

Effect of Fibrolytic Enzyme Supplementation and Fibre Content of Total Mixed Ration on Productive Performance of Lactating Buffaloes

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The beneficial effects of fibrolytic enzymes in ruminant diets appear to be a result of, in part, improvements in feed digestibility (Yang *et al.*, 1999). Dairy cows fed forage treated with a fibrolytic enzyme additive ate more feed and produced 5 to 25% more milk (Lewis *et al.*, 1999). Supplementing dairy cow diets with a fibrolytic enzyme mixture has the potential to enhance milk yield and nutrient digestibility of cows in early lactation without changing feed intake (Rode *et al.*, 1999). Fibrolytic enzymes applied to the forage portion of the rations prior to feeding improved lactational performance of early and midlactation cows (Lewis *et al.*, 1999).

Thirty multiparous lactating buffaloes weighing 500 to 600 kg were fed three levels of fibbers with or without fibrolytic enzyme treated roughage. The rations were fed as TMR formulated from berseem hay, corn silages and rice straw, yellow corn grain, soybean meal, wheat bran, minerals, and vitamins.

The digestibility coefficients, nutritive values and the intake of DM, TDN and DCP increased significantly ($P<0.05$) with decreasing fibre content as well as with enzyme supplementation (Table 1). The pH, $\text{NH}_3\text{-N}$ and TVFA's concentrations, actual milk and 4% FCM yield and lactose content increased significantly ($P<0.05$) with decreasing fibre content as well as with enzyme supplementation (Table 1). However, the contents of fat and total solids increased significantly ($P<0.05$) with decreasing fibre content as well as with enzyme supplementation. The DM/kg FCM decreased significantly ($P<0.05$), while feed cost, cost, income of FCM, and income increased significantly ($P<0.05$) with decreasing fibre content as well as with enzyme supplementation. These results are in agreement with those obtained by Yang *et al.* (1999), Lewis *et al.* (1999) and Rode *et al.* (1999).

Table 1. Effect of fibre content and fibrolytic enzyme supplementation on rumen parameters, milk yield and composition

Item	Rumen parameters			Milk yield kg/day		Milk composition %					
	pH	$\text{NH}_3\text{-N}$	TVFA's	Actual	FCM	Fat	Protein	Lactose	SNF	TS	Ash
Fibre content											
High	6.26 ^a	16.94 ^b	22.61 ^c	9.93 ^c	9.58 ^b	6.66 ^a	4.20	5.36 ^b	10.27 ^b	16.93 ^a	0.71 ^a
Medium	6.13 ^b	17.54 ^{ab}	23.35 ^b	11.44 ^b	10.54 ^{ab}	6.24 ^b	4.29	5.55 ^a	10.54 ^a	16.78 ^{ab}	0.70 ^{ab}
Low	6.05 ^b	18.23 ^a	24.05 ^a	12.57 ^a	11.07 ^a	5.85 ^c	4.30	5.71 ^a	10.70 ^a	16.54 ^b	0.69 ^b
Fibrolytic enzyme											
Without	6.23 ^a	16.71 ^b	24.01 ^a	10.49 ^b	9.44 ^b	6.08 ^b	4.16 ^b	5.37 ^b	10.23 ^b	16.31 ^b	0.70
With	6.06 ^b	18.43 ^a	22.66 ^b	12.13 ^a	11.35 ^a	6.41 ^a	4.37 ^a	5.71 ^a	10.77 ^a	17.19 ^a	0.70

a, b: Values and means in the same row with different superscripts differ significantly at 5% level.

It is concluded that supplementing lactating buffaloes with high dietary fibre as well as fibrolytic enzyme improves performance and is economical.

Lewis, G.E.; W.K. Sanchez; C.W. Hunt; M.A. Guy; G.T. Pritchard; B.I. Swanson and R.J. Treacher (1999). *J. Dairy Sci.*, **82**, 611.

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