

ENZYME (BIOFEED PLUS) SUPPLEMENTATION MAY BE MORE BENEFICIAL IN BOARS AND OLDER WEANING AGE PIGS

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Pigs are commonly weaned at 23-27 days of age. By weaning earlier and providing pigs with high quality diets, it may be possible to increase growth performance up to slaughter. However, digestive capacity of early weaned pigs may be insufficient to fully digest many ingredients currently used in weaner diets. The aim of this experiment was to determine whether an exogenous enzyme preparation with broad carbohydrase activity could benefit pigs that were possibly developmentally immature at weaning.

Eighty Large White x Landrace pigs were used in a factorial design with the factors being: weaning age (14 or 24 d), weaning weight (heavy (H) or light (L)), sex (boar or gilt) and dietary Biofeed Plus (0 or 500 ppm). Biofeed Plus contains fungal xylanases, pentosanases and β -glucanases. Pigs were housed individually and provided a wheat-based (55%) diet containing 15.5 MJ DE and 15.9 g lysine/kg *ad libitum* for 21 d. The diet also contained 5% soya bean meal and lupin (*Lupinus angustifolias*) kernels. The mean live weight of H and L pigs, weaned at 24 or 14 d, were 7.9 and 5.3, and 5.2 and 3.9 kg, respectively.

Table 1. Effect of age (A) and weight (W) at weaning, sex (S) and dietary Biofeed Plus on rate of gain (ROG), feed intake (FI) and feed:gain (FCR) over a period of 21 days post weaning.

	Biofeed Plus ¹	Boar				Gilt				sed	Significance ²
		24 d		14 d		24 d		14 d			
		H	L	H	L	H	L	H	L		
ROG, g/d	-	384	250	169	151	335	314	171	210	30.8	A***
	+	419	365	149	172	360	334	102	130		
FI, g/d	-	415	262	216	177	388	339	211	219	27.7	A***,W*
	+	436	362	186	188	427	350	163	156		
FCR	-	1.08	1.05	1.31	1.42	1.18	1.16	1.27	1.05	0.17	A***,W*
	+	1.04	1.01	1.56	1.14	1.19	1.05	1.99	1.29		

¹0 (-) or 500 (+) ppm BioFeed Plus. ²P<0.05; ***P<0.001.

Pigs weaned at 14 d grew more slowly (157 vs 345 g/d) than those weaned at 24 d although there was a suggestion of an interaction between age and weight at weaning (P=0.081). Thus, H and L pigs weaned at 14 d grew at 148 and 166 g/d whereas H and L pigs weaned at 24 d grew at 374 and 315 g/d, respectively. While there was no main effect of Biofeed Plus on ROG (248 vs 254 g/d, P=0.801), FI (278 vs 284 g/d, P=0.793) or FCR (1.19 vs 1.25, P=0.349) there were interactions with weaning age on ROG (P=0.050) and FI (P=0.060). Pigs weaned at 14 d grew more slowly (176 vs 138 g/d) and ate less (206 vs 174 g/d) whereas pigs weaned at 24 d grew more quickly (321 vs 369 g/d) and ate more (351 vs 394 g/d) when supplemented with enzymes. During the third week post-weaning there were interactions between dietary enzymes and sex (p=0.060) and dietary enzymes and age (P=0.023) on ROG. Thus, pigs weaned at 24 d and supplemented with Biofeed Plus grew more quickly during the third week (559 vs 460 g/d) whereas the converse was true for pigs weaned at 14 d (286 vs 334 g/d). Also, enzyme-supplemented boars grew better over this period (457 vs 371 g/d) whereas the converse was true for gilts (388 vs 423 g/d). In conclusion, dietary enzyme supplementation is most efficacious in boars weaned at an older age but benefits do not become apparent until 2 weeks post-weaning.

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