

Sulphur – A tale of two lands

“We call sulphur the fourth major nutrient,” states Donald Messick, vice president of program development and agriculture for The Sulphur Institute, a Washington, DC-based industry association. “For many crops, this is where it ranks in terms of total requirement in a balanced fertilizer program. Sulphur boosts yield and quality, so without adequate amounts, both can suffer.”

Sulphur deficiency is not just a North American issue; its impact is also felt in Europe. Messick cites the RB209, the U.K.’s Department for Environment, Food and Rural Affairs (DEFRA)’s Fertiliser Manual. “In Europe and in North America cereals, brassica vegetables such as broccoli and cauliflower, grasses, and oilseed rape are critical indicator crops, especially oilseed rape. (Oilseed rape, commonly referred to as canola in North America, is widely grown in the prairie provinces in the western part of Canada and some more northern regions of the United States.)

Coarse-textured, well-drained soils, low in organic matter, are the soils where one is most likely to find deficiencies. Soil tests can be used for sulphate-sulphur, but results are better at indicating the probability for a deficiency scenario rather than an absolute detection. In both Europe and North America, leaf analysis is cited as a useful piece of information piecing together what to do about sulphur.

“One area in which the two regions are different is recommendations and this relates to units rather than actual amounts,” highlights Messick. “The crops receive sulphur fertilizers in the elemental form, in the sulphate form and as thiosulphate in liquid systems, but while this is basically true for both regions, sulphur recommendations are often presented as SO_3 in Europe, while recommendations for sulphur in North America tend to be expressed in the sulphur equivalent. In reality this means that a European farmer applying 50-75 kg SO_3 /ha, while a farmer in western Canada might be applying 15-30 kg S/ha. So, though the expression is different, the rates applied can be quite similar.”

The application rates are not huge compared to other nutrients on many crops, but the returns can be dramatic. “Applying a sulphur fertilizer is not an expensive input, but the return can be substantial,” Messick said. “Farmers can get significant yield and quality increases by addressing deficiencies, which usually only require as little as 25-40 kg

SO₃/ha for sulphur-deficient cereals, as an example, and only a small improvement in yield will return that investment.”

Sulphur deficiencies have grown from dotting the landscape to a common consideration in a variety of fertilizer management systems across the continent. Its growth is tied to the significant steps Western Europe took to reduce its sulphur dioxide emissions starting in the late 1970s. DEFRA reported that in 2007 levels were only about 10 percent of those in 1980 impacting the amount of sulphur entering the cycle. The United States made its major movement with the Clean Air Act of 1990. As regions have taken huge steps to reduce sulphur dioxide, further reductions are expected. With that, the occurrence of sulphur deficiencies are only likely to become more common.

“Farmers and their advisors whether in Europe or in North America, will need to become more familiar with diagnosing sulphur deficiencies and sulphur fertilizer management. “ Messick said. “We want to make certain that we are applying the needed nutrients. It’s easy to drop back on costs such as for fertilizer, but let’s be cautious. We want to make sure we optimize the situation and be well reasoned with the program we use.”

About The Sulphur Institute

Founded in 1960, TSI represents all stakeholders actively engaged in producing, buying, selling, handling, transporting, or adding value to sulphur on a global basis. For more information about TSI membership, programs and contributions to the industry, contact Donald Messick, The Sulphur Institute, 1020 19th Street NW, Suite 520, Washington, DC 20036, USA. Telephone: +1 202 331 9586; E-mail: DMessick@sulphurinstitute.org; Website: www.sulphurinstitute.org.