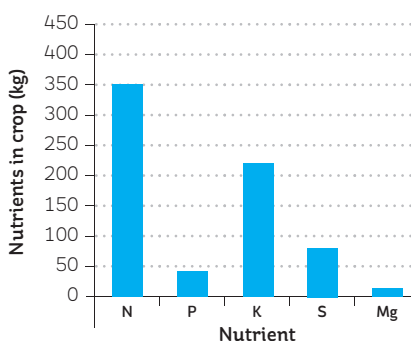


FIGURE 2 - SWEDE

Typical nutrient uptake by a swede crop yielding 15 t DM/ha, with 35% of the crop being leaf

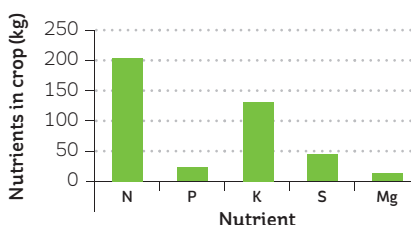


FIGURE 3 - PASJA

Typical nutrient uptake by a leafy turnip crop yielding 8 t DM/ha

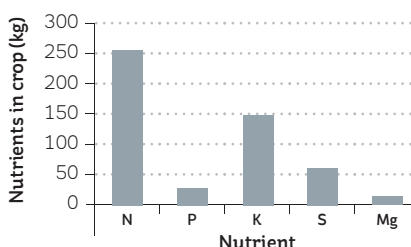


FIGURE 4 - TURNIP

Typical nutrient uptake by a bulb turnip crop yielding 10 t DM/ha, with 50% of the crop being leaf

AT SOWING



What

Use a starter fertiliser.



When

At sowing.



Why

Brassicas don't have particularly extensive root systems, so they are not very good at finding nutrients in the soil. Putting N and P close to the seed at planting means there is a good supply of these nutrients for the developing seedling, which in turn means the crop gets off to a good start. Ultimately, this helps farmers to get the best yield from their crop.



How

Drill with the seed (in a separate box), or broadcast then incorporate into the soil just before sowing.

PRODUCTS

cropzeal boron boost

The preferred product in nearly every case, **cropzeal boron boost** provides all of the nutrients needed for healthy crop establishment. As the boron is incorporated in every granule, it is evenly spread through the crop, meaning every plant gets the boron it requires. Use when drilling, ridging or broadcasting. The typical application rate is 150-250 kg/ha. Do not let product come into contact with seed.

DAP and Granular Boron

This combination supplies the same nutrients as **cropzeal boron boost**, but because it is a blend, not a compound fertiliser, it is not as effective as supplying boron to every plant.

Cropzeal 15P

When soil potassium levels are low (<Quick Test 4), **cropzeal 15P** can be used. This product is low in sulphur, and supplies three macronutrients (nitrogen, phosphorus, potassium) needed for crop growth. Can be blended with Granular Boron. Use alone when broadcasting (400 kg/ha). Use in combination with Serpentine Super when ridging (300 kg/ha, in the front box) or drilling (400 kg/ha, broadcast and incorporated).

Serpentine Super

Use alone if soil fertility is good. If broadcasting, apply at 300 kg/ha; if drilling, apply at 250 kg/ha (drill with seed). Use in combination with **cropzeal 15P** when soil is low in potassium: use at 125-250 kg/ha, either in back box (if ridging) or drilling with seed (if drilling).

POST EMERGENCE



What

Check trace element status.



When

Once crop is growing vigorously. Allow around 6 weeks after sowing.



Why

Trace element deficiencies can restrict crop growth, and may also impact on animal health when stock graze the crop. Boron and molybdenum deficiencies are the two most commonly encountered.



How

Any suspected trace element deficiencies must be confirmed by herbage testing. Contact your Ballance field consultant for specialist advice.



What

Apply post-emergence nitrogen.



When

Timing depends on the crop and the season. As a guide, apply 6 and 12 weeks after sowing.



Why

Nitrogen is a growth promoter. Applying N helps the crop reach its agronomic potential. However, applying too much N will reduce the economic yield of the crop.



How

Soil test to determine the soil's reserves of available N. Determine the anticipated yield of the crop. Talk to your Ballance representative about using the the Ballance Brassica Calculator to determine the required amount of N. If very high amounts (>150 kg N/ha) are required, split the applications. As a rule, the first application should go on at canopy closure. If grazing the crop, e.g. summer leafy turnips, apply light dressings of N (e.g. 60 kg SustaiN/ha) after each grazing, and monitor crop nitrate levels to reduce the risk of animal health issues.

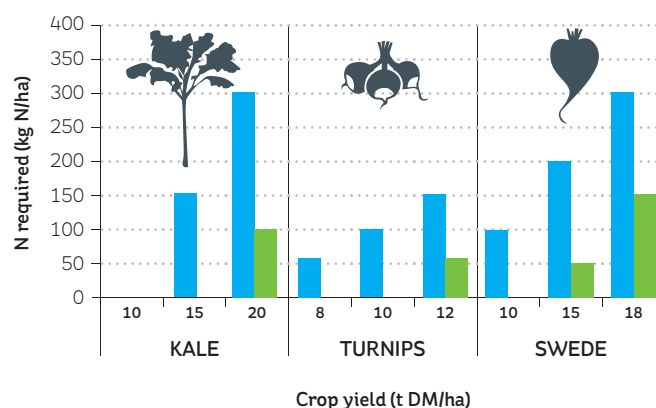
CAUTION!

If sulphate S levels are >10, excess N can promote the accumulation of the antinutritional compound SMCO in brassica crops. This compound will cause stock health issues when ingested. To minimise the risk of SMCO development, do not apply more N than is required to support crop growth.

HOW MUCH N?

Typical N requirements of spring-sown kale, swedes and turnips

■ Soil available N (100 kg N/ha) ■ Soil available N (200 kg N/ha)



PRODUCTS

SustaiN

This is the product of choice when applying high rates of N. It reduces the loss of N by volatilisation, which can exceed 30% when urea is used for side-dressing crops. Volatilisation means N is lost as a gas; using SustaiN helps to keep some of that N in the soil, where it can be used by plants.