

Fertiliser guidelines for brassicas

Typically less productive pastures are sown out into brassicas, often meaning they are established into less than optimum conditions. Brassicas tend to differ from other crops in certain aspects of their fertiliser requirements. Brassica yields are sensitive to nitrogen and phosphorus status. In addition, boron deficiency may impact on plant health, especially in the bulb brassicas. The seed is particularly prone to germination injury if soluble fertiliser or boron is placed too near the seed. Inappropriate levels of certain nutrients can induce the risk of animal disorders, eg the sulphur compound SMCO.

Table 1.
Optimum soil fertility status

Soil test	Ranges (for near maximum production)
pH (H ₂ O) (CaCl ₂)	5.5 - 7.5 4.4 - 6.5
Olsen P(mg/kg)	25 - 30+
Sulphate-S (mg/kg) (MCP)	12 - 20
Potassium (meq/100g)	0.5 - 5
Magnesium (meq/100g)	1.6 - 50

Table 2.
General fertiliser application*

Nutrient	Application units/ha
Nitrogen	10 (starter) Up to 50 (per App.)
Sulphur	Maintenance variable Up to 20
Phosphorus	20 - 30 10 (pre-plant)
Potassium	0 - 80
Molybdenum	0.05 - 0.1 (acidic soils)

**When optimum soil fertility is present, the following fertiliser needs to be applied to support good crop growth. Figures quoted relate to recommendations for dryland brassica crops, Southern Victoria, sandy loams and clay loams.*

This information has been kindly provided by Incitec Pivot Fertiliser.

For paddock specific fertiliser recommendations contact your local fertiliser representative.

A fertiliser spill area in a kale crop, an example of the potential of the crop given optimum fertility conditions.



Phosphorus (P)

Early purpling, stunted and erect leaves are an indicator of P deficiency (this can also be induced by cool weather, so herbage testing is the best form of identification).

Phosphorus is the main element required by brassica crops. In many cases farmers do not see brassica crops reach their full potential because P levels are limiting growth (see photo on previous page). Phosphorus rates of 15-20kg/ha (the equivalent to 170-230kg/ha single superphosphate) are a minimal requirement for most soil types. Drilling the fertiliser in at sowing allows a quick response to the available P. Starter or compound type fertilisers (containing varying amounts of P, N, and S) are commonly used, especially on poorer soil types. The opportunity for lifting soil P status should also be considered at this time.

Sulphur (S)

Sulphur deficiency is characterised by stunted, pale or yellowed growth (particularly the young growth) and leaf curling and distortion.

It is not necessary to use S on brassicas unless S levels are low (2-3). If S is required a fertiliser containing sulphate S is preferable over an elemental S fertiliser. See Section 5 on Kale anaemia.

Nitrogen (N)

Paleness (yellow and/or reddening and old leaf dieback) usually indicates N deficiency.

The amount of N required for successful crop growth is dependent upon the paddock history. When establishing a brassica into a run-out pasture the crop will require starter N and several side dressings of N. No more than 20 units of N (equivalent to 75-125kg/ha DAP) should be sown with brassicas. Paddocks low in fertility may require more N in the form of ammonium nitrate or urea. This can be applied 2-4 weeks after crop emergence. Urea is best applied just before rain to minimise volatilization losses to the atmosphere. Approximately 50kg/ha of N is commonly used and this can increase both yield and crude protein content. Excessive N will increase the risk of nitrate problems with grazing stock, and increase leaf growth at the expense of bulb growth for root crops. See Section 5 on nitrates.

Boron (B)

The condition "brown heart" in bulb brassicas is the most common symptom of boron deficiency. Other brassicas may show swelling, hollowing, browning and rotting of stems.

Brassica crops have a greater requirement for B than grasses. Whilst relatively rare, B deficiencies are more likely to occur on light textured soils with less organic matter to retain soil B from leaching, recently limed soils, or soils with a high pH. Do not put B down the spout with your seed. Broadcast with fertiliser before sowing.

