

**CROP STRESS**

# Super Kelp

**Concentrated Liquid Seaweed Extract**

- **Stimulates root growth**
- **Improves tolerance to heat & cold**
- **Mixes easily with fertiliser**

Super Kelp supports a healthy root system and crops under stress which is vital for longer term production and profitability. Improved root growth allows plants to absorb nutrients like P and Ca.

Super Kelp is a high quality kelp which is a source of natural nutrients including trace elements, amino acids, and growth promoting substances.

The benefits of Super Kelp include:

- Increased root growth
- Plants are better able to withstand environmental stresses (drought, frost, heat)
- Increased chlorophyll production
- Improved plant defence system
- Increased nutritional value of feed crops
- Improved flower retention and fruit set
- Enhanced seed germination

**We recommend using Super Kelp to help your crop through stress events**

## 1) Kelp improves root growth - stronger plants

Multiple studies show Kelp improves root growth making plants more resilient to stress events. (Khan 2009, Crouch 1990)

*How - Kelp components such as macro- and micro- elemental nutrients, amino acids, vitamins, cytokinins, auxins, betaines, alginates, sterols and abscisic acid affect cellular metabolism in plants that lead to enhanced growth and yield. These extracts are bioactive at low concentrations. (Khan 2009 ; Blunden 1997)*



## 2) Kelp improves heat tolerance

Kelp effectively reduces plant shutdown times and stimulates root growth to repair damaged roots. Can be used to provide protection during periods of heat stress; effect will last for 2-3 weeks.

*How - Betaines in Kelp increase chlorophyll content and consequently photosynthesis; cytokinins induce heat tolerance; multiple components increase potassium uptake, improve root growth & increase turgidity of cell walls so water less likely to flow out of cells; and antioxidants in Kelp help plants in temperature extremes. (Khan, 2009)*



40-50% higher than expected yield in heat in WA. 4x's Kelp at 3-4L/ha in Jan to March heat.

## 3) Kelp improves frost tolerance

Australian Growers have been using Super Kelp extensively to improve frost tolerance.

The first application, via foliar spray, should be made at least 36 hours before the expected frost; repeat every 10-14 days during susceptible period. Super Kelp 5L/ha; in 1,000L water.

*How - Kelp lowers the temperature at which cells will freeze because Kelp is a highly effective brix builder. Plants with higher sugar content have a lower freezing point.*

*Cytokinins & Betaines increase turgidity of cell walls ie water less likely to flow out of cells. Acts as "anti-freeze" - research suggests seaweed has digests that trigger the hardening off response plants have in winter.*

# Stimulates root growth, reduces stress

## PACK SIZES:

20L, 200L, 1,000L

## DIRECTIONS FOR USE:

Super Kelp can be applied as a foliar feed, root dip or seed inoculant, enabling the plant to receive direct benefits from the naturally balanced nutrients and growth promoting substances.

Always agitate drum contents before use.

## APPLICATION RATES:

### Vegetables - Short Season

Apply at the following growth stages – Transplant/emergence, 7-10 days post transplant/emergence, 1-2 week intervals during season.

Transplant Dip: 2 litres of Super Kelp in 100L of water.

Via irrigation: 3-7 litres of Super Kelp per ha.

Foliar Spray: 3-5 litres of Super Kelp per ha. Dilute with 200L of water.

### Vegetables - Long Season

(including fruiting vegetables)

Apply at the following growth stages – Transplant/emergence, 7-10 days post transplant/emergence, 3-4 week intervals during season.

Transplant Dip: 2 litres of Super Kelp in 100L of water.

Via irrigation: 5-7 litres of Super Kelp per ha.

Foliar Spray: 3-5 litres of Super Kelp per ha. Dilute with 200L of water.

### Potatoes

Apply at the following growth stages – 80% emergence, tuber initiation, bulking up:

Via irrigation: 5-7 litres of Super Kelp per ha.

Foliar Spray: 3-5 litres of Super Kelp per ha. Dilute with 200L of water.

## Fruit & Vines

Apply at the following growth stages – early spring growth, pre-flowering, post flowering, early sizing, late sizing:

Via irrigation: 3-7 litres of Super Kelp per ha.

Foliar Spray: 3-5 litres of Super Kelp per ha. Dilute with 200L of water.

Alternatively apply with every foliar spray at 2-3L/ha.

## Broad-acre Crops:

Apply 1-3 litres of Super Kelp per ha as foliar spray.

Suitable for aerial application.

To use as a Seed Treatment apply 4 litres of Super Kelp per tonne of seed with up to 5L of water.

For cereals apply 2-3 times at the following stages of growth – 2-3 leaf stage, early tillering, late tillering.

## For heat and cold (frost) stress:

Apply 36-48 hours prior to stress event as a foliar spray or via irrigation. During events it is recommended to apply via irrigation.

Repeat every 14 days during extended heat and cold periods. For extra frost tolerance it can be mixed with 0.5% potassium fertiliser to help strengthen plants.

## Drought Tolerance:

Regular use during drought to stimulate root growth can help crops explore greater soil volume and access moisture.

## COMPATIBILITY:

Super Kelp is compatible with most pesticides and fertilisers. Always mix a small quantity (jar test) and check for physical compatibility before combining with other ingredients.

Super Kelp does not heighten the phytotoxic effects that occur from some pesticides, including copper fungicides. It is compatible with liquid fertilisers like calcium nitrate and potassium nitrate when diluted for irrigation or foliar spray.

## CLEAN UP & STORAGE:

Use all mixture in spray and irrigation tanks; purge tanks and lines with clean water; flush irrigation lines. Do not return mix to original drums. Store in original container away from direct sunlight.