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Research Article

EFFECT OF THE PRESENCE OF THE BOAR ON THE ATTAINMENT OF PUBERTY IN GILTS

***S. Ramakrishnan**
Department of Livestock Production and Management,
College of Veterinary and Animal Sciences, Mannuthy - 680 651, Thrissur, Kerala, India
**Author for Correspondence*

ABSTRACT
A trial was conducted to study the effect of presence of the boar on the attainment puberty in gilts and the feasibility and economics of rearing pigs of either sex together. Sixteen weaned Large White Yorkshire gilts, twelve weaned sows and two boars were randomly assigned to five groups as T1, T2, T3, T4 and T5 each consisting of six. Pigs T1 and T3 groups were bred at the body weight of 70-80 kg with designated boars at the time of breeding. The pigs in T5 group were bred in the first oestrus after weaning. In T2 and T4 group female pigs were reared with boar. The onset and intensity of oestrus were significantly different ($p < 0.05$) between groups. However, duration of oestrus, conception rate and gestation length did not vary significantly between groups. Overall results suggest that it is advisable to keep animals in advanced stage of pregnancy in farrowing pens till weaning of piglings.

Key Words: *Puberty, Conception rate, Gestation length and Gilts*

INTRODUCTION
With today's increasing population and its ever increasing consumption of meat, swine production is gaining more importance in our economy and a leading role in agricultural income. The success and efficiency of pig farming mainly depends on the reproductive performance of the pigs. The effect of social environment on the reproductive performance of pigs in tropics has not been fully assessed. Hence, the present investigation was designed and conducted to study the effect of presence of the boar on the attainment of puberty in gilts and the feasibility and economics of weaning pigs of either sex together.

MATERIALS AND METHODS
Sixteen weaned large White Yorkshire gilts, twelve sows and two boars belonging to University Pig Breeding Farm, Mannuthy, Kerala were utilized for the study. The pigs were maintained on rations which contained CP 18 % and CP 14% respectively.

The pigs were randomly assigned to five experimental groups T1, T2, T3, T4 and T5 each consisting of six. Pigs in T1 and T3 groups were bred at the body weight of 70 – 80 kg with designated boars at the time of breeding. The pigs in T5 group were bred in the first oestrus after weaning. In T2 and T4 group female pigs were reared with boar. All groups of pigs were reared under the managemental conditions prevailed at the university pig breeding farm. Onset of oestrus in gilts was recorded. The intensity of oestrus, duration of oestrus and conception rate were observed. The gestation length was observed. The data were statistically analyzed as per the method described by Snedecor and Cochran, (1994).

RESULTS AND DISCUSSION
Onset of Oestrus in Gilts
The onset of oestrus (day) in gilts in treatment groups I, II and III was 168 ± 5.84, 149.8 ± 4.488 and 173.2 ± 3.105 respectively. Treatment group II has attained puberty earlier than other groups. A significantly lower ($P<0.05$) age at first oestrus in treatment group II, when compared to treatment groups I and III is indicative of the fact that a social environment enriched with the presence of a boar helps in early onset of oestrus which is advantageous to the farmer with respect to economic piglet production.

This finding is in agreement with that of Siswadi and Hughes (1996) who reported that the introduction of a mature boar to immature gilts is known to induce the precocious attainment of puberty. Patterson et al (2002) concluded that puberty induction using direct boar contact is more effective than forceline contact. Kummer et al (2008) observed that gilts with higher growth rate and stimulated at approximately 144 days of age showed their pubertal oestrus nine days earlier and 95% of them attained puberty by 190 days Amaral Filha et al (2009) reported that successful stimulation of puberty can be obtained through an earlier exposure to boar.

Intensity Of Oestrus In Pigs

The intensity score of oestrus in pigs in treatment groups I,II,III, IV and V were 2.6 ± 0.2449, 2.8 ±0.2, 1.8 ± 0.2, 2.8 ± 0.2 and 2.4 ± 0.2448 respectively. The highest score was observed in groups II and IV and the lowest in group III. A significantly high score in groups II and IV clearly indicate that the presence of boar in the pen enhance the intensity of oestrus and probably the reproductive performance due to the fact that high intensity of oestrus helps in easy detection of heat and timely mating and hence may be advantageous to the farmer. The least response seen in group III is a clear indication of effect of social environment on the oestrus intensity in pigs thereby bringing to light the disadvantage of housing sow and gilts together in commercial swine farming. Eliasson (1991) reported that gilts attained puberty earlier showed more intense signs of heat when compared to that which attained puberty at a later age.

Duration Of Oestrus In Pigs

The duration of oestrus in animals in treatment groups I, II,II,IV and V group were 588 ± 2.273,54.4 ± 4.490,57.6 ±4.490,50.4 ± 4.490 and 52.8 ± 2.939 hours respectively. The variation of duration of oestrus was found to be non significant between treatments. The female sexual behaviour of the pig was largely a genetic one and is least affected by social contacts. Signoret (1970) and Hmar (1993) reported that the duration of oestrus varied from 15-75 hours.

Conception Rate

Treatment group IV had lowest conception rate at first mating (60%) compared to other groups. The conception rate at first mating and overall conception rate did not vary significantly (P>0.05) between treatment groups supporting the similar finding of Kannan (1995) found that age, body weight or boar contact have no influence on conception rate in pigs. A Lower conception rate in group IV may be due early post weaning exposure of sows to boar supporting the findings of Moody et al., (1967) who reported a lower conception rate in sows exposed to boar immediately after weaning.

Gestation Length

The gestation length of animals in all the treatment groups did not vary significantly (P>0.05) supporting the similar findings of Omtvedt et al., (1965) and Kannan (1995) indicating that length of gestation is a property of the species and remain almost unchanged. But a trend for lower gestation length in group II is an indication for early termination of pregnancy in gilts due to boar contact and is also in support to the findings of Busko (1974) who reported that earlier age at conception led to shorter duration of gestation in pigs.

Overall results suggest that it is advisable to keep animals in advanced stage of pregnancy in farrowing pens till weaning of piglings.

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