

INCREASING HASS FRUIT SIZE

J S Köhne and J M Schutte

Merensky Technological Services, P O Box 14, Duivelskloof 0835

ABSTRACT

Fruit size in Hass avocados was not improved by hand thinning. However, treatment with CPPU, a compound exhibiting high cytokinin activity, markedly stimulated fruit growth. At harvest, CPPU-treated fruit averaged 228 g while untreated fruit averaged 180 g. No differences in fruit quality were observed between treated and untreated fruit.

INTRODUCTION

In all avocado growing countries the Hass cultivar is known to be problematic in its fruit size, especially as trees grow older. Hass fruit of good size (i.e. > 200 g) fetch prime prices. The fact that many Hass trees produce up to 40% of fruit that is less than 200 g in weight, is a major constraint on this important cultivar (Zilkah & Klein, 1987). In many deciduous fruit crops, thinning is used to produce good size fruit (Jackson, 1986). CPPU, a compound with cytokinin activity, has also been shown to increase fruit size in some fruit, e. g. kiwifruit (Iwahori *et al.* 1987)

The aim of this study was to evaluate both fruit thinning and the application of CPPU as possible means of increasing fruit size.

MATERIALS AND METHODS

Fruit thinning

In February 1990, three treatments were applied. In the first treatment all fruit less than 55 mm in diameter was removed; in the second all fruit less than 60 mm in diameter was removed and the third was an untreated control. Data concerning yield and fruit size were recorded for 50 trees per treatment.

CPPU treatment

In November 1989, Hass fruitlets were dipped in a solution containing 10 ppm CPPU (Forchlorfenuron) and compared to an untreated control. Each treatment consisted of five single trees replicates. Data concerning yield, fruit size and quality were recorded.

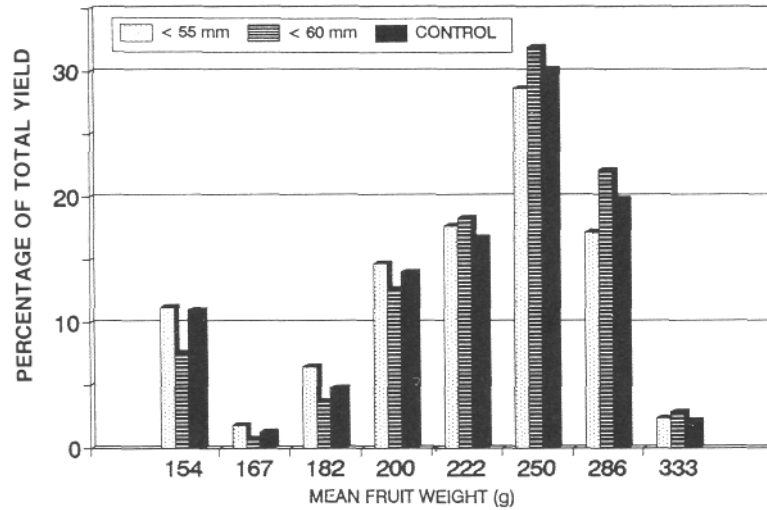


Fig 1 Effect of fruit thinning on mean Hass fruit weight at harvest 1990.

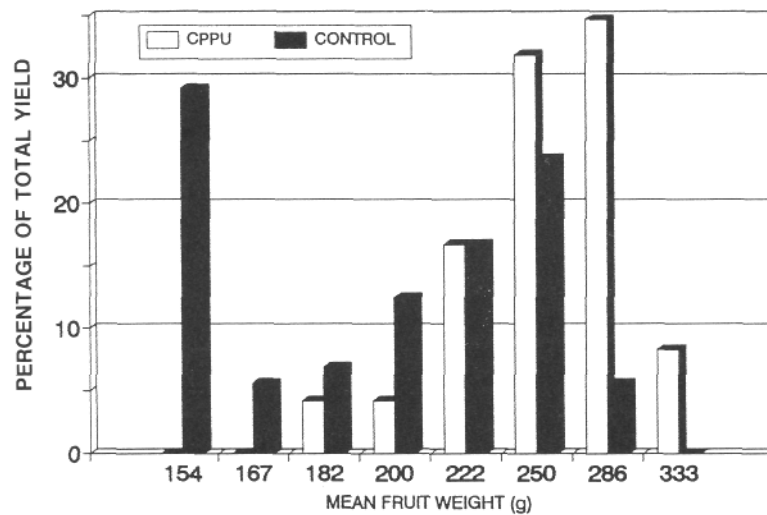


Fig 2 Effect of CPPU treatment on mean Hass fruit weight at harvest 1990.

RESULTS AND DISCUSSION

Fruit thinning

At harvest in July 1990, fruit size in the two thinning treatments was virtually the same as in the untreated control (Figure 1). Thinning failed to increase the size of the remaining fruit. This could have been as a result of the time of thinning — an earlier date may be more effective. However, as fruit drop would still be expected to occur, the relative severity of the thinning would be difficult to assess. Furthermore, thinning is very labour intensive and therefore usually impractical.

CPPU treatment

Dipping fruit in CPPU resulted in a considerable increase in fruit size (Figure 2). More than 30% of the control fruit had a fruit mass under 182 g whereas no fruit treated with CPPU fell into this category. No difference in fruit quality was observed. These results are preliminary and extensive research is still needed. Further research should focus on a more practical method of CPPU application (e. g. spraying), timing and dosage, further assessment of the effect on yield and quality, and market acceptability of the treatment.

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