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IS IT POSSIBLE TO DISCRIMINATE THE FERTILITY OF YOUNG BOARS IN A SHORT PERIOD OF TIME?

ABHP Kummer¹, EM Gonçalves¹, TS Gaggini¹, MCS de Almeida¹, C McManus², I Wentz¹, ML Bernardi², FP Bortolozzo¹

¹Setor de Suínos-Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil, fpbortol@ufrgs.br

²Departamento de Zootecnia, Faculdade de Agronomia, UFRGS, Porto Alegre, Brazil

Introduction

The present study aimed to discriminate the fertility outcome of young boars through an in vivo evaluation of their farrowing rate and number of piglets born under controlled conditions in a relatively short period of time.

Materials and Methods

Fourteen boars (PIC[®] terminal genotype) with the same age (11.3 ± 1.0 , $P > 0.05$) were used in the study. The entire ejaculate from each boar was collected using the glove-hand technique once/week. Ten ejaculates were collected from each boar and semen doses were prepared to contain 2.0 billion of viable spermatozoa in a total volume of 80 mL BTS. Semen motility traits were analyzed in a computer-assisted semen analyzer (Sperm Vision[®] 3.7 Minitüb GmbH). Estrus was daily checked in the presence of a mature teaser boar. A total of 948 crossbred PIC[®] sows were inseminated (66 to 70 sows/boar) during a 10 wk breeding period. Sows bred were equally distributed among boars. Sows were bred by single sire mating through intracervical semen deposition with disposable AI catheters. Insemination took place immediately after estrus onset and was repeated at intervals of 24h while the sows were in estrus (on average 2.6 ± 0.4 doses per estrus). All the statistical analyses were carried out using the statistical analysis system software, version 9.2 (SAS[®], 2005).

Results

Sows used were similar ($P > 0.05$) among boars for the following characteristics (mean \pm SD): 4.4 ± 1.1 parities; 3.0 ± 0.2 points of body condition score; 12.4 ± 1.7 lifetime piglets born; 10.3 ± 1.7 weaned piglets, 22.3 ± 1.3 d of lactation length and 4.1 ± 0.6 d of weaning-to-estrus interval. Overall, mean values of farrowing rate (FR) and number of piglets born (TB) were $93.4\% \pm 10.8$ and 13.1 ± 1.4 , respectively. A cluster analysis (CLUSTER procedure) was performed to determine which boars could be clustered into groups based on

their fertility outcome (FR and TB). From the 14 evaluated boars, one boar, with the lowest FR and TB values, and two boars, with the highest FR and TB values, were placed in different clusters (Figure 1; Table 1). The other boars were separated in two distinct clusters (4 and 7 boars), including boars with intermediate TB but divergent values for FR (high or low). These results highlight the importance of taking into account both FR and TB when fertility is evaluated. Differences of 9.6% in FR (88.3% to 97.9%) and of 2.2 born piglets (11.9 to 14.1) were observed between the least and most fertile boars.

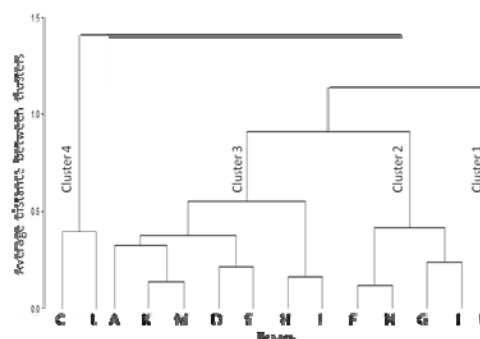


Figure 1- Tree diagram for distances between boars provided by Cluster analysis based on FR and TB.

Table 1. Farrowing rate (FR) and number of total piglets born (TB) per group of boars (LSmeans \pm SEM)

Group of boars	FR	TB
B	68 88.3 \pm 3.3b	11.9 \pm 0.4c
F, G, I and N	270 96.4 \pm 1.6a	12.6 \pm 0.2c
A, D, E, H, J, K, M	476 91.3 \pm 1.2b	13.2 \pm 0.1b
C, L	134 97.9 \pm 2.3a	14.1 \pm 0.3a

Values followed by different letters in the column are different ($P < 0.05$).

Conclusion

A 10 wk breeding period under controlled conditions allows the discrimination of groups of boars according to their fertility outcome (FR and TB).