

FARMERS' FIELD COMPETITIONS.

These competitions were conducted on the same lines as in previous years, and the interest taken in the competitions was well maintained. The movement tends to spread, and at times great difficulty is experienced in getting the crops judged within a reasonable time.

THE HEMP INDUSTRY.

The amount of hemp produced for the twelve months ended 31st March, 1925, showed a decided increase over the amount produced for the previous twelve months. The total number of bales of hemp graded for the year ended 31st March, 1925, was 85,976, as compared with 63,879 for the previous year, an increase of 22,097 bales. The quantity of tow graded was 22,323 bales, as against 15,563, an increase of 6,760. Of stripper-slips 2,189 bales were graded, as against 161, an increase of 2,028 bales. The number of bales of stripper-tow graded was 1,318, as against 1,204, an increase of 114 bales. Of the hemp graded 9.71 per cent. was good-fair, 52.28 per cent. high-fair, and 30.88 per cent. fair grade; 16.92 per cent. of the tow was first grade, 64.49 per cent. second grade, and 15.39 per cent. third grade; stripper-tow was 17.22 per cent. first grade, 71.90 per cent. second grade, and 6.30 per cent. third grade.

BIOLOGICAL LABORATORY.

Seed-testing Station.—The activities of this station have been well maintained during the past year. For the twelve months ending December, 1924, 8,266 seed-samples were received for testing; of these approximately 8,000 were submitted by seed-merchants. As the seed-testing work has become intimately bound up with the New Zealand seed trade, absolute accuracy is essential in all analyses and tests made. Much work of an experimental nature has been carried out to endeavour to discover the best means of obtaining the maximum growth of different species. During the year much valuable data was collected in connection with the loss of vitality of Chewings fescue. The Department has carried out a considerable amount of experimental work with Chewings fescue during the past three or four years, but to enable this work to be carried to a successful conclusion these experiments will have to be conducted on a much larger scale than that hitherto attempted. Investigational work has been commenced into the poor germinating-qualities of Sandon rye-grass. The average germination capacity of the rye-grass from this district has been low for the last two or three years, and this year assistance has been asked for on behalf of the Sandon rye-grass growers. Up to the present the work has been confined to the Laboratory, where experiments designed to test the behaviour of the seed under various conditions of temperature, humidity, &c., are being carried out. Later field experiments will be commenced. During the year a large number of seed-specimens have been identified, advice given to farmers and the trade, statistical information tabulated and issued, and seed collections made up and issued to schools and colleges. A large number of seed-growers and seed-merchants have been visited in various parts of New Zealand in connection with special problems relating to the production, sale, and export of seed.

Agricultural Botany.—As in previous years, large numbers of specimens have been received for identification, including those of grasses, weeds, and various other plants. During the year the herbarium has been greatly increased, and these collections are proving very helpful in the work of all branches of the Laboratory. Besides plants of direct economic importance, indigenous ones are collected, such specimens being of great use in making exchanges with other countries.

Blackberry Investigation.—In connection with the blackberry problem regulations have been gazetted giving conditions under which private experimenters can apply for the £10,000 bonus offered by the Government. The investigation into methods of control or eradication has been continued during the year. A section of several acres densely covered with blackberry has been secured in Wairoa County, where a field experimental area is being established. Researches into the biological, chemical, and ecological methods of control in the field are entailing a large amount of laboratory work, and during the past six months over ten thousand tests have been made, these being mainly of substances for, and methods of, eradication. In addition, experiments with control measures by the use of parasites, both insect and fungous, are being initiated, and in this connection mycologists and entomologists have been communicated with in all parts of the world in the hope of securing some useful parasite. Further work is being carried out in several places with top-dressing experiments and the use of goats.

Entomology.—The rearing and distribution of *Cryptolaemus* for the control of mealy bug has been carried out successfully on a much larger scale than last year, and facilities for extending this work on a wide basis are being made available. Reports regarding the utility of this ladybird in the field are extremely favourable, and it has become established at certain points where it has survived a winter. The ladybird liberated against the gum-tree scale in the North Island has checked that blight, though a great deal of damage had been done by the latter. Soil-fumigation experiments with calcium cyanide against pear-midge have given definite results. Work with this material as a soil and plant fumigant against other insects is now under way. Lectures given to farmers at various centres dealt with the different phases of entomology in relation to crop and live-stock development, orchard practice, and timber conservation. Material collected or sent in by correspondents has been set up and added to the collections, while a great deal has been photographed and set aside for exhibit purposes. An exhibit consisting of show-boxes containing various insect pests in their different stages has been prepared. The project is to extend this scheme to include as many as possible of the insects of major interest to economic development. A work entitled "Forest and Timber Insects in New Zealand" is in the press; it is being published by the State Forest Service.

Mycology.—Owing to the completion of the manuscript of a book dealing with the fungous diseases of fruit-trees (now in the press), the staff of this Section have been able to devote their time more fully to dealing with the diseases of agricultural crops. In April, 1924, the Mycologist obtained