

## Oral Abstracts - Wednesday 08 June 2016

### O-REP2-007

#### Consequences of vaccination against gonadotropin-releasing factor on growth performance and reproductive development of heavy weight market gilts

L. Alves Rodrigues<sup>1\*</sup>, D. Martins de Souza Junior<sup>1</sup>, F. Radicchi Campos Lobato de Almeida<sup>2</sup>, F. Norberto Alves Ferreira<sup>1</sup>, C. Speridião Silva Neta<sup>1</sup>, A. T. Lino Fiúza<sup>2</sup>, J. Cristina Costa Madeira<sup>2</sup>, A. Rodrigues da Silva Serafim<sup>1</sup>, D. Karine Eulálio<sup>1</sup>, I. de Assis Ribeiro Batista<sup>1</sup>, D. De Oliveira Fontes<sup>1</sup>

<sup>1</sup>College of Veterinary Medicine, <sup>2</sup>Institute of Biological Sciences, Federal University of Minas Gerais - Brazil, Belo Horizonte, Brazil

**Introduction:** Follicle development and consequently ovulation are influenced by a hormonal cascade initiated by gonadotropin releasing factor which stimulates secretion of luteinizing hormone through action on the ovary. Vivax (Zoetis, São Paulo, Brazil) triggers antibody production against GnRF, reducing the release of the naturally occurring gonadotropin hormone and leading to temporary involution of the reproductive organs. This regression is manifested through suppression of estrus in gilts. The aim of the present study was to assess the effects of vaccination against GnRF on feed intake, growth performance, and estrous activity in finishing gilts and to determine further consequences on reproductive tract development.

**Materials and Methods:** Gilts were initially weighed and allotted to a pen (n=72; 2 pigs/ pen) based on BW in a completely randomized design. Treatment group received the first anti-GnRF vaccine dose at 15 wk of age (V1) and the second dose at 19 wk of age (V2), control group received two injections of saline. Daily boar exposure (DBE) occurred from 21 to 25 wk of age, and the animals were slaughtered at 25 wk of age (S) (6 wks after second dose). Pen was the experimental unit for growth performance data. The percentage of all gilts that ovulated within treatments and the percentage of pens within each treatment that had one or both gilts ovulating during the trial were determined. Reproductive development was measured through ovarian and uterine weighing of 18 reproductive tracts within each treatment. Performance and reproductive tract data were analyzed by ANOVA (F-test) and estrus data by chi-square test.

**Results:** During the entire period (15 to 25 wk), BW, ADG and ADFI were 3.88 kg (P < 0.05), 60 g (P < 0.05) and 250 g (P < 0.001) greater in gilts immunized against GnRF (treatment group) compared with untreated gilts (control group), respectively. The differences in growth performance between treatments were mainly observed from V2 onwards. From 19 (V2) to 21 wk of age (before DBE begun), ADFI was 240 g greater (P < 0.05) and F:G ratio was 260 g greater (P < 0.05) comparing treated and control group. Between V2 and S vaccinated gilts had greater ADFI (+410 g; P < 0.0001) and ADG (+90 g; P < 0.05) and between DBE and S treated group showed greater ADG (+130 g; P < 0.01) and ADFI (+470 g; P < 0.0001). Ovarian and uterine weights were reduced (P < 0.0001) by 81.71 and 92.81%, respectively. Estrus was reduced by 82.06% (P < 0.001) in treated gilts compared with control gilts.

**Conclusion:** This data demonstrates that gilts immunized against GnRF were heavier, showed suppressed estrus, less developed reproductive organs, and improved daily gain and feed intake, primarily after second dose.

**Disclosure of Interest:** None Declared

**Keywords:** estrus suppression, Gilts, Vivax

### O-REP2-208

#### Sows that fail to become pregnant show luteal regression at day 13 after mating.

Stefan Björkman<sup>1</sup>, Claudio Oliviero<sup>1</sup>, Nicoline Soede<sup>2</sup>, Olli Peltoniemi<sup>1</sup>

<sup>1</sup>Department of Production Animal Medicine, University of Helsinki, Saarentaus, Finland, <sup>2</sup>Adaptation Physiology, WU Animal Sciences, Wageningen, Netherlands

**Introduction:** In mated sows, corpus luteum (CL) function is important for the establishment of the pregnancy. The maximum CL size is established at day 8 - 9 of the pregnancy and maintained autonomous until day 12. Then, CL maintenance will depend on hormones such as LH and PGF2 $\alpha$ . PGF2 $\alpha$  is released from the endometrium at day 14 and triggers CL regression. This regression can be prevented in pregnant sows due to estradiol production from the attaching conceptuses; which decreases endocrine PGF2 $\alpha$  release.

We hypothesized that a negative CL development between day 12 and 13 has a negative effect on the pregnancy rate in mated sows and on litter size in pregnant sows.

**Materials and Methods:** We performed a transrectal ultrasound examination (10 MHz, linear array probe, SV3513, Esaote SpA, Italy) of both ovaries and their CLs at day 10 (CLarea10) and 13 (CLarea13) after ovulation in 46 mated crossbred sows (Finnish Yorkshire x Finnish Landrace). The ultrasound images were analyzed on the computer using IMPAX 6.5.5 picture archiving and communication system (Agfa Healthcare, Belgium). We measured of each ovary the size (area in cm<sup>2</sup>) of the five biggest CLs and averaged them. Furthermore, we calculated the difference of the average CL area between day 10 and 13 (CLarea13-10). Pregnancy detection was performed two weeks later and the numbers of alive, still born, and total born piglets were determined at subsequent parturition. We analyzed average CL area per pregnancy status using an independent two sample t-test and relations with litter size using a linear regression model (PASW Statistics v. 18.0.0).

**Results:** The parity was  $3.8 \pm 1$  (mean  $\pm$  SD), CLarea10  $0.63 \pm 0.11$  cm<sup>2</sup>, CLarea13  $0.65 \pm 0.13$  cm<sup>2</sup>, and CLarea13-10  $0.02 \pm 0.12$  cm<sup>2</sup>. At 4 weeks after insemination, 40 sows were detected pregnant (PREG) and 6 not pregnant (NONPREG). Pregnancy status at 4 weeks was not related with CLarea10 (PREG  $0.62 \pm 0.12$  cm<sup>2</sup> vs. NONPREG  $0.69 \pm 0.07$  cm<sup>2</sup>), but was related with CLarea13 (PREG  $0.66 \pm 0.11$  cm<sup>2</sup> vs. NONPREG  $0.55 \pm 0.18$  cm<sup>2</sup>; P = 0.046) and CL13-10 (PREG  $0.05 \pm 0.08$  cm<sup>2</sup> vs. NONPREG  $-0.15 \pm 0.16$  cm<sup>2</sup>; P < 0.001). No correlations were found between CLarea10, CLarea13, and CLarea13-10 and the number of total, alive, and still born piglets at subsequent farrowing.

**Conclusion:** The results indicate that there is no difference in the development of the corpus luteum between pregnant and not pregnant sows during the autonomous period. After that period, when the destination of the corpus luteum (CL) starts to be dependent on hormonal interactions, CLs of mated non-pregnant sows decrease in size, resulting in smaller CL at day 13 after ovulation. In pregnant sows, CL size at day 10-13 is not related with subsequent litter size.

**Disclosure of Interest:** None Declared

**Keywords:** corpus luteum, pregnancy