

**CALCIUM ON BRAEBURN APPLES HAWKES BAY  
NEW ZEALAND  
SEASON 2012- 2013**

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**OBSERVATIONS OF BIOMIN CALCIUM TREATMENT COMPARED WITH  
CALCIUM CHLORIDE ON APPLE FRUIT LEVELS AND NUTRITION**



Conducted by: Agcrop Ltd  
In association with Roots Shoots & Fruits Ltd.

## **Objective**

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 30<sup>th</sup> October 2012 prior to the commencement of the trial from both the Biomin Calcium block and the Calcium Chloride block.

Initial analysis levels on these blocks can be seen in appendix a).

(B/B 1) denotes Biomin Calcium block and (B/B 2) denotes the Calcium Chloride block.

It is relevant to note 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) 0.22% whilst Nitrogen levels were the same for both blocks.

Refer to attached appendage

Five applications of Biomin Calcium 15% was 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 Mobilizer as a buffer.

On the comparative control block Calcium Chloride 16% was applied fortnightly by 13 applications at a rate of 7.5L/ Ha or 97.5 L.

Additionally there were 4 applications of a Calcium & Phosphorous product 15.5% P plus 4% Ca applied at a rate of 10Lt/ Ha or 40 Lt/ Ha.

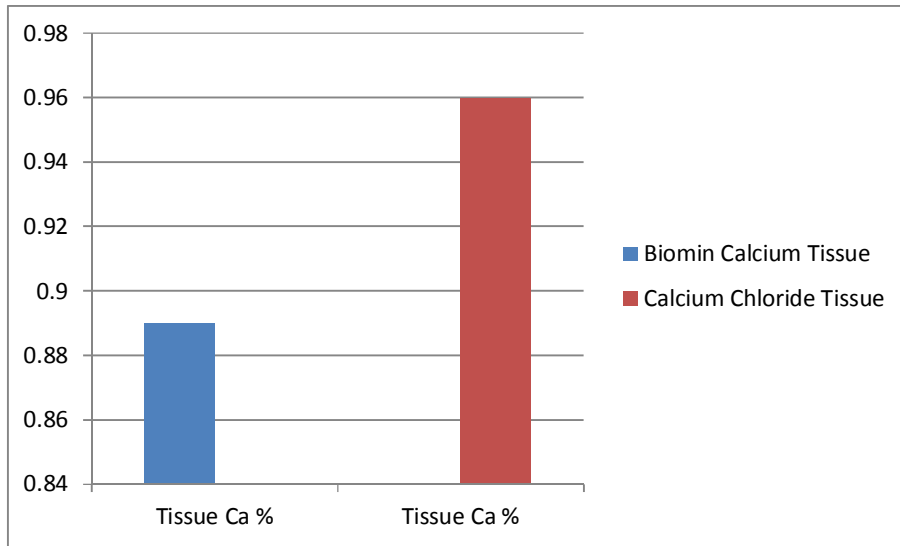
## **Calcium Results**

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

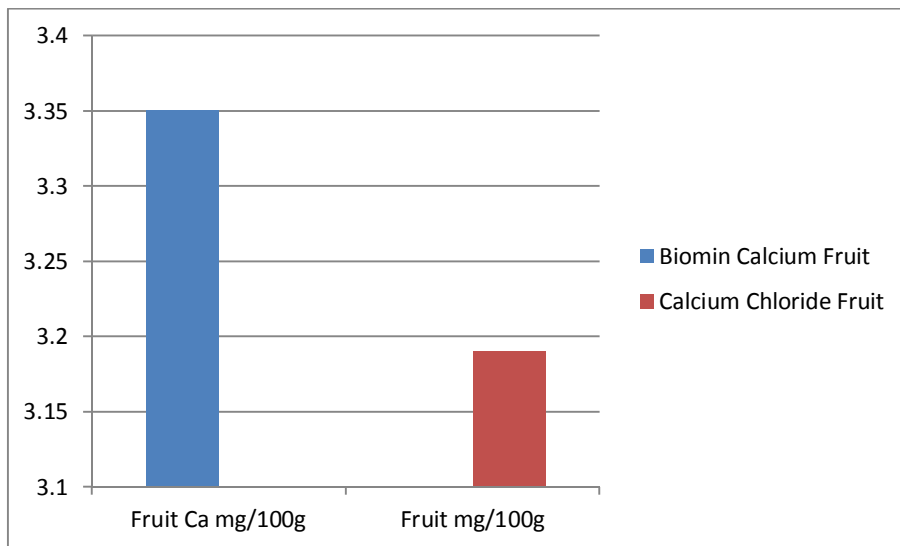
ARL lab results dated 26/3/2013 report Calcium level on Biomin block fruit sample at 3.35 mg/ 100g compared with Control 3.19 mg/100g.

