

GREEN BOR™



Chengeta Crop Care

What is GREENBOR

- Mineral name is Hydroboracite
- Magnesium /Calcium Borate
- Crushed rock
- Comes out of a mine high up in the Andes
- Slow release, ground applied, boron fertiliser 10% concentration



Is it needed in New Zealand?

- Soils are mostly deficient in natural Boron
- High rainfall means rapid release of water soluble forms
- Free draining coarse or sandy soil types prone to leaching
- Crop demands during all stages of growth



HOW DOES IT WORK ?

BORON IS REQUIRED FOR THE FOLLOWING
PLANT FUNCTIONS

- Root growth
- Structural strength
- Flowering/Fertility
- Size and quality of fruit
- Skin strength of fruit
- Fruit firmness and storage
- Nutrient uptake (Calcium)
- Disease resistance
- Fruitset

TO ACHIEVE THIS
BORON IS
REQUIRED
THROUGHOUT
THE GROWING
CYCLE



GREEN BOR™

Solubility

High Solubility

Sodium borate

Moderate Solubility

Magnesium borate

Low Solubility

Calcium borate

Generally in Agriculture Highly Soluble borons are used which leach out of the profile very quickly

GREEN BOR is a Calcium /Magnesium hydroboracite that is slowly soluble giving all season release.



Boron an Essential micro-nutrient

- Cell wall structure, Division & Growth – deficiencies often seen at growing points
- Needed for pollen tube development – deficiencies affects seed set and subsequent fruit growth
- Plant internal process including sugar movement, carbohydrate use and creation of amino acids & proteins
- Aids nodule formation in legumes



Boron is an Anion

- This means that the boron goes into the water and the plants take the boron up with the water.
- Therefore high solubility means high risk of toxicity and a high rate of leaching.
- Most products currently in use are sodium based and therefore 100% water soluble.



Boron Deficiency

- Boron deficiency symptoms relate closely to the mobility of B within plants (importance of regular feeding).
- In many plant species in which B is relatively immobile deficiency symptoms first appear as:
 - Abnormal or retarded growth of apical growing points
 - Youngest leaves are misshapen, wrinkled and often thicker and of a darkish blue-green colour
 - Death of terminal growing point
 - Flower and fruit formation is restricted



Queensland examples

	Rate	Boron (ppm)	Calcium (ppm)	Ca:B Ratio
Block 1	Control	0.49	2510	5122
Block 5	120 kg/ha	2.98	2386	800
Block 7	120 kg/ha	2.06	1454	705
Block 9	120 kg/ha	2.77	1834	662
Block 10	120 kg/ha	3.95	2364	598

