

Comparison of Two Methods of Artificial Insemination in Sows

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Abstract: The necessity to optimize to the maximum the production, as well as to improve the quality of the final product, they have impelled the investigation in the field of the reproduction; the no-surgical deep intra-uterine inseminations, it could be an alternative. In pigs, when the sperm is deposited in a surgical way in the union uterus-tubaric, the number of sperms and the volume of the dose can decrease to 1×10^6 and 0.5 mL, respectively; in comparison with the traditional cervical inseminations where it is inseminated 3 to 5×10^6 sperms in a volume of 80 mL, approximately; this could represent a benefit for the optimization of the germinal material of the reproductive males. The objective of this research is to compare reproductive and productive parameters between the Conventional Artificial Insemination (CAI) and the Post-cervical Artificial Insemination (PCAI). This study, was taken I end up in a Unit of Swinish Production of the State of Mexico, Mexico. A total of 34 females were used, divided in 2 groups, A and B with 17 female multipartum each one, selected at random. To the females of the group A, they were inseminated with the technique of CAI, three doses was administered, with interval of 12 h, after the beginning of the estrus. To the group B, was inseminated with the Technique of PCAI, with 2 doses; the first one, at the 24 h of initiates the estrus and the second, at the 12 h after the first dose. The fertility was 64% in both groups. The productive indicators were the following ones: Pigs Born Totals were of 76 and 113 for the group A and B, respectively. The total number of alive born pigs was of 64 and 96 for the group A and B, respectively. The total suckling pigs born/sow and alive born suckling pigs/sow were of 5.81 and 8.72; 6.9 and 10.27 for the first one and second group, respectively. For average weigh/suckling pig was of 1.35 and 1.25 kg for the group A and B. Finally, the percentage of mortality and mummifications were of 9.37 and 7.29; 7.8 and 0.88 for the group A and B, respectively. Therefore, in general terms, one can say that the method of post-cervical artificial insemination, showed better results as for the optimization of the used seminal material, reflected in better productive indicators.

Key words: Conventional artificial insemination, post-cervical artificial insemination, reproductive parameters, productive parameters, sows

INTRODUCTION

The swinish industry is in search in ways to optimize the productivity of the boar dedicated to the seminal production for its use in Artificial Insemination (AI), since it is possible to reduce the concentration of the seminal dose for AI without it is affected the fertility and prolificacy in the Units of Animal Production (Martínez *et al.*, 2001; Rath, 2002; Pallas, 2002).

One of these techniques is the no-surgical deep intra-uterine inseminations with a small quantity of sperms, they have been indicated in livestock (Martínez *et al.*, 2001). In sows, when the sperm is deposited surgical beside the union tubaric-uterus, the number of sperms and of the volume of the dose it can decrease to 1×10^7 and 0.5 mL, respectively. These results have been the principle from a necessity to solutions techniques for the no-surgical deep intra-uterine

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insemination in pigs (Martínez *et al.*, 2001). The insemination post cervical in swinish is carried out introducing a stem that travels the longitude of the uterine neck totally until reaching the body of the uterus, place in which the seminal material is deposited (Belstra, 2002).

The objective of this research was to compare the effect of two methods of AI you have more than enough reproductive and productive parameters.

MATERIALS AND METHODS

A total of 34 sows multipartum was used of which separated at random in two groups.

Group A: Seventeen females were inseminated with the technique of CAI with 100 mL and spermatic concentration of 6×10^6 utilized in the farm; 3 seminal dose was applied; at the 12, 24 and 36 h after the beginning of the estrus.

Group B: Seventeen females were inseminated with the Technique of PCAI; a volume of 30 mL was used and a spermatic concentration of 1×10^6 . Two seminal doses were applied, at the 24 and 36 h after the beginning of the estrus.

The variables to measure in both groups were: percentage of fertility, total born suckling pigs, alive total born suckling pigs and alive born suckling Pigs/sow; as well as weigh average/suckling pig, percentage of mortality and mummifications. The analysis of results, was carried out by means of descriptive statistic.

RESULTS AND DISCUSSION

In the Table 1, the results are presented obtained in both groups.

In the case of the PCAI the stem passes through the cervix and it arrives until the uterine body using up to 500 million sperms in a volume of 30 mL, that which supposes a reduction in volume and concentration of the seminal dose without affecting fertility and prolificacy (Pallas, 2002).

The above-mentioned makes possible that of the 1500 doses per male-year that at the moment are obtained; in the future, one could obtain from 4500-9000 dose per male-year (Pallas, 2002).

It was observed that there was better reproductive and productive acting when PCAI was used, reflected in optimization of the doses seminal and better productive

Table 1: Reproductive and productive parameters in both groups

Parámetros	CAI (group A)	PCAI (group B)
% of fertility	64.7	64.7
Total number of suckling pigs	76.0	113.0
Number of births	11.0	11.0
Total suckling pigs born/sow	6.9	10.27
total alive born suckling pigs	64.0	96.00
Suckling pigs alive born /sow	5.81	8.72
% of mortality	9.37	7.29
% of mummifications	7.8	0.884
Average weigh/suckling pig, kilograms	1.35	1.25

CAI: Conventional Artificial Insemination. PCI: Post Cervical artificial Insemination

indicators; with that which one can say that the PCAI in pigs is a possibility to optimize the use of having ejaculated and to introduce technologies of animal reproduction attended with success.

At the moment has left perfecting the technique, what has allowed to diminish to the maximum the lesion risk in the sow, to reduce the number of sows considerably in those that you cannot introduce the stem until the body of the uterus, and to improve the results of fertility, in spite of using every time smaller dose in volume and concentration (Rath, 2002).

In the case of the PCAI the stem passes through the cervix and it arrives until the uterine body using up to 500 million sperms in a volume of 30 mL, it has been demonstrated that it is possible to diminish the volume and the concentration of the seminal dose without it is affected the fertility and prolificacy (Pallas, 2002).

The potential disadvantages of these techniques are that they can increase the occasion of causing or of increasing existent cervical or uterine lesion and of introducing a uterine infection. Also, the intra-uterine placement of the catheter requires more ability of the technician's upbringing (especially in young sows) and the time compared the CAI, although the deposition of the semen is quicker because it is not dependent in uterine contractions of the pig (Belstra, 2002).

The introduction of the stem at the beginning or at the end of the zeal it will be very difficult and in occasions impossible, for that that the early inseminations and the late ones decrease considerably (Lamberson and Safranski, 2000).

CONCLUSION

In conclusion, it was observed that there was better reproductive and productive acting with the PCAI, reflected in optimization of the doses seminal and better productive indicators of the variables measures. The PCAI in sows is a possibility to optimize the use of having

ejaculated and to introduce technologies of attended animal reproduction. The instruments for the intra-uterine insemination are available now and they will allow the insemination with less quantity of volume and concentration of sperms that used in the CAI, being in improvements of productive indicators in the Units of Swinish Production.

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