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Reproductive parameters of "Nero di Parma" sows reared outdoor and indoor

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ABSTRACT

The swine genetic type "Nero di Parma" has been obtained after a preservation programme of a local breed suitable for outdoor rearing systems in Parma province. Actually, 480 females and 35 males are registered by Italian Swine Breeders Association and are reared in 28 herds of Parma province. The study involved the analysis of the reproductive performance of 120 sows from 19 boars, born between 1999 and 2005, during 211 parities from 2002 to 2006. For each parity, the boar, the age of the sow, the length of the farrowing interval, and the litter size (number of born alive, stillborn and weaned piglets) were recorded. Two rearing systems of the farrowing sows (from the final phase of gestation to the end of lactation) were considered: indoor (sows closed off in individual stalls or farrowing cages) and outdoor (sows in individual huts inside the paddocks, with straw bedding); dry sows in both systems had access on pasture with forage and concentrate integration. Data concerning sows performance were analyzed by a GLM procedure with a mixed model containing, as fixed factors, the type of rearing system of farrowing sows (2 levels: indoor, outdoor), the parity (4 levels: 1, 2, 3, >3), the farrowing season (4 levels), 1st degree interactions and, as a random factor, the father (n=19). Data concerning litter size were analyzed with a mixed model containing, as fixed factors the type of rearing system of farrowing sows, the parity, the farrowing season and year (5 levels), the herd (n=20) nested within type of rearing system, 1st degree interactions and, as a random factor, the boar (n=30). In both models, the inbreeding coefficient of sows, calculated from pedigree analysis, was used as a covariate. Type of farrowing sows rearing system significantly affected (P<0.05) the age at parities and the length of farrowing intervals. Farrowing sows reared indoor showed lower age at parities (737 *vs* 834 d) and farrowing intervals (236 *vs* 269 d) than outdoor sows. Parity number and inbreeding coefficient significantly affected (P<0.001) age at parities but not farrowing intervals. Additive genetic effect was significant (P<0.001) for both traits. With reference to litter size, no significant effects (P>0.05) were shown by type of rearing system on number of born alive piglets (8.51 vs 7.21 for indoor and outdoor sows, respectively), as year (P<0.05), season*year interaction (P<0.05) and boar (P<0.001) significantly affected the number of stillborn; type of rearing system showed a highly significant effect (P<0.001) on the number of weaned piglets (6.57 vs 3.95 for indoor and outdoor sows, respectively). In conclusion, the sows from the genetic type "Nero di Parma" show actually a low reproductive performance, however in line with those reported for other autochthonous breeds. In addition, the traits are affected by a rearing system, in which the control by the breeder is moderate. Because genetic improvement of reproductive traits is rather difficult, it seems to be necessary an improvement of farm management.