

Control of Colletotrichum Speckle of Hass Avocado

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ABSTRACT

In the season of 1995/1996, Hass avocados in the Burgershall area were severely affected by a new disease which consisted of a multitude of minute (0.1 to 0.5 mm), shiny black spots on the surface of the fruit. The spots were caused by *Colletotrichum* and the disease is referred to as 'speckle'.

Copper spray programmes were evaluated for control and a two spray programme, in early November and January is considered the minimum for Hass affected by the disease. Benlate can be substituted for one of the copper sprays.

INTRODUCTION

In the season of 1995/1996, Hass avocados in the Burgershall area were severely affected by a new disease which consisted of a multitude of minute (0.1 to 0.5 mm), shiny black spots on the surface of the fruit. This resulted in the downgrading of fruit with considerable financial impact.

The spots are mostly confined to the upper, outer third of the fruit surface adjacent to the pedicel, the area usually affected by sunburn. The affected area often has a dull smoky appearance and is not the normal shiny green of Hass. The pedicel invariably shows the same spotting; starting on the stomata and lenticels and in severe cases is covered with a shiny black scab. Symptoms appear from late January onward.

Isolation from fruit spots yielded pure colonies of *Colletotrichum gloeosporioides*, as did those from the pedicel, although about half of the pedicel spots were sterile, which may be a function of the sterilisation process during isolation. An anomaly was that in about 30% of cases *Colletotrichum* was isolated in the teleomorphic form *Glomerella cingulata*.

This form of *Colletotrichum* is unlike the usual anthracnose as described for Fuerte by Fitzell (1987) and other authors, where large anthracnose spots are associated with wound sites and smaller (1 to 5 mm) lesions associated with lenticels, nor is it similar to the *Dothiorella/Colletotrichum* complex described and studied by Darvas (1982).

A detailed investigation of the disease will have to wait the opportunity, as the purpose of this project was to evaluate spray programmes for the immediate control of the disease.

MATERIALS AND METHODS

A Hass orchard with a history of the disease was chosen at Kiepersol and a randomised block trial with 4 replicates of single tree plots was laid out. Treatments are listed in table 1. Sprays were applied by high volume lance. Untreated controls were not directly included in the trial but evaluated from trees in the orchard.

A hundred fruits were randomly collected from each data tree on 6 June and evaluated for sooty blotch, which was classified into light, medium and severe categories. Fruits were then chlorine washed and evaluated for *Colletotrichum* speckle according to export standards as Export; Grade 2 (which is sometimes exported) and Reject.

A bagging trial was also laid out in which 300 fruits were bagged in October and sets of bags were opened for 2 week periods, to determine the time of infection. A series of storms caused havoc with the trial and although another set was bagged at the end of November, these suffered the same fate, and insufficient data was obtained to draw any conclusions.

RESULTS AND CONCLUSIONS

Lenticel damage was severe and hampered evaluation. Results for control of speckle are given in figure 1. The control was significantly worse than all other treatments. Prochloraz was significantly less effective than the 3xCu treatment. Among the copper treatments, a single copper treatment was significantly inferior to multiple copper treatments. There were no significant differences among the multiple copper treatments.

Table1. Treatment codes, application times and chemicals used in the control of *Colletotrichum* speckle on Hass avocado

CODE	15 Oct	5 Nov	28 Nov	17 Dec	7 Jan	28 Jan	18 Feb	11 Mar
1xCu					Cu			
2xCu		Cu			Cu			
3xCu/Ben		Cu			Cu			Ben
Early 3xCu	Cu			Cu		Cu		
1xExp					Exp			
2xExp		Exp			Exp			
2xExp+		Exp			Exp+			
Proch		Proch			Proch			
Ben		Ben			Ben			

Where Cu= copper oxychloride at 300g/100ℓ;
 Proch= Prochloraz at 25g/100ℓ; Ben=Benlate at 50g/100ℓ
 Exp= experimental, low copper dose product

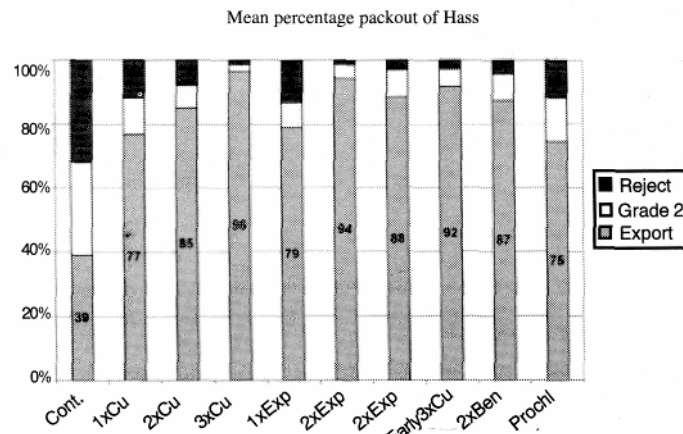


Figure 1. Treatment effects on percentage packout of Hass affected by *Colletotrichum*

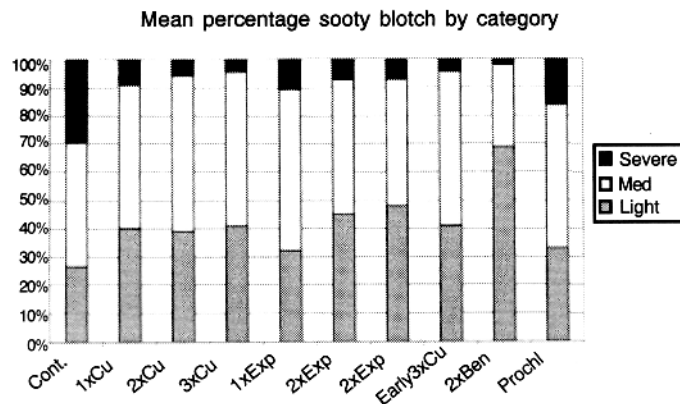


Figure 2: Treatment effects on percentage sooty blotch in three categories

The control and Prochloraz had significantly more severe sooty blotch than other treatments (figure 2). Benlate was surprising in that it appeared to provide good control of sooty blotch which is contrary to previous experience (Kotzé, 1981). Sooty blotch however, was not particularly severe in this trial and not too much emphasis can be laid on these results.

As can be seen from figure 3, single copper sprays give an average 78% export packout. A two spray programme of copper or Benlate gave an average 89.5% packout and a three spray programme raised this a further 5.5%. It is thus up to the grower to decide whether the additional profit justifies the additional sprays. Where this disease is a problem, a two spray programme would appear to be the minimum requirement.

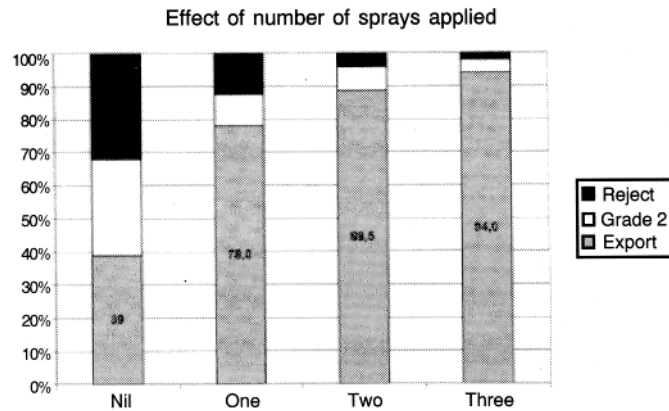


Figure 3: Effect of number of copper sprays applied to *Colletotrichum* speckle

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