

The trends in results during the current season are very similar. Consideration of the genetic implications of this experiment necessitates detailed examination of the individual twin pairs. This will be done when the experiment has completed the third season. In the meantime the mean results at least suggest that an allowance of approximately 100 lb. of butterfat must be made in comparing the records of cows well fed on grass with those of cows whose diet is supplemented with concentrates to ensure maximum yields. This point is of considerable practical importance in the selection of bulls on the butterfat backing of their dams under New Zealand conditions.

DAIRY COW NUTRITION

Calf-rearing.—Studies on the nutrition of the calf during the first fourteen weeks of life have been continued. Three systems of feeding were compared in the 1947-48 season, interest centring mainly on the relationship of feeding to the incidence of scours. The feeding comparisons were:—

- (a) Milk daily on a 12-per-cent. body-weight scale.
- (b) Milk daily on a 12-per-cent. body-weight scale, plus 25 per cent. added water.
- (c) Milk daily on an 18-per-cent. body-weight scale.

In all groups colostrum was fed for the first three days after birth, followed by whole milk until a live weight of 70 lb. was reached. Thereafter the ration was gradually changed to skimmed milk by the time the calf reached 100 lb. These rations were continued for fourteen weeks.

In the 1948-49 season the experiment was repeated with the difference that the heavily-fed group was reduced in its daily intake to a 12-per-cent. body-weight basis once the calves reached 100 lb. live weight. Results in terms of live weight were as follows:—

Treatment.	1947-48.			1948-49.		
	Birth.	Six Weeks.	Fourteen Weeks.	Birth.	Six Weeks.	Fourteen Weeks.
	lb.	lb.	lb.	lb.	lb.	lb.
(a) ..	54	86	168	52	84	157
(b) ..	55	87	166	53	85	160
(c) ..	54	100	183	54	98	174

In both years the heavier milk ration was an advantage for the first six weeks but thereafter just as good gains resulted on the smaller ration. The addition of water to the smaller milk ration did not affect growth rates, but in both years it appeared to reduce the incidence of scours. All cases of scours yielded to treatment with sulpha drugs.

Lifetime Project.—The object of this project is to examine the effect of two types of pasture management on the lifetime performance of dairy cows. In one case the pasture is so controlled by rotational grazing, autumn saving of pasture, and maximum conservation of hay and silage as to provide an even, high level of nutrition, while in the other the diet of the cattle is controlled almost entirely by seasonal effects. The different treatments are applied in two groups for the whole lives of the cattle, and in the other two changes are made when the heifers calve for the first time. There are thus four groups, which are designated high-high (good nutrition throughout), low-low (poor