

Growth performance, and serum concentration of testosterone of male and female pigs immunocastrated with a GnRH analogue, fed wet low-protein diets

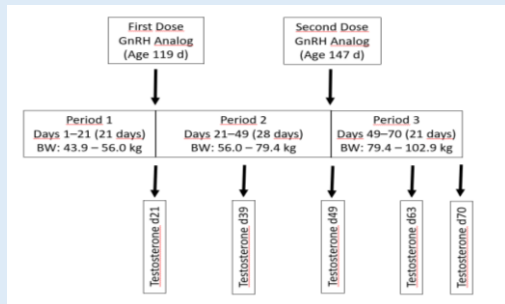
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Introduction

In a previous experiment (Santana et al., 2018) immunologically castrated male pigs fed a sorghum-soybean meal-based diet (18.4% CP, 3.4 Mcal ME/kg), had better ADG and G:F than barrows and gilts, as well as lower serum testosterone concentrations than entire male pigs. Arce et al., (2019) reported that finishing pigs fed wet feed had better growth performance, and heavier carcasses, but similar meat characteristics relative to pigs fed dry feed. The aim of this study was to evaluate the effect of a GnRH analogue on growth parameters, and serum concentration of testosterone in male and female pigs fed wet low-protein diets.

Materials and Methods

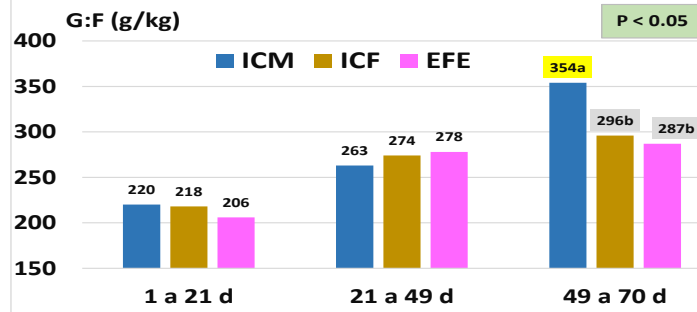
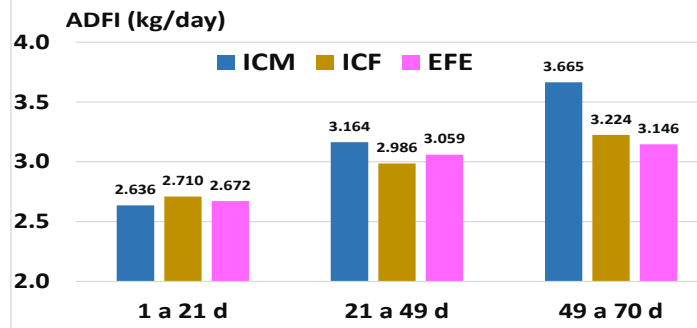
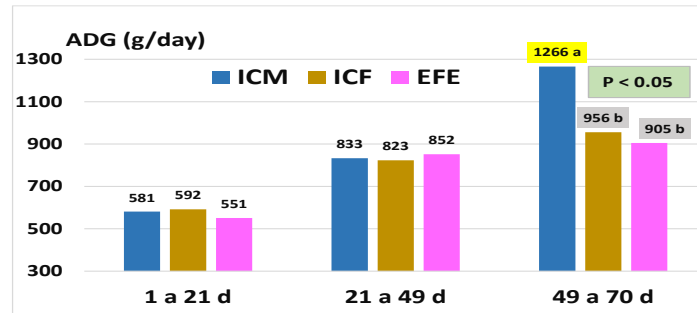
Nineteen crossbred (York-Landrace x Duroc) pigs with an initial BW of 43.9±2.4 kg were individually housed in pens (1.44 m²) equipped with feeder and nipple water drinker, and randomly assigned to one of three treatments: ICM: immunocastrated males (n=8); ICF: immunocastrated females (n=6); and EFE: entire females (n=5). All animals were fed *ad libitum* the same diet: grower (44-65 kg BW) 14.4% CP, and finishing (65 kg BW to slaughter) 13.6% CP diets offered as wet (1:1 water:feed). Immunocastrated pigs received two doses (2 mL each dose) of a GnRH analogue (Improvac, Zoetis, NJ, USA) at 119 and 147 days of age (56 and 79 kg BW).



