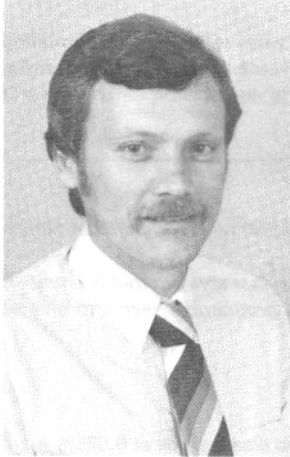


PRE-HARVEST CHEMICAL CONTROL OF THE POST-HARVEST DISEASES OF FUERTE AVOCADOS

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OPSOMMING

Die mees effektiewe na-oessiektebeheer op Fuerte avokados is verkry deur die toediening van kaptafol (0,08% a.b.) in middel-November opgevolg met benomiel (0,025% a.b.) in middel-Januarie. Die spuitprogram met kaptafol opgevolg met Cu-oksichloried het ook goeie resultate gelewer. Die twee toedienings van kaptafol (0,08% a.b.) het tot 'n mate die na-oessiektes onderdruk, terwyl benomiel geen uitwerking op die siektes in die 1980/81 seisoen getoon het nie.

SUMMARY

The best post-harvest disease control of Fuerte avocados was obtained with captafol at 0,08% a.i. applied mid-November followed by Benomyl at 0,025% a.i. in mid-January. The spray programme of captafol application followed by Cu-oxychloride also gave good control. Captafol at 0,08% a.i. in two applications reduced post-harvest diseases slightly, while Benomyl showed no activity in two sprays at 0,025% a.i. concentration in the 1980/81 season.

INTRODUCTION

Pathological post-harvest diseases are important factors in determining quality of avocados in the high rainfall avocado growing area of the Northern Transvaal (Darvas, 1978; Darvas and Kotzé, 1979). The most common post-harvest diseases found at Westfalia Estate are stem-end rot, anthracnose and Dothiorella / Colletotrichum complex fruit rot (Darvas, 1978). Results on pre-harvest fungicide sprays against these diseases have been reported previously (Darvas, 1978;

Darvas, 1981; Kotzé, Kuschke and Durand, 1981). Since pre-harvest sprays are primarily aimed at the control of Cercospora spot disease, only the treatments that showed promise for the dual purpose of controlling Cercospora spot and post-harvest diseases were further investigated in the 1980/81 season. Captafol treatments in the 1979/80 season at 0,16% a.i. concentration showed some undesired residual effect on fruits (Darvas, 1981). It was therefore decided to test the 0,08% a.i. rate on its own and in a spray program with other fungicides.

RESULTS

TABLE 1: Pathological post-harvest diseases on Fuerte fruit sprayed twice pre-harvest with various fungicides

Treatments	Time of application	Diseases on ripe fruit (rated from 0 to 10)				
		External			Internal	
		Doth./Coll. Complex	Anthracnose	Stem-end rot	Anthracnose	Stem-end rot
1. Benomyl 0,025% a.i.	} Nov. 80 Jan. 81	2,21 a	0,42 a	0,34 a	0,38 a	0,50 a
2. Captafol 0,08% a.i.		1,39 bc	0,21 a	0,11 bc	0,20 ab	0,14 b
3. Captafol 0,08% a.i. Cu-oxychloride 0,255%	} Nov. 80 Jan. 81	1,01 cd	0,16 b	0,12 bc	0,12 b	0,14 b
4. Captafol 0,08% a.i. Benomyl 0,025% a.i.		0,69 d	0,10 b	0,02 c	0,07 b	0,02 b
5. Control		1,91 ab	0,17 b	0,22 ab	0,17 ab	0,21 a

Letters a, b, c and d differ statistically at 0,05 level (Duncan's multiple range test)

MATERIALS AND METHODS

Sixteen year old Fuerte trees in block 34 of Westfalia Section were used for the experiment. There were eight randomly selected trees in each treatment. The chemicals were applied with a high volume ground sprayer twice in the growing season, the first in mid-November 1980 and the second in mid-January 1981. For the evaluation of results an average of 240 fruits were picked from each treatment on 14 April and 14 May 1981 and put into cold storage for 28 days at 6°C. After cold storage fruits were ripened at ambient temperature and assessed for the incidence of post-harvest diseases when they reached eating ripe stage.

The chemicals used in the experiment were: Benomyl 50% WP, captafol 80% WP, Copper-oxychloride 85% WP. Nu Film 17, a sticker additive was added to all sprays at 0,02%.

DISCUSSION

Results in Table 1 indicate that Benomyl failed to control post-harvest diseases in the 1980/81 season and in fact the external anthracnose symptoms were statistically more severe on Benomyl sprayed Fuerte fruit than on untreated fruit. At this stage no explanation can be given for these results. Captafol significantly reduced the incidence of internal stem-end rot, but its controlling effect against *Dothiorella* / *Colletotrichum* fruit rot complex was insignificant, while the external anthracnose was statistically more severe than on the untreated control fruit. Disease control was not statistically different from the untreated control in the spray programme with captafol followed by copper-oxychloride as far as external and internal anthracnose and external stem-end rot are concerned but it reduced *Dothiorella* / *Colletotrichum* fruit rot complex and internal stem-end rot significantly. The best treatment for significant reduction of post-harvest diseases, with the exception of anthracnose, was obtained with a spray programme in which captafol was sprayed first in November followed up by a Benomyl spray in January. No residual problems were observed with captafol in the spray programmes where it was used only once, early in the growing season at 0,08% a.i. concentration.

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