

THE INFLUENCE OF METALOSATE® POTASSIUM ON QUALITY PARAMETERS IN BRAEBURN APPLES

Introduction

Reports indicate that potassium applications may be beneficial in apple and pear cultivars that color poorly. This project was initiated to investigate the potential of enhancing the red color in braeburn apples by applying Metalosate® Potassium. This cultivar was selected due to its history of poor color and high susceptibility to bitter pit. Since it is considered that potassium sprays may interact negatively with calcium, apples were also checked for bitter pit development after a period of storage.

Materials and Methods

This trial took place at the Waterval farm, Villersdorp, Western Cape, South Africa. The trial was done on Braeburn apples that were 13 years old. All trees received a calcium program for the control of bitter pit. The program consisted of eight applications of two different calcium materials. One was a calcium carbohydrate material and the other was calcium nitrate.

The applications of Metalosate Potassium were made using a motorized backpack sprayer. Four applications were made at a rate of 2.5 liters/hectare (34.2 fl. oz/acre) at six, four, two, and one weeks before harvest. All applications included an organo silicate wetting agent.

Results and Discussion

The apples were harvested on 8 March 2005, by selecting ten apples randomly from the four quadrants of each tree. The apples were assessed for color, pressure (firmness) and sugar content on the 14th and 15th of March 2005.

A color assessment was done the day before harvest (7 March 2005) and again immediately after harvest. The apples were classed into eight color classes and counted. The percentages of apples in the export class were calculated for the Metalosate Potassium treatment and also for the control. On 7 March (the first assessment) there was a 9.5 percent increase in the percentage of export class apples.

On March 15th there was an 8.7 percent increase. Both of these represent a statistically significant increase in number of export fruit due to the application of Metalosate Potassium.

The incidence of bitter pit was lower in the Metalosate treated fruit compared to the control. The difference was not statistically significant.

Fruit pressure was also measured in the treatments with the data indicating that fruit treated with Metalosate Potassium had statistically significantly increased fruit pressures after a period of storage at room temperature.

Sugar content in the apples was also evaluated. Metalosate Potassium statistically increased the sugar levels in the fruit when compared to the control.

The application of Metalosate Potassium positively influenced quality parameters. The level of bitter pit did not increase when Metalosate Potassium was applied. Significant increases in the red color of Braeburn apples resulted in more apples falling into the export class. In addition to this, firmness and sugar content were improved.



Figure 1. Color Classification of South African Braeburn Apples

If you would like the full text of this project, please contact your local Albion representative.