

Sulphur (S) Requirements of Brassica Crops

Brassica crops have a significant requirement for S and where S supply is limited it will reduce both crop yield and marketable quality. Over the last 20 years S deposition from the atmosphere has declined significantly from 50 to 20,000 tonnes. The atmosphere now only supplies between 1 to 3.5 kg S/ha/yr. In addition crops yields have also increased resulting in the need to supply more S in organic or fertiliser form to meet annual crop demands.

Sulphur deficient soils are most likely to occur on light textured soils with low soil organic matter following wet winters. Heavy soils tend to be less prone to S deficiency as these soils will have higher levels of soil organic matter.

Sulphur deficient plants are typically small and spindly characterised by interveinal chlorosis of the young and middle leaves that cup both concavely (mainly while emerging) and convexly, and may become brittle and eventually may fail to grow. The chlorosis is very characteristic in that the veins stand out as a rather blurred, blue-green pattern against a pale green background. On the underside of the leaf these dark areas are purple, and this purple or bronze coloration may later affect whole leaves. Symptoms tend to develop slowly. In Brussels sprouts characteristic symptoms are yellowing tops and restricted rooting.

Plant analysis is recognised as the most reliable means to diagnosing S deficiency in plants as it reflects the plants response to variation in the supply of S from various sources.

Crop	Growth Stage	Guidelines on sampling foliage for nutrient analysis
Cabbage	Mid growth – Plant beginning to heart	<ul style="list-style-type: none"> From each plant take the youngest mature leaf Take ‘good and ‘poor’ plant samples Take 20 – 30 leaves to make a sample Sample crop in a ‘W’ shaped pattern Do not sample diseased plants Avoid crops treated with foliar application in last 10 days. Avoid soil contamination Place sample in a clean sealed plastic bag Dispatch samples to lab ASAP
Brussels Sprouts	Mid growth – as the plant initiates the first buttons	
Cauliflower	First indication of buttoning	
Broccoli	Mid growth - when first spears are starting to form	
Turnips / Swedes	First indication of root swelling	

Guideline plant S levels for cabbage, B Sprouts, Cauliflower, Broccoli and Swede are 0.3 – 0.8 mg/l.

Soil analysis is not a good indicator of S supply as S easily leached from the soil therefore soil analysis would need to be carried out close to the time of S application for the results to be reflective of the soils S supply.

Sulphur advice for brassicas:-

Brussels sprouts / Cabbage – 20 kg S/ha on light soils (RB 209)

Cauliflowers / Calabrese – 20 kg S/ha on light soils (RB 209)

Turnips / Swedes – 20 kg S/ha on light soils (Green Book)

Sources of Sulphur – Manures & Fertilisers

Manure Type	FYM	Cattle Slurry	Pig Slurry	Layer Manure	Broiler Litter
kg/t	1	0.3	0.4	1.6	3.2

Fertiliser type	Sulphate of Ammonia	ASN	SulCan	Super Net	Sulphate of Potash
% S	24	14	5	3	16

Foliar Sulphur can be absorbed through the leaves so foliar applications maybe useful, but cannot be guaranteed to cure the problem.



Suspected sulphur deficiency in storage cabbage



Sulphur deficiency in Brussels sprouts