CALCIUM ON BRAEBURN APPLES - HAWKES BAY

By Agcrop Ltd
In association with Roots Shoots & Fruits Ltd.

The outcome of this trial revealed that Fruit Calcium levels were significantly increased with just 5 applications of Biomin Calcium. This is compared to 13 applications of Calcium Chloride and lower tissue calcium levels at the start of the trial. In addition, the overall cost per hectare was $535.79 less using Biomin Calcium. Read on for full trial results.

To compare and show growers Biomin® Calcium – (Glycine chelated Calcium) foliar programme from Roots Shoots and Fruits Ltd. with that of the growers own standard calcium programme on 12 year old apples; variety Braeburn. Previous year saw low apple pressure levels as well as weather related issues.

METHOD

One Hectare block of Braeburn apples was chosen.

Initial leaf analysis was taken and registered with Hill Laboratories on the 30th October 2012 prior to the commencement of the trial from both the Biomin Calcium block and the Calcium Chloride block.

Initial analysis information on these blocks is available by contacting RSF by email or phone.

The analysis showed that the initial calcium level for Biomin Calcium block (B/B1) was lower prior to commencement of trial, registered at 0.89%, whilst the (B/B2) Calcium Chloride block was analysed higher at 0.96%.

Magnesium levels at commencement were the same whilst Potassium levels were also higher in the (B/B2) block as was Phosphorous; (B/B2) 0.25% compared to (B/B 1) at 0.22% whilst Nitrogen levels were the same for both blocks.

Five applications of Biomin Calcium 15% were applied to block (B/B1). Three applications prior to Christmas and two pre-harvest with a total of 13kg / Ha for the season in conjunction with a total of 5.5 L of Mobilizer as a buffer.

On the comparative control block Calcium Chloride 16% was applied fortnightly for a total of 13 applications at a rate of 7.5L/ Ha (97.5 L in total).

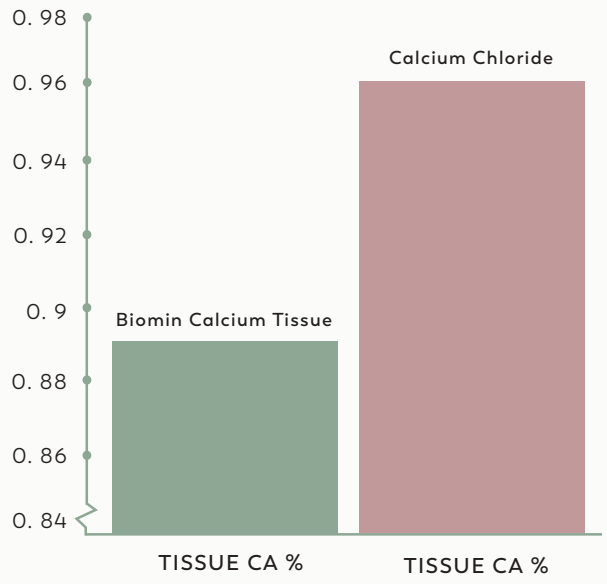
Additionally, there were 4 applications of a Calcium & Phosphorous product - 15.5% P plus 4% Ca - applied at a rate of 10Lt/ Ha (40 Lt/ Ha in total).

CALCIUM RESULTS

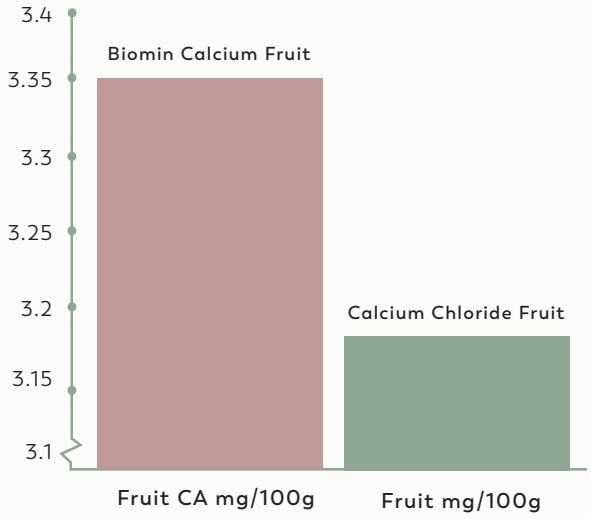
Hill Lab tissue samples results dated 30/10/2012 have Biomin Calcium levels commencing from a lower position than the Control Calcium Chloride block.

ARL lab results dated 26/3/2013 report Calcium level on Biomin block fruit sample at 3.35 mg/ 100g compared with Control 3.19 mg/100g.

