

Investigations on behalf of the Public Works Department on the prevention of mould on tent calico have shown that the salicylanilide dip method is cheap, practicable, and efficacious. Failure of cork composition insulating washers in electrical transformers has been traced to a new species of *Paecilomyces* which attacks and destroys the cementing material. Treatment with salicylanilide has been found to prevent growth of the fungus without other effect on the material. Advice has been given to ten industrial firms on the cause and control of mould infections.

Continuous work is under way on the systematics of the mould fungi of New Zealand, and a paper on the genus *Penicillium*, the "blue-moulds" of foodstuffs, &c., has been completed for publication.

LEGUME CULTURES.

This season cultures for 94,000 lb. of lucerne-seed have been distributed to farmers, a decrease on last year of approximately 30,000 lb., probably due to weather conditions. The co-operation of merchants in this respect has been most satisfactory. A few cultures have been forwarded to farmers in Australia and one to the Argentine. The supply of cultures for other legumes is in the early stages of development, being limited to clovers (2,000 lb. seed), lupins (4,200 lb.), and peas (18,800 lb.).

Investigations of the value of "strains" in cultures, particularly those of clovers, peas, and lucerne, are being continued. In addition, field trials, in conjunction with the Fields Division, Department of Agriculture, of strains for red and white clover and for subterranean clover have been laid down in various parts of New Zealand.

PYRETHRUM.

Flowers have been harvested from twenty-seven pure clone strains of pyrethrum, and samples of flowers from these were forwarded to the Dominion Laboratory for analysis. The results of these analyses have shown that the pyrethrin content varied very considerably with the strain, ranging from 1.0 per cent. to 2.35 per cent. In one set of buds sent down the pyrethrin content was only slightly less than the flowers of the same strain.

ROUTINE.

During the period, 325 specimens were received for identification of disease and report.

PUBLICATIONS.

The following papers were published during the year :—

Pea-mosaic. *N.Z. Journal of Science & Technology* (1936), 17, 544.

Turnip-mosaic. *N.Z. Journal of Agriculture* (1936), 53, 321.

Nicotine Content of Tobacco. *N.Z. Journal of Science & Technology* (1937), 18, 628.

Pea-mosaic. *N.Z. Journal of Agriculture* (1937), 54, 129.

The following are awaiting publication :—

Spotted Wilt of Tobacco. *N.Z. Journal of Agriculture*.

Tomato Seedling Damping-off: Control by Seed-dusting. *N.Z. Journal of Agriculture*.

GRASSLANDS DIVISION.

(Acting Director: E. A. MADDEN.)

INTRODUCTION.

During the year Mr. E. Bruce Levy, Director of the Division, was appointed New Zealand official representative at the International Grassland Conference to be held at Aberystwyth in July, 1937. Advantage of this occasion has been taken to grant Mr. Levy extended leave in order that he may study grassland research problems in Great Britain and Europe.

The Division has been subjected to a number of staff changes, which have caused a certain amount of interruption in the progress of the work, but no serious interference has resulted, and an important new sphere of activity—viz., pasture survey—has been inaugurated in Hawke's Bay. This work forms part of the land-utilization survey now in progress, and is being done in association with the Soil Survey Division and the Fields Division (Department of Agriculture).

Plant breeding work and strain testing have been continued with quite a marked improvement in both the technique and quality of the material produced. Field plot trials to test strains of grasses and clovers have been laid down with the co-operation of the Fields Division of the Department of Agriculture, and the work there has been of great value not only to the Instructors and members of the staff, but also to the farmers in the districts where these trials have been commenced.

Work in connection with feed flavour investigation has been continued during the past year at Palmerston North in conjunction with the Dairy Research Institute, and at Morrinsville in conjunction with officers of the Fields Division of the Department of Agriculture and the dairy companies.

The general ecological work of the Division has been advanced, and detailed herbage analyses of mown herbage from plot trials have revealed many points of interest. Botanical analyses of pastures *in situ*, in conjunction with herbage dissection analyses, are enlightening regarding pasture transitions due to seasonal influences and stock concentrations.

The work of the Chemistry Section has been modified in a small way, and careful attention is now being given to analyses in connection with the field work of this Division. Staff increase in the Chemistry Section has enabled a wider scope of work to be undertaken, and the benefits of this will be more fully appreciated when working conditions are improved and when a bigger laboratory is available.