

Importance of Sulphur (S) for Grass & Crop Production

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Sulphur & Soils

Soil sulphur supply depends on soil type & soil organic matter (SOM) levels. For example light soils with low SOM will have a low S supply while heavier soils will have higher SOM levels will have a higher supply. This will be one of the main drivers to a response to S application. Sulphur loss occurs through leaching. Soil testing is a poor indicator of soil supply.

Sulphur Role & Function

Sulphur is part of every living cell and is a major constituent 2 of the 20 plant amino acids which form protein. S plays a major role in N fixation in legume plants such as clovers, peas & beans. At high N rates S plays an important role in plant N efficiency & utilisation in producing higher grass / crop yields.

Sulphur Deficiency

A sulphur deficiency is quite similar to an N deficiency as plants show a pale yellow color. For S deficiency the youngest leaves are affected first. This is due to the poor mobility of S in the plant.



Fig 1:- Grass showing S sufficiency (left) & S deficiency (right). Source P. Forrestral & Claire Aspel, Teagasc, Johnstown Castle.

Sulphur & Crop Yield Responses

Response to S application is mainly found on light soils, intensively managed grassland or continuous tillage soils. Cereals grown on light sandy soils with low SOM can show up to 2.5t/ha yield response (Michael Conry, Teagasc, Oak Park).

Research shows that clover is more responsive to S than rye grass & adequate S will increase the % of clover in the sward.

New research emerging from Teagasc, Johnstown Castle show a wide of yield response to S with some soils giving no significant yield response to S while others have been observed to give responses of up to 43%, indicating that S isn't a one size fits all soils situation (Figure 2).

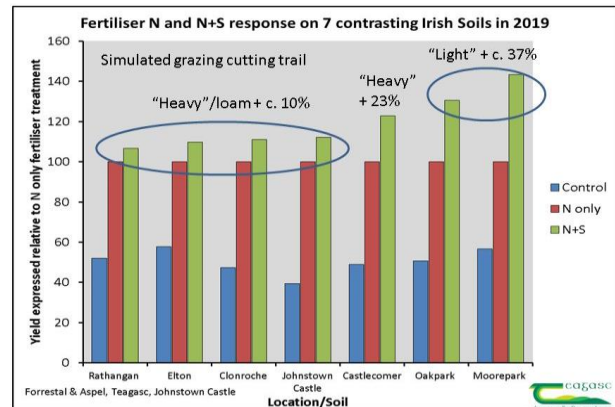


Fig 2:- Effect of S on grass yield on a range of soil types (Teagasc, Johnstown Castle).

Sulphur Advice

Crop Type	Sulphur Rate
Grass – Grazing	20 kg/ha/year
Grass – Silage	20 kg/ha/cut
Cereal Crops	20 kg/ha
Oilseeds / Legumes / Brassicas	15–30 kg/ha

Sulphur & Timing of Application

Apply S as part of a fertiliser grazing programme starting in early spring and apply S in 2 to 3 applications between March to May. Crops of grass silage apply prior to closing for each cut. Cereals apply S requirements with main N splits during March to May.

Sulphur & Fertilisers

Sulphur is available in a range of fertilisers from straight N's to blends. For example ASN contains 26% N & 14% S and is very suitable for such crops as oilseed rape where there is a high S requirement. While fertiliser blends such as 10-10-20 / 18-6-12 +S etc. or CAN +S or Urea +S contain between 2 to 8% S & are very suitable for grazing / silage / cereal production.

Sulphur & Organic Manures

Organic fertilisers such as cattle / pig slurry contain low levels of total S (0.3 to 0.4 kg/m³) while poultry manures contain high S levels (layer manure 2.5 kg/t).

Sulphur & Trace Elements

Over supply of S can depress the uptake of Se and reduce absorption of Cu by animals.