

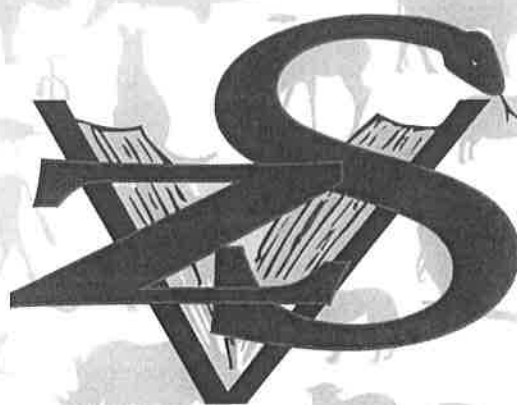
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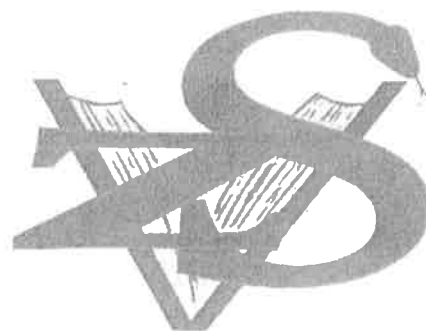
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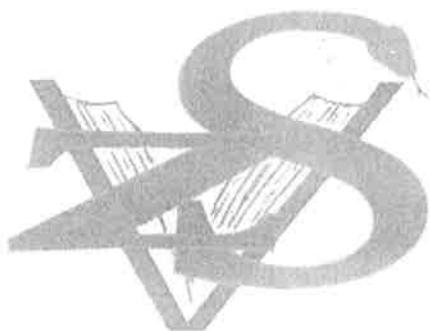
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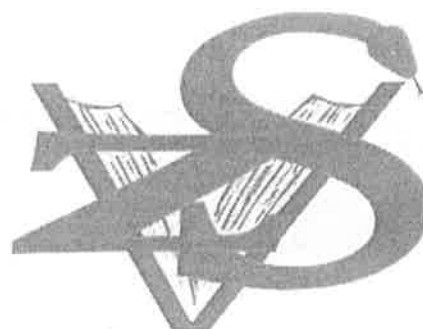
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SEASONAL INFLUENCE ON LITTER SIZE TRAITS IN TWO LOCAL PIG BREEDS: BLACK SLAVONIAN AND NERO DI PARMA

Sven Menčik¹, Alberto Sabbioni², Marija Špehar³, Željko Mahnet³, Anamarija Smetko³, Mario Ostović⁴, Valentino Beretti², Paola Superchi², Anamaria Ekert Kabalin¹

¹*Department of Animal Husbandry, Faculty of Veterinary Medicine, University of Zagreb, Croatia*

²*Department of Veterinary Science, University of Parma, Italy*

³*Croatian Agricultural Agency, Zagreb, Croatia*

⁴*Department of Animal Hygiene, Behavior and Welfare, University of Zagreb, Croatia*

Black Slavonian (BS) and Nero di Parma (NP) pig breeds are an essential part of biological diversity of southern Europe as distinctive rustic exterior and black genotypes reared in semi-extensive systems. Environmental factors such as changes in ambient temperature and photoperiod have a significant role in the variability of reproductive performance of sows. Genetic characterization is a fundamental prerequisite in the strategies and management for the resources that local breeds possess to maintain genetic diversity as a primary key to reduce the risk of extinction.

The aim of the present study was to investigate the variation of litter size traits between hot (spring to summer) and cold (autumn to winter) season. Data analysis included 2349 records of parities within all parities analysed for litter size traits as follows: Total Number of Born (TNB), Number of Born Alive (NBA), Number of Still Born (NSB), and Number of Weaned (NW) piglets collected from 717 sows (296 BS and 421 NP) from 2007 to 2014. Analysis of variance was applied using the General Linear Model (GLM) procedure in SAS. The fixed effects included in the model were breed (BR), herd (HD), season (SE), parity (PR), interaction between breed and herd (BR*HD), and interaction between breed and season (BR*SE). For each trait, the least square means with standard errors were calculated. Statistically significant effects ($P < 0.05$) affecting study traits were defined. The TNB during hot season of farrowing in BS vs. NP was 7.64 ± 0.18 vs. 8.84 ± 0.18 , compared to the cold season with 7.54 ± 0.2 vs. 8.54 ± 0.19 . Trait analysis indicated a significant effect of BR, PR, HD and SE on the respective traits. The same significant effects were found for NBA with 7.40 ± 0.19 vs. 8.50 ± 0.19 during hot, compared with cold season with 7.20 ± 0.21 vs. 8.16 ± 0.20 . Only BR*HD interaction affected NSB significantly, with 0.23 ± 0.09 vs. 0.32 ± 0.09 during hot and 0.35 ± 0.10 vs. 0.35 ± 0.09 in cold season. PR and BR*HD had significant effect on NW with 6.73 ± 0.22 vs. 7.08 ± 0.22 in hot season and 6.80 ± 0.24 vs. 6.80 ± 0.22 in cold season.

These results suggest that seasonality has a significant impact on differences between breeds, in particular TNB and NBA, which could be related to reproduction and manage-

ment of litters in herd. Economically important traits, such as litter size, could be associated with day length and temperature variation over years. Seasonal variation between breeds could be ascribed to specific practices in the management of local pig breeders.

