

WHITE CLOVER : PICRIC-ACID TESTING.

Preliminary studies using this laboratory chemical test for the determination of strain in white clover were brought to a successful conclusion during the past year, and the method was brought into practical use this year as the basis of certification for the two established classes—mother seed and permanent pasture—reported upon herein. The absolute necessity for consistency in technique has been responsible for persistent experimentation to this end. It has been observed that factors may operate right from the commencement of the germination of the seedlings to interfere with the final chemical reaction.

Attention has also been paid to the colorimetric classification of the tests and data have been secured from the use of a Loviband tintometer, which indicates in colour units the intensity of the reaction. Following further work it is hoped that it will be possible to adopt this method of classification as standard practice.

PERENNIAL RYE-GRASS : LOW GERMINATION.

Work has been concentrated mainly on confirmation of previous findings as to the nature of the infection responsible for the trouble, by field observations in the Manawatu and with the co-operation of field officers throughout New Zealand by the examination of flowering and seeding heads secured from production areas. On the evidence obtained there remains no doubt that fungus attack is the primary factor, which is fully confirmed by the results of further inoculation experiments in the laboratory when inoculated plants have borne diseased inert seeds and the control plants clean viable seed. From the experience gained in the examination of green sheaves and the development of a special technique it was found to be possible to gauge the degree of attack and to estimate probable percentages of germination, which information has been of considerable value in the recent production season when the incidence of the disease was abnormally high.

Additional tests and examinations of seed saved from a wide range of plants of various types have been made in co-operation with the Grasslands Division of the Plant Research Bureau. The only possible means of overcoming the trouble in districts susceptible to the disease appears to be by the segregation of resistant strains, which, at best, in view of all the circumstances, is a very remote possibility.

Other activities include—

- (a) Observation of the influence of the applications of borax to the soil upon the germination of swede-seed and the condition and health of the seedlings—in collaboration with the Crop Experimentalist.
- (b) Further observations on the photoperiodic reaction of red clover, which it is considered would provide a means of estimating the proportion of perennial and temporary strains.
- (c) Examination and testing of samples of ragwort-seed collected by various officers from chemically and variously treated plants.
- (d) Examination and identification of seeds collected from sheep in different districts.
- (e) Preliminary work in connection with the official grading of malting barley.
- (f) Special tests for the presence of black mustard (*Sinapis nigra*) in imported swede-seed. This impurity has caused concern to several New Zealand importers.
- (g) The identification of various seeds collected and submitted, and of impurities of commercial seed, and stock and fowl foods.
- (h) Determination of the moisture content of seeds, grain, and peas prior to conditioning or shipment.
- (i) Soil-tests on peas and other agricultural seeds.
- (j) The carrying-out of referee tests in collaboration with the International Seed-testing Association, Copenhagen, the results of which compared very favourably with those of the main European Station; also tests on behalf of various Australian Stations with an exchange of difficult material.

GENERAL.

The usual amount of correspondence relative to the Station's services and seed matters generally has been dealt with. In October, 1936, the Seed Analyst attended conferences of the Australian seed-merchants and the Australian departmental officials at Adelaide. The knowledge and experience gained in discussion in matters pertaining to the New Zealand-Australian trade, uniformity in seed-testing technique, the application and administration of Australian Seed Acts, and the utilization of New Zealand seeds in Australia has proved of great value, and as a result the Station has been able to be of much greater assistance to the New Zealand-Australia seed trade. Subsequently, a very close touch has been maintained with officials and merchants in each State, and if the statements of those concerned are to be accepted, the visit has resulted in a better understanding between Australian and New Zealand officials and commercial interests, and of significant benefit to our trade.

For the year ending December, 1936, New Zealand exported 4,000 tons of grass and clover seed valued at £260,000, and imported 500 tons valued at £49,000. Nearly half of the export was entered at Australian ports and one-third was shipped to the United Kingdom. The bulk of the importation consisted of subterranean clover (approximately 30 per cent.), Timothy (25 per cent.), paspalum (10 per cent.), and alsike (10 per cent.). Both import and export showed an increase on the quantities and values for the previous year. In view of the fact that seed-export may be regarded as more or less of a "catch" trade, our annual export to the value of over £250,000 may be regarded as satisfactory, particularly as it is not directly assisted.

STATE SEEDS PURCHASING.

During the financial year 480 requisitions for seed-supplies were placed on this office by various Departments. Selections were made from a very wide range of quotations, in some instances over one hundred lots being offered for only one item. The purchase of approximately 400 tons of seed to the value of £32,724, and 105 tons of seed potatoes to the value of £820, were authorized. In the entire absence of complaint from ordering officers or from suppliers, it can be accepted that the system of seeds purchasing is functioning satisfactorily and certainly to advantage.

PHOTOGRAPHIC SERVICE.

From the date of reorganization of this section (1st February, 1937) to the 31st March the following photographic work was completed for Government Departments and other agricultural research institutions :—

Photographs (field and studio)	..	..	..	..	139
Prints	..	..	..	..	901
Lantern slides	..	..	..	..	199
Plates and films for development	..	..	..	..	202

The photographer's accommodation still leaves much to be desired, and it is hoped that in the near future it will be possible to have very necessary improvements made.