



Grapes

Naturally Balanced Nutrition in Every Granule

Experience higher yields and balanced fertility in grapevines by providing the right nutrients at the right rate, right time, and right place for maximum return. Intrepid Trio is natural langbeinite, a unique mineral with three essential nutrients comprised of 21.5-22% potassium (K_2O), 10.5-10.8% magnesium (Mg) and 21-22% sulfur (S) as sulfates, depending on grade.

Intrepid Trio, also known as Sulfate of Potash Magnesia, allows growers to apply an extremely low chloride potassium (less than 1.5-2.5% Cl depending on grade) and neutral pH fertilizer with the benefit of sulfur and magnesium in the same ratio in each granule. Intrepid Trio is also OMRI Listed and approved for organic farming.

When should Intrepid Trio® be applied?

Apply Intrepid Trio by banding fertilizer under the trellis to minimize K fixation of soils. Maximum uptake of potassium occurs immediately after fruit harvest and again between bud break and veraison.

Nutrient needed to product 8 ton yield for grapevine

Cultivar	Tree Age	K_2O lbs
Red Globe	7	124
Ju Feng	6	88
Cabernet Sauvignon	5	124

(Source: Tong et. al 2010)



Available in premium, granular and standard grades, Intrepid Trio blends well with other fertilizer materials for an even distribution of nutrients.





How does potassium (K₂O) affect grapevines?

Grapevines require a significant amount of potassium. Potassium serves as a regulator nutrient that aids in photosynthesis, improves water use efficiency of the plant through regulation of stomatal openings, and helps the plants resist disease and pests.

Potassium deficiency in grapevines can cause...

- Reduced yields and shoot growth
- Poor vine vigor
- Reduced berry set
- Decreased levels of soluble solids leading to poor quality
- Poor fruit coloration

Soils that have high levels of exchangeable calcium and magnesium combined with low potassium can induce a K deficiency. Grapevines are moderately sensitive to chloride in soils with a maximum soil salinity threshold value of 1.5 dS/m. Intrepid Trio is the perfect source of K fertilizer as it contains less than 1.5-2.5% Cl depending on grade and can be safely used for production of high quality grapevines.

Foliar symptoms of Potassium and Magnesium deficiencies in grapevines				
Nutrient	Leaf Injury Pattern		Location of Severe Symptoms	Timeline
	Mild	Severe		
Potassium	Marginal and interveinal necrosis	Inward necrosis or scorching of leaf margins	Midshoot Leaves	Mid to late summer
Magnesium	Chlorosis of interveins that doesn't extend to margin of leaf	Chlorosis of leaves and margins, necrotic spots	Basal to midshoot leaves	Mid to late summer

(Source: North Carolina Winegrape Grower's Guide)

What effect does magnesium (Mg) have on grapevines?

Magnesium plays an important role in photosynthesis as the center of the chlorophyll molecule and acts in enzyme reactions forming proteins, and aiding the plant in protein synthesis.

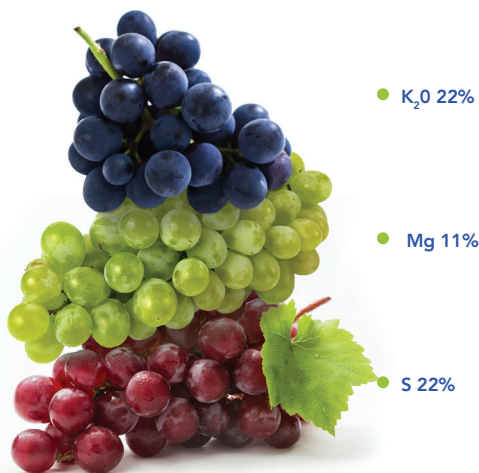
Deficiencies of magnesium in grapevines are most common on sandy, acidic soils. Additionally, high rates of K fertilizer without an Mg source can induce a deficiency. A grapevine petiole K:Mg ratio that exceeds 5:1 can increase the likelihood of a Mg deficiency. Soil levels of Mg are likely to result in a deficiency when magnesium base saturation is less than 5% of CEC or total exchangeable Mg is less than 25 mg/kg of soil. Applying a balanced fertilizer like Intrepid Trio that has K, Mg, and S in each granule will keep your grapevines supplied with the nutrients needed to continue to produce high quality fruit.

How does the sulfur (S) included in Intrepid Trio® benefit grapevines?

Sulfur is an essential part of vitamins, hormones, and proteins within a plant. Sulfur and nitrogen uptake work hand in hand and adequate sulfur levels increase the efficiency of N fertilizers. Intrepid Trio provides sulfur in the sulfate form which is immediately available to the plant and pH neutral causing no acidifying effect to the soil.

When will Intrepid Trio® be available to the grape plants?

Intrepid Trio readily dissolves in the soil slowly, reducing the risk of leaching and providing long-lasting nutrients that are immediately available to the plant.



Intrepid Trio provides three essential minerals readily available as your crop needs them.



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