Tools for **reducing non-productive days** and improving performance by inducing estrus in gilts/sows with reproductive failure

Efficiency is a critical component of livestock production. Sows that do not show estrus result in an increased number of non-productive days (NPDs) or will need to be euthanized.

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As a result of this loss of efficiency, the farrowing batches did not have the planned composition, leading to financial losses. Gonadotropin hormone treatments can help induce heat and minimize this increase in NPDs.

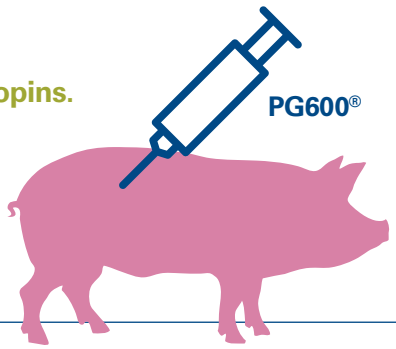
The objectives of this study were: on the one hand, to investigate the effect of this treatment in problem sows and, on the other, to obtain information on different treatments with gonadotropins[1].

Materials and methods

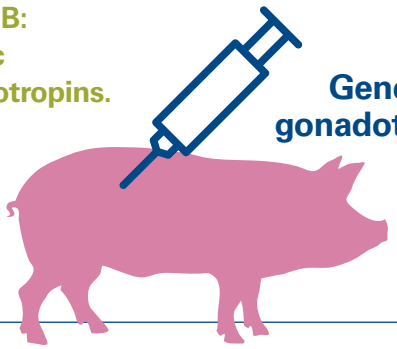
This experiment was carried out at two Spanish farms. The first one (farm 1) had 1,250 sows and the second (farm 2) had 2,200 sows.

All the problem sows that did not show heat in the first week of November were treated. A total of 104 animals were randomly assigned into one of two groups (Group A and Group B) and were treated as follows:

Group A: PG600® gonadotropins.



Group B: generic gonadotropins.



Progesterone levels were determined in all the sows with a progesterone rapid kit for farm use Ovu-check®, Biovet; *figure 1*)[2]. The results of the treatments were statistically analyzed using the Chi-Squared and Unilateral Fisher tests.

Results

Treatment was applied to the weaned sows that did not show signs of estrus 7 days after weaning and the following results were obtained (*table 1*):

- Farm 1: 75% (n = 12) of group A and 25% (n = 8) of group B showed signs of heat after treatment.
- Farm 2: 22% (n = 18) of group A and 0% (n = 5) of group B (p = 0.04) showed signs of heat after treatment.

The non-pregnant sows from farm 1 (confirmed by ultrasound) were treated with the group A treatment. 82% went into heat (n = 11) after treatment (only the treatment from group A was used in this group of sows).

Regarding the gilts that had not shown signs of heat when they had reached their optimum age and weight, on farm 1, n = 10 each were assigned to group A and group B; 60% and 20% went into heat, respectively.

On farm 2, a total of 30 sows were treated with the treatment from group A, and 67% showed signs of heat.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The study included gilts and sows that had not come into heat, weaned sows that had gone more than 7 days without showing estrus, as well as non-pregnant sows (identified by ultrasound).

