

## AN INVESTIGATION INTO THINNING OF AN AVOCADO ORCHARD

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### Progress Report

#### OPSOMMING

*Produksie kan tydelik gestimuleer word deur hoof raamtakke laag te ringeleer in die jaar voordat borne uitgedun word. Borne moet egter gesond wees en 'n dunner ring word voorgestel aangesien borne maklik doodgaan as gevolg van ringelering. Die wortelstelsel van die boom wat gedun word, moet doodgemaak word om wortel kompetisie u it te skakel. Snoei van avokadobome onderdruk die oes bale en word nie aanbeveel nie.*

#### SUMMARY

*Trees can be temporarily stimulated by ringbarking of main branches to increase production one year before trees are removed provided that trees are healthy, but a smaller ring is suggested to avoid prematurely killing the trees. The thinned tree's root system should be killed to prevent root competition. Pruning of avocado trees depresses the yield and is not recommended.*

#### INTRODUCTION

Thinning of avocado orchards is a subject on which considerable research has been done overseas, but there are many variations in the South African avocado industry and much more research is needed.

#### PROCEDURE

An Edranol orchard planted in 1971 was due for thinning in 1978 with 90% of the orchard floor shaded out. The orchard was planted 6m x 6m on the square having 277 trees/ha. and the trees were healthy. Ring barking and thinning were done after harvesting (13,815 kg/ha.) on 1978.05.23.

3 Rows of trees consisting of an average of 52 trees per plot were used and only the centre row was used for data trees to determine effect on yield.

## Treatments

- Alternate diagonal rows were ring barked above the bud union but low on the main branches with a 9 cm wide ring (Low Ring bark).
- Alternate diagonal rows were ring barked high, v<sub>B</sub> from the top at 5 m high on all branches with a 9 cm wide ring (High ring bark).
- Tip pruning of branches V<sub>s</sub> from the top on alternate disposal rows % from the top at 5 m (Top pruning).
- Alternate diagonal rows were cut low to the main branches and protected against sunburn to keep root system alive and maintain root competition (Stag horn).
- Alternate diagonal rows cut down and killed with Roundup (Ground level).
- Alternate diagonal rows cut down and root system removed by deep ripping (Removal).
- Crowded area as control (Crowded control).

## RESULTS

TABLE 1: Production kg/ha after different ringbarking and pruning treatments were done

| Treatment          | kg/tree | Prod. of<br>138 temp.<br>trees in<br>kg/ha | Prod. of<br>138 perm.<br>trees in<br>kg/ha | Total prod/<br>ha |
|--------------------|---------|--------------------------------------------|--------------------------------------------|-------------------|
| Low Ringbark       | 102     | 14,076                                     | 10,212                                     | 24,288            |
| High Ring-<br>bark | 66,6    | 9,190                                      | 10,212                                     | 19,402            |
| Top pruning        | 12,6    | 1,738                                      | 10,212                                     | 11,950            |
| Staghorn           | 86,9    | —                                          | 11,992                                     | 11,992            |
| Ground level       | 110,8   | —                                          | 15,290                                     | 15,290            |
| Removal            | 104,0   | —                                          | 14,352                                     | 14,352            |
| Crowded<br>Control | 74,0    | 10,212                                     | 10,212                                     | 20,424            |

## DISCUSSION AND CONCLUSIONS

- Ring barking low on the main branches increased production by 37,8%. Although the ring barking was severe and could harm the trees, it was done on those trees that had to be removed. In this way more production could be achieved on the temporary trees.
- Ring barking high on the branches resulted in lower production and can not be recommended.
- Pruning of the top V<sub>a</sub> of the tree reduced production by 83% and is not recommended.
- Cutting the tree at ground level and killing the root system seems to be the best way

of thinning but was only slightly better than physical removal of the root system. Keeping the root system alive and in competition with the root system of the permanent tree resulted in a 21,5% smaller crop than the chemical killing of the root system.

- e). The 50% increase in production per tree with the removal of jot and light competition over the crowded trees confirmed the importance of timely orchard thinning.

## **REFERENCES**

TOERIEN, JC. 1977. Onderzoek om Produksie in Avokadoboorde wat verdig het te verhoog deur snoei en uitdunning. SAAGA Handeling van die Tegniiese Komitee, p.41.