



Semen quality of stress negative Piétrain and Duroc boars in the tropics: the case of Vietnam

Luc D.D.^{1,2}, Binh D.V.¹, Leroy P.² and Farnir F.^{2*}

¹ Department of Animal Breeding and Genetics, Hanoi University of Agriculture, Vietnam

² Department of Animal Production, FMV, ULg



2nd Scientific Meeting of the Faculty of Veterinary Medicine, ULg, Belgium

Introduction

Stress negative Piétrain pig (Piétrain) was developed by the University of Liège, Belgium. Since 2007, they are raised in North Vietnam. The study of semen traits of stress negative Piétrain under tropical conditions is important. The objective of this study is to evaluate the semen quality of stress negative Piétrain and Duroc boars as well as to identify various factors acting on these traits under tropical conditions in Vietnam.

Material and Method

A total of 722 ejaculates from 13 homozygous (Piétrain CC), 7 heterozygous (Piétrain CT) stress negative Piétrain and 10 homozygous Duroc (Duroc CC) boars was collected between 2008 and 2012. The sperm quality was assessed on each ejaculate using ejaculate volume (VOL), spermatozoa motility (MO), sperm concentration (CO) and total number of spermatozooids (NT). Genetic type of boars (Piétrain CC, CT and Duroc CC), season (cold and hot), year (from 2008 to 2012) and (season x year) as well as (genetic type x year) interactions were included in the model as fixed factors. Least square mean (LSM) and standard error (SE) were estimated for each trait

Results and Discussion

Table 1: Semen traits according to the genetic type of boars

| Variable | Piétrain CC (n=349) | | Piétrain CT (n=171) | | Duroc CC (n=202) | |
|------------------------------|---------------------|------|---------------------|-------|------------------|-------|
| | LSM | SE | LSM | SE | LSM | SE |
| VOL (ml) | 291.74a | 4.31 | 241.40b | 5.64 | 228.05b | 5.17 |
| MO (%) | 78.64a | 0.53 | 76.08b | 0.69 | 72.35c | 0.63 |
| CO (x10 ⁶ spz/ml) | 361.65 | 9.19 | 358.29 | 12.01 | 356.25 | 11.03 |
| NT (10 ⁹) | 103.37a | 2.36 | 84.58b | 3.08 | 77.15b | 2.83 |

Means followed by different letters within the rows are significantly different (P<0.05)



The semen quality was influenced by all studied effects (P<0.05) except VOL for season (P=0.45) and season x year (P=0.55), and CO for genetic type (P=0.93).

VOL and NT of Piétrain CC were higher than those of Piétrain CT and of Duroc (P<0.001) although the values of the 3 genetic groups are in the range of normal semen.

Table 2: Semen traits according to the cold and hot seasons

| Variable | Cold (n=269) | | Hot (n=453) | |
|------------------------------|--------------|------|-------------|------|
| | LSM | SE | LSM | SE |
| VOL (ml) | 251.57 | 4.56 | 255.89 | 3.68 |
| MO (%) | 77.67a | 0.56 | 73.71b | 0.45 |
| CO (x10 ⁶ spz/ml) | 379.44a | 9.72 | 338.02b | 7.83 |
| NT (10 ⁹) | 92.41a | 2.49 | 84.33b | 2.01 |

Means followed by different letters within the rows are significantly different (P<0.05)

Conclusion

The semen of stress negative Piétrain and Duroc boars could be used in tropical climatic conditions (particularly Piétrain CC) and the semen quality could probably be improved through reduction of heat stress.