

## THE EFFECTS OF USING BIOMIN™ CALCIUM AND BIO-SIZE ON CHERRY FRUIT

### INTRODUCTION

Consumers are seeking bigger cherries and, according to market returns, the bigger the fruit the bigger the cheque from the agent. Larger fruit can come at a price, as the biological potential is equally as important as market returns. As with all fruit trees the cherry tree can only produce a specific quantity of fruit. This quantity can consist of either a large number of small fruit, a small number of large fruit or, preferably, a medium number of medium to large fruit.

### THE IMPORTANCE OF FRUIT DEVELOPMENT PERIOD (FDP)

Cherry production is characterised by rapid leaf development, rapid fruit development and a long post-harvest period. Without well-balanced crop loading fruit size is reduced.

Critical periods in fruit development include:

- 50 to 60 days from blossom to harvest for early to mid season varieties; and 100 days for late season varieties.
- 30 days after bud burst for full leaf development
- 25% of final fruit weight is gained in the last week.

Scientists divide the growth rate of cherry fruit tissue into a three stage pattern. The first (I) and third (III) are phases of rapid fruit growth, and the second (II) is a relatively quiet stage. The second stage correlates with pit hardening.

Stage I is the period of cell division and the following growth (II & III) is a result of cell enlargement. The ultimate size of the cherry is the result of a combination of cell division and cell enlargement. The length of the cell division phase is important in determining cherry size. Fruit size is also determined by crop load. Heavier crop loads result in smaller fruit and lighter crop loads result in larger fruit. Achieving the optimum balance can be difficult, which is to aim for a medium number of medium to large fruit.

### PRODUCT BACKGROUND

**Bio-min Calcium:** a true amino acid chelated mineral. The chelating agent is mainly glycine, the smallest amino acid commonly used by and found in plants. The unique formulation of Bio-min™ Calcium classifies it at the top of the range of all chelated minerals. Bio-min Calcium is a readily bio-available plant single mineral product. The highlights of such a product include almost total absorption within a few hours after application. The chelating agent Glycine prevents the precipitation of the product and enables all the minerals to move freely inside the plant making the product highly systemic. In the past Bio-min™ Calcium has been trialed successfully on cherries for the reduction of fruit splitting and for the improvement of post harvest shelf life.

**Bio-Size:** stimulates the plants to better utilise their natural reserves and to grow at their full

strength. It enhances the ability of plants to utilize nutrients more effectively. The result of the application of Bio-Size is healthier plants which in turn increases yields. Bio-Size has also been trialed for its positive effects on increased fruit size, fruit uniformity, improved translocation of nutrients as well as reduced shatter of fruit (i.e. reduced fruit drop).

### **PROJECT AIMS**

The aim of this project was to evaluate the benefits of using Biomin™ Calcium and Bio-Size on cherry fruit size and uniformity of fruit size. Considering fruit size and uniformity of fruit are critical parameters associated with market returns, the results of this trial could become critical to growers on a financial level.

### **MATERIALS AND METHODS**

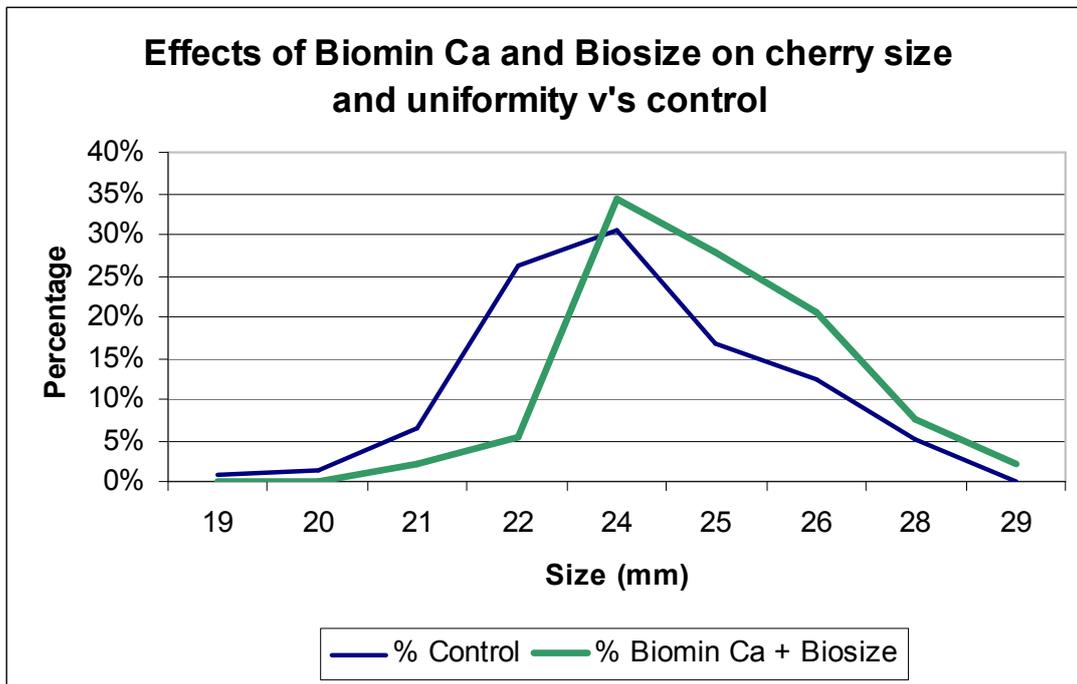
A well reputed grower was selected in the Yarra Valley to conduct fruit sizing and uniformity trials on cherries. There are many variables that can affect fruit size of cherries. To reduce these variables, the cultural management of the trial block and control block were the same. Therefore the only treatment difference was the application of Biomin™ Calcium and Bio-Size.

