

PLANT DISEASES DIVISION, AUCKLAND

I. *Pomology*

Rootstocks.—Apple: A summary of results of test block trials to date indicates:—

(1) Sturmer scions on Sturmer rootstocks have made better growth than on any other stock; next in order of growth are trees budded on Malling XII stocks; least satisfactory in growth and yield are trees budded on Northern Spy (Plant Diseases Division selection) rootstocks.

(2) Jonathan has made excellent growth when budded on Malling XII stocks, and fair growth on Northern Spy.

(3) Cox's Orange has made good growth on Malling XII and Malling XVI rootstocks, whereas when budded on Northern Spy stocks, scions have made inferior growth and produced less fruit.

On Malling I Stock, trees are remarkable for their semi-dwarf habit and high fruit yields.

(4) Gravenstein on Gravenstein stocks has produced sturdier trees and is almost as early in bearing as are trees on Northern Spy stocks. Furthermore, they appear to be more resistant to gnarling than when worked on Northern Spy stock.

(5) Delicious trees are larger when worked on Delicious stocks than on Northern Spy, but fruiting is much delayed.

Stone-fruits: Investigations with rootstocks have been extended to include stocks for English and Japanese plums, apricots, and peaches. A number of combinations have been produced for experimental planting in the Otago research orchard next year.

Citrus: (1) New Zealand Grapefruit: Sweet orange and citronelle rootstocks have been budded with this variety to ascertain which is more suitable under New Zealand conditions.

(2) Lisbon Lemon: Scions were worked on sweet orange, sour orange, and citronelle rootstocks. Largest trees with heaviest yield of fruit developed on citronelle stock, smallest trees on sour orange, and trees of intermediate size on sweet orange.

II. *Variety Trials*

Apple.—Records have been maintained of yields, keeping-quality, and disease resistance of some seventy new varieties produced overseas when compared with standard commercial varieties. Three varieties which have proved to be outstanding in quality and production are Laxton's Epicure, Laxton's Exquisite, and Ellison's Orange Monarch. They have the added advantage of maturing between the Gravenstein - Cox's Orange season.

Strains within the varieties Delicious and Cox's Orange have been isolated and classified and keeping-qualities compared. No strain of Delicious has been found which is immune to mouldy-core, but several have been isolated which exhibit resistance.

Peach.—Observations have been continued on approximately one hundred varieties. Quality of fruit and resistance to disease of all have been recorded. Twelve varieties resistant to leaf curl have been isolated. Those worthy of field trial are being worked for development elsewhere; the others have now been discarded.

Sub-tropical Fruits.—Records have been continued on flowering and fruiting characteristics of some fifteen persimmon varieties.

Citrus.—Approximately twenty varieties of citrus, including Satsuma mandarins, have been imported from Japan for trial as rootstocks and/or dessert.