



SPRAYGRO LIQUID FERTILIZERS

ABN 47 007 974 496

SPRAYGRO LIQUID POTASSIUM NITRATE-- K AND N FERTILISER

The incidences of potassium deficiency in Australian soils are rising at an alarming rate precisely due to non-replenishment of potassium back into the soil pool. Potassium in soil exist in three forms:

1. Soluble potassium
2. Exchangeable potassium
3. Fixed potassium

Plants absorb potassium from the soluble potassium pool, which is located in the topsoil. This pool gets exhausted pretty quickly due to absorption of potassium by plants and soil erosion. The exchangeable pool then replenishes potassium. The size of this pool essentially determines the soil potassium status. However, in many soils the size of the fixed potassium pool, or the rate at which it is released, are insufficient to meet plant demands. This is particularly the case where intensive, high-yielding production systems are established. In these instances, foliar application of potassium is the quickest method of meeting plant's requirement of potassium. Application of potassium through soil in these situations will not be available immediately to the plants due to the fixation of potassium by soil.

Spraygro liquid potassium nitrate, a soluble form of potassium, is a high analysis liquid fertiliser designed specifically for the supply of potassium and nitrogen to plants. The combination of nitrate nitrogen and chlorine free potash in a ratio of 1:3 (4-0-12) provides the flexibility for the product to be utilised for direct application. It is ideally suited for the production systems where excess chlorine and sulfur are a concern, and soil potassium levels are low to moderate. The formulation is very suitable for foliar application due to its near neutral pH and rapid absorption pattern. Potassium is utilised by the plants in relatively larger amounts than most other macronutrients. The growers must, however, apply adequate quantity of potash as larger applications may lockout magnesium, boron and calcium.

The spray application of potassium nitrate completely eliminates potassium deficiency often encountered due to

1. low cation exchange capacity of soil (sand silt and coarse sand)
2. high availability of magnesium in soils
3. high sodium/potassium ratio in soils affected with salinity
4. oxygen tension in waterlogged soils
5. dry topsoil, prolonged drought conditions.

One of the benefits of applying nitrate nitrogen with potassium is better utilisation of potassium and nitrate nitrogen by the crop. Nitrate-N induces the activity of nitrate reductase enzyme that reduces nitrate to ammonium ion, which is then incorporated into proteins. Some of the photosynthetic enzymes that require potassium are proteins in nature. Potassium plays an important role in opening and closing of stomata, the pores on the leaf surface. Carbon dioxide diffuses into the leaves through these pores, and through a series of biochemical reaction systems which, require potassium, is converted into the carbohydrates, consequently enhanced productivity of plants. Potassium deficiency in plants also lead to the accumulation of nitrogen rich positively charged ions, called polyamines, which

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burns the leaves from the margin inwards. This leads to the most characteristic deficiency symptom of potassium- Marginal necrosis.

Application of solid or prilled potassium nitrate can be damaging to the sensitive root hairs due to its high salt index. Although the growers can supply full amounts of potassium and nitrogen (13-0-38) present in the fertiliser but runs the risk of locking out phosphorus as well. Potassium nitrate has very limited water solubility, thus each application requires the maintenance of adequate soil moisture especially in the root zone. This means escalated irrigation costs. Therefore, the most beneficial and economical way to replenish potassium in plants is the application of pre-dissolved potassium nitrate through the foliage. This fertilizer can prove profitable to cotton plants especially to correct late season potassium deficiencies and enhance lint yield in low-potassium soils. Yields from cotton produced on high-potassium soils may not respond as well to foliar potassium treatment.

OTHER POTASH PRODUCTS



| | |
|---------------|------------|
| COMPLETE K | 6-8-20 |
| K BLAST | 0-0-30-20S |
| Hi K 41.5 | 0-0-41.5 |
| PHRUITION | 3-10-20 |
| NITRO 11 Hi K | 11-0-15 |
| VISION 20-20 | 20-0-20 |
| MISSION | 19-4-16 |



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