

An Approach to Relationships Between Vagina Length and Prolificity of Sows

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Abstract: A possible relationship between vagina size and reproductive activity of sows with different parity number, was evaluated in 491 Landrace × Duroc × Yorkshire of none, first, second and third parity from a commercial farm. There were significant differences ($p < 0.001$) between sows of first parity and the other two, being lesser the length of vagina from nulipare sows (25.17 cm) with no relevant differences between females from 1-3 parities (28.34 cm). Average growth of vagina-cervix length between none and one parity was 3.22 cm. These results suggest that vagina growth is stabilized after first farrowing. When vagina-cervix length was related to total and alive born piglets, these interdependences were not significant ($p > 0.05$) among them for any parity. It is suggested that vagina-cervix length is not a relevant factor for selection of sows and therefore this trait is not indicative of a good or bad reproductive activity of sows in the future either. In this connection, other factors of a greateriability should be taken into account from the point of view of the animal productive development.

Key words: Vagina length, prolificity, parity, sow, reproductive, activity

INTRODUCTION

It is known that there exist different factors determining ovulation rate and/or litter size from a sow. One of these factors is the degree of development of the genital apparatus of the sow during puberty, which is important for attain an optimum in ovulation capacity and embryo viability (Rueda *et al.*, 2004). Uterine capacity of sows affects litter size and then this trait could be utilized as selection trait for reproductive function (Vianna *et al.*, 2004). The size of uterus increases progressively with age, weight and sexual cycles of sows. Therefore, the development of the genital apparatus is a factor of great influence during puberty onset and for its fitness to a proper ovulation capacity and embryo viability (Edwards, 1997; Tarocco and Kirkwood, 2002).

A key for a high productivity during the life span of sow is to achieve an adequate development of the genital apparatus (Martin *et al.*, 2001). In this connection it has been suggested by Wu and Dziuk (1995) that uterine length during puberty of sows is an indicator of its post-puberty size and therefore its litter size. In fact, the sow uterine capacity influences litter size. Some results show that length of penetration of the catheter is

positively correlated to litter size and then could be utilized as a tool to predict methods of selection of the animals (Vianna *et al.*, 2004). On the other hand, litter sizes depends upon ovulation rate, fertility and intrauterine mortality, factors in turn directly related to genotype, nutrition, age and sire effect (Barrios *et al.*, 1984).

The heritability of litter size is very low, lesser than 0.01 and therefore it is not so advantageous to use this trait for selection (Fuentes, 2006). In practice, selection of young gilts is carried out considering age, weight and body condition. In fact, these factors does influence the productive performance of the sow. However, these characteristics can not predict prolificity with a fiability margin. In this connection the use of one trait easy to be measured and of a higher heritability could predict prolificity (Anderson and Melapin, 1994; Martin, 2001). The objective of the current investigation was to evaluate the possible relationship between vagina length and prolificity of sows from different parities.

MATERIALS AND METHODS

A total of 491 Landrace × Duroc × Yorkshire sows of none, 1, 2 and 3 parities, from a commercial farm were