

AN INVESTIGATION INTO THE SUCCESSFUL GRAFTING OF AVOCADOS AFTER THE COMMENCEMENT OF FLOWER BUD DIFFERENTIATION

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Progress Report

OPSOMMING

Gedurende die periods na blom differensiasie, ontwikkel 'n groot hoeveelheid laterale enthout in blomme in plaas van die verlangde vegetatiewe groei. Enthout met terminate ogies waarvan die terminale meristeem afgesny is net relatiewe goeie resultate gelever met 'n lae persentasie blomontwikkeling. Bepaalde sowel as onbepaalde bloeiwyse is opgemerk. Onbepaalde bloeiwyse net ontwikkel in normale vegetatiewe groei. By bepaalde bloeiwyse was vegetatiewe groei afhanklik van die ontwikkeling van die klein ogies op die sekundere en tersiëre asse.

SUMMARY

After flower differentiation has commenced lateral graft wood gives a high percentage of floral development instead of the desired vegetative growth. Terminal buds of which the terminal meristem has been cut off, gave relatively good results with a low percentage of floral development. Determinate and indeterminate inflorescence were observed. Indeterminate inflorescence developed into a normal growth. With determinate inflorescence, vegetative growth was dependant on the development of small buds on the secondary and tertiary axis.

INTRODUCTION

Robinson (1968) found that at Nelspruit flower differentiation commences in late summer. In the Tzaneen area fruit set and maturity are normally 2 weeks earlier than in the Nelspruit area. It can therefore be assumed that flower differentiation initiates during the same period or a little earlier. Grafted avocado nursery plants which develop flowers instead of vegetative growth present a problem as the mortality is much higher and development slower. This creates a problem with Duke seed which is harvested from December to the end of February and is ready for grafting from February through to May. This investigation was undertaken to find out whether vegetative instead of floral development of grafts could be achieved by the selection of budwood.

PROCEDURE

Different selections of Mass graft wood were made during May when grafting mostly results in flower development. The graft wood was dipped for 5 minutes in Benomyl (0,5%) and Vapor Card (20%).

After grafting all wounds were treated with tree seal. Four hundred Duke seedlings, grown in small sleeves of 5 x 5 x 30 cm and grafted to Mass during the week of 5 to 9 May, were used.

The following selections of graft wood were made:

- a). Terminal bud with no lateral buds.
- b). Terminal bud with no lateral buds and the top neatly cut off; removing the terminal meristem but leaving the small buds on the secondary and tertiary axes.
- c). Graft wood with 2 lateral buds only.

RESULTS

Plants were classified according to development of flowers or vegetative growth.

TABLE 1: The development of flowers and vegetative growth after selection of budwood

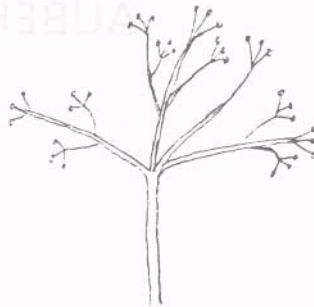
Treatment	Classification			% of plants ready for transplant after 10 weeks
	% Flower	% Flower and vegetative	% Vegetative	
Terminal	17,6	55,3	27	82,3
Terminal cut	7,5	40,7	51,8	92,5
Lateral	52,8	39,2	7,9	47,1

DISCUSSION

Schroeder (1944) identified two types of inflorescence growth patterns, viz.

a) Determinate growth

b) Indeterminate growth



Determinate Inflorescence

Inflorescence is determinate and new length growth occurs only by

Determinate Inflorescence

Inflorescence is determinate and new length growth occurs only by the development of subtending lateral bud. It ends in a single flower bud but also arises in the axil of a leaf along the main stem or may terminate the stem.

Indeterminate Inflorescence

Terminal vegetative buds develop on inflorescence. During this trial we noticed that the inflorescence was mainly determinate and that vegetative growth only developed from the small buds on the secondary and tertiary axis.

Terminal buds of which the terminal meristems have been cut off, gave the best results with most grafts in the vegetative stage. Terminal graft wood gave better results than lateral graft wood.

REFERENCES

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SCHROEDER, CA. 1944. The Avocado Inflorescence. Cal. Avo. Society Yearbook.