# RAPID INTRODUCTION OF CATTLE TO GRAIN DIETS USING VIRGINIAMYCIN

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Gradual introduction of cattle to high grain diets is required to avoid rumen acidosis, a metabolic disorder associated with the sudden intake of high levels of readily fermentable carbohydrate. A step-wise reduction of the proportion of hay in the diet over an initial feeding period of 14 days represents the standard approach adopted in feedlots. Such a practice increases cost of production through hay management and frequent changes in diet formulation. There is also the possibility that even with a gradual introduction some animals may develop problems associated with rumen acidosis. In vitro studies (Nagaraja et al. 1987) have shown that the feed additive virginiamycin prevents lactic acid production during the fermentation of readily fermented carbohydrate.

Two trials were conducted to examine the use of virginiamycin to prevent lactic acid production during the sudden introduction of feedlot cattle to high-grain diets. In both experiments extreme conditions were used in order to determine whether there were any limits to this potential management option. The diet contained 90% milled wheat grain and animals were given immediate access to this diet when it contained virginiamycin. In the first experiment the health and performance of cattle with immediate access to a 90% wheat diet containing virginiamycin (40 g/ton) were compared with animals fed conventionally. Animals given immediate access to the diet grew at a rate of 1.6 kg daily and had a feed conversion ratio (FCR) of 7.9 over a feeding period of 77 days, without any evidence of ill health. This level of performance was lower than that of the control animals (ADG 2.05 kg, $P<.005$; FCR 6.8, $P<.154$) which was mainly due to lower daily feed intakes (10.8 vs 12.9 kg, $P<.001$).

In the second experiment various doses of virginiamycin (0, 20, 30, and 40 g/ton feed) were tested for different periods (0, 7, 14 and 84 days). The results of this study indicated once again that a sudden introduction was a practical option when virginiamycin was included in the diet at a level of at least 30 g/t for the first 14 days of feeding. Some reduction in daily feed intake was associated with the presence of virginiamycin in the feed during the first two weeks in the feedlot (7.9 vs 4.9 kg, SEM .4), and this was the basis of an overall reduction in daily body weight gain over the initial 84 days in the feedlot (1.44 vs 1.24 kg, SEM .066), although FCR was similar (6.7 vs 6.6).

Results of these studies indicate that the use of virginiamycin removes the risks associated with introducing cattle onto high grain feedlot diets, while maintaining high levels of performance. More work is required on the use of virginiamycin under normal dietary conditions.

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