

Regular bulletins from overseas research establishments, together with other technical information, have been distributed to members, while specific problems were attended to with the assistance of the Dominion Laboratory and other organizations. Progress is being made in the setting-up of a laboratory in which the Institute will conduct long-range research, as well as attending to immediate problems.

CAWTHRON INSTITUTE

Director: Sir THEODORE RIGG

Aided by grants from the Department the Institute conducts several research projects, some of which are collaborative with those of the Department. Reports of investigations on fruit, plant nutrition, soils, and tomatoes appear below; that on entomology is included in the report of the Entomological Research Station appearing in reports from Branches; and those on hops and tobacco are included in the respective reports of Research Committees of the Council of Scientific and Industrial Research.

FRUIT RESEARCH

Magnesium Deficiency of Apples.—As the effect of previous applications of dolomite and magnesite on the apple experimental plots at Tasman and Lower Moutere was much less pronounced in the 1948-49 season than in previous years, fresh applications of these two magnesium compounds were made to many of the experimental plots in September, 1949. Very beneficial effects on the foliage of the apple-trees have resulted, and this indicates that on these soils more frequent applications of magnesium compounds are necessary to maintain healthy foliage and vigour of the trees. Magnesium determinations of apple-leaves from the past season's experiment have not yet been completed, but analyses of leaves made on the previous season's growth showed that the increase in magnesium resulting from earlier applications was not so great as was desirable.

Zinc Deficiency Tests.—The experimental plots established in the previous year to test the effect of zinc sprays on Gravenstein, Sturmer, and Jonathan apples on the Moutere Hills soil have been continued. Dormant zinc sulphate sprays were applied in August, 1949, to the same plots that received zinc sprays in the previous year. Observations have shown no effect from the sprays. Chemical analyses of leaves from the zinc experimental plots for the past season have not yet been completed, but zinc determinations of apple-leaves collected in the previous season from representative orchards in the Nelson district gave normal values of 25 to 30 p.p.m. zinc in the majority of cases.

Similar tests with zinc sprays were conducted in a cherry-orchard at Mariri, but here again no beneficial effect was noticed. The information from both field trials conducted on typical orchards on the Moutere Hills and from chemical analyses of leaf samples from four varieties of apples commonly grown in the Nelson district suggests that the zinc status of apple-trees in the Nelson district is on the whole satisfactory, and that little if any benefit is likely to result from the use of zinc sprays in the average orchard.

Copper Deficiency Tests.—The experimental plots established in the previous season have been continued, but owing to difficulties in cultivation, pruning, and spraying no significant result was obtained. There was a slight improvement in the foliage of the trees with copper sprays, but this was not