

WORK AT WAITE INSTITUTE

Latest Research Methods Employed

PATIENT STUDY OF PASTURES, PLANTS, AND PESTS

Rapidly extending its work since its establishment nearly three years ago the Waite Agricultural Research Institute has established its value to the farmers of the State by its investigations.

Agriculturists take a keen interest in the work of the Institute, and its officers often receive visits from farmers.

It is hoped that the erection of new laboratories will be begun within a few weeks.

Instructors of the Department of Agriculture are constantly in touch with the institute, and are able to pass on to farmers knowledge gained as a result of investigations conducted there.

The staff of scientists at the institute has been increased to five, and three more will be added next year. To provide for building requirements for the next three or four generations about three acres of land has been set aside in a central position.

Experimental fields have reached their limit of expansion on the Urrbrae estate. Attention has therefore been concentrated on improving the technique of the experiments themselves.

Of the many varieties of wheat tested in the preceding two seasons, six have been selected for a more intense study. Under the older system of experiment

the variations in the soil usually made it impossible to rely with confidence entirely on the results of a single season. A period of years was necessary before trust-

worthy results could be obtained.

Statisticians, however, have shown the way in which these difficulties may be overcome, and in the newer experiments on varieties and manuring, the most recently approved methods have been adopted. In one experiment each treatment is repeated as many as 25 times to overcome the variations in the soil.

Dr. A. E. V. Richardson (director), who has been appointed a member of the executive of the Council for Scientific and Industrial Research, spent last year in visiting agricultural experimental stations in other parts of the world, and is now in England as one of the Australian representatives at the Imperial Agricultural Research Conference. In his absence Prof. J. A. Prescott is in charge of the institute.

IMPROVING PASTURE

Of recent years, probably the most remarkable development in agricultural practice in South Australia has been the improvement of pastures by topdressing with superphosphate. The study of the effect of topdressing on native pasture which was begun three years ago has been made more thorough at Urrbrae estate.

Mr. H. C. Trumble, with the assistance of Mr. K. N. Fraser, is investigating botanical changes in the pasture induced by different treatments, both of topdressing with manures and by different

types of management. The feeding value of the pasture under these different conditions is tested out directly by feeding sheep on the experimental areas, the yield being expressed in sheep-days an acre and in the increase in the live weight of the animals. This practical feeding test is being supplemented by chemical work conducted in the laboratory by Mr. R. E.

Shapter.

To ascertain whether our stock receive a sufficiency of mineral constituents in their normal pasture is one of the ultimate aims of this experimental work, and it is closely related to investigations which are being made by Prof. T. Braileford Robertson, of the University of Adelaide, and elsewhere in the Empire under the auspices of the Empire Marketing Board. At the Waite Institute Mr. E. W. Lines is in charge of the enquiry.

The glasshouse is being put to intensive use in connection with pasture research as well as in continuation of Prof. Richardson's well-known work on the water requirements of farm crops.

In the chemical laboratory Prof. Prescott and Mr. C. S. Piper are continuing their studies on the soils of South Australia. Mr. Piper is also collaborating with Mr. G. Samuel in the study of the oat disease that has caused trouble for many years in the South-East, particularly at Mount Gambier. There are indications that before long the origin of this obscure trouble, which does not appear to be caused by any parasitic organism, will be brought to light, and that remedies may be suggested.

Messrs. J. K. Taylor and H. N. England, who have recently joined the staff, are making a study of the soil problems facing settlers and the Irrigation Commissioners in the neighborhood of Renmark. Eventually this work will extend to other

settlements on the river, not only in South Australia but in New South Wales and Victoria. The work is being undertaken with funds provided by the Council for Scientific and Industrial Research.

Another important investigation which is being assisted from this source is that on tomato wilt. The disease has worried Australian tomato growers for more than 10 years and has become serious enough to warrant special concentration of effort. Mr. Samuel and Mr. H. A. Pittman are devoting much of their energy to the solution of the problem. It was announced last week that Mr. Pittman had come to the conclusion that the disease is caused and transmitted by a species of thrip. Curative and preventive measures are now expected to follow.

Although tomato wilt has been known for 12 years another disease has been in existence for the past 80 years. Much about it is unknown. It is take-all, peculiar to wheat, and does thousands of pounds' worth of damage to crops every year in Australia. Those directly investigating the disease have been puzzled, and nothing definite can be stated why it is bad at some times and not at others.

Take-all is being investigated with electrically controlled soil tanks. With this apparatus the exact influence of many important factors can be obtained. It has been discovered that when the temperature of the soil is low the disease is worst. Wheat can be grown in badly infected soil at summer temperatures without becoming diseased at all.

The increasing importance of insect pests not only in connection with such investigations as that of tomato wilt but also with regard to codlin moth, dried fruit grub, and more especially lucerne flea, has made it desirable that the staff should be strengthened by the addition of an entomologist, and it is expected that an appointment will be made early next year.

Another aspect of the work which will acquire increasing importance in the immediate future is that of genetics and plant breeding. Mr. I. F. Phipps is expected to return from his post-graduate course at Cornell University before the next wheat season, and will take charge of this important division of the experiments at the institute.



WATER AND MINERAL REQUIREMENTS OF CROPS, GRASSES, AND PLANTS INVESTIGATED

Farm crops, grasses, and fodder plants are being grown in large pots at Waite Agricultural Research Institute and weighed weekly to ascertain their water and mineral requirements. In the glasshouse tests are being made with barley, rye grass, and clover grown in glass bottles and supplied only with distilled water and mineral salts. In the foreground are fodder plants from other countries which are being tested on a small scale before trial in the field.



EXPERIMENTAL PLOTS AT WAITE AGRICULTURAL RESEARCH INSTITUTE

Tests are being conducted to determine the effect of gypsum on the growth and yield of wheat. In order to overcome natural differences in the fertility of the soil 125 plots are used, five treatments being replicated 25 times.

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AUSTRALIAN FORESTRY.

THE PROPOSED FEDERAL CONTROL.
OPPOSITION FROM VICTORIA.

McBourne, September 27.

The Victorian Minister of Forests (Mr. Beckett) takes strong exception to the evidence given by the Commonwealth Inspector-General of Forests (Mr. C. E. Lane-Poole), who at Canberra yesterday, advocated Federal control of forestry. He denied a statement so far as Victoria is concerned that the States had shown themselves incapable of taking a long-sighted view of the question. Victoria was not prepared to relinquish control of its forests.

IN WESTERN AUSTRALIA.

McBourne, September 27.

Commenting on the statement of the Commonwealth Inspector-General of Forests, that the States had generally overlooked the requirements of posterity in regard to forestry, and persevered with a wrong policy, the Conservator of Forestry in Western Australia (Mr. S. L. Kessel) said it was only fair criticism in regard to Western Australia up to 1918, when the Forests Act was passed. There had been steady progress in forestry since. Mr. Lane-Poole had criticised the lack of continuity of policy, but so far as that aspect was concerned, and so far as the operations of trained foresters went, this State was evidently one of the exceptions to which Mr. Lane-Poole referred.