

in oversea shipments. Regulations relating to the sale of New-Zealand-grown fruit for consumption within the Dominion were also brought into force, and have received the good will of growers as being in the best interests of the industry.

A good volume of experimental and demonstrational work of many kinds was carried out at the several horticultural stations and experimental orchard areas. A heavy demand was made on the resources of the Division in connection with the fireblight outbreak, energetic steps towards the control of this disease in the Auckland District being taken in conjunction with a local committee formed for the purpose. As a result of investigation and observation it has been fairly established that complete control of fireblight in infected commercial areas cannot be secured without the elimination of the host-plant hawthorn, and steps were initiated to deal with this difficult question. During the year regulations were brought into operation prohibiting the movement of certain plants and of bees from the Auckland District, this being aimed at preventing the spread of the disease.

The apiary branch of the Horticulture Division has maintained close touch with the beekeeping industry by means of inspection and instruction, training, and the issue of certificates in beekeeping, the rearing and sale of queen-bees, and the grading of export honey. The registration of apiaries has proceeded steadily, but legal proceedings had to be taken against several confirmed defaulters. Power was given by the Apiaries Amendment Act, 1920, to make regulations providing for a registration fee for apiaries, the revenue to be devoted to the furtherance of the industry.

The Chemistry Section has carried out a large amount of sound work in its sphere—soil-investigation, matters connected with the development of our limestone resources, and fertilizers being among the most important activities. Increased action was taken as regards the administration of the Fertilizers Act, and in some cases legal proceedings had to be instituted against vendors for breaches of the law. An amending Bill, strengthening the law in several important respects, is being prepared for introduction to Parliament. The matter of legislation dealing with artificial stock-foods, also insecticides and dips, is under consideration. It has been arranged to proceed with the voluntary registration of sheep-dips in the meantime. Steps have been taken, in conjunction with the Livestock Division, for the testing and maintenance of efficiency of cattle-dips used in connection with tick-control, and among the new lines of work undertaken by the Section may be mentioned the testing of New-Zealand-grown wheats for flour-quality and yield (a model mill having been acquired for the purpose), also the analysis of casein for export. The work done in connection with lime-supplies deserves special mention. The committee established in the preceding year—consisting of Mr. Furkert, Engineer-in-Chief of the Public Works Department; Mr. Morgan, Director of the Geological Survey; and Mr. Aston, head of our Chemistry Section—is doing valuable service.

During the year the quarters of the Biology Section were removed from the Central Development Farm, Weraeroa, to Wellington, where the Biological Laboratory has been re-established under very much improved conditions. Branches are devoted to seed-testing, agronomy, plant-pathology, mycology, and entomology, and with a strengthened professional staff the Section is now in a position to further develop its work for New Zealand agriculture, using that word in its comprehensive sense. Specially efficient investigational work has been done in connection with the organism of fireblight, while in the entomological branch useful studies in the life-history and occurrence of the grass-grub, the sheep maggot-flies, and the pear-leaf-curling midge were outstanding features. In connection with the occurrence of the powdery-scab disease of potatoes the Biologist formed one of a small delegation sent to Australia to endeavour to have the embargo on the importation of New Zealand potatoes removed. While in Australia he also took the opportunity to visit the Maffra beet-sugar factory, operated by the Victorian Government, and to look into the beet-sugar industry generally. The question of establishing the industry in New Zealand was at that time receiving considerable attention, but with the subsequent fall in sugar-values the activity of the movement has largely diminished. The volume of work carried out by the seed-testing branch constituted a record as regards the number of samples tested for purity and germination. The special investigation in regard to the loss of germination of Cheving's fescue exported was continued in co-operation with the United States Department of Agriculture, but has not yet reached finality.

The work of the Publications Section has proceeded steadily, but the extremely high cost of printing generally has imposed limitations on extended activities. The main effort continues to be concentrated on the *Journal of Agriculture* as the best means for the dissemination of information and as a semi-popular scientific record covering the various branches of New Zealand agriculture. The value of the *Journal* to the rural interests of the Dominion has received renewed testimony from several quarters of late.

The grading of hemp again shows some shrinkage owing to the decrease of output of fibre, due to various causes. A noteworthy item, however, was the strong demand and correspondingly increased price for tow for export, suggesting extended uses for this by-product. During the year one or two conferences were held by representatives of the Department and the milling industry regarding special points of complaint in connection with preparation of the fibre, and it is anticipated that a higher general standard of quality will result. The so-called yellow-leaf disease of phormium, which continues to be a serious menace to the industry in certain districts, has been the subject of special research in the Biological Laboratory. A fungus has been isolated and is being investigated in order to determine, if possible, whether it is the cause of the disease. The most hopeful means of control appears to lie in the development of disease-resistant strains of phormium.

During the year the Chief Grain Grader continued to hold the position of Assistant Wheat Controller, with headquarters at Christchurch. As, however, the Grain Graders holding licenses to issue Government certificates have been made Graders under the Wheat Trade Regulations, their work has come more under the supervision of the Chief than would otherwise have been the case.