

## **INFLUENCE OF BOAR CONTACT ON THE REPRODUCTIVE PERFORMANCE OF PIGS**

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### **ABSTRACT**

An experiment was conducted to study the effect of presence of the boar on the reproductive performance of pigs 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, post weaning oestrus, duration of oestrus, conception rate and gestation length did not vary significantly between groups. Litter size and weight at weaning also did not vary significantly. The behaviour of parents and other pen mates towards the litter did not vary significantly ( $p > 0.05$ ) in all groups. The behaviour of pen mates to the litter was cordial. Overall results suggest that in farming conditions group housing system can be practiced. It is advisable to keep animals in advanced stage of pregnancy in farrowing pens till weaning of piglings.

**Key Words:** *Reproduction, Group housing system and Pigs*

### **INTRODUCTION**

Pigs are prolific producers, able to adapt to a wide variety of circumstances imposed by man. They can thrive on highly concentrated or bulky feeds and produce high percentage of meat and fat. 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 reproductive performance of pigs 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 managerial conditions prevailed at the university pig breeding farm. Onset of oestrus in gilts, post weaning oestrus in sows was recorded. The litter size and weight at weaning were also recorded. The pigs were scored for their behaviour of parents and other pen mates towards the litter. The data were statistically analyzed as per the method described by Snedecor and Cochran (1994).

### **RESULTS AND DISCUSSION**

#### ***Onset of Oestrus in Gilts***

From the table 1 it can be observed that it 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. Siswadi and Hughes (1996) who reported that the introduction

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of mature 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.

**Post Weaning Oestrus in Sows**

The onset of post – weaning oestrus sows did not vary significantly ( $P>0.05$ ) between groups (Table - 2). The Pigs in all treatment groups showed the signs of post weaning oestrus within a week. The onset post weaning oestrus did not vary significantly between groups in primiparous sows as reported by Kannan (1995).

**Table 1: Mean and SE of onset of oestrus in gilts**

Treatment groups	I	II	III
Onset of oestrus (days)	a 168±5.84	B 149.8±4.488	a 173.2±3.105

Figure having different superscription in a row differ significantly ( $P<0.05$ )

**Table 2: Mean and SE of no of days required for post weaning oestrus of sows**

Treatment groups	I	II	II	IV	V
Onset of post weaning oestrus (days)	a 5.4±0.02	a 7.6±1.691	a 7.4±2.014	a 5.0±0.306	a 4.6±0.2449

Figure having the same superscripts do not vary significantly ( $P>0.05$ ).

**Table 3: Mean and SE of gestation length of pigs**

Treatment groups	I	II	III	IV	V
Gestation length (days)	a 113.2±0.374	a 108.6±4.66	a 113.4±0.2449	a 113.8±0.583	a 113.8±0.489

Figure having the same superscripts in a row do not vary significantly.

**Table 4: Mean and SE of litter performance of pigs**

Treatment groups	I	II	III	IV	V
Litter size at birth (Live)(Nos.)	a 7.20±0.734	a 6.00±1.581	a 7.00±0.547	a 8.60±1.435	a 9.40±1.320
Litter weight at birth (live) (kg)	b 8.16±0.79	b 5.90±1.794	b 8.36±0.604	b 6.96±1.150	b 11.68±2.062
Average piglet weight (Kg)	c 1.13	c 0.98	c 1.19	c 0.809	c 1.24
Still birth (%)	5.5	14.70	8.57	13.95	0.00
Litter size at weaning (Nos.)	d 2.60±1.07	d 2.00±1.063	d 2.80±0.86	d 1.80±1.113	d 2.40±1.029
Litter size at weaning (KG)	e 26.30±10.387	e 18.76±5.964	e 28.60±9.321	e 18.20±11.280	e 26.16±10.237
Average piglet weight (kg)	f 10.11	f 9.38	f 10.21	f 10.11	f 10.9
Pre-weaning mortality (%)	28.33	55.88	51.42	65.11	74.46

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### Gestation Length

From the table 3 it can be observed that the gestation length of animals in all the treatment groups did not vary significantly ( $P>0.05$ ) supporting 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.

**Figure:** having the same superscripts in the same row do not vary significantly ( $P>0.05$ ).

**Table 5: Mean and SE of behavioural scores of pigs**

Treatment groups	Maximum score	I	II	III	IV	V
Behaviour of parents and other pen mates towards the litter (score)	10	a 4.6± 0.812	a 5.6± 0.927	a 5.6± 0.509	a 5.2± 0.663	a 6.8± 0.489

Figures having the same superscripts do not vary significantly ( $P>0.05$ ).

## LITTER PERFORMANCE

### Litter Size At Birth

The live litter size at birth in treatment groups indicating no significant difference ( $P>0.05$ ) between groups (Table-4). Tarocco (1992), who reported that mature boar contact during rearing did not appear to influence significantly the litter size of the pigs. A trend for relatively the litter size at birth noticed in group II is in support to that of Antie and Trbojevic (1975) indicating that the social environment may have certain effect on the litter size at birth in pigs. An apparently higher percentage of still birth noticed in treatment groups II and Iv (14.70% and 13.95%) when compared to that groups I, III and V (5.5, 8.5 and 0) brings to light, the effect of intervention of social environment in the pre-partum survivability of piglets.

### Litter Weight At Birth

The litter weight at birth did not vary significantly ( $P>0.05$ ) between treatment groups (Table-4). But a relatively higher litter weight in group V and least in group may be indicative of the beneficiary effect of group housing of sows in litter performance as reported by Soede (1993).

### Litter Size And Litter Weight At Weaning

The litter size and litter weight weaning did not differ significantly ( $P>0.05$ ) between treatment groups (Table-4). Hoy and Lutter (1996) who reported that group housing had no effect on piglet vitality. The average piglet at weaning in all treatment groups preceding no significant difference between treatment groups indicating that social environment has litter effect on the weaning weight of piglets. A very high percentage of pre weaning mortality of piglets noticed in treatment groups IV and V (65.11% and 74.46%) is indicative of certain effect by Bunker and Schlichting (1995) who reported that group housing had no effect on piglet vitality.

### Behaviour Of Parents And Other Pen Mates Towards The Litter

The behaviour of parents and other pen mates towards the litter was scored in all the treatment groups (Table-5). The variation was found to be non – significant ( $P>0.05$ ) between treatment groups. In the present study, group housing of nursing sows along with their pen mates had resulted in higher mortality due to trampling and biting. This may suggest that provision of guard rails with provide maximum protection for the piglets. Cannibalism was observed in all groups except in group V which is in support of the observation of Jones (1966). Cross suckling and sucking were observed in all treatment groups which may be due to the housing of nursing sows along with their pen mates as reported by Braun (1996) Sows in treatment (groups IV) showed oestrus during lactation period and

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there was no incidence of lactational oestrus only other treatment groups which showed oestrus only after weaning. This observation is in support with the reports of Bryant *et al.*, (1983). In conclusion, in farming conditions group housing system can be practiced. It is advisable to keep animals in advanced stage of pregnancy in farrowing pens till weaning of piglings.

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