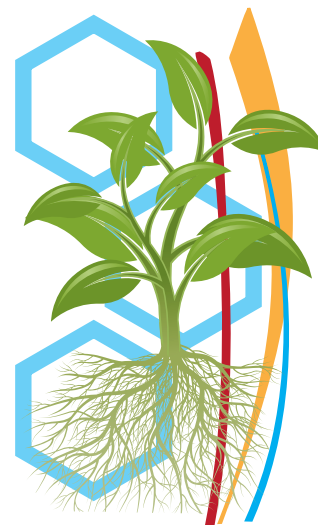


MANGANESE Nitrate

SOLUTION $Mn(NO_3)_2$



ANALYSIS:
6-0-0

Total Nitrogen (N).....6%
6.0% Nitrate Nitrogen
Manganese (Mn) 12%
Derived from Manganese Nitrate

SPECIFICATIONS:

Weight Per Gallon 11.6 Lbs. Gal.
pH: 1% Solution 6-7

Chemically, manganese (Mn) is classified as a metal, "transition element", it exists in 5 valence states +2, +3, +4, +6 and +7. For agricultural and horticultural purposes, the manganese ion must be in the + valence state Mn^{++}

Grow More Manganese Nitrate Solution has a +2 valence state.

The soil pH (acidity or basicity) is an important determinant of manganese availability. Manganese deficiencies are most commonly observed in organic soils, neutral to

alkaline minerals soils or in limed mineral soil low in cation exchange capacities.

Plants lacking in manganese exhibit chlorosis-yellowing of green leaves in a spotty manner. Some plants may exhibit necrotic spots. Photosynthesis is therefore reduced, which exhibits symptoms in young foliage and results in a yield decrease.

Manganese leaf tissue varies greatly in crop

ppm-Average Values

| | | | |
|----------------------|------------------------------|------------------|--------------------|
| Alfalfa.....60 | Grape.....70 | Potatoes.....120 | Sugar-beet.....105 |
| Corn Tassling.....80 | Grasse-Variou Average.....75 | Rice.....145 | Strawberry.....75 |
| Cotton.....85 | Oats.....75 | Sorghum.....50 | Tomato.....130 |
| | Peaches.....90 | Soybean.....95 | |

Ornamental - Nursery/Greenhouse: Range Low 20-50 ppm/High 200-300 ppm

DIRECTIONS

Field Crop-Foliar Application: Use 1 pint per acre per application (1.1 liter per hectare) 3 to 4 application may be necessary to correct severe deficiencies. These rates may be applied, but are not limited, to sorghum, corn, peanuts, cotton, alfalfa, millet, hops and sugar beet.

Vegetable Crops-Foliar Application: Use 1/2 pint per acre in 50 to 100 gallons of water (550 cc in 454 to 908 liters per hectare). These rates may be applied, but are not limited to tomatoes, beans, watercress, lettuce, celery, radish, pepper, potato, melon and onion.

Fruit & Nut Crops:

Bearing Trees - Foliar Application: Apply 1-2 pints per

acre application (1.1 - 2.2 liters/hectare).

Spring/Summer/Fall application benefit fast growing plant tissues. Fall application helps move manganese into plant prior to dormancy.

New Bearing Trees: Use 1 quart per 100 gallons of water, apply to wet run-off (950 cc per 380 liters), apply every 6-8 weeks through the growing season.

Turf Grass Areas: Use 1 to 2 pints per acre (1.1 to 2.2 liters per hectare) in sufficient water for full coverage spray.

Greens & Tees: Use 1/2 ounce per 1,000 square feet (15cc/100 M2)

See back for more information >

INTRODUCTION

Grow More Manganese Nitrate is rapidly assimilated by both leaves and woody tissue, making it very effective in foliar sprays for prevention or correction of Zinc deficiencies.

Manganese Nitrate may be tank mixed with pesticide, fungicide and provides acidifying action. Manganese Nitrate is compatible with other micronutrients and will enhance their up-take. Also compatible with other Nitrogen or Potash fertilizers. Not compatible with liquid phosphates unless diluted.

DESCRIPTION OF MANGANESE DEFICIENCY

- AlfalfaLeaves are chlorotic
- BeanYoung leaves first exhibit chlorosis, with each new leaf showing more; this is followed by small necrotic spots at each side of midrib and lateral veins, or the leaves turn yellow and drop.
- BeetLeaves are chlorotic between veins, with erect growth; margins are curled toward upper surfaces; red and purple tinting appears; perforations are numerous.
- Broad Bean.....Leaves appear practically normal, or show a Slight interveinal chlorosis and brown flecking. The growing point dies.
- CabbageLeaves are smaller and yellower than normal, and are marked by yellow mottling between veins.
- CeleryLeaflets show chlorotic marginal bands, but are olive green elsewhere.
- CornYellow and green stripping occurs, running the length of the leaf.
- Cotton.....Young leaves are chlorotic; yellowish gray to reddish gray between veins, the veins remaining green.
- Cucumber.....Leaves change from green to yellowish white between veins, while the region along veins and midribs remains green. Blossom buds often turn yellow. Leaves are small. Stems are small, weak and slender.
- LettuceLeaves are pale, becoming chlorotic; some necrosis develops later.
- PeaStems may appear normal, or leaves may show a slight interveinal ChlorosisFlat surfaces of seeds have a brown spot or cavity in center.
- PotatoShoot growth varies from normal condition to severe stunting. Leaves near shoot tips are small, rolled forward, and somewhat chlorotic; most varieties show small dark-brown spots along veins or distributed sporadically on younger leaves; dead areas may fall out, causing leaves to become ragged.
- Spinach.....Leaves show chlorotic mottling: from younger leaves, chlorosis spreads to the entire plant; color is pale green to progressively yellow. Necrosis may follow chlorosis..
- TobaccoLeaves, especially on upper part develop chlorotic mottling, which may subsequently become general over the entire plant, giving the foliage a pale appearance. The chlorosis is not so intense as that in the case of iron deficiency. The mottled pattern remains distinct, though mottled areas may become necrotic.
- TomatoShoot growth varies from normal to severe stunting; leaves near shoot tips are small, rolled forward, and somewhat chlorotic; most varieties show small dark-brown spots along veins or distributed sporadically on younger leaves.