

*Plant-food Status of Permanent Manurial Blocks at Research Orchard.*—Samples of soil taken from the main manurial blocks at the Appleby Research Orchard are being analysed to determine the fate of the manures which have been applied over the last fifteen years. Three sets of samples taken in 1932, 1939, and 1947 are available for examination.

Little phosphate or potash applied in the manures has penetrated the soil below 12 in., while the topsoils show great enrichment in phosphate wherever this plant-food has been used in the manures, and they are more acid and nitrogen status higher where ammonium sulphate has been used.

*"Die-back" in Moutere Hill Orchards.*—The analyses of samples of soil taken from four orchards badly affected with "die-back" show that the topsoils are well supplied with available phosphate with moderate potash, but the subsoils tend to be very low in these plant-foods. All the soils are very acid, with pH values ranging from 4.8 to 5.1. Base saturation in several cases is very low, with figures from 21 per cent. to 34 per cent. The pH values and base-saturation figures indicate that lime treatment is desirable, but lack of lime is not necessarily the cause of "die-back."

*Subterranean Clover for Soil Improvement.*—Analyses of soil samples taken from both subterranean clover and clean-cultivated plots in an orchard at Tasman confirm the presence in the soil during January of a greater supply of available nitrate nitrogen on the subterranean-clover plot. It is interesting to note, however, that still higher figures were found on a plot where a good crop of blue lupins had been turned under in the spring.

*Apple-stock Experiments at Annesbrook Orchard.*—Tests of Double Vigour (French crab vegetatively propagated) for the Statesman variety of apple continue to show to advantage over Northern Spy stock.

A vegetatively propagated stock derived from the Epp's variety has given much greater growth with Cox's Orange and Jonathan than with the Northern Spy stock. Yield of fruit is better in the Jonathan variety on the more vigorous stock, but with the Cox's Orange variety little difference has resulted so far.

*Effect of Penicillin on Fruit Fungi.*—About fifty fungi, including duplicate strains from different sources, were tested, the penicillin being applied in Oxford cups or directly on agar in advance of the growing mycelial tips of young cultures—*i.e.*, not to the spores.

Complete inhibition of mycelial growth was not shown by any organism tested, nor was there widespread arrest in growth. Some retardation of growth, however, was shown in a number of cultures.

*Elgetol Spray.*—In view of the good reports in United States of America concerning Elgetol as a controllant of black-spot of apples and pears, this spray compound was tested as a ground spray over dead leaves of Glou Moreau pears and of Dougherty apples, varieties very susceptible to black-spot infection. The spray was tested at a strength of 1 per cent. by volume in water during the first half of September and showed some measure of control. In both experiments the trees received the usual Bordeaux and lime-sulphur sprays during the growing season of the fruit.

*Black-spot Ascospore Maturity.*—Perithecial development in apple and pear leaves was studied from the beginning of August until ascospore discharge in early September at Riwaka, Tasman, Wakatu, and Nelson. Only slight differences were noted.

*Disease Survey of Orchards.*—During the harvesting period a number of orchards in different parts of the Nelson District were visited in order to record any unusual disease status of the trees. The amount of disease was small. Eye-rot, mouldy core, and mildew were present only in small amount, and black-spot infection was light. Little, if any, fireblight was noticed, and no case of black-rot was reported by orchardists who were visited.