

# Red Meat Development Programme

## Do I Need Sulphur?



**Optimising crop yields and reducing the need for bought in feeds is a key way to reduce costs for finishing lambs and calves. The impact of using sulphur fertiliser is one aspect that should not be overlooked.**

In the past heavy industry expelled enough sulphur into the atmosphere to meet the requirements of crop production. With industry in decline and improvement in reducing emissions much of the UK now needs sulphur applications, particularly for grassland, cereals and oil-seed rape. Herbage samples collected across Wales have shown that 95% are deficient in Sulphur (source: IBERS Grassland Development Centre). Sulphur is extremely soluble and so the build up of soil reserves (indexes) is very difficult. IGER research has shown that sulphur deficiency can reduce yields by up to 33% and reduce plant protein content.

**Sulphur application will be most beneficial:**

- on lighter soils e.g. sandy loams
- where applications of nitrogen are relatively high (200kgN/ha+)
- for second and third cut silage systems
- where manure is not regularly applied

A nitrogen:sulphur (N:S) ratio of 13:1 or above indicates a sulphur deficiency. However, when both nitrogen and sulphur levels are low, sulphur may still be deficient even though the ratio may be less than 13:1. If so it should be at or above 0.25% of the Dry Matter.

Herbage samples collected from members of the Landsker discussion group in the Narbeth area identified a sulphur deficiency on their farms and the need to take action. A sulphur demonstration project was developed on two of the members farms; Tom and Kate Coney (Landsker demonstration farm) which has a clay soil base

and Roland Lewis Newton farm on a sandy soil type. Sulphur was applied to one grass and one cereal crop on both farms and both were analysed before and after application.

Table 1 shows that for fields where Sulphur was applied the ratio of N:S is less than 13:1 so levels are adequate. Roland Lewis farms on sandy soils and found an increase of both silage yield and barley yield compared to the control treatment of traditional fertilizer practice.

**Table 1 - Results of the crop analysis on the farms**

Farmer	Crop	N:S Ratio	Nitrogen DM	Sulphur DM
Coney	Grass zero S	13.1 : 1	2.68	0.205
Coney	Grass + S	9.4 : 1	2.01	0.214
Lewis	Grass zero S	11.5 : 1	2.24	0.195
Lewis	Grass + S	7.6 : 1	2.44	0.322
Coney	Cereal zero S	13.2 : 1	2.78	0.210
Coney	Cereal + S	8.2 : 1	2.41	0.295
Lewis	Cereal zero S	15.0 : 1	4.19	0.280
Lewis	Cereal + S	12.5 : 1	4.15	0.333

On a sandy soil such a big impact is not uncommon. Nutrients are easily lost on sandy soils and so just enough for crop needs should be applied each year.

Bearing this in mind, an increase in yield means more N has been utilised and this can reduce the environmental impact as less N is lost through leaching. Sulphur improves the capture and utilization of applied nitrogen and this makes this analysis both an economic and environmentally sound decision.

*The Red Meat Development Programme is managed by Hybu Cig Cymru on behalf of Farming Connect*