

Soil-disinfection Studies

Formalin.—Efficacy and residual effects of fresh and deteriorated solutions and paraformaldehyde dust were investigated. No detrimental effects to plants were produced when planting was delayed from one to four weeks, according to dosages applied.

Grass-grub in Lawns.—Comparative tests with different soil fumigants applied as injections and emulsions gave promising results. Work is in progress to ascertain effects in proofing of lawns by use of D.D.T. and Gammexane in comparison with the standard lead arsenate.

Club-root Control.—None of the fumigants tested gave as satisfactory control of the disease as acidulated mercuric chloride.

Growth Responses.—Effects of soil fumigants and steam disinfection were studied in glasshouse and field trials. Five separate and consecutive crops were planted in plots following treatments. Results indicated an improved growth of test crops.

III. POMOLOGY INVESTIGATIONS

(See Fruit Research report, p. 17.)

IV. TIMBER-PRESERVATION INVESTIGATIONS

(See Building Research report, p. 8.)

V. MISCELLANEOUS

Fabric-proofing.—Work has been confined to testing various new chemicals likely to prove of value in proofing canvas and other fabrics against attacks of fungi and bacteria. Two plastic resins (Eronel O.S. and Firefoil) and cadmium naphthenate have been tested against *Stachybotrys atra*. No loss in tensile strength occurred in plastic resin test strips; significant breakdown, however, appeared in those treated with cadmium naphthenate.

Synthetic Plant-hormone-induced Injury.—Symptoms on tomato foliage resembling cucumber-mosaic were produced by 2-4 D. Extremely low dilutions and even vapour seriously injured tomato, tobacco plants, and grape leaves.

Testing of Household Insecticides.—A technique for breeding flies in numbers sufficient for testing therapeutants has been evolved.

Soil-injector.—Apparatus was designed and manufactured for the purpose of injecting into the soil such toxic substances as chloropicrin. It is now being manufactured by a commercial firm for use of nurserymen and market-gardeners.

Tomato-seed.—Following requests from commercial growers, production of seed of the variety Potentate has been undertaken. Seed is free from seed-carried diseases, produced from true-to-type plants, and has been made available in quantity sufficient for growers' requirements.

Lucerne Culture.—Cultures sufficient for 213,270 lb. of lucerne seed were distributed to 1,782 farmers, indicating an increase in sowing of some 2,680 acres over the previous year.

SOIL BUREAU

Director: DR. L. I. GRANGE

EROSION SURVEYS

Manawatu and Taranaki Districts.—The types of erosion occurring in Manawatu and Taranaki districts were mapped, thus completing the survey of the southern half of the North Island, which was commenced last year. The report and maps are now in the press.