The applications of Biomin™ Calcium and Bio-Size were made according to the critical timings within the fruit development period (mentioned earlier):-

- The first application was made at fruit set using 2kg/ha of Biomin™ Calcium and 2.5L/ha of Bio-Size.
- The second application was made 7 days after fruit set using 2kg/ha of Biomin™ Calcium and 2.5L/ha of Bio-Size.
- The third application was made 14 days after fruit set using 2kg/ha of Biomin™ Calcium and 2.5L/ha of Bio-Size.

### **RESULTS**

137 pieces of fruit were sampled from the control block. 93 pieces of fruit were sampled from the trial block.

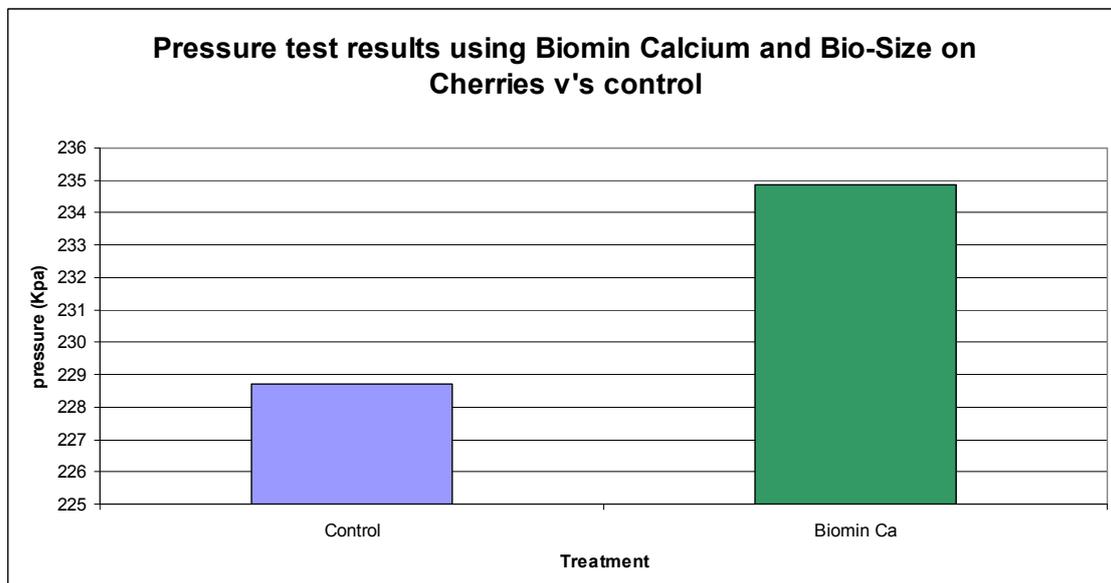


83% of fruit in trial block comprised of sizes 24, 25 and 26.  
 17% of fruit in trial block comprised of sizes 21, 22, 28 and 29.

60% of fruit in control block comprised of sizes 24, 25, and 26.  
 40 % of fruit in control block comprised of sizes 19, 20, 21, 22, 28 and 29.

This shows greater uniformity of fruit size in trial block treated with Biomin™ Calcium and Bio-Size.

It is a well known fact that calcium plays a critical role in cell division and development and in the absence of sufficient calcium, neither of these plant functions progress at their optimum capacity. This is the link between Biomin™ Calcium and the fruit size results.



Percentage increase in pressure (Kpa) of trial over control is 2.62%.

### **DISCUSSION**

From the information available on Biomin™ Calcium and Bio-Size, it would be acceptable to attribute the fruit size and uniformity results to the efficacy of Bio-Size and the fruit size and fruit pressure results to the applications of Biomin™ Calcium.