

future towards the more satisfactory installation of milking-machines. It has been found that shorter lengths of piping should in many cases be used; that connections should for preference be of rubber; and that instead of bends, four-way pieces with plugs tend to easier cleaning.

With every milking-machine installation satisfactory provision should be made for boiling water. Where such provision is made the milk is usually of a better flavour and the rubbers of the machine remain useful for a longer period, inasmuch as they are less likely to become impregnated with fat from the milk. Some dairy companies are now stocking suitable brushware for use in cleaning milking-machines. This practice is to be commended.

A very considerable extension of the farm-dairy instruction-work is urgently needed in the interests of the quality of our butter and cheese. With free market conditions and prices more likely to be falling than otherwise, good quality is of renewed importance. We believe dairy companies can make few investments that are likely to be more profitable than money paid towards the services of a Farm-Dairy Instructor.

MILK AND CREAM TESTING.

The payment for practically all milk and cream delivered to dairy factories in New Zealand is determined by the butterfat test made by the Babcock method. With such a number of tests as this work requires annually it cannot reasonably be expected that all tests will give satisfaction. It is considered, however, that factory-managers are becoming more efficient and careful with this class of work, and that less complaints are forthcoming.

A considerable amount of check testing has been done in our Wellington laboratory. Samples sent forward for check testing must be taken conjointly by an officer of the dairy company and the supplier. Usually such tests have corroborated the factory testing, and our work has been the means of allaying suspicion and engendering more harmony between the factory-manager and his company's suppliers.

Three officers of the Division have been engaged to take control of the composite testing for the dairy companies with whom they are associated. This work has evidently given satisfaction, and further requests for such service have been received. On various occasions officers of the Division have been called upon to make the tests of a period's composite samples at dairy factories, and this work has also proved helpful. In a few instances, outside of the usual work of co-operative companies, and where a proprietary interest was involved, a testing officer was appointed and paid by the suppliers to watch their interests in connection with the sampling and testing. This method removed a great deal of the discontent previously in evidence.

It is considered that the time is now ripe for introducing regulations making compulsory the taking of samples of cream for testing by weight instead of measurement, the use of tested glassware, and possibly other safeguards from the producers' standpoint.

TESTING OF PUREBRED DAIRY COWS.

The certificate-of-record testing of purebred dairy cows has been continued on the usual lines. Economists have been stressing the necessity for greater production, and this line of testing, commenced by this Division in 1912, contributes directly towards that end. One of the principal factors tending to increase the production of butterfat is doubtless the breeding of cows, which will, as the result of qualities received from their ancestors, convert into milk the largest proportion possible of the food eaten, while still maintaining good health and working-condition. Breeders of purebred dairy stock have latterly been supplying bulls to dairy herds in greater numbers, and the production records which the divisional officers have authenticated provide useful information to dairymen when making such selections.

Breeders and dairymen are prepared to pay higher prices for the progeny of cows with an authenticated good record of yield, and consequent upon the recognition of this fact there has been an increase in the number of testing breeders. During the year 280 breeders have been testing, this number representing an increase of 78, or 39 per cent. over last year's figures. The number of purebred cows on test, at 940, represents an increase of 185, or 25 per cent.

To cope with the extra work some five additional testing officers were appointed. The programmes of all testing officers were well filled. Late in the spring and summer a few applications had to be declined owing to the fact that they were from breeders so scattered that the appointment of a further testing officer would not have satisfactorily overtaken the work.

Testing officers have during the year been instrumental in inducing quite a number of dairymen to replace crossbred sires with purebreds. The co-operation of the various breeders' associations in this educational work has been very helpful. There is a splendid opportunity for a very considerable development of this line of endeavour.

ASSOCIATION TESTING OF DAIRY HERDS.

The testing of the yield of dairy cows on the association principle has developed extensively during the period covered by this report. The demand for requisites for testing purposes last spring was much in excess of the supply, and although we have the pleasure of reporting a very considerable increase in the number of cows tested we have to recognize that many more would have been tested could arrangements have been made for so doing.

Officers who are testing purebred dairy cows have been called upon to do more association testing, while the appointment of further testing officers last spring enabled us to cope with some of the extra work. Whereas during the previous year officers of the Division tested cows in some twenty-seven associations, this year they tested for some forty associations, an increase of 48 per