Management of breeding sows in a farm in Tulcea County

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Abstract
The study was carried out between June 2016 – May 2017 in a private unit in Tulcea County, and involved 60 sows and gilts of different ages. The animals were divided into two experimental groups: group I involved 30 F1 gilts (20 gilts LWxL and 10 gilts LWxD) aged between 7-8 months and group II had 30 F1 sows (20 sows LxLW and 10 sows LWxL) aged between 28-36 months. Gilts were checked for estrus twice daily and were artificially inseminated. For the first group the mean value of piglets born alive was beetwen 7.9±3.84 for LWxL gilts and 9.85±2.73 for LWxD gilts. In group II the data recorded were 9±3.98 piglets for LxLW and 9.6±3.20 piglets for LWxL sows. Good results in terms of weaned piglets were recorded for LWxL gilts (9.7±2.73) and LWxL sows (9.1±2.96). In group II there were 13 cases of piglet mortality. The results of our study indicate that gilts presented higher values of the fertility parameters such that age is an important index to take into consideration.
Keywords*: gilts, piglet, sow.*

Introduction

It is already common knowledge among swine raisers throughout the world that crossbred are better than purebred sows. Sow longevity is important because litter size and piglet weights increase until the fourth or fifth parities, and the number of pigs weaned per sow per year increases until the sixth and seventh parities. Mature, structurally sound replacement gilts will most likely reach their fourth parity, at which time they are most productive for the swine operation (Stalder et al., 2003; Rodriguez-Zas et al., 2006). In a study presented by PIC, 2015, the average sow replacement rate was 45%. This high rate is due to failure of postpartum sows to return to estrus and conceive, poor reproductive performance, poor feet and leg soundness, and introduction of new genetic lines (Tomes et al., 1982; Lucia et al., 2000; Gill et al., 2007; Engblom et al., 2008).

Once gilts enter the sow farm, they must be managed in a way that does not restrict their productivity potential. Feed intake, stall acclimation, boar exposure, body weight at breeding, body weight gained in gestation, and first lactation management all determine the lifetime productivity potential of the female (Sow & gilt management manual, 2015).

The aim of this study was to identify and evaluate gilts and sows management in a productive sow farms. The following parameters were investigated: occurrence of estrus, number of AI needed for a gestation, pregnancy rate, piglets born per litter – alive and dead, weaned piglets.

Material and methods

The study was carried out between June 2016 – May 2017 in a private unit in Tulcea County, and involved 60 sows and gilts of different ages. The animals were divided into two experimental groups: group I involved 30 F1 gilts aged between 7-8 months and group II had 30 F1 sows aged between 28-36 months.

In group I 20 of the gilts were Large White crossed with Landrace boars (F1 - LWxL) and 10 gilts were Large White crossed with Duroc boars (F1 - LWxD). Regarding the group II 20 sows were Landrace crossed with Large White boars (F1 - LxLW) and 10 sows were Large White crossed with Landrace boars (F1 - LWxL).

The animals were monitored until first clinical signs of estrus were detected. Estrus was detected with boar exposure twice a day. Duroc boars and terminal sires with good fertilizing capacity were used. Semen was collected twice per week and volume, color and motility were evaluated. The semen was diluted in Merck III extender (Minitube), packaged in 100 ml bottles with 4.0 x 10^9 spermatozoa. Diluted semen was storaged at 18 ^{0}C.

Animals received first artificial insemination (AI) 12 hours after estrous was detected and second AI after 21 days. Pregnancy was determinated at 21 days observing estrus return. All pregnant gilts and sows were kept under observation and a week before parturition were moved in individual boxes.

The following parameters were investigated: occurrence of estrus, number of AI needed for a gestation, pregnancy rate, piglets born per litter – alive and dead, weaned piglets.

Results and discussion

In group I, 20 of the gilts were Large White crossed with Landrace boars (F1 - LWxL) and 10 gilts were Large White crossed with Duroc boars (F1 - LWxD). The LWxL gilts presented estrus at 7 months and 9 days, duration of estrus was 35.37±8.30 with individual values between 24-48 hours. Estrus return after first and second artificial insemination was 20% respectively 5%. In the present experiment the conception rate after three artificial inseminations was 100%. The LWxD gilts showed signs of estrus age between 7-7.6 months. The pregnancy rate after first artificial insemination was 70% and 30% of the gilts repeated estrus at 21 days. Performing the second artificial insemination pregnancy rate was 100%. The results of the fertility parameters are presented in table 1.

Table 1- Fertility parameters recorded for the two experimental groups

		No. of AI for a gestation	No. of piglets born alive	No. of piglets born dead	Weaned piglets	Large piglets	Medium piglets	Small piglets
Group I	LWxL	1.25±0.55	9.85±2.73	-	9.7±2.73	156	28	10
	LWxD	1.3±0.48	7.9±3.84	-	7.5±4.19	35	36	4
Group II	LxLW	1.75±0.85	9±3.98	6	8.6±3.87	148	7	6
	LWxL	1.2±0.42	9.6±3.20	7	9.1±2.96	83	4	4

In group II 20 sows were Landrace crossed with Large White boars (F1 - LxLW) and 10 sows were Large White crossed with Landrace boars (F1 - LWxL). The first signs of estrus were detected days 4 to 6 after weaning with a mean value of 5±0.45 days for LxLW sows and 5±0.47 days for LWxL sows. The mean duration of estrus was 36.74±6.00 with individual values between 24-48 hours. Regarding the results after performing artificial insemination in LxLW sows the data are the following: the conception rate after first AI was 50% and 75% after the second AI. In this category, it was necessary to carry out the third AI to achieve a 100% conception rate. Concerning the LWxL sows the results indicate that 8 out of 10 sows were diagnosed pregnant after first AI and one after second and third AI (table 1).

At weaning, piglets were classified in 3 classes according to their size: large piglets, medium piglets and small piglets. Our results indicate that the LWxL gilts showed higher mean of weaned piglets (9.7±2.73) compare with others categories. In group II there were 13 cases of piglet mortality.

Conclusions

The results of our study indicate that gilts presented higher values of the fertility parameters such that age is an important index to take into consideration. We recommend sows reformation to a number of 6-7 gestations, about 3 years - after this age, peak reproductive performance is no longer achieved.

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