TISSUE CALCIUM LEVELS AT TRIAL COMMENCEMENT LAB 1063410 30/10/2012



FRUIT CALCIUM LEVELS AT TRIAL END HARVEST LAB R2565 22/3/2013



YIELD

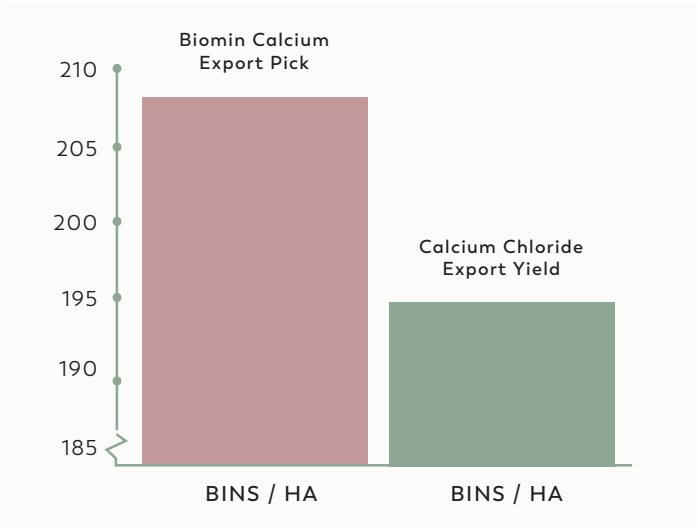
1st Pick Export Grade
Biomin Calcium – 120 Bins/ Ha
Calcium Chloride Control – 115.12 Bins/ Ha

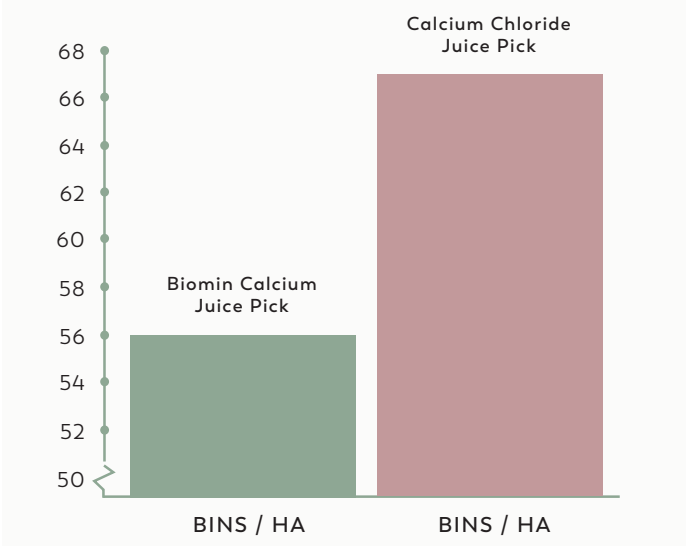
2nd Pick Export Grade
Biomin Calcium – 88 Bins / Ha
Control Calcium Chloride – 79.75 Bins/ Ha

Seconds for juice pick after Harvest
Biomin Calcium 56 Bins / Ha
Control Calcium Chloride 67 Bins / Ha

Greater Export and Less Seconds for Juice were picked from the Biomin Calcium compared to Calcium Chloride.

There were more apples picked overall from the Biomin Calcium block.





WEIGHT

The average weight of Biomin apple block was count 114.
The average weight of Control apple block was count 105.

Grower observations included more advanced foreground colour on the Biomin apples.

Unfortunately pressures were not available.

PAYOUT

Prices are positive this season for Braeburn with estimated earnings of $20.00 - $25.00. It has been imperative for the grower to bring production costs down to stay viable with up to 100 tonne plus per hectare required.

Apple bin weight 420kg
Fruit carton weight 18.5kg
Braeburn apples normally packed out at about 75%, but we will assume 100%

Biomin Export apple weight was 208 bins x 420kg = 87,360kg
Calcium Chloride Export apple weight was 194.87 x 420kg = 81,845kg

Biomin Export earnings 4,722.16 cartons @ $20.00 = $94,443.24 / Ha
Calcium Chloride earnings 4,424.05 cartons @ $20.00 = $88,481.08 / Ha

This equates to $5,962.16 more export dollars per Ha for the Biomin Calcium block.

COSTS

Biomin Calcium costs $35.61 / kg + GST @ 13kg = $462.93+ GST + Buffer cost $33.60 + GST
Biomin Calcium cost $571.07 / Ha Including GST

Calcium Chloride cost $506.86/ Ha Including GST
Biomin product cost was **$64.21** more than the grower standard per hectare.

To calculate the real cost of using these products, we need to consider the cost of applying spray applications, which is about $75.00 per hectare, including depreciation and purchase of equipment.

If this calculation was included into the product application costs then the Biomin Calcium treated block would cost 5 x applications @ $75.00 = 375.00 + Biomin product totalling $946.07 per Ha.

By comparision, the Calcium Chloride treatment block costs would be $ $75.00 x 13 applications = $975.00 + Calcium product at $506.86 for a total of $1481.86 per Ha.

Therefore, the grower standard Calcium Chloride true cost is $535.79 more per Ha than Biomin Calcium.

It is worth mentioning that, owing to a move towards more sustainable and environmentally safe methods, calendar spraying systems are no longer practised in many industries and whilst currently apple growers are applying regular cover sprays, this practise may change over times.

RESULT SUMMARY

Observations show that from a lower initial calcium level, **Biomin Calcium, with just five applications, was able to significantly increase fruit calcium**, compared to the grower standard Calcium program.

Biomin showed increased earnings of $5,962.16 per hectare.

Biomin product cost per hectare was $64.21 higher, but based on true costings, the grower standard Calcium Chloride program was more expensive by $535.79 / Ha.

Grower observations included more advanced colour on the Biomin Calcium apples and with just **five applications** compared to thirteen, not only will environmental impacts be reduced but so will overall costs to the grower. Not to mention the potential increase in yield and quality of fruit.