

An economic investigation of the cost and returns from pig-production under Canterbury conditions, where pigs were run as a side-line on different types of farms, has been undertaken. From this it would appear that on a high-cost farm this was not profitable, but that on an average farm there was an annual margin per sow of some £2 10s. between costs and income.

The collection of data on farm prices has been continued with a view to accumulating sufficient information whereby production may be guided in such a manner as will serve the best interest of farmers affected by the present depression.

#### V. FARM ACCOUNTING ASSOCIATIONS.

A distinctive development from the economic investigations has been the growth of farm accounting associations. A number of farmers are taking an active interest in this development and will thereby gain information which will lead them to such modifications of their farm practices as will assist in improving their annual net returns.

#### VI. ECONOMIC ZOOLOGY.

The life-history of the codling-moth under Canterbury conditions has been investigated and a report prepared thereon.

#### VII. MINERAL COMPOSITION OF PASTURE PLANTS.

Analytical work has been proceeding on the variation in the mineral composition of different strains of cocksfoot and clover during the various months of the year, and the results obtained indicate that the degree of variation occurring between different strains is negligible. Cocksfoot has a much higher content of chlorine and insoluble ash than clover, but the latter exceeds cocksfoot in its content of lime and phosphorus.

A series of trials has shown that a Woods' filter mounted in a light-proof box and fitted with curtains is an efficient substitute for an ultra-violet light apparatus as a means of indicating true perennial rye-grass seed.

#### VIII. ENGINEERING.

The work in this Department has been concerned with the designing and supervision of irrigation works at Seafield, where several distinct types of irrigation have been under trial. This has involved the preparation of special channels and dykes and the installation of meters for the purpose of measuring water-flow and soil-moisture requirements. Small-scale-irrigation trials have also been established at Leeston, Hororata, Motukarara, Darfield, and Oxford, and at the end of the present season an interim report will be furnished.

In association with this work a considerable number of investigations upon the physical properties of soil has been carried out in the laboratory at Canterbury College.

#### IX. FARM IMPLEMENTS.

Special attention has been devoted during the year to the efficacy of grain-drills with a view to ascertaining how far evenness of seed-distribution affected crop yields. In a trial of two plots of wheat, where the drills were spaced respectively at 7 in. and  $3\frac{1}{2}$  in. intervals it was found that the number of plants per square yard under the  $3\frac{1}{2}$  in. spacing was 100, and that under the 7 in. spacing 106. The yield from each of these plots was 145 lb. for the  $3\frac{1}{2}$  in. spacing and 142 lb. in the case of the 7 in. spacing. It is therefore evident that closer spacing in the drilling of wheat exercised no material difference in the yield, a result which confirms the results of similar trials which have previously been carried out in Victoria.

#### X. WOOL RESEARCH.

Examination and weighing of individual fleeces from stud-ewe flocks has been continued, and inspection of the figures make it evident that there are certain strains within each breed which are high producers of wool.

The investigations on the influence of feeding upon fleece weight have been continued, and the most recent trials indicate that where the system of feeding has been persisted in for some considerable time there is a significant difference in favour of better feeding. Well-fed sheep in the 1932 trials gave an average fleece weight of 7.6 lb., as compared with 6.8 lb. per fleece from those fed only moderately well. In previous years, when the systems of feeding have been confined to three or four winter months, the benefit from good feeding amounted to about  $\frac{1}{2}$  lb. of wool per sheep. Furthermore, an examination of the soundness of the wool at shearing-time showed that wool from the well-fed flock was generally better than that from the sheep which had been moderately well-fed.

In the same examination the indications were that where tender wool was produced, this would have been grown about the time which corresponded with lambing—that is, in the early spring.

An examination of sheep-weights, too, revealed the fact that in the case of all those animals producing tender wool weight-losses occurred during the spring months. However, it is not contended that tenderness in wool can be attributed solely to feeding, but that the general health and constitution of the individual animal must play some part in this connection.