

of potatoes are among the diseases of crops of major importance which have been investigated. Turnip mosaic, which has become of serious proportions at the Plant Research Station, Palmerston North, reduces the yield of rape by one-quarter. A survey of its economic importance in the main turnip-growing districts is planned. A discovery of much practical moment is that Aucklander Short Top is a carrier of masked potato virus, which causes grave losses when transmitted to other varieties. A considerable amount of work relative to horticulture has also been done, diseases of peas, beans, tomatoes, tobacco, strawberries, hops, and marrows being included. Investigation has yielded useful information about moulds which damage foodstuffs, textiles, &c. Supplies of lucerne-inoculum sufficient to treat 122,000 lb. of seed were sold, and the use of similar inoculum for other leguminous crops such as clovers, lupins, peas, soya beans continues to be investigated with, as yet, such varying results that no definite findings can be advanced. In seed-testing, determinations of purity and germination-capacity called for 23,960 tests; 1,525 samples of perennial rye-grass were subjected to ultra-violet-light examination; samples of imported Australian cereals were examined for the presence of skeleton weed, from which they were free; as the result of recent research a satisfactory method of testing new season's Algerian oats has been evolved. Work during the year has provided further evidence of the reliability of the picric-acid test of white clover. During the year 79,000 parasites of the white butterfly were liberated, mainly in the principal South Island districts and in the Auckland Province. In the latter part of the season in some districts the parasitic control of the white butterfly was not as thorough as it was earlier in the season. The cause of this was investigated, and it seems likely that suitable measures to maintain satisfactory control will be found practicable. Much work relative to diamond-back-moth control is in progress both in the Dominion and in England, but control measures have not as yet been defined. Much work of horticultural interest has been in progress, including the use of winter oils in spraying, the use of insecticides for controlling the white butterfly in cabbage, and the control of red scale on lemons. The Systematic Botanist collaborated with the Live-stock Division relative to the incidence of facial dermatitis, and further work in this respect is in progress. Preliminary botanical observations have been made on ragwort-infested areas, and trials regarding fruit-tree stocks have been continued, while hazelnuts, walnuts, and apple varieties have received attention. The work of the chemical section was along the lines of previous years, and included the investigation of the chemical composition of herbage and the analysis of soils for plant nutrients. A considerable amount of further information about the work is contained in the appended report of the Director of the Plant Research Station.

WALLACEVILLE VETERINARY LABORATORY.

The diagnostic and investigational work carried out at Wallaceville Veterinary Laboratory involved dealing with 9,030 specimens, analyses, and samples, while 42,615 samples relative to mastitis and contagious abortion were dealt with at the subsidiary laboratory at Hamilton. The specimens examined relative to Johne's disease indicated that ten new farms were definitely affected, and the need for control of this disease has been demonstrated. Because of the large numbers of pigs suffering from tuberculosis, whey samples were tested biologically—in one of seventy-seven samples infection with tubercle bacillus developed in guinea-pigs inoculated from the whey. Skim-milk from farms where much tuberculosis occurs in pigs is also being tested biologically. Over 40,000 samples relative to mammitis were dealt with, and the great majority of these samples were in respect to the mammitis-control scheme—some evidence that farmers recognize the value of the scheme. Treatment of cows with Azamine Entozon and chlorine has been fairly successful, and it seems advisable to encourage local treatment of the udder with suitable drugs. Two phases of sterility in cattle that have been the subject of considerable research are sperm morphology and dietary protein, while studies of sterility in sheep have indicated that coincident with a flush of feed in the autumn the effective fertility of many rams was unduly low. Investigation has shown that paspalum staggers, seen in New Zealand for the first time in April, 1936, may be set up by feeding ergotized seed-heads to cattle. Various phases of photosensitivity in sheep, embracing the so-called facial eczema, were the subject of considerable investigation while the use of rabbits proved valuable for the diagnosis of mycotic dermatitis which has been recorded over wide areas, but only in small numbers of sheep and especially in Merinos. It was shown that by putting material from the joints of affected animals on the cut end of the tail at docking time, lambs could be given arthritis, and in another experiment, a correlation between the greater incidence of antepartum paralysis and poor late-winter feeding was indicated. Good results sufficient to justify further work were obtained from vaccination of ewes, for the control of pulpy kidney in lambs. There was an increase in the