FOLIAR APPLICATION RATES

Water Rate[2] (L/ha)	Broadacre[3]	Vegetables[1] and Fruit Trees
	50 to 100	200 to 600
MolyBoost (L/ha)	0.5L	1L to 3L

[1]*For Brassica and susceptible crops repeat application as required.*

[2]*Water rate should be adjusted to suit spraying conditions. Higher water rates are best suited for dry winter or spring conditions and summer foliar applications. Lower water rates should be used for optimum foliar uptake when leaf surfaces are "dewy" (e.g. damp winter and spring conditions).*

[3]*Apply higher rates with dilution of 1 to 100 at high crop yield when required.*

OTHER APPLICATION

Water Rate	Soil	Seeds if not treated with Rhizobia
	minimum 200L/ha	As Needed[4]
MolyBoost (L/ha)	0.5L to 1L	2L/tonne

[4]*Add water as required, ensuring uniform application to seed lot usually 2 to 3L of water is required to be mixed with 2L of* ***MolyBoost*** *for good seed coverage. Application is L/tonne of seed.*

BENEFITS

Molybdenum is needed by the plant in the synthesis and activation of nitrate reductase, an enzyme which reduces nitrate to ammonium in the plant. It is also required for symbiotic fixation of nitrogen within legume root nodules and for the conversion of inorganic nitrogen to organic forms in the plant. Unlike other micronutrients, molybdenum availability in the soil increases with higher soil pH. Sandy soils are more likely to be deficient in molybdenum. Heavy phosphate fertilisation can increase molybdenum uptake by plants from the soil, while sulphate fertilisation reduces molybdenum uptake and can induce a molybdenum deficiency.

High Concentration Molybdenum Liquid Designed for Safe Application

Mo

MolyBoost is a concentrated form of molybdenum for safe application via leaf, soil or seed.

MolyBoost fixes plant molybdenum deficiency which is caused by insufficient molybdenum in the soil or plant.

Apply **MolyBoost** during the growth and reproductive stages by spray applying as a foliar or soil application. **MolyBoost** can be used as a seed treatment for non-legumes and legumes if not treated with Rhizobia.

Foliar Application is the most efficient and effective way to deliver molybdenum to the plant as it bypasses the soil hurdles by delivering the remedy directly to the crop through the leaf.

Symptom Description

Molybdenum deficiency symptoms frequently resemble nitrogen deficiency. Older and middle leaves firstly become chlorotic, leaf margins are rolled and growth and flower formation is restricted.

Analysis	al
Molybdenum (Mo)	
SG Density (g/mL)	

Moly Boost

High Concentration Molybdenum Liquid Designed for Safe Application

Mo

Molybdenum in Plants and Soils

Molybdenum is a transition element which can exist in several oxidation states from zero to VI. It is an essential component of the molybdoenzymes such as nitrate and nitrite reductase that reduce nitrate (NO_3^-) to nitrite, (NO_2^-) and nitrite to ammonia (NH_3). Molybdenum along with iron and cobalt is also a component of the enzyme nitrogenase in both rhizobia and free-living nitrogen fixing bacteria. In legumes, the conversion of nitrogen gas (N_2) to ammonia takes place in root nodules, hence legumes not only require more molybdenum than other crops, they also need cobalt to reduce nitrogen gas to ammonia and satisfy higher nitrogen demand of legume crops. The hydrogen source of such reductive reactions comes from reduced co-factors produced in respiration and photosynthesis such as reduced Flavin Adenine Dinucleotide ($FADH_2$) that is generated in respiration.

Molybdenum is also involved in synthesis of abscisic acid and Indole Acetic Acid (ABA and IAA). It is due to the action of these hormones that molybdenum deficiency can cause uneven ripening in grape berries in the disorder referred to as 'hen and chicken'.

As shown in the photo below, unripe and ripe berries with uneven size is thought to be induced by hormonal imbalances caused by molybdenum deficiency.

Hen and Chicken Disorder in Grapes

Concentration of molybdenum is usually in the range of 0.1 to 1.5ppm on a dry matter basis, but it can be much higher in soils rich in molybdenum. On the other hand sandy soils have low concentrations of molybdenum, and acid soils can lock-up molybdenum (like phosphate) requiring molybdenum addition to crops and soils.

Some plants exhibit visual symptoms of molybdenum deficiency, e.g. the classic whiptail in cauliflower, yellow spot in citrus, and hen and chicken disorder in grapes. Needless to say that visual symptoms of molybdenum deficiency can be similar to nitrogen deficiency symptoms due to impaired nitrate utilisation that can be observed in non-legumes such as brassicas, lettuce and spinach that show symptoms such as reduced leaf size, pale and chlorotic leaves and short internodes.

Whiptail in Broccoli and Cauliflower

For Pasture

Pastures on alkaline soils have high concentrations of molybdenum (50 mg/kg) and may give rise to symptoms of molybdenum toxicity (molybdenosis) such as scouring in sheep and cattle.

Since copper and sulphate have antagonistic interactions with molybdenum, the supply of copper and sulphate needs to be watched in order to maintain the right level of molybdenum in animal pastures, for example the application of copper to the soil to reduce molybdenum toxicity.

Mo