

(g) *Strength-testing*.—During the year some work was done in conjunction with Dr. M. A. F. Barnett, on the strength of phormium-fibre. It was found, as would be expected, that hand-stripped fibre, weight for weight, was much stronger than machine-stripped. A strength-testing machine was designed by Dr. Barnett as an outcome of the above work. The machine is being constructed in Wellington, and is now completed. A fibre conditioning and testing room has been fitted up, in which temperature and humidity can be regulated.

(h) *Laboratory Estimation of Fibre Content*.—A promising beginning has been made in the development of a method for determination of fibre-percentage in the laboratory. It is considered that the method in question should give a reliable guide as to quantity and strength of fibre. The purchase of equipment, costing several pounds, will be necessary before these experiments can be completed.

(i) *Development of Main Flax Area*.—The development of the main trial area is proceeding. Twelve acres have so far been stumped and ploughed. A crop of rape has been taken off the greater portion. Three acres have been subsoiled.

(j) *Co-operative Trials of Varieties*.—Arrangements have been made with two growers (one at Hamilton, one in Canterbury) to set aside small areas for the planting of flax from varieties grown also at Massey Agricultural College. Some varieties have already been sent to these areas, and more are yet to be sent. In addition, exchange of flax of special varieties have been arranged with various growers. This work is necessary in order to find the effect of various conditions of growth on known varieties.

(k) *Manurial Experiments*.—Manurial experiments to test the effects of various manures on the growth of seedlings have been instituted. Although differences between the plots are visible already, it is much too soon to give any conclusions.

(l) *Records of Commercial Planting*.—In the course of the summer's travelling particular attention has been given to newly planted commercial areas and to nursery practice where seedlings are grown. A good number of photographs are being filed as records of the development in the various commercial plantations. It is hoped to keep photographic records showing the progress in these areas from time to time.

The work has at all times been rendered very pleasant by keen interest and readiness to help on the part of flax-millers and flax-growers in all parts of the country. Officers of the Department of Agriculture have likewise given practical evidence of their desire to help the progress of the work.

PIG-INDUSTRY INVESTIGATIONS.

Advisory Committee: Mr. Q. Donald (Chairman), Mr. H. Morton, Mr. J. Lyons, Professor W. Riddet, Mr. M. J. Scott, Mr. E. J. Fawcett, Mr. A. H. Cockayne.

As a result of the special grant of £1,775 made in order to facilitate investigations connected with the feeding and management of pigs, three recording groups were put into operation in the Waikato, Manawatu, and Canterbury districts, attached to the Waikato Group Herd-testing Association, and to Massey and Canterbury (Lincoln) Agricultural Colleges respectively. The data secured have provided a valuable record of the actual conditions prevailing in the pig industry to-day. An interim summary of the results indicates—

(1) That much greater attention should be devoted to securing pigs that will produce a high litter-weight. In every case high litter-weights have been associated with economy of production.

(2) The great importance of the economic value of proper management has been emphasized. On one farm, where general conditions and feeding were on good lines, a net return of £5 18s. per cow was secured from pigs fed on skim-milk. The lowest return in a number of farms where the recording system was introduced showed a return of £1 16s. per cow. On farms where whey was used returns were not so good, but it would appear that from £1 10s. to £2 12s. per cow could be secured from pigs fed on whey.

(3) By recording the weight of litters at birth and at four weeks it is possible to accurately forecast their weight at eight weeks of age. This fact provides means for reducing very considerably the cost and trouble involved in pig-recording. Further, litters that are heavy at eight weeks of age can be fed 50 per cent. more profitably than light ones of the same age.

(4) Litter-weights at eight weeks have been found to range from 100 lb. to 450 lb., while only 8 per cent. of the total litters recorded exceeded 300 lb. This reveals the need for culling among breeding sows and boars in order that the low producers may be eliminated and increased attention to feeding during the winter months.

(5) It has been found that the inauguration of pig-recording has aroused a very real interest among farmers maintaining pigs. The scheme has been responsible for the introduction of pedigree stock to replace others of lower productivity.

Pig-feeds.

The preliminary trials started last year at Canterbury (Lincoln) and Massey Agricultural Colleges in connection with whey-paste proved sufficiently promising, although the first paste was contaminated with impurities, to warrant more extended trials with paste of better quality. These trials have shown that it is possible to use concentrated whey as a basic diet for pigs. Even when used alone the paste proves a satisfactory pig-feed, but, as with other milk feeds, its value is immensely increased when small quantities of cereal or meat-meals are fed in conjunction with it.

In the search for supplies of suitable pig-feeds to supplement the basic ration of skim-milk and whey now so commonly used throughout the dairying districts, samples of meat-meals have been subjected to fundamental feeding-tests at Otago Medical School. The results of these researches, using the meals in feeding small animals, have now been published in the Department's Bulletin No. 12—"Report on the Nutritive Values of Meat-meals," by Miss E. A. Pope, M.Sc.—and these will provide basic information for trials to be conducted with pigs themselves.