

more moisture has to be removed from the low-casein milk. The results of experiments carried out so far tend to favour the second explanation, but it is not yet possible to reach a firm conclusion.

Manufacture of Cheshire-type Cheese.—In collaboration with the Dairy Division and with Mr. W. Linton, of the Dalefield Dairy Co., several attempts at the manufacture of a Cheshire-type cheese were made throughout the dairying season. The cheeses were favourably reported upon in England, and modifications are gradually being made in an effort to satisfy the requirements of Cheshire-cheese consumers. The increased demand for liquid milk in England has reduced the amount available for manufacture of Cheshire cheese and thus provided an opening for a possible diversification of New Zealand's cheese trade.

Cleaning of Milking-machines.—Although there have been no controlled experiments on the cleaning of milking-machines during the past year, some observations in the Institute milking-shed have been made. The main point which emerges is that a shortage of boiling water for use through a milking-machine may be offset to some extent by the use of a hypochlorite rinse immediately before milking is started.

Dairy Cow Nutrition.—During the 1946–47 season the experimental herd has again been used in work designed to determine the influence of plane of nutrition during the last two to three months of pregnancy on the health and production of dairy cows and on the composition and manufacturing qualities of milk. As in the previous year, the herd was divided as evenly as possible into two groups of twenty-one cows each. For the last seventy days of pregnancy the animals in one group (LP) were grazed on bare pastures and given a small quantity of hay. These cows lost condition steadily over this period. The other group (HP) was fed as well as possible on winter grass, hay, and silage, and gained a considerable amount of weight before calving. After parturition the two groups were run as one herd, managed and fed as well as possible. Twenty-five of the animals concerned had been subject to the same treatment as in the previous year. As this experiment is in the second year of a three-year trial, a detailed examination of the data must be left until the conclusion of the work. Preliminary results show that in both seasons to date the butterfat-production has been significantly higher in the HP group. Differences in milk composition have been small, and need confirmation. The health records of the two groups are being followed closely, but, while some differences in the incidence of retention of afterbirth, staggers, and ketosis, and little difference in mastitis, have been noted, these observations also need confirmation. The body-weight records show that the LP groups lost less weight during the early period of lactation, and thereafter gained weight at a faster rate than the HP group. At intervals through the season the milk from the two groups of cows was made separately into cheese, as was done in the previous year. The only difference observed was a tendency, more accentuated in dry-weather periods, for the milk from the low-plane cows to form a curd which retained moisture more tenaciously than the corresponding high-plane curd. This difference, where it occurred, was usually reflected in the moisture contents of the final cheeses, and the low-plane cheese was consequently a little weaker than the high-plane cheese. The effect was, however, quite slight.

Dairy Calf Nutrition.—A study of the value of meal when given to calves receiving skim-milk and good pasture after three to four weeks of whole-milk feeding has been advanced a further step in the 1946–47 season. Two groups of Jersey calves were reared, both receiving skim-milk on the basis of 10 per cent. of live-weight, with a limit of 2 gallons, but one being given, in addition, $\frac{1}{2}$ lb. meal daily. An 8 lb. difference in live-weight at weaning at twenty-two weeks was recorded in favour of the meal-fed group. The cost of this advantage, with meal at £20 a ton, was approximately 10s. per calf. Furthermore, the spring was the most unfavourable experienced for many years, and neither group did as well as groups receiving skim-milk alone in previous years. It is believed that the basis of skim-milk feeding was set too low for the adverse season experienced.