

Testing the Altresyn Product for Oestrus Synchronization in Gilts

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Abstract

The aim of this study was to evaluate the effect of Altresyn® product (progesterone-based product) as a method for synchronization of oestrus in gilts. The gilts were divided into three experimental groups. The synthetic progesterone Altrenogest was fed daily to 39 gilts at 20 mg/gilts for 18 days. In case of the first group (n = 11 gilts) the treatment was performed using only Altresyn product. In group II (n=13 gilts) was administered the prostaglandin hormone (Prosolvin), 0.75 mg at 24 hours after Altrenogest treatment suppression. Group III (n=15 gilts) received one injections of PMSG hormone (Folligon), 500 IU/animal. Gilts were checked for oestrus twice daily and were artificially inseminated. All gilts expressed signs of oestrus between 3 and 6 days after withdrawal of Altrenogest. At the groups that were administered prostaglandin and PMSG there was a shorter duration of oestrus (group III – 26.66 hours, group II – 27.07 hours) compared to group I (28.54 hours). In this study, pregnancy rate ranged from 45.45% (group I) and 93.33 % (group III), while in group II the value slightly exceeded 50% (53.84%). In group I, the mean litter size was 11.6 piglets, in group II the mean value of farrowed piglets was 13.28 and 15 piglets in group III. Regarding the average number of weaned piglets in group I was 8.8, 12 in group II, while for the third group was 13.14. Altrenogest, the active ingredient in Altresyn® is effective for regulating the oestrus of gilts in commercial pig farms.

Keywords: *Altresyn, gilts, oestrus, synchronization.*

INTRODUCTION

In today's competitive pork industry, it is essential that producers achieve a high level of reproductive efficiency. Low performance in the breeding systems can lead to complications in the production calendar. The hormonal treatment strategies are tools that producers can use to help in that regard (Coffey *et al.*, 1997).

The administration of progestogens has confirmed to be highly effective in synchronization of oestrus in cyclic sows and gilts (Gerrits and Johnson, 1965; Polge *et al.*, 1968; Dimitrov *et al.*,

2010). The orally active progestogen "altrenogest" is effective for producing synchronization of oestrus cycles in swine and would potentially facilitate synchronization of cycling sows and gilts. The oestrus response can be improved by PGF₂α and gonadotrophin treatment at the end of altrenogest feeding (Estill, 2000).

The aim of this study was to evaluate the effect of Altresyn® product (progesterone-based product) as a method for synchronization of oestrus in gilts.

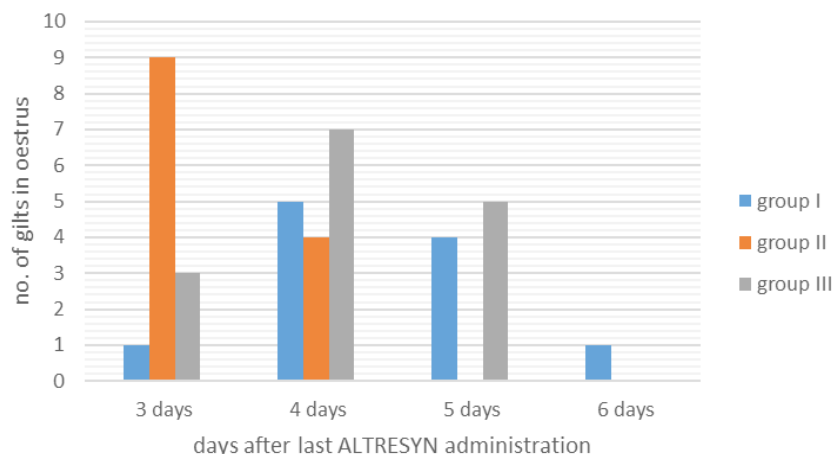


Fig. 1 – Distribution of gilts in oestrus after hormonal treatment

MATERIAL AND METHODS

The study was carried out between June 2013 - May 2014 in a private unit in Cluj County, and involved 39 gilts, aged between 210-220 days.

