

THE INFLUENCE OF SEASON ON SPERM MEMBRANE LIPID PEROXIDATION AND INSEMINATION DOSES QUALITY OF PŘEŠTICE BLACK-PIED BOARS

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Abstract

The aim of this study was to evaluate semen quality together with the detection of sperm membrane lipid peroxidation in insemination doses of Přeštice black-pied boars during the season. Přeštice black-pied pigs are included in the program of preservation of Animal Genetic Resources in the Czech Republic. The basic parameters of semen quality in fresh boar semen were evaluated. Insemination doses (ID) were evaluated using flow cytometry and Computer Assisted Sperm Analysis (CASA). The quality of ID was divided according to the season. Flow cytometry was used to detect membrane lipid peroxidation (LPO). ID evaluated in the autumn were characterized by a significantly higher ($P < 0.05$) proportion of live spermatozoa without LPO ($86.00 \pm 5.83\%$) compared with the winter ($78.22 \pm 10.80\%$) and the subsequent spring ($76.30 \pm 16.21\%$). Statistically significant differences ($P < 0.05$) in initial semen quality were recorded in sperm volume in summer ($291.67 \pm 137.10 \text{ ml}$) vs. autumn ($360.19 \pm 112.52 \text{ ml}$). The lowest values of sperm concentration were in autumn ($296.85 \pm 139.13 \text{ mm}^3 \times 10^3$) vs. winter ($373.06 \pm 129.93 \text{ mm}^3 \times 10^3$) and in morphologically abnormal spermatozoa were in summer ($18.52 \pm 6.33\%$) vs. autumn ($24.08 \pm 9.46\%$) and in winter ($24.79 \pm 9.90\%$). In conclusion, in this study statistically significant differences were found in the initial quality of native sperm and in the ID quality according to lipid peroxidation during the year. Season of the year had no significant effect on the total number of functional spermatozoa and on sperm motility evaluated by CASA.

Key Words: Boar, semen quality, season, flow cytometry, CASA, insemination dose, membrane lipid peroxidation