

## SUNBLOTCH-ASSOCIATED REDUCTION IN FRUIT YIELD IN BOTH SYMPTOMATIC AND SYMPTOMLESS CARRIER TREES

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### **OPSOMMING**

*Tydens 'n tydperk van 3 jaar het avokadosonvlek die oes van volwasse Fuerte borne met 14% verminder en daarbenewens was 49,7% van die vrugte ondergraads. 'n Studie van besmette simptomlose-draer Edranol borne oor een seisoen toon 'n oesverlies van 82%.*

### **SUMMARY**

*Over a 3-year period, avocado sunblotch was found to reduce the yield of symptomatic mature Fuerte trees by 14% and in addition 49,7% of the diseased fruit was undergrade. A single season study on infected symptomless carrier Edranol trees revealed an 82% yield loss.*

### **INTRODUCTION**

In an initial study on the effects of avocado sunblotch on fruit yield in Fuerte, we found that the yield was reduced by 27,3%, and that 52,7% of the diseased trees' fruit was undergrade (da Graca *et al.*, 1983). The effects of sunblotch on these trees have since been followed for two subsequent seasons.

Another similar investigation was conducted on sunblotch-infected Edranol trees which have become completely symptomless through recovery growth.

### **MATERIALS AND METHODS**

All the fruit from the same five sunblotch-infected and five healthy in Fuerte trees at Baynesfield, Natal used in 1982 were harvested 1983 and again in 1984. The fruit was graded into first, second and undergrade, and the numbers of each recorded.

For the symptomless carrier investigation, five 18-year old healthy Edranol trees, and five sunblotch-infected trees (in the same orchard at Mataffin, Eastern Transvaal) where recovery growth branches have completely taken over from symptomatic branches were selected, and all the 1984 fruit was harvested off each tree and counted. For practical reasons the fruit was not graded.

## RESULTS

The number of Fuerte fruit from the healthy and sunblotch-infected trees in each category for the past three years are shown in Table 1. While the total number of fruit produced over the 3 yrs by the five healthy trees was just over 1000 (i.e. 14%) more than the diseased, only 2,5% of the healthy fruit was undergrade, compared with 49,7% of the fruit from the infected trees. The healthy trees yielded four times as much first grade fruit as the infected trees

Table 2 shows the number of fruit from the Edranol trees. The five healthy trees produced over five and a half times the amount of fruit on the recovery growth trees. This represents a yield reduction of 82%.

## DISCUSSION

The results obtained with the Fuerte trees clearly show that sunblotch can cause significant yield losses, and a substantial increase in undergrade fruit. In Natal where Fuerte matures later than in the Transvaal, undergrade fruit can still be sold, but as more trees come into production in this province it will become increasingly difficult to market such fruit profitably. The removal of infected trees will benefit both the individual grower and the industry.

The tremendous difference in yield between the healthy Edranol trees and the recovery growth trees shows that the term 'symptomless' is misleading drastic yield reduction is a disease symptom. The results confirm the observations of Wallace (1958) and Bergh (1974) that symptomless carriers are poor bearers. An earlier study of Edranol fruit from the same orchard at Mataffin showed that recovery growth fruit is considerably larger than healthy fruit (da Graca & van Vuuren, 1977). A recent suggestion that symptomless carrier or recovery growth material can still be used for propagation (Moll *et al.*, 1984) should therefore not be followed in the light of the results obtained in this study.

TABLE 1. The effect of avocado sunblotch on the yield and grade of Fuerte fruit over a three year period.

Tree	No. of fruit									TOTAL
	1st grade			2nd grade			Undergrade			
	1982	1983	1984	1982	1983	1984	1982	1983	1984	
Healthy 1	624	232	81	128	83	53	0	21	3	
Healthy 2	264	134	332	38	16	92	0	15	0	
Healthy 3	660	264	18	148	338	16	0	15	0	
Healthy 4	362	183	896	96	65	385	0	29	84	
Healthy 5	550	13	389	306	0	182	0	0	10	
	2460 826 1716 5002 (70,2%)			716 502 728 1946 (27,3%)			0 80 97 177 (2,5%)			7125
Infected 1	348	32	74	224	99	256	104	22	873	
Infected 2	216	182	2	40	677	0	42	147	0	
Infected 3	150	0	20	0	76	17	444	48	197	
Infected 4	74	45	21	22	160	79	450	157	136	
Infected 5	18	66	18	0	128	30	178	136	108	
	806 325 135 1266 (20,7%)			286 1140 382 1808 (29,6%)			1218 510 1314 3042 (49,7%)			6116

TABLE 2. The effect of avocado sunblotch in symptomless carrier Edranol trees on fruit yield.

Tree No.	No. of fruit	
	Healthy Trees	Infected Trees
1	551	115
2	880	0
3	705	103
4	505	280
5	412	151
Total	3053	549

## ACKNOWLEDGEMENTS

I wish to thank the Antel family and H.L. Hall and Sons for their co-operation.

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