

EFFICACY OF SYSTEMIC FUNGICIDES APPLIED AS A TRUNK PAINT AND A SPONGE BAND FOR THE CONTROL OF ROOT ROT ON FIVE YEAR OLD AVOCADO TREES

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OPSOMMING

'n Stamverf en sponsband tegniek was gebruik om sistemiese swamdoders op die stam van Fuerte bome op Edranol onderstam aan te wend Fosetyl-AI sponsband behandelde bome het beduidend meer in stamomtrek toegeneem as onbehandelde bome. Hierdie metode het daarn geslaag om wortelvrotoontwikkeling by avokado bome in die veld te verhoed.

SUMMARY

A trunk paint and a sponge band technique was used to apply systemic fungicides to the trunk of Fuerte trees on Edranol rootstock. Fosetyl-AI sponge band treated trees increased significantly more in trunk circumference than untreated trees. This method succeeded to prevent root rot development on avocado trees in the field.

INTRODUCTION

Control of root rot over a 5 year period on fully grown avocado trees was reported by Darvas (1982). This study contributed towards the current recommendations of soil applications with Metalaxyl for control of Phytophthora root rot or foliar sprays with Fosetyl — A. Recently, because of inferior control with repeated Metalaxyl applications (Darvas, 1982 and McKenzie & Margot, 1982), it was recommended that Metalaxyl should only be used for two years. This left avocado growers with the unpopular multiple spraying of Fosetyl-A 1 option. This causes practical difficulties because spraying for post-harvest fruit diseases and zinc deficiencies have to be accommodated additionally. Studies with Edranol seedlings in the greenhouse showed that systemic fungicides Metalaxyl and Fosetyl-A I applied to the stems controlled root rot (Snyman, 1982).

This study reports on the preliminary screening of systemic fungicides applied to the trunk of five year old avocado trees in the field using a trunk paint and a new sponge band application method for the control of root rot.

MATERIALS AND METHODS

Fungicides tested¹-were:

As a trunk paint application:

Fosetyl-AI 80% WP (Aliette) at 0,5 g; 1,0 g and 2,0 g. D4598 (Experimental) at 0,5 g; 1,0 g and 2,0 g. D4562 (Experimental) at 0,5 g; 1,0 g and 2,0 g.

As a sponge band application:

Fosetyl-AI 80% (Aliette) at 0,5 g; 1,0 g and 2.0 g.

Metalaxyl 5G (Ridomil 5G) at 0,25 g; 0,5 g and 1.25 g.

Metalaxyl 25% WP (Ridomil 25 WP) at 0,625 g; 1.25 g and 2.5 g.

Concentrations of all materials are expressed in g of active ingredient per 3 cm of trunk circumference applied per tree.

Treatments were applied once, in November, to five year old Fuerte trees on Edranol rootstock. Control trees were left untreated. The presence of *Phytophthora cinnamomi* in the root zone and on the roots of the experimental trees was confirmed with the lupine technique (Chee & Newhook. 1956) and direct isolations from avocado roots. Experimental trees had a healthy appearance (rating 0-1). The mean increase in trunk circumference for each fungicide-application method three and seven months after treatment was used as criterium to determine the amount of root rot control

RESULTS

Trunks of trees treated with Fosetyl-AI as a sponge band application had a significantly higher increase in circumference compared to untreated trees after three months (Table 1). This effect was no longer evident after 7 months. The untreated control trees showed the least numerical increase in trunk circumference for the period under test.

DISCUSSION

The effect of the stem treatments lasted for 3 to 4 months but the methods have to be evaluated on a yearly basis, on different rootstocks and under different climatic conditions. Observations indicate that the sponge band and stem paint application techniques are practically feasible and provide effective control against root rot. Stem spraying is also being evaluated at present.

TABLE 1. The mean increase in trunk circumference (cm) of Fuerte trees in the field.

Treatment	Concentration	3 months after treatment	Treatment mean	7 months after treatment	Treatment mean
Control	(no treatment)	1,13	1,136 ¹	5,00	5,00a
D4598	0,5 g	1,25		5,50	
Stem paint	1,0 g	4,25	2,67ab	9,75	7,42a
	2,0 g	2,50		7,00	
D4562	0,5 g	5,00		9,00	
Stem paint	1,0 g	2,25	3,58ab	7,00	7,80a
	2,0 g	3,50		7,50	
Fosetyl-A1	0,5 g	1,50		8,00	
Stem paint	1,0 g	4,25	3,33ab	7,50	8,17a
	2,0 g	4,25		9,00	
Metalaxyl 5G	0,25 g	3,00		4,00	
Sponge Band	0,50 g	3,00	4,00ab	6,00	7,42a
	1,25 g	6,00		9,75	
Metalaxyl 25WP	0,625 g	0,00		4,00	
Sponge band	1,25 g	4,50	2,92ab	11,5	8,75a
	2,5 g	4,25		12,0	
Fosetyl-A1	0,5 g	4,25		8,75	
Sponge Band	1,0 g	4,75	4,25a	11,5	9,00a
	2,0 g	3,75		6,75	
C.V.		62%			50%

1: Means followed by the same letter do not differ significantly (Duncan, P = 0,05).

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