

EFFECT OF XYLANASE IN DIETS CONTAINING PRE-CHARACTERIZED WHEAT VARIETIES ON THE PERFORMANCE OF WEANER PIGS

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Previous studies (Partridge *et al.*, 1999) have shown that the level of improvement in voluntary feed intake of pigs fed xylanase-supplemented wheat-based diets was dependent on the initial quality of the wheat. Two wheat cultivars (Stiletto and Currawong) were chosen which had similar digestible energy (DE) values (13.3 and 13.4 MJ/kg DE, respectively; Kim *et al.*, 2001), but different feed intake responses in weaner pigs when included at 90% in the feed (higher with Currawong). In this study the two cultivars were compared in a performance trial using conventional wheat-based diets that were titrated with multiple levels of a xylanase-based product.

Sixty, 21-day-old male pigs (Large White x Landrace) averaging 5.9 kg live weight were stratified on the basis of weight at weaning. Two wheat-based weaner diets, with Stiletto and Currawong included at 650 g/kg, were formulated to contain 14.5 MJ DE/kg and 0.85 g lysine/MJ DE. Porzyme® 9300, containing 4000 U/g xylanase, was added at 0, 0.25, 0.50, 0.75 and 1.00 kg/t to each diet. Pigs were housed individually and offered the diets *ad libitum* for 27 days. Feed intake, growth and feed conversion ratio (FCR) were measured. Analysis of variance was used to analyse the results.

Table 1. Effect of xylanase on performance of weaner pigs fed the experimental diets.

Treatment	Stiletto			Currawong		
	Daily feed intake (g)	Daily gain (g)	FCR	Daily feed intake (g)	Daily gain (g)	FCR
Control	594 ^a	390 ^a	1.5	660	485	1.4
0.25 kg/t	731 ^b	505 ^b	1.5	764	504	1.5
0.5 kg/t	749 ^b	505 ^b	1.5	705	477	1.5
0.75 kg/t	752 ^b	528 ^b	1.4	778	488	1.6
1.00 kg/t	758 ^b	522 ^b	1.5	764	509	1.5
SED	66.3*	42.0**	0.10 (NS)	70.8 (NS)	54.4 (NS)	0.14 (NS)

^{a,b}Values in the same column with different superscripts were significantly different (P<0.05)

*P<0.05; **P<0.01; NS P>0.05.

Pigs fed the diet containing Stiletto increased their voluntary feed intake and growth rate following enzyme supplementation. The pigs' responses to xylanase supplementation were observed at the lowest enzyme inclusion level. The use of xylanase ameliorated anti-nutritional factors in wheat-based diets associated with reduced feed intakes that were not related to DE assessments of the two cultivars. Parallel work with a multi-enzyme complex having also 4000 U/g xylanase as well as β -glucanase, α -amylase, pectinase and protease (Porzyme® TP 100HP) gave similar results with both wheat cultivars, indicating that the main response was associated with xylanase supplementation in high wheat diets.

References

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