CROP STRESS

Super Kelp SP

Premium Soluble Seaweed Powder

- **Stimulates root growth**
- **Improves tolerance to heat & cold**
- **High quality kelp**

Super Kelp SP is a high quality water soluble kelp. It is a source of natural nutrients including trace elements, amino acids and growth promoting substances. For use in liquid foliar, soil applied and irrigation water applications.

Super Kelp SP 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.

The benefits of Super Kelp SP include:

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

Research

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).

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)

Improved root and shoot development in strawberry plants.

Photo shows randomly selected control and Kelp plants.

Greenhouse Lettuce grown in saline conditions.

Kelp improved root growth and foliage.

Greenhouse root systems in treated Bentgrass grew significantly larger and were more advanced than the control.

Tomato Trial - noticeable improvement in vigour plus 24% increase in the number of fruit over control.

Stimulates root growth, reduces stress

PACK SIZES:

20kg

DIRECTIONS FOR USE:

Super Kelp Soluble Powder is water soluble and is suitable for use in liquid foliar, soil applied and irrigation water applications.

Applied through standard spraying & fertigation equipment. Always mix under vigorous agitation. Ensure all product is dissolved prior to application. Pre-mix at 1:10 with water; do not add solid to spray tank. Add Super Kelp Soluble Powder to the spray or fertigation tank first by half filling tank with water, begin agitating and then adding recommended amount of pre-mixed Super Kelp SP.

APPLICATION RATES:

Soil: 750 - 1kg/ha at key growth stages. Dilute with water

Foliar Spray: 350 - 500g/ha; every 7-14 days. Dilute with water

Seed Treatment: 500g/tonne of seed with 5L water

Transplant Dip: 100g/100L water

Broad-acre Crops: 100g - 200g/ha

Foliar – apply as fine mist until foliage wet. Use enough water for good spray coverage. Apply during cool part of day and prior to heat stress event, not during heat stress. Use a mild rate of surfactant for maximum dispersal.

Irrigation – pre-mix 1:10 recommended before adding to supply tank. Continuous agitation of supply tank recommended. For Micro-sprinkler, solid set or drip irrigation apply after system fully pressurised. Inject for at least one hour then follow with clean water for 45 minutes to clear system of all product.

Vegetables - Short Season

Apply at the following growth stages

– Transplant or emergence, 7-10 days post transplant/ emergence, 1-2 week intervals during season.

Vegetables - Long Season - including fruiting vegetables

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

Potatoes

Apply at the following growth stages

– 80% emergence, tuber initiation, bulking up:

Fruit & Vines

Apply at the following growth stages

– early spring growth, pre-flowering, post flowering, early sizing, late sizing:

Alternatively apply with every foliar spray at 200 -300g/ha.

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

Foliar applications:

- Compatible with most insecticides, fungicides and fertilisers.
- Acidic mixtures may require pH adjustments.
- Add surfactants after the powder has completely dissolved in the tank solution.
- Calcium products – thoroughly mix powder with water in tank prior to adding calcium product.
- Jar test recommended if interaction with chemicals unknown.

TYPICAL ANALYSIS

Solubility in water	100%
pH	10-10.5
Organic Matter	45-55%
Total N	0.8-1.5%
Available Phosphoric Acid	0.4-0.8%
Soluble Potash	17-22%
Magnesium	0.2-0.6%
Calcium	0.3-0.6%
Sodium	3-5%
Boron	75-150ppm
Iron	75-250ppm
Manganese	5-20ppm
Copper	1-5ppm
Zinc	25-50ppm
Carbohydrates	
Alginic Acid	12-18%
Mannitol	4-6%
Hormones	<0.1%
Amino Acids	
Alanine	0.32%
Aminobutyric acid betaine	300ppm
Aminovaleric acid betaine	200ppm
Arginine	0.04%
Aspartic Acid	0.62%
Cystine	0.01%
Glutamic Acid	0.93%
Glycine	0.29%
Glycine Betaine	60ppm
Histidine	0.08%
Isoleucine	0.26%
Leucine	0.41%
Lysine	0.16%
Methionine	0.11%
Phenylalanine	0.25%
Proline	0.28%
Serine	0.08%
Threonine	0.04%
Tyrosine	0.17%
Valine	0.28%
Trytophan	0.07%

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