

INDUCTION AND SYNCHRONIZATION OF GILT OESTRUS AND OVULATION - COMPARISON OF SELECTED MEDICAL TREATMENTS

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Abstract

The aim of this study was verify suitability of selected treatments at gilts oestrus and ovulation induction and synchronization, compare influence of these treatments on selected reproduction traits quality in connection with their usage in embryo-transfer or in practical conditions. Czech Large White and Czech Landrace pubertal gilts (7 month of age, 130-140 kg weight) were used in our experiment. Gilts are synchronized by feeding of Regumate (active agent: Altrenogest, producer: Hoechst, doses recommended by the producer) for 15 days. Then they are treated with PMSG and HCG (Werfachor in first group, Pregnyl in second group) or GnRH (Depherelin Gonavet in third group). Homospermic doses were used for insemination. Achieved results show that the most suitable from used methods for follicle stimulation and development is combination of Regumate-Sergon-Werfachor preparations (eventually substitution with Depherelin Gonavet).

Introduction

Currently 10 – 15% pubertal gilts are culling for reasons of reproduction disorders. Great variability in start of regular oestrus is a dominant phenomenon in time of gilt ranging into the breeding. Generally known clinical causes of this variability are anoestrus, suboestrus and acycly and dysfunction, insufficiency and infantility of ovary are recently very frequent (Hühn, 1992; Wood et al., 1992; Řiha, Vejnar, 1997; Wähner, Huhn, 1999; Anonym 2004; Hühn, Zaremba, 2006).

Economic reasons connected with gilt rearing and purchase make impulse to new medication procedures. That's why interest in hormonal stimulation is more actual now. (Řiha, Vejnar, 2000; Wähner, 2002; Hühn, Zaremba, 2006).

Selection of suitable and effective medical treatments of gilts specialized on synchronization of oestrus and ovulation or super-ovulation in terms of programme of embryo-transfer requires knowledge of used preparations influence. Till this time standard used medical treatments are influenced by frequent substitution of new commercial preparations. However their influence isn't always compatible to a given kind of animals.

Material and methods

The experiment was carried out in model and in service conditions. Stabling, feeding and selection of gilts for insemination was approximately on the same level (between groups and between breeds). The oestrus was induced in Czech Large White and Czech Landrace pubertal gilts (7 month of age, 130-140 kg weight). Medication procedures was based on PMSG, HCG and GnRH preparations. Regumate-porcine preparation for inhibition of cycle (20 mg per animal and day, active substance Altrenogest) was fed in feeding mixture 15 or 17 days.

Gilts in all groups were medicated with Sergon inj. sicc. (PMSG) preparation (750 m.j.) 24 hours after last Regumate dose. After 76-78 hours was Werfachor inj. sicc. (HCG) preparation used in the first group (350 m.j.), Pregnyl inj.sicc.(HCG) in the second group (350 m.j.) and Depherelin Gonavet (GnRH) in the third group (1 ml). The first insemination was carried out according to external oestrus symptoms (full oestrus). Gilts without these symptoms was inseminated after 24 hours. Double reinsemination with homospermic insemination doses followed in 6 and 12 hours.

Groups with the same preparation and medical treatment, control of oestrus, selection of animals and insemination were monitored in service conditions of breed.

Results

Results of monitored reproduction traits are given in Table 1 and Table 2. There were no strong and significant differences between group 1 and 3 in both variants of the experiment. The first group (Sergon-Werfachor) showed better (about 15-25%) results in response of external oestrus symptoms, conception rate and number of farrowing gilts from total treated animals. The applied combination is better in term of the rate of ovulation, number and quality of obtained embryos (BL, ExBL, HBL). The second group (Sergon-Pregnyl) was deficiently effective in all monitored parameters. The gilt reaction on external oestrus symptoms was lower, conception rate and farrowing rate were decreased. The ovary activity (including number and quality of obtained embryos) was lower too in comparison with other groups. The abnormal occurrence of follicular cysts (15-30 mm) was an important pathogenic phenomenon – 57,14% in group 2 and 28,57% resp. 34,43% in group 1 resp. 3. The presence of endometritis in time of embryo lavage was evident in group 1 (18,57% of cases), in group 2 (21,42%) and in group 3 (22,21%). More accurate specification was not carried out.

Table 1. Reproduction traits in gilts treated with Regumate and PMSG, HCG, GnRH combination

group	treatment	number of treated gilts	reaction on oestrus stimulation		ovary reaction and number of embryos				
			full oestrus	without reaction	number of corpus luteum	number of obtained embryos		number of usable embryos	
		n	%	%	n/♀	n/♀	%	n/♀	%
I	Sergon/Werfador	21	76,19	23,81	18,80	12,78	67,97	9,38	49,89
II	Sergon/Pregnyl	14	42,85	57,15	15,42	8,72	56,54	3,45	22,37
III	Sergon/Depherelin	9	55,55	44,45	15,66	10,12	64,62	5,62	35,88

Table 2. Reproduction traits in gilts treated with Regumate and PMSG, HCG, GnRH combination in service

group	treatment	number of treated gilts	reaction on oestrus stimulation		interval from treatment to oestrus	conception rate	farrowing gilts	natality		weaned piglets
			full oestrus	without reaction				total born	live born	
		n	%	%	days	%	%	n/♀	n/♀	n/♀
I	Sergon/Werfador	52	80,76	19,24	4,11	69,23	37,30	10,57	10,14	9,23
II	Sergon/Pregnyl	21	47,61	52,39	4,93	52,38	47,61	8,72	8,10	7,27
III	Sergon/Depherelin	15	73,33	26,67	5,14	60,00	63,33	9,87	9,12	8,62

Conclusion

The most suitable method for follicle stimulation and development is combination of Regumate-Sergon-Werfador preparations (eventually substitution with Depherelin Gonavet).

Super-ovulation effect noticed in work by Hazeleger, Bowmann (2000) was not evidenced in our experiment.

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