The gilts were divided into three experimental groups. In all groups oestrus synchronization was performed with the commercial product Altresyn administered orally in a daily dose of 20 mg altrenogest/animal/day, which corresponds to 5 ml Altresyn/animal/day, for 18 consecutive days. In case of the first group (n = 11 gilts) the treatment was performed using only Altresyn product. In group II (n=13 gilts) 24 hours after cessation of progesterone treatment prostaglandin hormone (Prosolvin) was administered at a dose of 0.75 mg. Group III (n=15 gilts) received one injections of PMSG hormone (Folligon) at the dose of 500 IU/animal. Animals were separated and individually treated. It should be mentioned that it was given the right dose for each animal, because underdosing may lead to cystic follicles (Davis *et al.*, 1979; Kraeling *et al.*, 1981).

The animals were monitored until first clinical signs of oestrus were detected. Oestrus was detected with boar exposure twice a day after cessation of hormonal treatment. Two Landrace boars 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 4.0×10^9 spermatozoa. Diluted semen was stored at 18 °C.

Gilts received first artificial insemination (AI) 12 hours after oestrus was detected and second

AI 21 days. Pregnancy rate was determined at 30 days after insemination by using a portable ultrasound. All pregnant gilts were kept under observation and, a week before parturition, were moved in individual boxes.

The following parameters were investigated: interval of oestrus onset, oestrus duration, pregnancy rate, total piglets born per litter, weaned piglets.

Statistical analysis was performed with operating system Windows 2007 - Descriptive statistics.

RESULTS AND DISCUSSIONS

Using a combined hormonal treatment (altrenogest with prostaglandin or FSH respectively) the interval between the last treatment and oestrus could be reduced. The best results were obtained in group II: 100% of the animals presented signs of oestrus on days 3 to 4 after the hormonal treatment, with an average of 3.30 ± 0.48 days. In group I and III, following withdrawal of altrenogest, 81.81% respectively 79.99% of the gilts displayed oestrus on days 4 and 5, with an average withdrawal-to-oestrus interval of 4.45 ± 0.82 and 4.13 ± 0.60 days (Fig. 1). Similar results were recorded for gilts treated with the same dose of altrenogest (Davis *et al.*, 1976; Knight *et al.*, 1976; Webel and Scheid, 1980; Dimitrov *et al.*, 2010).

At the groups that were administered prostaglandin and PMSG there was a shorter duration of oestrus (group III – 26.66 ± 2.46 hours, group II – 27.07 ± 2.39 hours) compared to group I

Tab. 1 Descriptive analysis of the farrowed and weaned piglets

Parameters	group I	group II	group III
Mean	11.5454545	13.30769	15
Standard Error	0.31228298	0.327864	0.292770022
Median	12	13	15
Mode	12	13	15
Standard Deviation	1.03572548	1.182132	1.133893419
Sample Variance	1.07272727	1.397436	1.285714286
Kurtosis	-0.8532031	-0.28636	-0.179487179
Skewness	-0.1472807	-0.34924	0.339198886
Range	3	4	4
Minimum	10	11	13
Maximum	13	15	17
Sum	127	173	225
Count	11	13	15
Confidence Level (95.0%)	0.69580985	0.714355	0.627929246

(28.54±2.01 hours). The percentage of oestrus return was 63.63% (7 gilts) in group I, 61.54% (8 gilts) in group II and for group III at a number of 5 gilts (33.33%) showed signs of oestrus after the first cycle. In this study, pregnancy rate ranged from 45.45% (group I) and 93.33% (group III), while in group II the value slightly exceeded 50% (53.84%). Similar values (51.85 to 90.48%) were reported by Dimitrov *et al.*, 2010.

In our study, the mean values of farrowed and weaned piglets, regardless of treatment, was in accordance with other authors (Dimitrov *et al.*, 2010; Boyer and Almond, 2014), and indicates that acceptable farrowing response after synchronization with altrenogest should be achieved consistently (Tab. 1). Dimitrov *et al.*, 2010, found that total litter size ranged between 7.88±4.72 and 14.42±2.36, while Boyer and Almond, 2014, have reported that the mean value for the piglets born alive was between 10.06±0.08 and 10.33±0.06. Same authors revealed a mean value of weaned piglets between 9.78±0.08 – 10.31±0.03.

CONCLUSIONS

Results showed that Altresyn product, alone or in combination with other hormones, when fed daily for 18 days at 20 mg/gilt/day efficient is for synchronization of oestrus in gilts such that 100%

express oestrus 3 to 6 days after last hormonal treatment.

In this study, pregnancy rate ranged from 45.45% to 93.33%, while the mean value of farrowed piglets was between 11.6-15 piglets. Regarding the average number of weaned piglets the mean value among the groups was 8.8 to 13.14.

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