Product Bulletin No. 17

TECH-SPRAY® MOLY-MAG

6-0-0 + ***MOLYBDENUM-MAGNESIUM***

Total Nitrogen (N)..... 6.0%

6.0% Urea Nitrogen

Magnesium (Mg)..... 0.5%

Molybdenum (Mo).....1.0%

Nitrogen derived from urea. Molybdenum derived from ammonium molybdate. Magnesium derived from magnesium chloride.

PRODUCT DESCRIPTION

TECH-SPRAY MOLY-MAG is a liquid foliar nutrient supplying the guaranteed elements in water-soluble forms. It is designed for use by itself or in combination with TECH-FLO products or other TECH-SPRAY™ formulations. The water-soluble nutrients are readily absorbed by foliage to give a rapid plant response. TECH-SPRAY MOLY-MAG has a neutral pH.

GENERAL USES

TECH-SPRAY MOLY-MAG is recommended for use only on crops and in areas where MOLYBDENUM is needed (see comments under WARNING, over). Foliar application is recognized as an effective method for supplying Molybdenum. Suggested rates are 1-4 quarts per acre. One quart supplies about ½ oz. of Molybdenum.

Molybdenum (Mo) is present in extremely small amounts in most soils, and only a portion of that is available to the plant. Its availability is decreased in acid soils. Sandy soils are especially susceptible to deficiency. Iron and Aluminum react with Molybdenum to form insoluble molybdates; therefore, high Iron and Aluminum levels may be associated with Mo deficiency. Mo is present in plants in much smaller amounts than other essential nutrients; typical plant tissue concentrations are ½ - 3 ppm.

Molybdenum is essential for all living processes. In agriculture, it is necessary for proper utilization of Nitrogen. Plants absorb most of their Nitrogen in the nitrate form (NO3) and must reduce it to the amino form (NH2) to be used in protein formation. Molybdenum is an essential part of the nitrate reductase enzyme which is involved in this reduction process. In plants with Molybdenum deficiency, nitrates continue to be taken up but are only accumulated, not utilized. Ammonium compounds (NH4+) are better utilized than nitrates but, if Mo is deficient, even ammonia-based fertilizers are not efficiently converted to the proper amino form. Molybdenum is also essential to azotobacter, the nitrogen-fixing bacteria in the root-nodules of leguminous plants. For this reason, legumes have a higher Molybdenum requirement than non-leguminous plants. Molybdenum-deficient legumes commonly show Nitrogen deficiency. In this regard, it has been calculated that Molybdenum is more efficient, lb. for lb., in making usable energy available than Uranium (1). To produce an atomic bomb having an energy release equivalent to 20,000 tons of TNT requires 360 lbs of a U_{235}-U_{238} mixture. The same amount of energy in the form of increased forage yield can be obtained by adding 1 oz. of Molybdenum per acre to 3500 acres of a Mo-deficient leguminous

crop such as clover (218 lbs. of Molybdenum). This formulation also supplies Magnesium to assist in the energy transfer processes (ADP-ATP) in the nitrogen reduction pathway.

FOR SPECIFIC CROP RECOMMENDATIONS INCLUDING MATERIALS, RATES, AND TIMING, PLEASE READ THE PRODUCT LABELS AND CONSULT A NUTRI-TECH REPRESENTATIVE.

APPLICATION METHODS

TECH-SPRAY MOLY-MAG mixes readily in water and may be applied by any type of spray equipment. It is suitable for application by dilute and concentrate ground rigs and for aerial aTECH-SPRAY MOLY-MAG is recommended for use only on crops and in areas where MOLYBDENUM is needed (see comments under WARNING, over). Foliar application is recognized as an effective method for supplying Molybdenum. Suggested rates are 1-4 quarts per acre. One quart supplies about ½ oz. of Molybdenum.

COMPATIBILITY

TECH-SPRAY MOLY-MAG is compatible with many commonly used pesticides, so it may be added to crop protection sprays when the timing of application coincides. It may be combined with TECH-FLO products and with other TECH-SPRAY formulations when additional nutrients are needed.

PLEASE CONSULT A NUTRI-TECH REPRESENTATIVE FOR DETAILED COMPATIBILITY INFORMATION.

WARNING

Molybdenum toxicity in plants is rare and there is little risk of phytotoxicity from foliar applications, but when livestock eat forage that contains 10-20 ppm Mo, they develop a condition called molybdenosis which is often fatal. Molybdenosis is essentially an induced Copper deficiency and is usually treated by supplying Copper.

CAUTIONS

HANDLING: Harmful if swallowed. May cause skin irritation. Avoid contact with skin, eyes, cuts, and sores.

STORAGE: Do not store at temperatures below 40ºF. Do not expose to temperatures below 32ºF.

1. P. R. Stout, U. C. Davis, Micronutrients in Agriculture, Soil Science Society of America, 1972, p. 4.

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