

14 MOLYBDENUM

14.1 Role in citrus production

Molybdenum (Mo) is the nutrient element that is required in the lowest dosage. Nevertheless, without Mo, no plant production is possible.

Molybdenum is absorbed as molybdate (MoO_4^-) and is an essential component of at least two important enzymes namely, nitrogenase and nitroreductase. These enzymes are very involved in the assimilation of nitrogen.

Molybdenum deficiencies

Although molybdenum deficiencies can develop on any soil, it is more associated with acid soils which also contain allophane and iron oxides. These minerals form insoluble compounds with Mo if the pH(water) is less than 6,0. Liming these acid soils will release the fixed Mo in adequate concentrations for absorption by the plants.

Soils containing between 0,15 and 5,00 mg Mo per kg (in an oxalate extract at a pH of < 6,30) will be able to satisfy the requirement of citrus.

Organic soils, even when acidic, will supply enough Mo.

Excess molybdate.

No molybdenum excesses have been reported in citrus production.

Disorders due to excess Mo can develop in animals if the feed contains more than 5mg Mo/kg. Excess Mo limits the metabolism of Cu and SO_4 .

14.2 Sources of molybdenum

Sodium and ammonium molybdate are the common sources and are applied at very low rates.

14.3 Fertilisation with molybdate

Soil applications

An absolute deficiency seldom occurs in the soil. The deficiency is usually induced and

without correcting these conditions, soil applications are worthless. Liming is a good approach to correct the Mo supply from acid soils.

Due to the small application rates Mo is supplemented by adding Mo to any other treatment to the soil.

Fertigation with microjets

If the factors like low pH, that induce the Mo deficiency are not corrected, then applications through the microjets will not be effective. It is convenient but not practical.

Fertigation with drippers

Molybdate can be successfully applied through drippers but again very small rates are required.

14.4 Foliar sprays

Foliar applications are successful and convenient. The ammonium or sodium molybdate is applied at rates of 15 to 50g per 100 litre water.