

A CROP ESTIMATION MODEL FOR AVOCADO

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SUMMARY

The first large scale experiment for predicting the 1985 Fuerte crop with the "Bavendorfer Model", was fairly successful (10% deviation). Further testing will be required in order to verify these findings.

OPSOMMING

Die eerste grootskaalse eksperiment om die grootte van die 1985 Fuerte-oes met die "Bavendorfer-model" te voorspel was redelik suksesvol (10% afwyking). Vertiere toetse is egter nodig om ons bevindings te bevestig.

INTRODUCTION

Accurate crop prediction is necessary for planned marketing. However, accurate predictions are difficult and most predictions tend to be very subjective. Even when carried out by persons with a lot of experience, it is only guess-work. Therefore the "Bavendorfer Model", based on measurable parameters, has been modified to suit the needs of the avocado industry. It was used on an area of 200 ha for the first time in 1985.

MATERIALS AND METHODS

Parameters of the "Bavendorfer Model", as used for apples (Winter, 1969), were adjusted to the specific properties of avocado trees ($\alpha = 0.47$). The formula was adjusted in order to obtain the crop prediction, measured in lugboxes. The average number of fruit per lugbox was determined for the major cultivars using the 1984 packhouse figures (Fuerte: 56,96; Ryan: 61,77; Mass: 74,55). The following formula was used to calculate the expected crop:

$$\text{CROP} = \text{CAP} \times \text{FSD} \times \frac{1}{\text{AFW}} \times \alpha$$

CROP = in boxes at 18.5 kg netto

CAP = tree capacity

FSD = fruitset density $\times 10$

AFW = average number of fruit per lugbox

α = avocado factor

Per orchard a sample of 20 trees measured for capacity and fruitset density as described by Köhne (1985).

RESULTS

Crop estimations for all Fuerte orchards at Westfalia (Section 1 -5) were calculated in February 1985. When packing was finished, production records for each section were totalled and compared to the

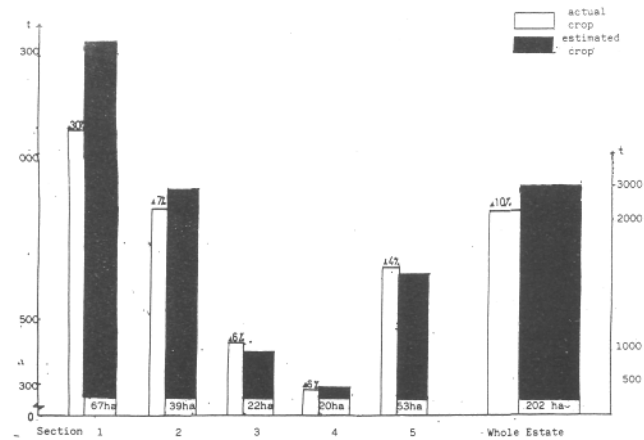


Fig. 1. Results for Fuerte crop estimation shown in chronological sequence (section 1-5).

DISCUSSION

The 1985 crop estimate based on the "Bavendorfer Model" for an area of 200 ha, deviated from the actual crop by only 10%. This crop prediction can be done even by unskilled workers after a short time of training. Fruit growth curves for this region and for each cultivar are still required.

For this reason crop prediction in 1985 was based only on the fruit weight parameters of the previous year. We hope to achieve even better results in 1986 through further adjustment of certain parameters.

REFERENCES

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