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CHEMICAL CONTROL OF PHYTOPHTHORA ROOT ROT ON YOUNG REPLANTED AVOCADO TREES

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OPSOMMING

Metalaxyl en fosetyl-Al, wat alreeds geregistreerd is vir die beheer van Phytophthora wortelvrot op avokados, was saam met ethazole, Dowco 444, Chevron 20615 en Previcur N op Jong saailinge getoets wat in natuurlike besmette grond oorgeplant was. Metalaxeil en fosetyl-AI het die beste beheer van die siekte gegee. Ander produkte wat belowend gelyk het was Dowco 444 en Chevron 20615. Previcur N en fosetyl-AI, soos aanbeveel vir volwasse groot borne, het nie die siekte in die Jong oorgeplante saailinge gegee nie.

SUMMARY

Metalaxyl and fosetyl-AI, which are already registered for the control of Phytophthora root rot of avocados, were tested together with Ethazole, Dowco 444, Chevron 20615 and Previcur N against root rot on young Guatemalan seedlings replanted in naturally infected soil. Metalaxyl and Ethazole gave the best control of the disease. The other chemicals that showed promise were Dowco 444 and Chevron 20615. Previcur N and fosetyl-AI, as recommended for large trees, did not control the disease on replanted seedlings.

INTRODUCTION

It was reported earlier by Darvas, Kotzé and Toerien (1979) that metalaxyl (CGA 48988) gave excellent control of Phytophthora root rot on young avocado trees replanted in naturally infected soil. In view of the availability of new chemicals a similar experiment was conducted and in this report the effectiveness of some of these new fungicides is compared with the registered products against root rot.

MATERIALSAND METHODS

Eight months old Guatemalan (Edranol) seedlings of uniform size were planted in naturally infected soil of block 9A Westfalia Section. On this site twelve year old Fuertes on Guatemalan rootstocks which were badly infected with *P. cinnamomi* were cut back to the main stem. The soil was thoroughly mixed around each tree base in the dripline and eight beds of 1,5 x 1m were prepared. Three seedlings were planted 50cm apart in

each bed. There were three data trees in each plot replicated four times in each treatment. The experiment commenced in September 1980 and was terminated in July 1981.

The treatments were as follows:

1. Metalaxyl 5G: at 2,5g a.i./m^2 applied twice in the growing season, first in September and second in January.
2. Fosetyl-AI: sprayed on foliage at 0,3% a.i. monthly, from September until March.
3. Ethazole: soil drench at 10g a.i./m^2 in 10 L. water, monthly from September until March.
4. Dowco 444 EC: soil drench at 2g a.i./m^2 in 10 L. water in September and October and at 4g a.i./m^2 thereafter, monthly until March.
5. Chevron 20615: soil drench at 3g a.i./m^2 in 10 L. water in September and at 6g a.i./m^2 thereafter, 8-weekly until March.
6. Chevron 20615: at 3g a.i./m^2 in September and at 6g a.i./m^2 thereafter, 8-weekly until March.
7. Previcur N EC: soil drench at 28g a.i./m^2 in 10 L. water, monthly from September until March.
8. Control.

RESULTS

The experiment was evaluated in July 1981 by using the disease severity rating system of Zentmyer (1973) and by taking height measurements of the plants (Table 1).

TABLE 1: The effect of various chemical treatments against root rot of avocado seedlings replanted in naturally infected soil

Treatments	Mean disease rating (0—5)	Mean height of plants in m.
1. Metalaxyl	0,1d	2,1a
2. Fosetyl-Al	2,6ab	1,1cd
3. Ethazole	0,2d	1,7a
4. Dowco 444 EC	1,3cd	1,3bcd
5. Chevron 20615	1,3cd	1,4bc
6. Chevron 20615	1,5bc	1,5b
7. Previcur N	2,3bc	1,1cd
8. Control	3,7a	1,0d

Letters a, b, c and d differ statistically at 0,01 level (Duncan's multiple range test)

DISCUSSION

In earlier investigations metalaxyl gave the best control on root rot of young avocado seedlings and fosetyl-Al leaf spray and Ethazole soil drench at 3g a.i. per tree were unsatisfactory (Darvas *e tal.,* 1979).

In the present study metalaxyl granular at 2,5g a.i. per m^2 again proved to be a very effective treatment. Ethazole at the increased 10g a.i. per m^2 dose rate was equally good in terms of disease rating and plant height. Although, Dowco 444 and the two Chevron 20615 formulations looked promising, they were statistically inferior to the metalaxyl and Ethazole treatments. Previcur N showed some control of disease symptoms but it did not improve on plant growth. Fosetyl-Al failed to control the disease. It was thus found that fosetyl-Al monthly leaf sprays at 0,3% a.i. were ineffective against root rot of replanted trees, however, the same treatment was found to be satisfactory on large trees in another experiment. The reason for the difference in effectiveness of fosetyl-Al treatments on small and large trees is unknown.

REFERENCES

DARVAS, JM, JM KOTZÉ en JC TOERIEN, 1979. Chemical control of Phytophthora root rot on replanted avocado trees. *The Citrus and Subtropical Fruit Journal.* 553: 4, 5, 16.