Carcass characteristics of fattening gilts, immunologically castrated using Vivax® and fed either ad libitum or on a restricted feeding regimen before slaughter

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Introduction

Immunization against GnRF using Vivax® (Zoetis), also called Improvac®, Improvest® and Innosure®, is recently used in fattening gilts to suppress ovarian function and occurrence of estrus. Immunocastration (IC) in females is known to be associated with increased appetite and weight gain. After slaughter carcasses are typically heavier with more fat and lower lean meat percentage than from untreated gilts.[1] This abstract summarizes the results from a program of production studies designed to explore the magnitude of these effects in gilts with different durations of IC and fed either ad libitum or on a restricted feed regimen.

Materials and Methods

The program was conducted in three phases, each being a separate batch of gilts, with slaughter ages of 25 (P1), 24 (P2) and 26 (P3) weeks, respectively. Each phase included 480 animals 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. T1 and T2 groups remained untreated and no placebo injections were given. Gilts were housed by treatment in pens of 5, with pens randomly distributed. 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. Slaughter was performed according to typical Brazilian commercial practice. Carcasses were weighed head on and backfat and loin eye measured between vertebrae T14 and L1 using a Hennessey Grading Probe 7. Lean meat % was calculated using a standard formula.[2] Results of each measurement were analyzed using a general linear mixed model for each phase. Pairwise statistical comparisons were done within phase between groups on the same feeding regimen (looking at the impact of IC timing) and between equivalent IC groups on the different feeding programs (looking at the impact of feed restriction).

Results

Tables 1, 2 and 3 show results for carcass weight, backfat depth and lean meat % respectively. Different letters or the + symbol indicate significant differences ($P \leq 0.05$) across rows or between equivalent IC groups, respectively.

Table1. Carcass weights (kg) of IC and control gilts on either ad libitum or restricted feeding.

Ad lib	T1	T3	T5	T7
P1 (25w)	85.1a	86.6a	86.4a	86.1a
P2 (24w)	79.4a	81.3ab	82.5bc	83.6c
P3 (26w)	91.5a	93.6ab	95.1b	94.8b
Restricted	T2	T4	T6	T8
P1 (25w)	84.6a	84.4a	85.5a	85.2a
P2 (24w)	79.3a	79.4a	79.9a	80.9a
P3 (26w)	91.3a	91.6a	93.2a	93.6a

Table2. Carcass backfat depth (mm) of IC and control gilts on either ad libitum or restricted feeding.

Ad lib.	T1	T3	T5	T7
P1 (25w)	13.4a	15.1b	16.1b	15.8b
P2 (24w)	13.9a	14.5a	14.5a	16.0+b
P3 (26w)	15.9a	15.8a	17.1ab	18.3b
Restricted	T2	T4	T6	T8
P1 (25w)	13.7a	13.8a	14.8ab	15.7b
P2 (24w)	13.4a	13.8ab	14.3b	14.5+b
P3 (26w)	15.3a	15.9ab	16.6ab	17.5b

Table3. Lean meat (%) of carcasses from IC and control gilts on either ad libitum or restricted feeding.

Ad lib.	T1	T3	T5	T7
P1 (25w)	58.6ab	58.8b	57.8ab	57.7a
P2 (24w)	58.1a	57.6a	58.0a	57.3a
P3 (26w)	58.6c	59.2c	58.2ab	57.4a
Restricted	T2	T4	T6	T8
P1 (25w)	58.7a	58.7a	58.7a	57.8a
P2 (24w)	58.3a	57.6a	57.6a	57.6a
P3 (26w)	59.2a	58.6a	58.7a	58.4a

Conclusions and Discussion

Consistent with other reports[1], IC increased carcass weight and backfat thickness with some reduction in lean meat %. These effects typically increased with a longer V2 to slaughter interval. Except between groups T7 and T8 in P2, there were no significant differences from restricted feeding but, not surprisingly, the numerical results typically show lower values for carcass weight and backfat and a reduced IC impact. Opportunities to improve carcass value also need to be taken into account when optimizing the profitability of IC in gilts.

References

1.Van den Broeke A. et al.2016, J. Anim. Sci. 94, 2811-2820
2. Rodrigues, L.A. et al. 2019, Animal 13, 1326-1331