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ABRAVES

Immunocastration (IM) in market gilts harvested at 26 weeks of age: effects of feeding programs and second immunization timings on pork fat quality and its fatty acid profile.

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Introduction

Immunocastration (IM) is widely used in commercial pig production, particularly in male animals, but recent studies have evaluated this technology in market gilts production up to heavier harvest weights (1). The IM in gilts results in growth performance improvement related to increased feed intake and body fat deposition (1,2). Thus, this work aimed at evaluating the effects of the feeding regimens (restricted and *ad libitum*) and timings of the second immunization (V2) on fat quality and fatty acid profile of gilts harvest at 26 weeks of age.

Materials and Methods

Four-hundred and eighty cross-bred commercial gilts (PIC Genetics), with 12 weeks of age (84 ± 1 day) were submitted to a randomized block design, 4×2 factorial arrangement, comprising two feeding programs [*ad libitum* (AL) and restrict (RF)] and four immunization timings. T1 group remained as an untreated control and three other groups (T2, T3 and T4) received the second immunization against gonadotropin-releasing factor (Vivax[®]) at three different timings (V2) before harvest at 26 weeks of age: 4, 6 and 8 weeks. Gilts were distributed in 96 pens, 5 animals/pen with 24 replications per treatment. The feeds were corn and soya bean-based ingredients and were formulated to meet the Brazilian Nutritional Requirements (3). At 26 weeks of age, the gilts were harvested and backfat samples (100g) were taken from the neck (collar, C3-C4, 6 samples per treatment), vacuum packed and frozen stored at -20° C. The fatty acid methyl esters of neck fat samples were analyzed (n=48) by American Oil Chemists Society (4). Subsequently, total saturated (SFA), monounsaturated (MUFA), and polyunsaturated fatty acids (PUFA) were calculated (n=6 per treatment). The results were submitted to ANOVA, and the means were compared by Tukey's; differences were declared significant at $p < 0.05$ and a trend at $p < 0.10$.

Results

No interactions effects ($p \geq 0.05$) were observed between the feeding program and timing of

immunization, and no differences ($p \geq 0.05$) were found between the immunization timing (Table 1). However, gilts submitted to restricted feeding program presented 4.9% more saturated fatty acids ($p < 0.05$) compared with animal fed with *ad libitum* regimen. On the other hand, there was a decrease of -7.2, -8.2, -7.5 and -6.6% in polyunsaturated, n - 3, n - 6 and PUFA/SFA fatty acids, respectively for females submitted to a restriction program ($p < 0.05$).

Discussion and Conclusion

IM increased feed consumption in gilts after the second week of V2 (1) and, as consequence, the highest feed intake increases the proportion of unsaturated fatty acid deposition. However, this finding was not observed in this study, showing that the IM do not affect this trait, regardless of the feeding regimen practiced. Our findings were consistent with the reported studies showed restricted feeding in finishing pigs decreases the carcass fat content (6), changing the fatty acids profiles (2). We also observed the gilts raised under restricted feeding conditions had a higher amount of SFA and lower amount of PUFA. The lower total PUFA, n - 3, n - 6 contents detected in fat from RF could lead to a better storage stability and flavor of the pieces due to their lower susceptibility to oxidation spoilage (7). Moreover, different V2 timings in heavy gilts prior to harvest at 26 weeks of age do not have any negative consequences on pork fat quality and fatty acid profile.

References

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Table 1. Fatty acid profile (g/100g) of control and immunized gilts submitted to restricted and *ad libitum* regimens.

	Treatments				Feeding		CV (%)	p-value	
	T1	T2	T3	T4	AL	RF		Treat	Feeding
Saturated (g/100g)	33.98	33.73	34.60	33.50	33.12 b	34.77a	5.9	0.4029	0.0033
Monounsaturated (g/100g)	39.84	39.30	39.58	38.99	39.28	39.62	2.8	0.4673	0.2912
Polyunsaturated (g/100g)	23.99	24.54	23.52	25.11	25.18a	23.36 b	8.5	0.1154	0.0010