

## Growth performance of fattening gilts, immunologically castrated using Vivax® and fed either ad libitum or on a restricted feeding regimen before slaughter at 24 weeks of age

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### Introduction

As in males, immunocastration (IC) with Vivax® in females is associated with an increase in appetite and weight gain, offering potential production benefits. The profitability of these, however, depends on whether feed efficiency can also be maintained or even improved. When consumption is high feed restriction is a common management practice to optimize financial results. This abstract describes one of a series of studies to investigate the impact of IC timing and feeding regimen on gilt growth performance.

### Materials and Methods

480 gilts were randomly allocated to 8 groups of 60 at 12 weeks of age. 4 groups (T1, T3, T5, T7) were fed *ad libitum* and 4 (T2, T4, T6, T8) were feed restricted. Groups T3 to T8 all received two doses of Vivax® with the second (V2), which produces IC, at 4 (T3, T4), 6 (T5, T6), or 8 (T7, T8) weeks before slaughter at 24 weeks of age. T1 and T2 groups remained untreated and no placebo injections were given. Gilts were weighed weekly and feed consumption per pen was recorded daily, with average feed intake per pig calculated weekly. For groups T2, T4, T6 and T8 feed was restricted to 2.8kg/head/day starting either at the time of V2 or, for the untreated control group T2, at the same time as T8.

Results of Average Daily Feed Intake (ADFI) and body weights were analyzed using a general linear mixed model with repeated measures. Average Daily Gain (ADG derived from body weights analysis), ADFI and Feed Conversion Ratio (FCR=Average Daily Feed Intake / ADG) were analyzed for the period between V2 and slaughter and the overall study period (12-24 week).

### Results

Table 1 shows the results for ADFI, ADG, and FCR for the period between V2 and slaughter. In each case pairwise statistical comparisons are shown between the IC group and the negative control receiving the same feeding regimen (\*), and between treated groups receiving the same immunization protocol but different feeding regimens (+).

Table 2 shows the same parameters results for all treated groups for the entire fattening period (12 to 24 weeks of age), with the addition of final bodyweight. There were no statistically significant differences in performance prior to V2 so the overall results essentially represent the dilution of the post-V2 effect over a longer period.

Table 1. V2 to slaughter growth performance of IC gilts with either ad libitum or restricted feeding.

	ADFI (kg)	ADG (kg)	FCR
V2-slaughter period 4 weeks			
T1 (ad lib)	2.94++	0.966	3.08++
T2 (rest.)	2.65++	0.979	2.72++
T3 (ad lib)	3.29***	1.148***	2.87+
T4 (rest.)	2.71++	1.060***	2.57+
V2-slaughter period 6 weeks			
T1 (ad lib)	2.77++	0.969	2.88++
T2 (rest.)	2.55++	0.985	2.61++
T5 (ad lib)	3.19***	1.079**	2.95++
T6 (rest.)	2.70***	1.054**	2.56++
V2-slaughter period 8 weeks			
T1 (ad lib)	2.59+	0.961	2.71+
T2 (rest.)	2.43+	0.965	2.52+
T7 (ad lib)	2.93***	1.046**	2.81*+
T8 (rest.)	2.62***	1.019**	2.59+

Table 2. Overall (12-24 week) growth performance of IC gilts with either ad libitum or restricted feeding.

	ADFI	ADG	FCR	Final B. Wt.
Ad lib feeding				
T1	2.32	0.939	2.47++	111.2
T3	2.40***	0.984**	2.44++	114.9**
T5	2.52***	0.991**	2.54***	115.5**
T7	2.55***	1.000**	2.55***	116.2**
Restricted feeding				
T2	2.21	0.941	2.35++	110.4
T4	2.22++	0.961	2.31++	111.9
T6	2.27++	0.968	2.34++	112.5*
T8	2.33***	0.975*	2.40++	113.2**

\*, \*\* P<0.05, P<0.01 vs same feed, non-IC control  
+, ++ P<0.05, P<0.01 vs equivalent IC, different feed

### Conclusions and Discussion

IC consistently increased ADFI and ADG, leading to higher slaughter weights. Feed restriction consistently improved FCR, including in untreated controls. Within feeding regimen, the impact of IC on FCR was generally not significant except for the longer ad lib IC periods, where it became higher. The numerical pattern, however, fits field observations that short periods of IC can improve FCR, while longer periods will maximize weight gain but possibly result in some FCR deterioration unless animals are limit fed.