

## FRUIT RESEARCH

### RESEARCH ORCHARD, APPELBY

*Manurial Investigations.*—The biennial bearing habit of Cox's Orange, Dunn's Favourite, and Delicious apples has been responsible for an exceedingly light crop, but the value of nitrogen and also phosphate and potash in lessening the severity of crop reduction has been amply demonstrated.

*Rootstock Trials.*—Previous years' results have, in general, been confirmed.

*Varietal Trials.*—The vitamin C content of the whole range of hybrid varieties has been found by the Plant Chemistry Laboratory to be at a substantially lower level than last year.

### PLANT DISEASES DIVISION

#### I. Pomology

(a) *Rootstocks.*—(i) *Apples.*—Sturmer: On clay soils Malling XII and own-rooted Sturmer have given crop increases of 59 per cent. and 53 per cent. respectively in comparison with check trees on Northern Spy. In a trial on light volcanic soil between trees on Sturmer roots and on Northern Spy, the former gave a 200 per cent. increase in yield over the latter.

Jonathan, Cox's Orange, Pippin, and Gravenstein gave results almost comparable with those published last year.

Dougherty: Special trials have been conducted with four woolly-aphis-immune Merton stocks, and one shows definite promise as a more vigorous substitute for Northern Spy.

(ii) *Citrus*: New stock and scion workings with experimental material have resulted in great improvement in the quality of some of the fruit.

(b) *Variety Investigations.*—Work has been continued on variety trials of apple, peach, and citrus. Some new material—mandarins—has been received from Japan.

#### II. Plant Diseases

D.D.T. was found to be outstanding in the control of codling-moth, but other pests such as red mite tend to increase after application. Further studies are being made.

No completely satisfactory method of control of red mite has as yet been found. Trials are in progress to control mealy-bug.

Dicky-rice weevil has been successfully controlled with sprays of 0.05 per cent. p.p.i. D.D.T.

Brown-rot on Golden Queen peaches has been satisfactorily controlled with "Phygon" applied twenty-one and seven days before picking.

Bordeaux (1-2-100 or 3-6-100) gave good control of bacterial-spot of plums, but resulted in foliage injury.

Mercurated lead arsenate is the only therapeutant showing promise in checking apple black-spot without causing plant injury.

Stony-pit of pears has been found to be graft transmissible and not a physiological disease.

#### III. Frost Investigations

The freezing of apricot buds artificially *in situ* demonstrated the practicability of this method for determining critical temperatures. Preliminary results suggest that temperatures are critical at 1° F., and at this temperature severe damage occurs within ten minutes.