



# Frost Guard

enhanced frost protection



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

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

These benefits arise by a combined action of plant growth regulators, auxins, betaines and possibly cytokinins. 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 reported as principally due to the action of betaines, with some minor influence of auxins. Increased nutrient uptake and increased tree vigor are due principally to auxins alone.

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.

In typical situations **Frost Guard** can increase frost tolerance by 2-3 degrees 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 in vines the increase in frost tolerance is about 1.5 degrees C. For wheat and canola the increase in frost tolerance is greater but depends on the growth stage of the crop.

**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 with minimal loss. Because of its high potassium level, its use may increase fruit set.

## Application Rates

**Stone Fruit** - Apply 3-4 L/ha every 10-12 days diluted 1 part product with 20 parts water.

**Grapes** - If shoots are less than 10cm, apply at 3-4 L/ha every 10-12 days, and if shoots are longer, apply 3-4 L/ha every 7-9 days.

**Canola** - Apply 3-4 L/ha every 10-12 days throughout the frost danger period, starting 7-10 days before pod fill. **Frost Guard** should not be used on Australian Natives.



		Analysis	
Potassium	9.2 %	Potassium Phosphorus	9.2 % 2.9 %
Filtration	100 mic	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



Fair Dinkum Fertilizers

ACN 67 101 645 756

4 Glenbarry Rd  
Campbellfield Vic 3061  
P: (03) 9357 5488

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