

THE ROLE OF NON-NITROGEN FERTILISER ELEMENTS

by

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Continued. . .

Calcium

Ground limestone, hydrated lime, and gypsum are the major sources of calcium. These are relatively cheap materials, yet their effects upon soils and plants may be profound.

Calcium contributes to good soil structure. It causes clays to become aggregated into a crumb structure. A soil so aggregated is well-drained and well-aerated.

Limestone also affects the soil reaction. It tends to raise the pH of acid soils. As soils approach the neutral point almost all of the essential elements reach maximum availability.

On the other hand gypsum (calcium sulphate) may be helpful in lowering the pH of highly alkaline soils. This is accomplished by substituting calcium for sodium in the soil complex. The resulting sodium sulphate is soluble and may be leached from the soil.

Calcium enters into the cell wall structure and it is a component of some of the cell proteins and the protoplasm. It is involved in the translocation of carbohydrates and it appears to have a role as an "anti-doting" agent. This role is ascribed by Miller who says it serves to neutralise organic acids and to balance what he calls the "single salt" effects of potassium, magnesium and sodium.

Magnesium

Magnesium is usually supplied to turf in the form of dolomitic limestone. It may sometimes be derived from magnesium sulphate.

In the soil magnesium behaves much

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the same as calcium. In the plant it is a constituent of the chlorophyll molecule. A deficiency often causes chlorosis and in severe cases there may be a reddening of grass blades.

Sulphur

Sulphur has been neglected as a plant nutrient because it rarely is deficient. Organic fertilisers have abundant quantities of sulphur. As inorganic materials rose in favour we began to use sulphate of ammonia and superphosphate. Both these materials supply a great deal of sulphur.

As the trend towards higher analyses continues, some of the sulphur contained incidentally in fertiliser materials is being eliminated. Thus sulphur may become an element of greater concern to the plant grower.

Sulphur is considered to be necessary in a magnitude of about two-thirds that of phosphorus. Sulphur is a constituent of protein. In addition it produces an

indirect effect upon the appearance of chlorophyll. A deficiency of sulphur is indicated by a pale green colour, whereas a plant with abundant chlorophyll has a dark green vigorous appearance.

The grower of turf must make use of these elements to insure a healthy, vigorous turf. While deficiencies are quite difficult to demonstrate in the field and though responses to additional amounts are usually not great, these elements all contribute to the well-being of the plant.

It has been said that if one waits until the plant shows deficiency symptoms, the plant has already begun to disintegrate from the lack of some nutrient. There is then a long road to recovery. If one anticipates these hungers and keeps a constant supply of nutrients available to the plant he may avoid a great many turf problems.

*(With grateful acknowledgments to
"The Golf Course Reporter")*



JULY

- 22nd Sheffield Section Annual Tournament, Wheatley Golf Club.
- 23rd Midland Section A.G.M., Harborne Golf Club, 7-30 p.m.
- 23rd Midland Section Competition, Parker Cup, 2-30 p.m.

AUGUST.

- 10th } B.G.G.A. Annual Tournament and A.G.M., Weston-super-Mare.
- 11th }
- 12th }

SEPTEMBER.

- 15th North-West Section Autumn Tournament, Ashton and Lea Golf Club.
- 15th Southern Section Autumn Tournament, Denham Golf Club.
- 17th Midland Section, Visit to Messrs. Atco Ltd.
- 22nd Midland Section, Autumn Tournament, Stourbridge Golf Club.
- 23rd East Midland Autumn Tournament, Longcliffe Golf Club, Loughborough.