

insects is very limited. A considerable amount of work on the life-history of many insects is being undertaken, and the small insectary installed in connection with the laboratory is extremely helpful in this connection.

SEED-TESTING.

Just on four thousand samples of agricultural seeds have been tested for purity and germination. Nearly the whole of these were received from merchants, the amount done for farmers themselves being insignificant. New Zealand is now one of the few dependencies of the British Empire that does not possess a Pure Seeds Act. The time certainly appears opportune for the introduction of legislation along this line. The fact that Britain now compels a guarantee of germination and purity for all agricultural seeds sold in the United Kingdom but does not require any such guarantee with exported seeds makes it essential that some method of control should be instituted here. Any practical legislation along the lines of seed-control would prove acceptable to the majority of merchants. There are a few who would be adverse to any restrictive legislation with regard to the sale of seeds. It is, however, just to bring such merchants into line with the more advanced members of the seed trade that legislation is necessary.

PLANT-DISEASES.

Many plant-diseases have been especially destructive during the year under review. Amongst those that appear to be remarkably on the increase are brown-rot of stone-fruit (*Sclerotinia cinerea*), dry-rot of swedes (*Phoma napo-brussicae*), and certain wheat-diseases. A very considerable reduction in wheat-yields was occasioned through the non-filling or only partial filling of the ears. This disease, which is very similar in effect to "take-all," appears not to be caused by any one particular fungus, and requires careful investigation. In many cases climatic and soil conditions were held to be responsible, but its special distribution amongst wheat crops indicates that fungal infection was the real cause of the trouble. The disease was noted from all parts of New Zealand both in the North and South Islands. Dry-rot in swedes was generally held to have been no more serious than in the past year, but such was not the case. Owing to the liability to destruction by this fungus, especially in the southern parts of New Zealand, the area under swedes is yearly becoming more restricted, and many districts where the disease is serious have now very few swede crops. A special investigation of the condition of the crops in Southland was undertaken and much valuable information secured. With regard to brown-rot in stone-fruit, some field-work was carried out. The results secured show that the disease is carried over the winter in the old fruit-stubs just as much as it is in the mummified fruit. This seems to point to the necessity for spraying as soon as practicable in the autumn in order to kill out these sources of infection before the fungus becomes deep-seated in the wood.

PASTURES AND PASTURE MANAGEMENT.

Much information on pastures and pasture-management has been secured during the year, and it is hoped that ere long a comprehensive account of the pastures of New Zealand can be prepared. In this work there are many problems of importance that require experimental work in their solution, and unfortunately, up to the present time, very little definite experimental work on the formation and management of grassland has reached fruition. Probably one of the most important developments in grassland occurring at the present time in New Zealand is the very extended use that is being made of paspalum in the Auckland District. Just as further south cocksfoot is the mainstay of much permanent pasture, so does paspalum seem destined to play a similar part in the north. Unfortunately our knowledge of the ultimate effect of paspalum as a general pasture grass is unsatisfactory. A thorough investigation of the agricultural significance of paspalum is urgently needed.

TEACHING.

A regular course of agricultural botany has been given to the student-assistants at the Central Development Farm. In this work the services of Mr. E. B. Levy and Mr. D. Miller have been freely used. In addition to departmental teaching, a number of lectures have been given to farmers' unions and teachers' classes. At the summer farm-school of the Auckland Education Board, held at Ruakura, a special series of lectures on pastures and pasture-management was prepared for the use of the teachers.

PUBLICATIONS.

A considerable number of articles on agricultural matters have been prepared for the Department's *Journal* during the year.

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