THE CONTROL OF POST-HARVEST AVOCADO DISEASES WITH PROCHLORAZ

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INTRODUCTION
The control of post-harvest diseases in South Africa is presently based on pre-harvest fungicidal sprays, which also control Cercospora spot. Apart from stem-end rot, little success has been achieved in the past with post-harvest treatments to control post-harvest diseases in South Africa (Darvas, 1977; Darvas, 1978; Darvas, 1982; Kotzé and Kuschke, 1979) and Australia (Muir-head, 1977).

Recently, a newly developed fungicide, prochloraz, showed considerable promise against post-
harvest diseases when fruits are dipped into a water suspension of the chemical (Muirhead, 1981; Rowell, 1983).

Different application methods and various concentrations of prochloraz, alone and in combinations with other chemicals, were tested during the past season at Westfalia Estate.

**MATERIALS AND METHODS**

Fuerte fruits were used in the experiment. The moisture content of the fruits averaged 76,5 percent.

The following chemicals were included in the test:

- Prochloraz 45% ai EC formulation
- "Penetrex" experimental material to facilitate the penetration of fungicides into the fruit.
- TAG wax
- Prolong wax

Dip treatments entailed the submersion of fruits into water suspension of the various chemicals for one minute and the ultra low volume (ULV) application of water suspended chemicals by means of a portable ULV applicator (model ULVA 8) at a rate of 1,6 litre suspension per ton fruit. Fruits were air dried in wind tunnels for about three minutes. TAG wax was applied by way of brush rollers as a rate of about one litre per ton of fruit.

Fruits were packed in cardboard cartons and cold stored at 6 °C for 28 days. After cold storage, fruits were ripened at ambient temperature and checked daily for firmness. The fruit was assessed for the presence of post-harvest diseases externally and internally as soon as they reached the eat-ripe stage. Diseases were rated on a 0 (no symptoms) to 10 (entire fruit affected) disease index scale. There were 10 carton replications of count 14 fruit in each treatment.

**RESULTS**

Significant increases in disease incidence were recorded in all treatments that significantly extended shelf-life of the fruits. While prochloraz dip and ULV treatments with Prolong did not influence ripening time in comparison with TAG waxed controls, they tended to reduce all post-harvest diseases. However, due to large variations, only in the case of anthracnose was the reduction statistically significant.

**DISCUSSION**

The increase in disease incidence with retarded ripening of the fruit is in agreement with the basic principle of plant disease relationships confirmed in several experiments (Darvas, 1982) and cannot be attributed to the direct action of the chemicals on the organisms involved.

The two treatments that were effective against anthracnose and showed some activity against Dothiorella / Colletotrichum complex fruit rot and stem-end rot were the prochloraz dip and the ULV prochloraz plus Prolong wax treatments. For practical reasons the ULV treatment would be preferable under Westfalia circumstances and a thorough investigation of this technique is now envisaged.
REFERENCES


