

The fifth cow to show clinical symptoms did so after one day's underfeeding, commencing from the day of calving. This was an attack of milk-fever, with serum calcium 5.1 per cent., and magnesium 2.3 per cent. She recovered after calcium gluconate injection. Three days later, twelve hours after she had had one dose of thyroprotein, she developed what appeared to be a mixture of milk-fever and grass-staggers, with serum calcium 3.8 mg. per cent., and magnesium 1.4 mg. per cent. She recovered slowly over the next three days after glucose, calcium, and magnesium injections and udder inflation.

The 3 remaining cows, which did not show any symptoms of grass-staggers, did develop hypomagnesaemia, but not hypocalcaemia. The normally-fed cows in the herd did not develop either grass-staggers or milk-fever attacks this season.

Grass-staggers has not been recorded in this herd in previous years. This experiment suggests that one of the ways in which grass-staggers develops is as a result of underfeeding or a negative energy balance. Thyroprotein dosing may be merely contributory to this effect. A further experiment without the use of this drug is proposed for the forthcoming spring.

Bovine Blood Groups. During the year we have been fortunate in having Dr. C. Stormont stationed at Wallaceville as a visitor under the Fulbright scheme. He has enabled considerable progress to be made in the preparation of blood group reagents, and it is hoped that Wallaceville will soon be equipped with a full series of reagents prepared in New Zealand.

Parentage Tests. Eighteen cases were received for determination of questioned parentage. Though in one case it was impossible to give a decision, satisfactory answers were given to the remaining seventeen cases. Twelve cases were of the type in which one or more bulls were suspected as being possible sires, five were of the type in which one or more cows were suspected of being possible dams, and in one case there were possibilities in both sires and dams. Seventy bloods were typed to provide data for these results.

Pig Projects

Economics of Meal Supplementing. Experiments have been conducted to determine whether the use of meal supplements with skimmed-milk ration is profitable, with special reference to the stage of growth of the pig and the level of meal feeding.

Sixty pigs, individually fed, were used, over a weight range of 50 to 110 lb. Information on feed intake for an additional 130 pigs fed to bacon weight (200 lb.) was used, as were the carcass yields of 73 pigs slaughtered at weight intervals between 50 and 130 lb. live weight. Meal fed varied from nothing to 60 per cent. of the total ration. The results indicate that:

- (a) One gallon of milk is equal in food value to 1 lb. of meal mixture (1 part by weight 60 per cent. protein meat meal to 3 parts of barley meal), irrespective of stage of growth or ratio fed.
- (b) The food requirements per pound of live-weight gain increase with the body weight of the animal, the regression equation being $Y = 1.724 + .0152X$. X = live weight.
- (c) The carcass weight rises with the live weight according to the formula $Y = .763X - 4.81$. This is equivalent to a carcass-weight gain of 1 lb. for every 1.31 lb. live-weight gain.

Calculations relating to economic returns are based on the fact that the value of a gallon of skimmed milk on a New Zealand dairy farm is only what it earns in the form of pig-meat produced. Meal, on the other hand, has a basic value which is the price paid for it. This cost must be offset by meat-production before a profit can be shown. Meal as a supplement to skimmed milk must, therefore, in its own right produce per unit fed a greater value of pig-meat than its own cost.