THE SOIL MOLYBDENUM SUPPLY

ABSTRACT

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The active molybdenum fraction in soils consists of various molybdate ions and organic molybdenum complexes. Higher oxides are readily converted to these forms. Lower oxides and the disulfide are inactive until oxidized.

The total molybdenum content of soils depends originally on the parent materials from which they are derived. Generally igneous rocks are high in molybdenum, but sedimentary and metamorphic rocks are low.

Soils lose no molybdenum by leaching and cropping, especially under conditions of high availability. Soils accumulate molybdenum from drainage waters and organic matter.

The available molybdenum content of soils varies with their total active molybdenum fraction, acidity, and content of the following: iron oxides, divalent manganese, organic matter, phosphate, and sulfate. Available molybdenum is determined by extraction with ammonium oxalate or other reagents and by bioassay with a standard fungus.

Excesses of molybdenum occur on peat and muck soils and on poorly drained alkaline soils, especially in valley floors in the west.

Deficiencies of total molybdenum are relatively few. However, deficiencies of available molybdenum are fairly common in acid-soil regions. Crops chiefly affected are legumes, tomatoes, lettuce, beets, spinach, crucifers, and cucurbits. Field deficiencies occur locally throughout the eastern United States and Canada and in the Pacific Northwest.

2Climax Molybdenum Co., New York, N. Y.