

V. MISCELLANEOUS

(a) *Fabric-proofing Investigations*.—Canvas: An extensive series of investigations has been completed on methods of proofing canvas, &c., against attacks of fibre-destroying fungi. In the result a technique for testing has been devised, suitable chemicals ascertained, and their dosage rates defined. During the course of the work it became evident that several test organisms should be used, since of the four chosen by New Zealand and overseas workers (*Stachybotrys*, *Metarrhizium*, *Chaetomium*, and *Memnoniella*) the first was more tolerant to copper soaps than the others; *Metarrhizium* more tolerant to pentachlorophenol than the others. Additional to the chemicals previously examined (chlorinated phenols, copper and zinc soaps and naphthenates, &c.), zinc hexoate, cadmium naphthenate, and two plastic resins have also been tested.

Rope: Numerous tests have been made to ascertain those effectual in proofing rope and cordage from attack by fungi, chemicals being incorporated with the product during manufacture. Of the products tested, copper naphthenate at a concentration of 0.5 per cent. metal proved to be most effectual. Cordage treated with creosote showed a loss of 30 per cent. in tensile strength.

(b) *Testing of Household Insecticides*.—Equipment is being prepared for testing household fly sprays, dusts, &c., both with a view to fixing toxicity standards and for future certification of satisfactory products. Work in developing a technique for breeding adequate numbers of test flies is being completed, and as soon as chambers have been installed large-scale investigations will be carried out.

(c) *Moth-proofing of Fabrics*.—Similar equipment is being developed for providing methods of treating fabrics to protect them against insect attack. Work at present has been directed towards breeding quantities of insects for testing purposes.

(d) *Effects of D.D.T. on Bees*.—To ascertain toxicity effects on bees of D.D.T. sprays applied to apple-trees, eight beehives have been placed in the orchards at Oratia and Owairaka at varying distances from blocks of sprayed trees. In the former the orchard was kept cultivated and free from weeds, in the latter weeds were allowed to grow to ascertain if bees would collect lethal quantities of D.D.T. from weed flowers beneath trees. Care was taken to apply the sprays only when all petals had fallen. Preliminary results have shown that the bee colonies progressed favourably, few, if any, losses occurring that could be attributed to poisoning with D.D.T., yet codling-moth control was equal to that secured in other parts of the orchards.

(e) *Lucerne Culture*.—Cultures for 165,000 lb. of lucerne seed were distributed to 1,460 farmers, an increase in 60 farmers over those using cultures the previous season, but a decline of 23,700 lb. of seed treated and sown.

(f) *Experimental Areas*.—Oratia: Good growth of all trees has been maintained, save in the Delicious apple block. The latter suffered from the wet winter experienced, many dying. Shelter-belts were completed, but a number of the latest plantings died in consequence of the dry summer experienced.

Owairaka: The exceptionally dry summer and early autumn has caused failure of many experimental crops, indicating the need for an emergency irrigation system. Several additional permanent hedges were planted. All others have grown well and now give adequate shelter.

A lean-to type glasshouse, designed expressly for therapeutant testing has been completed, save for installation of heating and cooling equipment. These must await redesign of the entire glasshouse heating system by staff of the Auckland Industrial Development Laboratories.

Piping has been procured to drain storm-water from the lower part of the farm and allow of the present open drain being filled in, thus facilitating cultivation.

Several sources of peat have been located, and samples tested for glasshouse potting-soils have proved satisfactory. Arrangements are being made to secure adequate supplies delivered to the farm.