Body weight, weight gain, feed intake and gain:feed were evaluated in three periods (P) of the experiment: P1 (21 days previous to the first dose); P2 (from the first to second GnRH analogue doses); P3 (21 days after the second analogue dose). Serum concentrations of testosterone were determined with an ELISA commercial kit (Mxlab, Mexico; range 0.1 – 18 ng Testosterone/mL) in blood samples collected at days 21, 35, 49, 63, and 70 of the experiment. Results were analyzed in a randomized design, with ANOVA using SPSS. Three contrasts were constructed: C1: ICM vs ICF; C2: ICF vs EFE, and C3: ICM vs EFE.

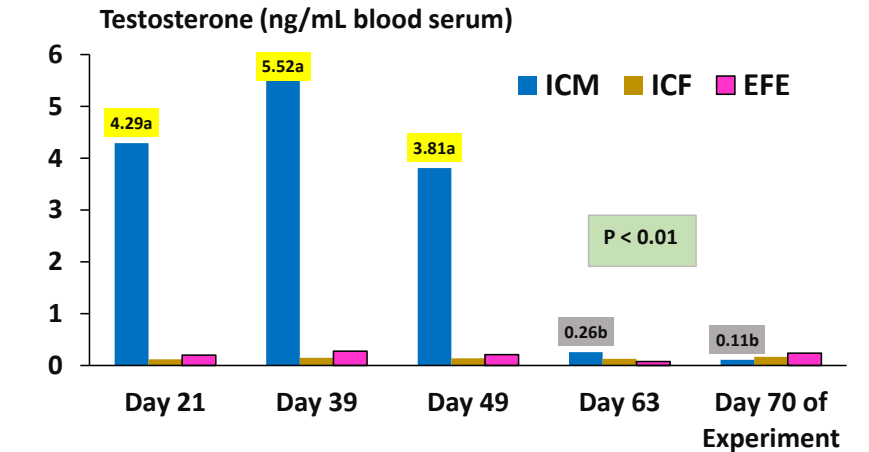
Results

Final body weight was similar among treatments (P>0.05). In P3, weight gain, and gain:feed of ICM was higher than in females (P<0.05), however results were similar (P>0.05) among treatments for periods P1 and P2.



Results (Cont.)

Serum testosterone concentration in ICM was higher (P<0.01) than ICF and EFE until the second GnRH analogue dose, but similar values were measured among treatments (P>0.05) thereafter.



Conclusions

In the finishing phase, immunocastrated males had better growth parameters (Average Daily Gain and Gain:Feed) than entire and immunocastrated females.

After the application of the second GnRH analogue dose, testosterone concentration in male blood serum was reduced to values similar to females.

Application of a GnRH vaccine to females had no effect in growth performance.

References cited

- Arce Vázquez N., H. Bernal Barragán, N.C. Vázquez Aguilar, E. Garza Brenner, F. Sánchez Dávila. 2019. Effect of wet versus dry feeding on digestibility, growing performance, carcass composition, and meat eating quality of finishing pigs. *J. Anim. Sci.* 97(Suppl. S3): 474-475 (Abstr. PSXIII-24).
- Santana Gutiérrez M.E., H. Bernal Barragán, F. Sánchez Dávila, A. Morales Trejo, M. Cervantes Ramírez, N.C. Vázquez Aguilar, G. Méndez-Zamora. 2018. Growth performance from 65 to 125 kg body weight, and carcass and meat composition of gilts, barrows, immunologically castrated pigs and entire males. *J. Anim. Sci.* 96(Suppl. S3): 52-53 (Abstr. PSVII-1).