THE EFFECT OF PROCESSING OATS GRAIN FOR DAIRY COWS

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In an evaluation of different cereal grain sources for dairy cows fed complete diets, Moran (1983) found cows offered rolled oats produced 15 per cent more milk fat than those fed rolled wheat or burley. This paper reports on a comparison of three different methods of processing oats grain when fed in conjuntion with irrigated fodder crops to cows in early lactation.

Fourteen Friesian crossbred cows and heifers (57 days post-partem, 448 kg live weight) were individually fed *ad libitum* for three weeks, one of three diets comprising 50 per cent oats grains (whole, rolled or whole grains soaked for three days in alkali at the rate 45 g/kg oats), 20 per cent lucerne hay, 19 per cent maize silage together with protein andmineral supplements. Dietary crude protein contents were 16.0, 15.6 and 17.0 per cent respectively. Milk production was measured over the last seven days and adjusted by covariance analysis for between cow variation. Dietary metabolizable energy (ME) content was calculated from organic matter digestibility determined using chromium sesquioxide.

Table 1. Productivity of dairy cows offered oats grain either whole, rolled or alkali-treated (kg/head/day).

	Whole	Rolled	Alkali-treated
Number of animals	4	4	6
Dry matter intake	17.33	18.81	18.61
g/kg live weight$^{0.75}$/day	183.5	184.6	192.6
Dietary ME content (MJ/kg)	9.0	9.2	9.6
Milk yield	24.8^{ab}†	25.8^{a}	27.0^{a}
Milk fat yield	0.96^{b}	0.90^{b}	1.06^{a}
Milk protein yield	0.69^{b}	0.75^{ab}	0.80^{a}

† Values on same line with common subscript do not differ (P<0.05)

Cows fed the alkali-treated oats diet produced 9 per cent more milk, 10 per cent more milk fat and 16 per cent more milk protein than those fed the whole oats diet (Table 1). These differences were-associated with increases on both intake and ME content of the diet. In both the whole and alkali-treated oats diets, 20 per cent of the consumed oots were excreted as whole grains in faeces. However, the average weight of grains excreted (as a proportion of that consumed) were 72 and 59 per cent for the whole and alkali-treated oats diets respectively. The intake and productivity of the cows fed whole and rolled oats diets were very similar.

Although there appeors to be no advantage in rolling oats when it is included in complete diets for dairy cows, soaking the oats in alkali solution could lead to increases in productivity. However, a limit to the practical application of such a treatment is firstly, the cost of additional equipment and secondly, the need to turn the grain at least twice in the first day after soaking to stop it setting hard.

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