Innisfail - Red Kraznozems - well drained

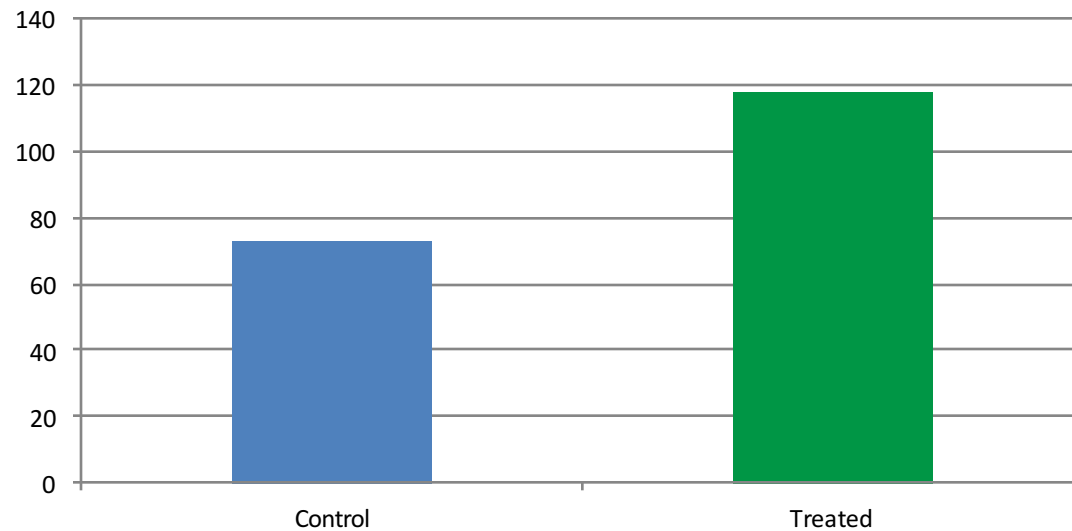
Average Soil pH: 6.5

Average Soil TEC: 13 meq



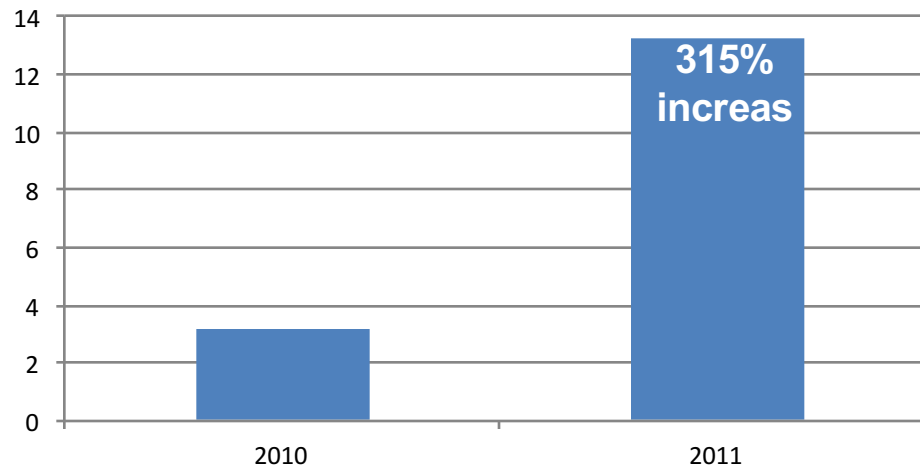
Trial on Lemons

**Leaf Tissue Analysis - 100kg/Ha on rows
3 months after application (ppm)**



Trial on Cherries - NSW

High density cherry plantation of
1320 trees/ha – YIELD kg/tree

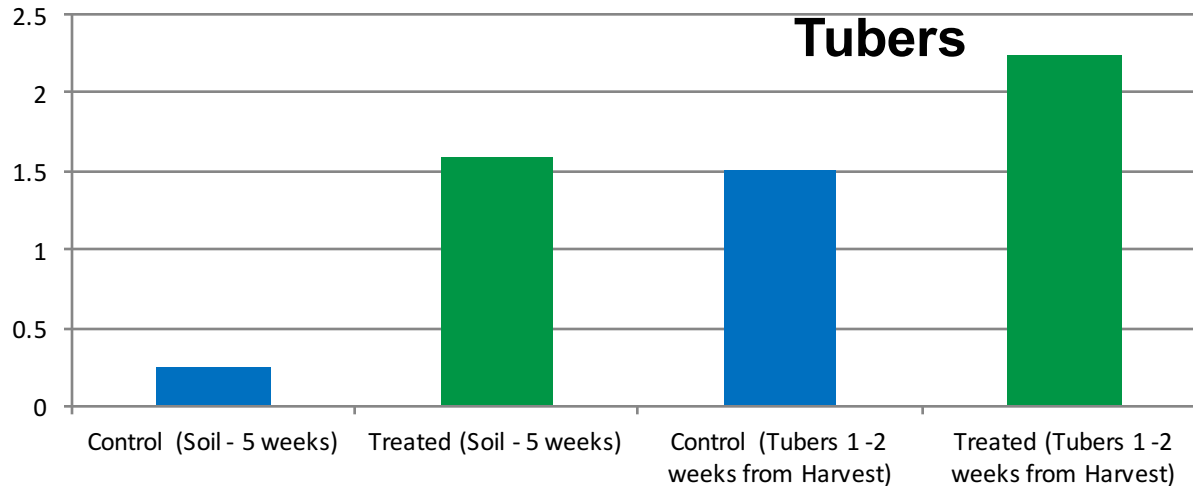


Trial on Potatoes

Observations:

- No 'Shattering' in 1867var in treated area.
- Much stronger bushes - stood up after irrigation as opposed to 'Lying over'.

30 - 50kg/Ha broadcast + consolidated in row (ppm) Levels in Soil and Tubers



GREENBOR Rates

Crop	Annual GREENBOR Rate kg/ha
Grass	20kg/ha
Clover Grass /Pasture	25-40kg/ha
Fodder Brassicas	25 - 40Kg/ha
Lucerne	30 – 50 kg/ha
Avocado	50 -100 kg/ha
Potato	20 -30kg/ha
Apples / Stone fruit	25 - 40kg/ha
Vegetables	25 -40kg/ha

Annual Application rates.

All applications should be made as early in the season as possible .

Apply until soil reaches threshold of 3 ppm



GREEN BOR™

Key Benefits

- Continuous Release
- Only boron product gives measurable increases in soil B Levels.
- Very safe even levels of 300kg/ha did not cause toxicity
- Cost effective.
- Wide range of yield improvements
- Can easily be mixed with fertilizer or lime

