SEASON INFLUENCE UPON SOWS' PREGNANCY LOSS THROUGH ABORTIONS

INFLUENTA SEZONULUI ASUPRA PIERDERILOR DE GESTATIE PRIN AVORTURI LA SCROAFE

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Abstract. *The researches were carried out with the goal to see the influence of season upon the proportion of abortions, in different stages of gestation, for swine specie. As we could see from the trial, during the months of August, September and October the sows had the highest proportion of abortions. From all the abortions, in August were observed 10.69% abortions; in September 13.42% abortions in October 18.45% of all the abortions. The months with the lowest rate of abortions were: March with 4.82% abortions; April with 4.19% abortions; May with 3.56% and June with 4.61% abortions. From insemination until 28 days of gestation, a high proportion of animals that aborted (29.77% from all the abortions) was observed. Between 29 to 56 days were observed 20.75% from all the abortions. After 57 days until 110 days of gestation were noticed 49.48% from all the abortions. The differences between the proportion of abortions observed during the last quarter of gestation (49.48%) was statistically very significant (χ^2 test, $p \leq 0.001$) comparing to the proportion of abortions observed in the first and second part of gestation. The differences between the proportion of abortions observed in the first part of gestation (29.77%) was statistically not significant comparing to the abortions observed in the second quarter (20.75%) of gestation (χ^2 test, $p \geq 0.05$).*

Key words: *season, sow, abortion, pregnancy*

INTRODUCTION

Swine embryo loss occurs when there is death of embryos followed by absorption, or expulsion. Healthy embryos grow into foetuses. Abortion means the premature expulsion of a dead or non-viable foetus.

There is often alarm when an abortion is seen but it should be remembered that there can be loss of embryos at any time during early pregnancy, which often goes unseen **(5)**.

Embryo loss or abortion can be considered in three main groups: First, during the period from fertilization to implantation; second, during the period of implantation at around 14 days post-service to 35 days; and finally, during the period of maturation, which results in premature farrowings. It can be seen therefore that losses can take place at any stage from approximately 14 days after mating, when implantation has taken place, through to 109 days of pregnancy **(2, 5)**.

Pregnancy is maintained due to hormonal changes initiated by the implantation of embryos at day 14 after the artificial insemination. These changes allow the corpus luteum (the body from which the egg is released) in the ovary to develop and produce the pregnancy hormone progesterone.

The presence of the corpus luteum is necessary to maintain the pregnancy throughout the whole of the gestation period. The loss or failure of the corpus luteum through any cause initiates the farrowing process, hence an abortion, or if near to term a premature farrowing **(1)**.

MATERIAL AND METHODS

The trial was made in a swine reproduction farm during 12 months and the results were correlated with animals parity and season. Biological material was represented by pregnant 11000 pregnant animals (gilts and sows). Parity distribution of the animals was: 25.84% gilts; 12.65% first parity sows; 8.44% second parity sows; 11.78% third parity sows; 15.11% forth parity sows; 13.36% fifth parity sows; 9.14% sixth parity sows; 3.87% seventh parity sows. Average parity of the herd was 2.73.

The animals were artificially inseminated after were find in heat; each sows receive two artificial inseminations and each gilts was inseminated three times.

After the artificial insemination the animals were supervise and check daily by herd personal and all the information regarding the pregnancy losses were recorded on daily base.

RESULTS AND DISCUSSIONS

Trying to see if there is an influence of the season upon pregnancy losses through abortions, we presented in table 1 the total number of abortions by the month of the year.

In table 1

Total number of abortions, by month of the year

Specification	Total number of abortions		Abortions by pregnancy period (n)		
	n	%	1-28 days	29-56 days	57-110 days
January	41	8,60	8	6	27
February	34	7,13	9	9	16
March	*23*	*4,82*	*3*	*4*	*16*
April	*20*	*4,19*	*2*	*6*	*12*
May	*17*	*3,56*	*2*	*6*	*9*
June	*22*	*4,61*	*6*	*4*	*12*
July	39	8,18	7	13	19
August	**51**	**10,69**	**12**	**14**	**25**
September	**64**	**13,42**	**25**	**14**	**25**
October	**88**	**18,45**	**38**	**14**	**36**
November	46	9,64	18	4	24
December	32	6,71	12	5	15
Total	477	100	142	99	236

As we notice during the months of August, September and October the sows had the highest proportion of abortions. From all the abortions, in August were observed 10.69% abortions; in September 13.42% abortions and in October 18.45% of all the abortions.

Season has shown that a high proportion of all abortions fall into this category. Because the sow historically only produced one litter per year, with farrowings during early spring, there is an in-built tendency for the animal not to maintain a pregnancy during the summer and autumn periods.

This is well recognized with summer infertility and the autumn abortion syndrome, where environmental factors are likely to cause the corpus luteum to disappear. The high proportion of abortions that we notice during the autumn can be also caused by light. Light intensity experienced by the sow can be affected by a number of environmental inadequacies, for example, poor lighting in the first place, followed by fly faeces and dust on lamps gradually reducing the availability of light **(3)**.

The months with the lowest rate of abortions were: March with 4.82% abortions; April with 4.19% abortions; May with 3.56% and June with 4.61% abortions.

The abortions, anoestrus and sows found not in pig commonly occur during the period of summer infertility when sunlight is intense and the weather is hot.

This is particularly evident in outdoor sows where levels of pregnancy failure may reach 15-30%. In such cases the abortions are so early that the fetuses are either not seen or there is progressive embryo mortality and a delayed return to estrus.

