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 either on the butterfat backing of their dams under New Zealand conditions or on the production of their progeny.

(*e*) *Influence of Tropical Climate Upon Performance of Temperate Zone Cattle:* To study the possibility of climate *per se* being a limiting factor of major importance to the performance of dairy cattle in Fiji, an experiment has been commenced involving eight sets of identical twin heifers. One member of each set has been located in Fiji, the mate remaining at Ruakura. Feed supplied all animals will be grown in New Zealand to eliminate nutritional effects. All other conditions have been standardized as far as possible. The experiment is being conducted in co-operation with the Fiji Department of Agriculture, and, apart from its direct practical interest to dairymen in that country, is likely to yield general data on the interaction of climate, production, and inheritance of interest to breeders in all high-temperature zones, as well as information which will permit a better understanding of the interactions of climate and animal behaviour.

Dairy Cow Nutrition

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 nutrition throughout), high-low (good nutrition to first calving and poor nutrition thereafter), and low-high (poor nutrition to first calving and good nutrition thereafter). The results are reported in three stages, calf, yearling, and cow.

Calf Stage: Seasonal body weights of the well-reared (rotationally-grazed) and poorly-reared (set-stocked) calves for the last six years were as follow:—

BODY WEIGHTS AS AT 31ST MARCH

Seasons.	Well Reared.		Poorly Reared.		Difference.
	Number.	Weight.	Number.	Weight.	
		lb.		lb.	lb.
1944–50	110	381	120	288	93
1949–50	14	357	14	297	60
Twins (split)	12	408	12	325	83