From a lower start point the Biomin Calcium levels have increased to exceed that of Calcium Chloride. (Below)

Tissue Calcium levels at trial commencement Lab 1063410 30/10/2012



Fruit Calcium levels at trial end harvest Lab R2565 22/3/2013



**Yield**

**1<sup>st</sup> Pick Export Grade**

Biomim Calcium – 120 Bins/ Ha

Calcium Chloride Control – 115.12 Bins/ Ha

**2<sup>nd</sup> Pick Export Grade**

Biomim Calcium – 88 Bins / Ha

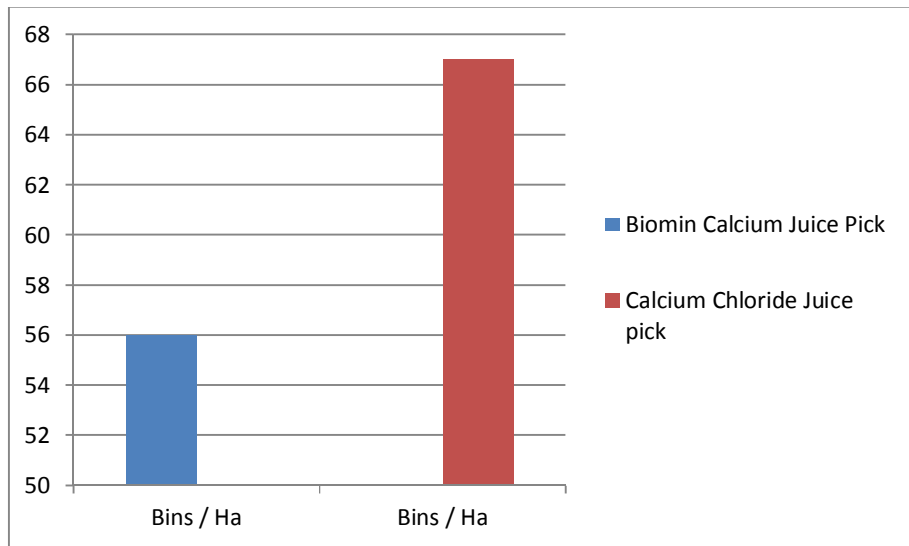
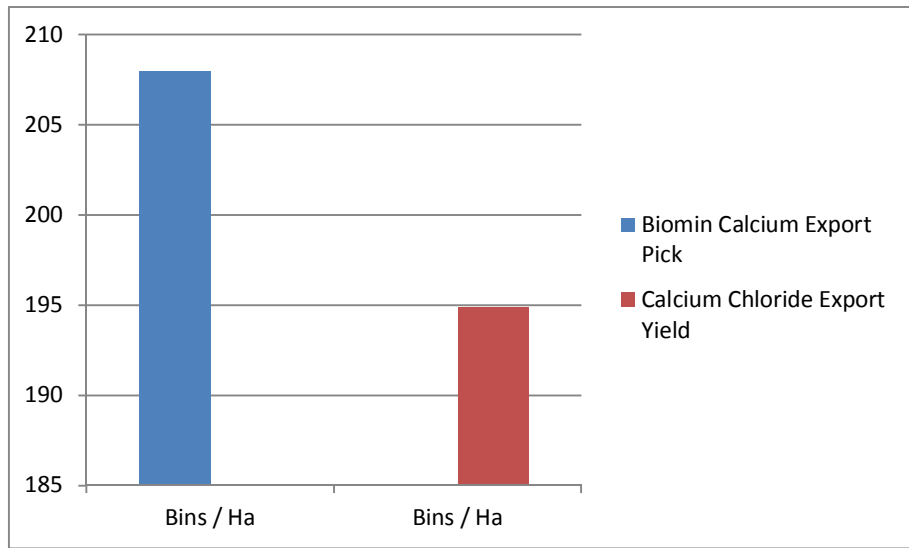
Control Calcium Chloride – 79.75 Bins/ Ha

**Juice pick after Harvest**

Biomim Calcium 56 Bins / Ha

Control Calcium Chloride 67 Bins / Ha

Greater Export and Less Juice was picked from the Biomim Calcium compared to Calcium Chloride  
There were more apples picked overall from the Biomim Calcium block



## Weights

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 \$5962.16 more export dollars per Ha for 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.

Many industries have come a long way in the last few years with regard to sustainability of the soil and the environment in general. With this in mind calendar spraying systems are no longer practiced in many industries and whilst currently apple growers are applying regular cover sprays this practise may change over time.

The cost of applying spray applications is around \$75.00/ Ha which includes depreciation, 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

Whilst grower Calcium Chloride treatment block costs would be \$ 75.00 x 13 applications equals \$975.00 + Calcium product \$506.86 totalling \$1481.86 per Ha

**Grower standard Calcium Chloride true expenses cost \$535.79 more Ha application than Biomin.**

## **Result Summary**

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

Biomin showed increased earnings per hectare of \$5962.16.

Biomin product cost per hectare was \$64.21 higher, but based on true expense grower Standard Calcium Chloride program was \$535.79 / Ha more expensive, showing there are savings that can be shaved from the grower standard Calcium program keeping Braeburn apple production viable.

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 you may have time to catch more fish for the table.