



### Metalosate<sup>®</sup> Potassium on Braeburn Apples in South Africa

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#### Introduction

Industry reports indicate that potassium applications may be beneficial in certain apple and pear varieties that have a tendency to color poorly. The Braeburn apple variety is one such cultivar that often exhibits poor coloring and therefore becomes less marketable due to appearance. Braeburn also exhibits a high susceptibility for bitterpit. While bitterpit is mainly attributed to low calcium high nitrogen levels, high potassium levels are also thought to possibly contribute to increases in bitterpit due to negative interactions of potassium with calcium in the plant.

#### Methods

This trial was established to look at the benefits of applications of **Metalosate<sup>®</sup> Potassium** to Braeburn apples. The trial monitored apple color, bitterpit incidence, sugar levels as well as shelf life.

The trial took place in the Western Cape of South Africa. The Braeburn

apple trees were 13 years old. The entire block received 8 applications of calcium (calcium nitrate, calcium carbohydrate) throughout the season in an effort to control or minimize the incidence of bitterpit.

Four applications of **Metalosate<sup>®</sup> Potassium** were made to the trees at a rate of 34.2 oz/acre (2.5 L/Ha). Applications were made at 6 weeks, 4 weeks, 2 weeks and 1 week prior to harvest. Also included was an organo-silicate wetting agent.

The apples were harvested on March 8, 2005. A color assessment was done prior to harvest (March 7) and after harvest (March 14, 15). The apples were classified into the eight color classes defined by South African Export requirements and counted. The percentage of apples in the export class was calculated for the potassium treated and the control.

Following harvest the apples were stored at 31.9°F (-0.05°C) for 9 weeks. On May 16 the apples were

removed and kept at room temperature. During this time, bitterpit levels were recorded weekly.

Fruit pressures were measured with a penetrometer and recorded on March 15 after one week of cold storage and again on June 8 after 9 weeks in cold storage and 3 weeks at room temperature.

#### Results and Discussion

The application of potassium significantly ( $p < 0.05$ ) improved fruit color and firmness. It also tended to improve sweetness and decrease bitterpit incidence. (See Table 1.) This resulted in a greater percentage of the fruit falling into the export class, returning more money to the grower.

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Table 1. Results

Treatment	%K Content	% Increase in Export Class		Average % of Bitter Pit			Pressure kPa		Sugar Content °Brix	
		7-Mar	15-Mar	24-May	30-May	8-Jun	15-Mar	8-Jun	15-Mar	8-Jun
Metalosate <sup>®</sup> K	35	9.5 a	8.7 a	7.4	8.8	9.7	7.8	6.1 a	12.7	14.6a
Control	-	0.0 c	0.0 b	8.8	10.4	12.7	7.6	5.7 b	12.5	13.9b
Significance Level		p < 0.05	p < 0.05	NS*	NS*	NS*	NS*	p < 0.05	NS*	p < 0.1

\*Non-significant