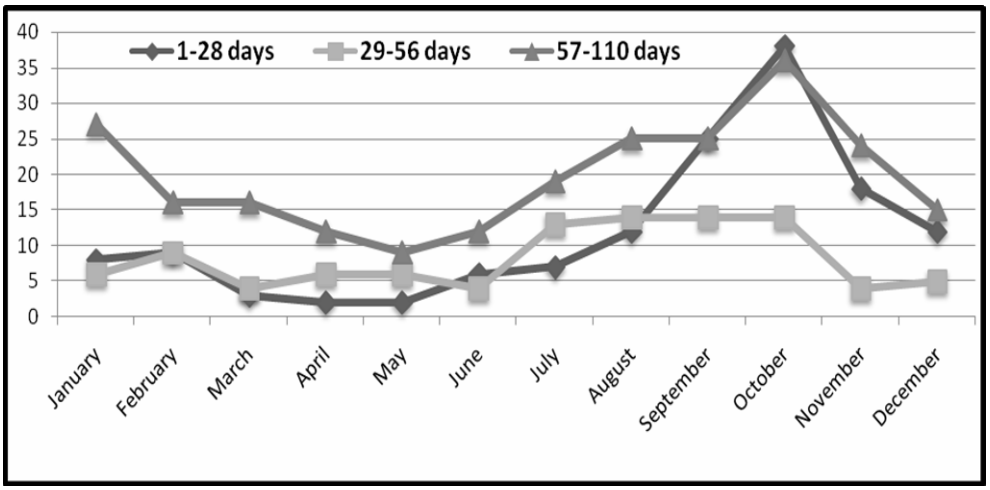


Chart 1. Abortion distribution during one year; in different stages of gestation

In table 2 is presented the proportion of abortions that was observed in early, middle and late gestation from all the abortions observed in the farms.

Table 2

Number and proportion of abortions that were observed in different periods after the artificial insemination

Specification	1-28 days	29-56 days	57-110 days
Number of abortions	142[a]	99[a]	236[A]
Proportion of abortions	29,77%	20,75%	49,48%

χ^2 test A-a, $p \leq 0.001$; A-b, $p \leq 0.01$; A-c, $p \leq 0.05$, a-a, $p \geq 0.05$

As we saw from table 2 from insemination (day 1) until 28 days of gestation, when the animals are housed in crates, a high proportion of animals that aborted (29.77% from all the abortions) was observed.

After transferring the sows in pens (29 to 56 days) were observed 20.75% from all the abortions.

This proportion could be higher, but in this phase of gestation the fetuses are small (13-65 cm) and the sows could eat the fetuses or they could fall in the channel before the employees could see theme.

After 57 days until 110 days of gestation were noticed 49.48% from all the abortions.

The high proportion of abortion noticed in this period could be because of the dimension of the fetuses (65-180 cm) **(4)**.

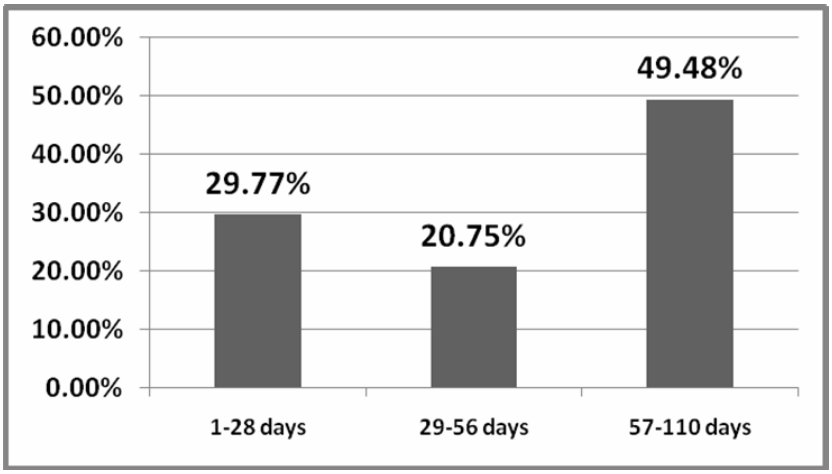


Chart 2. Abortion distribution during the pregnancy periods

The differences between the proportion of abortions observed during the last quarter of gestation (49.48%) was statistically very significant (χ^2, $p \leq 0.001$) comparing to the proportion of abortions observed in the first and second part of gestation.

The differences between the proportion of abortions observed in the first part of gestation (29.77%) was statistically not significant comparing to the abortions observed in the second quarter (20.75%) of gestation (χ^2 test, $p \geq 0.05$).

CONCLUSIONS

1. The months of August, September and October the sows had the highest proportion of abortions. From all the abortions, in August were observed 10.69% abortions; in September 13.42% abortions and in October 18.45% of all the abortions.
2. The months with the lowest rate of abortions were: March with 4.82% abortions; April with 4.19% abortions; May with 3.56% and June with 4.61% abortions.
3. From insemination until 28 days of gestation, a high proportion of animals that aborted (29.77% from all the abortions) were observed.
4. Between 29 to 56 days were observed 20.75% from all the abortions.
5. After 57 days until 110 days of gestation were noticed 49.48% from all the abortions.
6. The differences between the proportion of abortions observed during the last quarter of gestation (49.48%) was statistically very significant (χ^2, $p \leq 0.001$) comparing to the proportion of abortions observed in the first and second part of gestation. The differences between the proportion of abortions observed in the first part of gestation (29.77%) was statistically not significant comparing to the abortions observed in the second quarter (20.75%) of gestation (χ^2 test, $p \geq 0.05$).

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