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Frost Guard

enhanced frost protection

The use of **Frost Guard** as a frost protectant can be regarded as "limited insurance" against loss due to frost. However, there are considerable additional benefits of using **Frost Guard** even if there are no frosts in the season. It should be remembered that no strategy is 100% guaranteed to eliminate frost damage and other cultural procedures such as removing mulch and trash are helpful in managing frost.

Liquid seaweed is extensively used in the fruit industry both in Australia and overseas. For frost damage reduction liquid seaweed is used early in the season. There are additional benefits arising from the use of frost protectants containing liquid seaweed,

including;

- An increase in chlorophyll production
- Increased nutrient uptake
- Increased tree vigor
- Increased ability to deal with water stress.

These four benefits are thought to arise by a combined action of plant growth regulators, auxins, betaines and possibly cytokinins. Plant growth regulators are compounds which, although present at extremely low levels, have a significant effect on plant growth. Because they have a function in plants akin to that of hormones in animals, they are sometimes referred to as plant hormones. Plant growth regulators do not, in general, act individually but in conjunction with other plant growth regulators. Increased chlorophyll production and the ability to deal with water stress are thought to be due principally by the action of betaines with some minor influence of auxins, whereas the increased nutrient uptake and increase tree vigor are thought to be due principally to auxins.

In grapes, early application of liquid seaweed will lead to increased rachis stretch. It is also possible to increase fruit set by application of liquid seaweed. The use of liquid seaweeds later in the season can lead to an array of other benefits, such as increased yields and better keeping quality of fruit. These appear to be due to the effect of cytokinins. These two additional effects are not generally noticed from the application of frost protectant applied early in the season.

In typical situations **Frost Guard** can increase frost tolerance by 2-3° C in stone fruit, apples and pears. In grapes the increase in frost tolerance is similar provided the shoots are less than 10 cm. At later stages of growth of vines the increase in frost tolerance is about 1.5° C. For wheat and canola the increase in frost tolerance is greater but depends on the growth stage of the crop. **Frost Guard** is a blend of liquid seaweed and electrolytes which increases frost resistance in a wide range of crops. It also can be used, with care, to reduce heat stress. It should not be used on Australian natives.

Frost Guard contains additional nutrients such as added potassium and a small amount of phosphorus which have additional beneficial effects. When potassium and phosphorus are applied as foliar sprays, they are rapidly absorbed into the foliage therefore phosphorus does not get locked up and very little potassium is leached out.

Because of its high potassium level, its use may increase fruit set and there is a possibility that it could cause problems with fermentation of grapes if applied late in the season to reduce heat stress.



	Analysis
Potassium	9.2 %
Phosphorus	2.9 %
Filtration	100 mic

%W/V is grams per 100ml of product
ppm is parts per million on weight basis
g/l is grams per litre
mic = microns



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