New Zealand conditions of calf rearing. Where early grazing is not provided meals should be fed and there are a variety which can be used successfully. Meal mixtures may contain varying proportions of barley meal, linseed, pollard, maize meal, pea meal, and meat meal. The meal is best given dry after the milk is fed.

The individual system of feeding should be continued with skimmed milk, of which not more than 1½ gallons is needed daily. Overfeeding with skimmed milk may cause stomach derangement, unthriftiness, and a pot-bellied condition.

As it is not long before the full water requirements of the calf are not met by the daily intake of milk, a good supply of clean water should always be provided.

Early Grazing Desirable

By the end of the third week rumination has usually begun and grazing can play an increasingly important part in the nourishment of the calf. The earlier calves can be allowed out to graze the better, provided such grazing is on fresh, short, leafy pasture. Even in the first 2 or 3 weeks a rotational system can often be adopted by the subdivision of a spelled calf paddock handy to the shed. The area used for this need not be large. The rotational grazing of young calves ahead of the dairy herd while they are still being fed on milk involves some extra labour, but many may consider that the results obtained justify the effort.

There is a widespread lack of appreciation of what is suitable grazing for calves. Calves are very selective grazers. If they are set stocked even in a field carrying plenty of feed, they slowly starve themselves, because they will eat only the closely grazed patches. Fortunately the type of pasture management which provides the calf with the maximum of digestible young grass at the same time gives the greatest degree of control over calf diseases and parasites. When calves are shifted every one or two days the level of food intake is higher and worms are kept under control.

Rearing without Skimmed Milk

The total amount of whole milk needed to rear a calf when skimmed milk is available is usually about 30 gallons, although it may be less than this if the change to skimmed milk is started at 2 weeks. Whether this amount will need to be increased in the absence of skimmed milk by feeding whole milk over a longer period will depend on the substitute used. A fluid of approximately the same value as skimmed milk can be made by mixing 1lb. of dried skimmed milk or buttermilk in a small quantity of water and then making it up to 1 gallon with warm water. This can be substituted for whole milk in the same quantities and at the same age as for skimmed milk, but the cost is relatively high. Pure buttermilk also has the same feeding value as skimmed milk, but the factory product may contain varying amounts of added water. The proprietary calf foods available as milk substitutes should be fed strictly according to the makers' instructions.

Alternatives are to increase the total quantity of whole milk fed to about 40 gallons and feed calf meal from the end of the third week as in schedule B (see below), or to use from 50 to 60 gallons of whole milk only as in schedule C and wean at an early age. Successful weaning at 8 weeks or even earlier is possible. This has been shown by experiments at the Department of Agriculture's Animal Research Station, Ruakura. Early weaning should be attempted only under the following conditions:—

1. Feed 50 to 60 gallons of whole milk per calf for the first 8 weeks.
2. If a calf is below average size for its age, continue feeding of whole milk for an extra 2 weeks; that is, wean at 10 weeks.
3. If calves are being reared on whole milk and skimmed milk, wean them at 8 weeks; if they are undersized, wean at 10 weeks.
4. Practise early weaning only in association with rotational grazing of good-quality dairy pastures.

Where an adequate system of controlled grazing is not practised calves should if possible be weaned on to a paddock of saved young grass.

Rearing on Whey

Whey is deficient in both fat and protein. It is very dilute and has about half the feeding value of skimmed milk. Whole milk only should be fed for the first 4 weeks. Because of its high protein content, meat meal is a suitable supplement to feed with whey. However, it is unpalatable to calves and it will give better results if mixed with a cereal meal such as barley meal in the proportion of 1 part of meat meal to 2 parts of cereal. It may be fed as indicated in schedule D. Greater care must be taken in changing from whole milk to whey, than to skimmed milk, as a sudden change will cause scours. Calves can be reared successfully on whey, but it is more than ever necessary to provide clean, fresh pasture and good, leafy hay.

Whey paste is a by-product of milk sugar manufacture which is available in some districts. One pound mixed with a gallon of warm water has a feeding value almost equal to that of skimmed milk except that it is not as rich in protein. It should be fed with a little whole milk supplemented with meat meal or cereal meals.

Calf-feeding Schedules

It is not possible to draw up feeding schedules to suit all calves under varying conditions. Those given below must be taken only as a general guide and altered to suit the circumstances.

		A		B		C	D		
Live-weight lb.	Age weeks	Whole milk pints per day	Skimmed milk pints per day	Whole milk pints per day	Meal oz. per day	Whole milk pints per day	Whole milk pints per day	Whey pints per day	Meal oz. per day
70	0-1	6		6		6	6		
80	1-2	7		7		7	7		
90	2-3	8		8		8	8		
100	3-4	6	3	7	4	9	9		
	4-5	5	5	6	4	10	8	4	2
	5-6	4	7	5	8	11	7	6	4
	6-7		12	4	8	8	6	8	6
	7-8		13	3	16	4		12	8
	8-9		14	2	16	wean		14	12
	9-10		15		24			16	14
	10-14		16		32			20	16
	14-16		8		16			16	12
	16-18		4		8			12	8
No data available	18		wean		wean			wean	wean