

## PRE-HARVEST CHEMICAL CONTROL OF ANTHRACNOSE AND SOOTY BLOTCH

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### Progress Report

#### **OPSOMMING**

*Drie swamdoders, benomyl, captafol en koperoksiechloried is gedurende die somermaande as boordbespuitings afsonderlik toegedien vir die beheer van Antraknose en Roetvlek. Al drie die swamdoders het 'n vermindering in die aantal Antraknose letsels tot gevolg gehad. Siegs captafol en koperoksiechloried het die voorkoms van Roetvlek verminder.*

#### **SUMMARY**

*Three fungicides, Benomyl, captafol and copper oxychloride, were evaluated in pre-harvest field sprays for the control of Sooty Blotch and Anthracnose. All three of the fungicides tested reduced the incidence of Anthracnose lesions on the fruit while only the captafol and copper oxychloride sprays were effective in reducing the incidence of Sooty Blotch.*

#### **INTRODUCTION**

Anthracnose and Sooty Blotch diseases of avocados in South Africa are of considerable economic importance to the grower. Anthracnose is a post-harvest disease and losses occur on the overseas markets. Infection takes place in the field several months before harvesting and symptoms only appear once the fruit becomes ripe (Kotzé 1978). Sooty Blotch is caused by a fungus which grows superficially on fruit, twigs and leaves (Kotzé & Thereon 1979). The fungus never penetrates the fruit, but it spoils the appearance, making fruit unacceptable for the export market.

The purpose of the experiments which were carried out during the 1979—1980 season was to evaluate different fungicides as preharvest sprays using fully grown Fuerte avocado trees in the Woodhouse orchard at HL Hall & Sons, Mataffin. The orchard has a history of severe Anthracnose and Sooty Blotch.

## PROCEDURE

### Treatments

A high volume applicator with hand lances was used. Each tree received approximately 45 liters of spray mixture. The experiment was laid out in a randomised block design with 5 replications of two tree plots.

#### Fungicides & dosages used

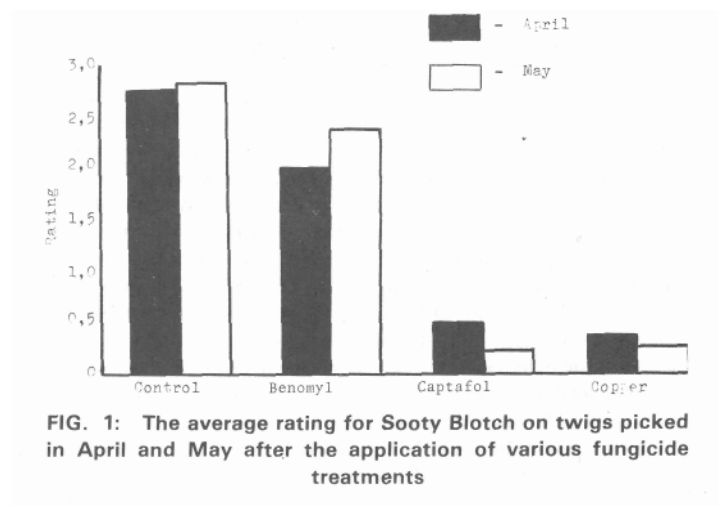
Benomyl — 25 g ai/100 l + 0,5 l Orchex spray oil/100 l  
Captafol — 160 g ai/100 l  
Copper oxychloride — 170 g ai/100 l  
Control — untreated

The spray treatments were applied on 1979-11-24; 1979-12-20 and 1980-01-25.

Fruit and twig samples were picked on 1980-04-14 and again on 1980-05-20. All sampling was done at shoulder height. From each tree 12 fruit and 5 twigs were picked on each sampling date. The twigs were rated on a scale (0—3) for the incidence of Sooty Blotch.

Fruit was wrapped in cellophane and left on the laboratory bench until ripe. It was then rated on a scale (0—3) for the incidence of lesions: 0 — fruit with no lesions, 1 — fruit with 1—5 lesions, 2 — fruit with 6—10 lesions and 3 — fruit with more than 10 lesions.

Five random isolations were made from lesions of all fruit rated 1 to 3 and plated on PDA medium plus 250 mg/l chloramphenicol. The presence of *Colletotrichum* and *Dothiorella* cultures was recorded.



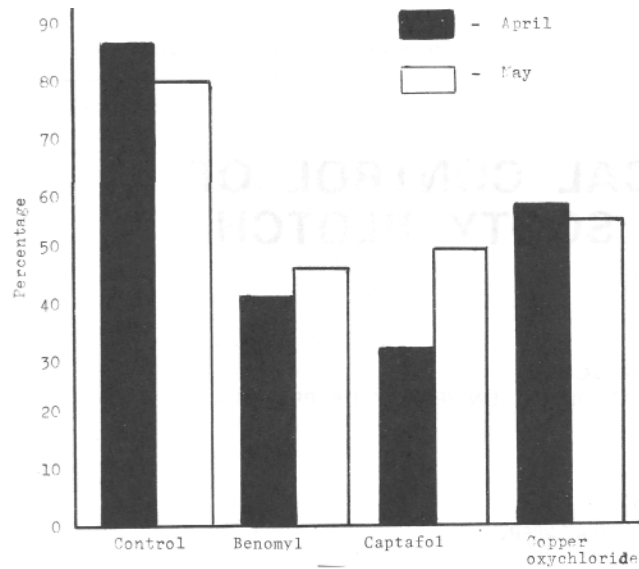


FIG. 2: The percentage of ripe fruit, picked in April and May, that developed anthracnose lesions after the application of various fungicide treatments

## RESULTS

Fig. 1 shows that captafol and copper oxychloride controlled Sooty Blotch well. These treatments differ significantly from the untreated control and Benomyl.

The captafol sprays were found to be slightly phytotoxic on the leaves and also left a white residue on the fruit which was difficult to remove.

The average percentage of positive isolations made from the lesions on fruit which was picked in April was 14,9%. The figure increased to 47,5% with the isolations made from lesions on fruit picked in May. 27,0% of all isolations yielded *Colletotrichum gloeosporioides* and 6% *Dothiorella aromática*. These two fungi sometimes occurred together.

## DISCUSSION

This experiment must be considered as preliminary but it is interesting that captafol seems to afford acceptable control where both Anthracnose and Sooty Blotch occur. Captafol has certain disadvantages that call for further investigation. Benomyl is not effective against Sooty Blotch. Copper oxychloride was promising enough to warrant further investigation. The whole approach of controlling post-harvest diseases with pre-harvest sprays should be fully explored.

The economic impact of post-harvest rot (anthracnose, stem end rot etc.) is so great that relatively small improvements might be feasible. After the first picking the percentage of fruit with more than 10 spots (3 rating) were 78%, 28% and 39% for Benomyl, captafol and copper oxychloride respectively. In modern disease control terms this may not seem spectacular but in terms of marketability of fruit this is highly

significant.

### **LITERATURE CITED**

KOTZE, JM, 1979. Control of Anthracnose of avocados; Techniques to evaluate fungicides SAAGA Research Report 3: 45 - 46.

KOTZE, JM & ELIZABETH M THERON, 1979. Sooty Blotch of Avocados. SAAGA Research Report 3: 47 - 48.