

EXPERIMENTAL METHOD.

The experiments were carried out in the glasshouse using a soil-mixture of clay loam and silt in seed-boxes 18 in. by 12 in. by 3 in. Seven to ten days prior to sowing, the soil, either untreated or steam-disinfected, was inoculated with cultures of *Pythium ultimum* grown on potato dextrose agar.

Seed was shaken with the dust for five minutes in a glass vessel, the excess being then screened off. The seed was sown at the rate of either $\frac{1}{4}$ oz. or 500 seeds per box. Following the appearance of damping-off, counts of infected plants were taken daily. Final counts of the healthy plants left in the boxes were taken four to five weeks after sowing, by which time they had advanced beyond the damping-off stage.

The following dust materials were tested:—

(1) "*Ceresan U.T. 1875.*"—This proprietary organic mercury dust contains, as its active constituent, mercury-phenyl-acetate.

(2) "*Agrosan G.*"—Another proprietary organic mercury dust, of which the active constituent is mercury-tolyl-acetate.

(3) *Monohydrated Copper Sulphate.*—A dust prepared by heating crystalline copper sulphate at 105° C. The crystals break down to a fine pale blue powder. It is unstable when exposed to air, and must therefore be stored in an airtight glass or earthenware container.

(4) *Copper Carbonate.*—For the purpose was used a high-grade basic copper carbonate having a copper content of 50 per cent. to 54 per cent., and a particle size less than 10 microns.

(5) *Red Copper Oxide (Cuprous Oxide).*—This is not a standardized material, the commercial article being of variable purity. It is unstable in the presence of air.

(6) *Copper Oxychloride.*—A proprietary product marketed under the name of "*Smutol*" was used. It has a copper content of 54 per cent., and particles averaging 5 microns in diameter.

(7) "*R.D. 7312.*"—An organic mercury dust the active constituent of which is ethyl-mercury-phosphate. This dust is still in the experimental stage, and has not been placed on the market.

"*Ceresan*," "*Agrosan G.*," copper carbonate, and copper oxychloride are all available in New Zealand.

EXPERIMENT I.

"*Ceresan*," monohydrated copper sulphate, red copper oxide, copper carbonate, and copper oxychloride were used. The soil was inoculated on 13th August, 1935, and on the 5th September was sown with