Calcifert Sulphur®
GRANULATED CALCIUM SULPHATE

Calcifert Sulphur application for grass silage

Peter Clayton farms in Malpas, Cheshire. Calcifert Sulphur trials were carried out on two of Peter's fields that are used for grass silage. One of the fields (field 1) has a history of significant applications of slurry due to its proximity to the farm buildings. The second (field 2) is not as easy to access, and has therefore received lower application rates of slurry.

Application

Two application regimes were used on this farm for a spring application of Calcifert Sulphur. A single application during March of 200kg/ha (68kg/ha Ca & 112 kg/ha SO3) was applied to the field 1. On field 2, two applications of 90 kg/ha (31kg/ha Ca & 51kg/ha SO3) were applied, one before each silage cut in March and June.

Tissue sampling

Sampling was carried on two dates, the first in late April just prior to first cut, and the second in July before second cut. The main objective of this sampling was to explore any potential deficiencies or excess of sulphur in the crops by measuring nitrogen and sulphur and therefore calculating the N:S ratio.

	Application rate	NS ratio from tissue sampling	
		27/04/2012	11/07/2012
Field 1	200 kg/ha	10.9:1	11:1
Field 1 (control)	Zero	13.6:1	15.4:1
Field 2	90 kg/ha x 2	9.29:1	11.5:1
Field 2 (control)	Zero	15.6:1	18.5:1

The results in the table above show in all instances an improvement in sulphur uptake over the control blocks in both fields. The difference is however more significant in field 2 which has had lower application rates of slurry and therefore does not have the background sulphate in the soil.

It is clear from the results of field 1 that there was a significant amount of soil sulphate present before first cut, this is the result of the slurry spreading that has been carried out and kept the organic matter levels toped up. However it is clear that a sulphur deficiency could easily occur for second cut as the N:S ratio gap between the treated and untreated parts of the field has widened.

Results for field 2 show a much more significant improvement over the control for both samples. The second sample in particular shows that the crop was suffering from a sulphur deficiency and would therefore not have been utilising nitrogen as efficiently.

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SAMPLE NAME: B COTTS 200 CROP: GRASS

ANALYSIS		RESULT	INTERPRETATION (Deficient / Low / Normal / High / Excessive)
Nitrogen (N)	[N:S Ratio]	3.85 %	
Sulphur (S)	[11.0 : 1]	0.350 %	
Phosphate (P)		0.341 %	
Potassium (K)		3.52 %	
Calcium (Ca)		0.666 %	
Magnesium (Mg)		0.164 %	
Sodium (Na)		0.351 %	
Manganese (Mn)		47.7 mg/kg	
Iron (Fe)		121 mg/kg	
Copper (Cu)		09.2 mg/kg	
Zinc (Zn)		34.0 mg/kg	
Molybdenum (Mo)		0.823 mg/kg	
Boron (B)		4.86 mg/kg	

The results of the tissue sampling, shown to the left, illustrate the uptake of a range of nutrients in the crop prior to second cut. Compared to the control sample nutrient uptake across the board had improved, of particular note were the sulphur and phosphate levels which moved from deficiency to normal.

The importance of sulphur

Sulphur is commonly ignored as part of a fertiliser program for grass and in particular with reference to the potential improvement in silage quality. Sulphur is vital in the production of protein as a core element of two of the essential amino acids. Sulphur does lead to higher proteins when applied to deficient soils. Evidence also suggests that soil deficient in sulphur will show lower levels of water soluble carbohydrate which are important in good fermentation and therefore quality of silage.

Silage short of sulphur can affect its efficient utilisation in the rumen as the microbes present require both nitrogen and sulphur to produce their own protein; a shortage of sulphur will stop them working when they have used it up. Therefore the digestibility of forage is reduced by a lack of sulphur.

Providing sulphur to the crop improves the utilisation of nitrogen and ultimately yield of the crop. Walking of treated crops on this farm showed an increase in crop cover which was also evident at harvest.

Summary

Sulphur is a national issue with the majority of the UK requiring some in its fertiliser program. The tissue sample results show that this has been supplied effectively to the crop by Calcifert Sulphur and improved the N:S ratio significantly. This will have facilitated more efficient Nitrogen utilisation and reduced nitrate leaching.

Research has shown the importance of Sulphur in the production of quality silage with improved yields, protein levels, digestibility and rumen function of the cow.

Knowledge of a farm's soil nutrient status is essential as deficiencies or excess can be overlooked. Soil tests should be carried out to establish levels and take into account slurry and manure policies, then Calcifert Sulphur applied where required.

About Calcifert Sulphur...

Applying Calcifert Sulphur granulated calcium sulphate is a quick and easy way to supply both calcium and sulphur to soil.

With a typical analysis of calcium as CaO: 39% and sulphur expressed as SO_3: 56%, Calcifert Sulphur is one of the purest calcium sulphate products available on the market. Calcifert Sulphur has a neutralising value of zero, meaning it won't affect the pH of your soil.

It can be easily applied using a tractor mounted fertiliser spreader, providing flexibility to farmers and growers.