

## Magnesium

### Foliar and Soil Applications

Magnesium is the central molecule of chlorophyll, the green colour of the leaf. Without it, photosynthesis cannot occur. Magnesium also assists with energy transfer; cell wall formation; protein, starch and oil synthesis; and nutrient uptake from the soil to the roots, especially phosphorus. Magnesium is very mobile in the plant and so a deficiency is first seen in the older leaves.

While a post-harvest magnesium foliar spray is an opportunity to top up the buds, magnesium is needed in much larger quantities than trace elements like zinc and boron. Therefore, there must be follow up applications of both soil and foliar applications the following season to address an inherently magnesium-deficient orchard over the long-term.

## Boron

Boron is most effectively applied immediately post-harvest. Boron is needed for pollen tube formation and therefore fruit set. Good boron levels mean more seeds are set; the higher the seed numbers, the higher the calcium levels in the fruit.

## Copper

Copper compounds are used to control bacterial diseases such as fireblight of pome fruit, bacterial canker of stone fruit, and walnut blight, and fungal diseases of stone fruit such as brown rot, shothole, and peach leaf curl.

Copper applied when the leaves are still green in stone fruit at post harvest will help protect stone fruit from such diseases,.

**Reference:** By Dean Rainham | April 10th, 2016 | Future Orchards, Soils, nutrition and irrigation

## Recommended Products for Post Harvest Application

For best results, the first application should be made as soon as possible after harvest and the second one week later.

### Stone Fruit Recharge™

**Product Code:** GG0184

#### Analysis

Nitrogen	30.3%
Zinc	1.5%
Magnesium	1.5%
Copper	3.0%
Specific Gravity	1.362
pH	2.0 - 4.0

#### Foliar Rates

2 applications at 34 L/ha with 1000 L/ha of water will give you the industry recommended ratio of 20kg of nitrogen, 1kg of zinc, 1kg of magnesium and 2kg of copper, in highly plant available forms.

### Boron Complex™

**Product Code:** SNPK0050

**In addition to the application of Stone Fruit Recharge it is important to apply Boron at the same time.**

#### Analysis

Nitrogen	6.0%
Boron	14.7%
Specific Gravity	1.379
pH	7.5 - 8.5

#### Foliar Rates

2 applications of 2 L/ha with 1,000 L/ha of water will give you the industry recommended correct ratio of Boron, 600g/ha

***\*At the recommended water rate Boron Complex is compatible with Stone Fruit Recharge with agitation.***



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# Maximise Your Post Harvest Inputs



Post-harvest nutrition is an important strategy for orchardists to sustain high yields of quality fruit. It can lower biennial bearing risk, maximize early season growth potential, improve fruit set and is the best time to apply some key nutrients.

Post-harvest to leaf drop period is a relatively narrow but important window to apply nutrients. The key nutrients to focus on are nitrogen, boron, zinc and magnesium. Foliar sprays are very effective post-harvest as nutrients applied to the leaf will be translocated back into the tree and to the buds as the leaves naturally senesce.

## Nitrogen

Ensuring the floral buds have adequate nitrogen is vital to their viability, which is their ability to set fruit. It also lowers biennial bearing tendencies. Autumn is the best time to apply nitrogen to ensure adequate nitrogen is supplied to the floral bud. It has minimal effect on spring shoot growth but has the highest impact on final fruit set compared to applying nitrogen in spring or summer.

### Foliar Nitrogen

Foliar nitrogen applications are the most effective way to directly raise nitrogen concentrations in the floral bud. Nitrogen is needed in large quantities, so a couple of foliar sprays are normally necessary.

### Soil Nitrogen

On soils where soil nitrogen reserves are known to be low, a soil-applied solid nitrogen will also be needed. Try to target 40 per cent of the total trees' nitrogen requirements post-harvest. Leaf samples taken in February showing nitrogen levels less than 2.5 per cent, indicate nitrogen applied in autumn would be beneficial.

Signs of low nitrogen status include:

- Poor fruit set
- Small fruit size relative to crop load
- Enhanced fruit colour development
- Small, pale green foliage
- Early onset of autumn foliage colour development and premature leaf drop.

## Zinc

Zinc is an often misdiagnosed, under-rated or ignored trace element, yet a zinc-deficient orchard will be responsible for significant production losses if not addressed.

Zinc is important for;

- the formation and activity of chlorophyll
- the functioning of several enzymes
- the growth hormone auxin.

### Why should zinc only be foliar applied?

Soil applications are ineffectual because zinc reacts with the organic component and other minerals in the soil and is quickly rendered unavailable to the tree. Therefore foliar sprays must be used. However, zinc sprays can russet the fruit and therefore great care is required if treating trees that still have fruit on them.

Post-harvest sprays are therefore the best opportunity to get zinc into the tree, allowing this trace element to be translocated back into the tree and buds as the leaf senesces. Mid-dormancy winter sprays of higher rates of zinc sulphate can also be used but these must be applied well before any bud movement to avoid bud damage. Apply zinc before any oils go on.

### What if I already use a zinc fungicide program?

A zinc based fungicide program does not address an underlying zinc deficiency. The fungicide formulation means the zinc molecules are too large and won't get absorbed into the leaf. When the leaf test shows excessively high zinc levels it's usually sample contamination from the zinc based fungicide. Make sure you request a light acid wash when sending leaf samples to the lab which should remove any contaminants from the outside of the leaf.

