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Summary only

FEED CONVERSION EFFICIENCY IN HIGH LIVEWEIGHT GAIN AND LOW LIVEWEIGHT GAIN FRIESIAN BULLS

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The experimental data presented were obtained in a feeding experiment conducted at Awahuri Artificial Breeding Centre from May to August 1972. The experiment aimed at determining what variation, if any, existed between bulls in feed conversion efficiency. The interest lay in bulls which, from New Zealand Dairy Board records, were increasing their liveweights at different rates.

From a group of 80 Friesian bulls with liveweight records available for the six months prior to the trial, two groups (H, L) each of 9 animals were selected. The H and L animals had previously gained liveweights of 1.36 and 0.93 kg/day, respectively. At the start of the trial, the ages ranged from 19 to 24 months and the liveweights from 400 to 600 kg.

The animals were housed in a partially open barn and fresh, cut pasture was fed daily. In Period 1 (28 days) grass was fed *ad libitum*. In Period 2 (56 days) the bulls were fed at either of three levels of intake to yield gains of:

- (1) Approximately zero gain/day
- (2) 0.5 kg LWG/day, and
- (3) 1.0 kg LWG/day.

Six bulls were in each intake group, 3 from each of H and L. The different intake levels were chosen to enable feed conversion efficiencies (FCE) in the two groups (H, L) to be compared over a wide range of intakes and liveweight gains.

At the commencement of the trial, the H and L bulls had mean liveweights of 535 and 486 kg, respectively. During Period 1 the H and L bulls gained 0.27 and 0.40 kg/day and had intakes of 10.4 and 10.0 kg DM/day, respectively.

Although H animals were heavier by 49 kg/animal their intakes were only slightly greater (0.4 kg DM/day) than L animals. This implies that less feed was available for LWG in group H.

In Period 2 average daily weight gains for the H bulls were 0.30, 0.51 and 0.94 kg, on intakes of 6.8, 8.3 and 12.0 kg DM/day respectively. The L bulls gained at 0.42, 0.69, and 0.94 kg/day at intake levels of 7.2, 9.5 and 10.5 kg DM/day, respectively.

Gross feed conversion efficiencies calculated from the above data showed that the H bulls had efficiency values of 22.6, 16.3 and 12.8 kg DM/kg of weight gain. The corresponding values for the L bulls were 17.1, 13.8 and 11.2 kg DM/kg LWG, for intake levels 1, 2 and 3, respectively. The mean liveweight of all H bulls was 552 kg and 505 kg for the L bulls. Undoubtedly, much of the increased requirement for weight gain in the H bulls would be due to their increased maintenance requirement.

These data show the degree to which the anticipated weight gains in the bulls were attained. The ratio of feed conversion efficiency neglects to consider that part of intake which is required for maintenance.