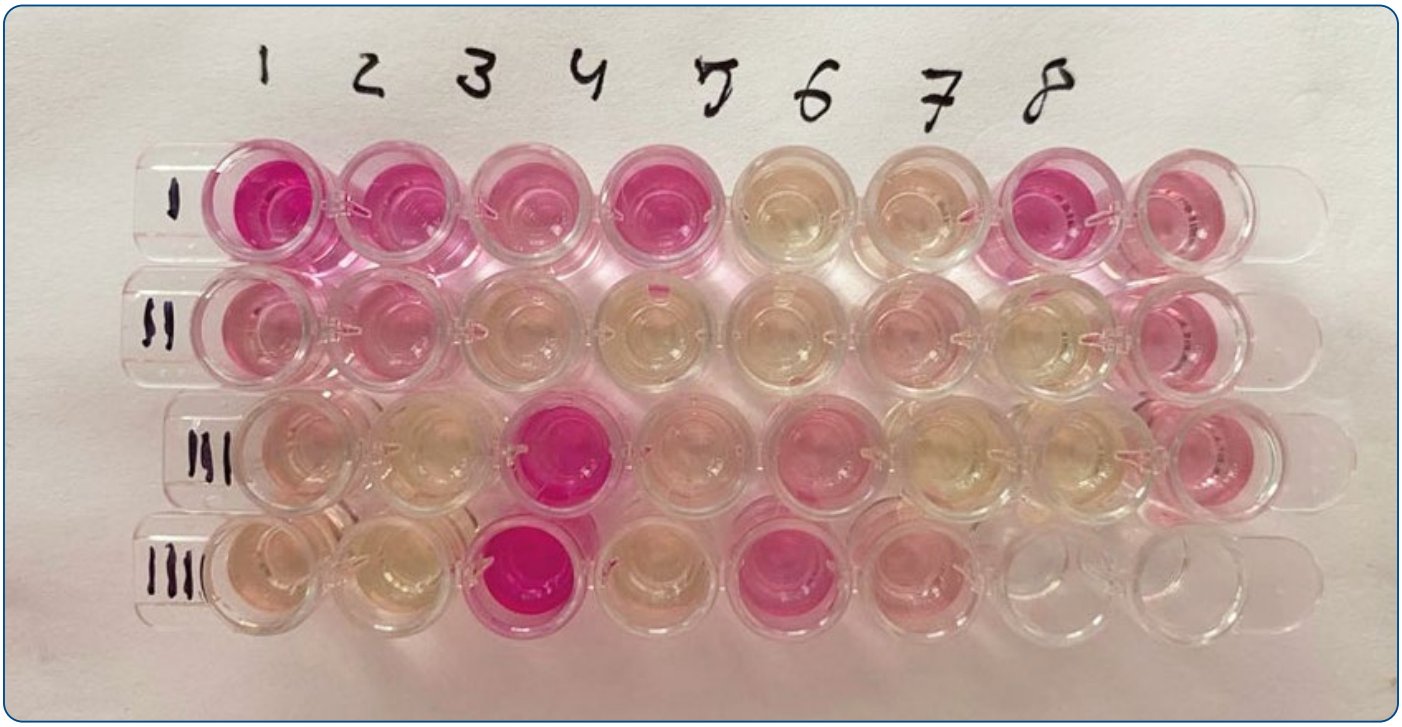

Figure 1. Progesterone Kit (Ovu-check®, Biovet).

	N° treated with the generic gonadotropin	N° treated PG600®	% Generic estrus	% PG600® estrus	*P*-value
Weaned without estrus Farm 1	8	12	25%	75%	
Weaned without estrus Farm 2	5	18	0%	22%	0.04
Delayed nulliparas Farm 1	10	10	**20%**	**60%**	< 0.05
Delayed nulliparas Farm 2	-	30	-	**67%**	
Non-pregnant sows (confirmed by ultrasound) Farm 1	-	11	-	**82%**	
TOTAL	23	81	**17.4%**	**59.3%**	< 0.05

Table 1. Results obtained with the different treatments.

Before the gonadotropin treatment, we checked the progesterone levels in their blood; sows with no progesterone did not have corpora lutea at the time of treatment and were therefore most likely to respond to gonadotropins.

Table 2 shows the percentage of sows with undetectable progesterone at the time of testing (negative: < 2.5 ng/ml) and their response to the different treatments. The sows that had higher levels of progesterone were in the luteal phase and would not have been susceptible to the treatment (*figure 2*).

The treatment applied in group A (PG600®) in sows negative for progesterone achieved heat in a higher percentage of sows than those treated with the group B treatment (generic gonadotropins).

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		% sows with undetectable progesterone (< 2.5 ng/ml)	% heat in treated sows (without progesterone)
Farm 1	Group A	30%	100%
	Group B	62%	20%
Farm 2	Group A	50%	25%
	Group B	50%	0%
Total nulliparas	Group A	80%	63%
	Group B	70%	29%

Table 2. Percentage of progesterone negative sows and their response to the different treatments.

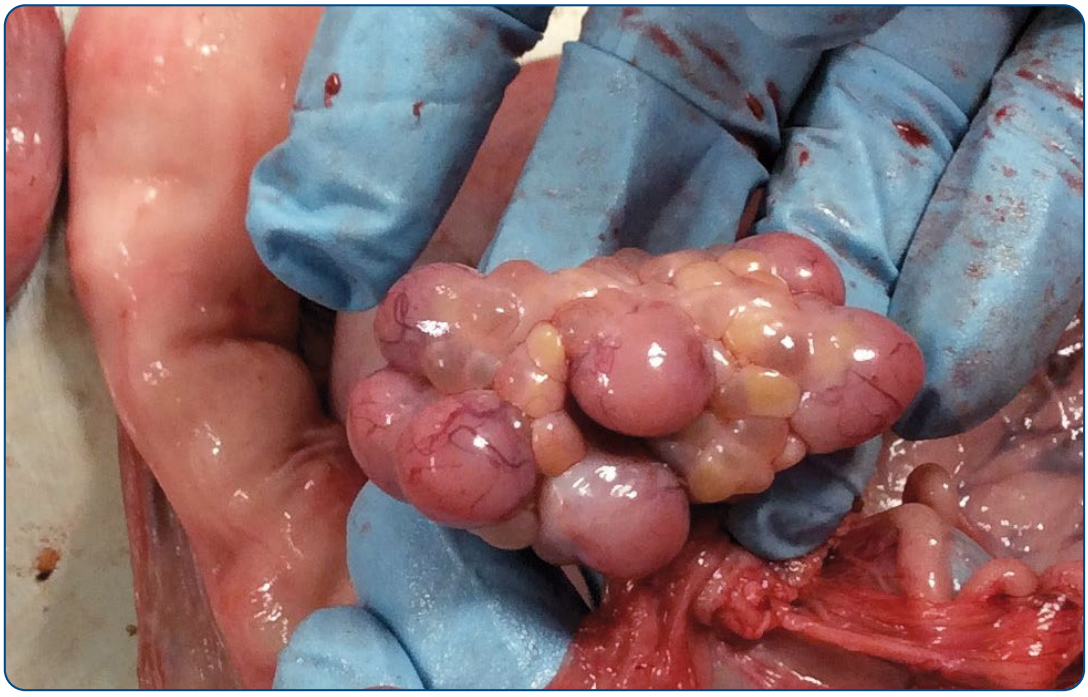

Figure 2. Ovary with corpora lutea, with progesterone production.

Discussion and conclusions

The use of gonadotropins and the determination of progesterone levels can be particularly useful tools for controlling the reproductive status of sows, and gonadotropins can induce heat in animals with delayed estrus. This reduces the number of NPDs and improves the productivity and organization of farms. In the study, PG600® was significantly more effective at inducing estrus than the generic gonadotropin.

References

1. Cantin C. Comparación del efecto de PG600® y de otras gonadotropinas administradas en el momento del destete. Anaporc 2011.
2. Ramells E. Use of a progesterone on-farm kit detection (Ovu-Check®) to improve gilts management in a commercial farm. ESPHM 2019.