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THE UTILIZATION OF LACTOSE BY THE GROWING PIG

I. J. SHEARER AND A. C. DUNKIN

Massey University, Palmerston North

Twenty-eight weanling pigs were used in a feeding trial to determine the effect of dietary levels of lactose on growth performance and carcass composition. Seven pigs, weighing initially 50 lb and penned individually, were allocated to each of treatments 1 to 4, in which lactose substituted for wheat starch at levels of 0, 15, 30, 45% of the diet, respectively. The meal mixtures were fed as a gruel, using 3 parts water: 1 part meal (w/w).

Over a period of 70 days, pigs on treatments 3 and 4 grew 10 and 39% slower, respectively, than the controls ($P < 0.01$). The pigs on treatment 4 also grew significantly slower ($P < 0.05$) than the pigs on treatments 2 and 3. Reduced food consumption by most pigs contributed substantially to the poor and very variable performance of the treatment 4 group. Similar treatment differences were evident for food conversion efficiency but there was little treatment effect on carcass fatness. Diarrhoea was restricted almost entirely to the treatment 4 pigs.

A digestibility study of the four experimental diets, using 3 pigs per treatment, indicated that approximately 95% of the total reducing sugar voided was present in the urine. Although the amounts of urinary sugar increased significantly with increasing dietary lactose intake, total sugar excretion represented less than 1% of the lactose ingested.

The major faecal sugar was tentatively identified as xylose. However, a sample from the only pig which was badly scouring also contained glucose and galactose but no lactose.

The predominant sugars in urine samples from pigs on treatments 2, 3 and 4 were galactose and lactose.