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INDUCED OESTRUS IN LACTATING SOWS BY THE ADMINISTRATION OF PMS AND HCG*

By

S. KYRIAKIS, J. ANDREOTIS, C. STOITSIOU, A. DONOS, P. TSAKALOF**

ΠΡΟΚΛΗΣΗ ΟΙΣΤΡΟΥ ΣΕ ΓΑΛΟΥΧΟΥΣΕΣ ΧΟΙΡΟΜΗΤΕΡΕΣ ΜΕ ΧΟΡΗΓΗΣΗ PMS ΚΑΙ HCG

Υπό

Σ. ΚΥΡΙΑΚΗ, Ι. ΑΝΔΡΕΩΤΗ, Κ. ΣΤΟΥΤΣΙΟΥ, Α. ΔΟΝΟΥ, Π. ΤΣΑΚΑΛΩΦ**

Π Ε Ρ Ι Λ Η Ψ Η

Ο πειραματισμός αυτός έγινε σε βιομηχανικού τύπου χοιροτροφική μονάδα δυναμικότητας 500 χοιρομητέρων. Σ' αυτόν πήραν μέρος 20 χοιρομητέρες που χρησίμευσαν σαν μάρτυρες (T1) και άλλες 20 αντίστοιχα (T2), του ίδιου γενετικού δυναμικού που διαβιούσαν κάτω από τις ίδιες συνθήκες έκτροφής, στις οποίες έγινε ή ακόλουθη αγωγή: (α) την 23η ημέρα μετά το τοκετό 1.000 u.i. PMS, (β) την 24η ημέρα 300 u.i. HGC, (γ) από 26-31η ημέρα 12ωρη απομάκρυνση των χοιριδίων από τις χοιρομητέρες και (δ) έκθεση των χοιρομητέρων στα έρεθίσματα του κάπρου επί 30' κάθε πρωί από την 26-31η ημέρα. Και για τις δύο ομάδες (T1 και T2) ο απογαλακτισμός των χοιριδίων έγινε τη 35η ημέρα. Το μέγεθος των τοκετοομάδων, η βιοσιμότητα μέχρι τη 35η ημέρα, τα σωματικά βάρη των χοιριδίων μέχρι τη 35η ημέρα και οι αποδόσεις του έπομένου τοκετού δέν είχαν καμιά στατιστικά σημαντική διαφορά. Οι χοιρομητέρες της ομάδας T1 ήλθαν σε όργασμο — όχεία την $44,75 \pm 1,1$ ημέρα (ποσοστό 85% των χοιρομητέρων — έγκυμοσύνη 90%) και της T2 την $35,85 \pm 1,4$ ημέρα (ποσοστό 80% των χοιρομητέρων — έγκυμοσύνη 75%) ($P < 0,001$). Η όλη όμως πειραματική εργασία στην ομάδα t2 προκάλεσε μεγάλα λειτουργικά προβλήματα στο χοιροστάσιο.

INTRODUCTION

The administration of PMS and HCG to brood sows has been practised for a number of years (2, 3), either for the purpose of synchronizing oestrus or for inducing oestrus during lactation (1a, b).

The purpose of the present experiment was to work out a program of PMS and HCG administration in conjunction with special management practices of the sows and their litters, in greek commercial pig units.

* Η εργασία αυτή (short communication) παρουσιάστηκε στο XXI Παγκόσμιο Κτηνιατρικό Συνέδριο της Μόσχας (1979) και ή περιλήψή της δημοσιεύθηκε στα Παρακτικά του Συνεδρίου.

** Έργ. Μαιευτικής και Τεχν. Σπερματεγχύσεως, Κτηνιατρική Σχολή, Α.Π. Θεσ/νικης

The specific objects pursued were:

- a. To study the time of onset of oestrus during the suckling period.
- b. To estimate the yields of sows exhibiting oestrus after weaning their litters at the conventional age of 35 days, and
- c. To find out whether any operational problems might come up in the unit from the set up of the program.

MATERIALS AND METHODS

The experiment was conducted in a 500 sow commercial breeding fattening pig unit between Feb. 1977 and March 1978.

A total of 40 Landrace X Large White polytocous brood sows bred to 3 different 2 year old Landrace boars, were used.

Along with the above animals, 12 additional brood sows were also treated and followed up, so as to supply replacements in case any brood sow or piglet showed signs of failing health.

The 40 sows selected were randomized into 2 groups of 20 animals each (T1, T2). The animals of group T1 served as controls, while those of group T2 were treated as follows:

- a. On day 23 post partum they were injected with 1000 i.u. PMS.
- b. On day 24 post partum they were injected with 300 i.u. HCG
- c. Between days 21 and 24 post partum all litters were removed from their dams for 12 hours daily, and
- d. Between days 26 and 31 they were exposed daily to the presence of the boar.

The behaviour of the animals of T2 after the above treatment was followed up till the day of the subsequent parturition and was compared to that of the animals of T1.

Statistical analysis of the results was carried out by the «t» test.

The management conditions were the same for all brood sows of both groups. All animals were fed the same balanced rations.

Special preventive measures against infectious and parasitic diseases were taken for all animals and particularly for those of the experiment.

The litters of both experimental groups were weaned on the 35th day, on which all brood sows were transferred to the breeding stalls.

All weaned piglets remained in the farrowing pens for another 10 days.

Any sow that showed signs of oestrus during the suckling period was taken to the breeding stalls, twice within 24 hours, and was then returned to the farrowing pen, to stay with her litter, till the 35th day.

RESULTS

1. Litter size, body weights, survival of piglets to the 35th day of life, and the yields at the subsequent parturitions among the animals of both groups (T1, T2) were not influenced by the special treatment applied to the animals of group T2.

It should be pointed out that there was no significant difference whatsoever in the number of live, stillborn and average body weights among the piglets of both groups.

2. The first post partum oestrus was observed in 85% of the animals of T1, $44,75 \pm 1,1$ days after farrowing and was followed by a conception rate of 90% while of the animals of T2, 80% exhibited the first post partum oestrus $35,85 \pm 1,4$ days after farrowing and had a conception rate of 75% ($P < 0.001$).

DISCUSSION AND CONCLUSIONS

In the course of the present work it has been proved that the administration of PMS and HCG in conjunction with management procedures during lactation after weaning at 35 days, results in a significant reduction of the time period between farrowing and onset of the first post partum oestrus. This reduction is of the order of approximately 10 days. Thus, it is possible to attain yields approaching those achieved by early weaning (i.e. on the 21 st day).

At this point, it should be emphasized that further work is necessary to evaluate in detail:

a. The influence of continuous PMS and HCG administration over long periods of time on the reproductive performance of brood sows.

b. The considerable operational problems resulting from the application of this method in livestock units where such practices had not been anticipated, and

c. The cost incurred by this method in comparison with that incurred by practising early weaning.

SUMMARY

The experiment was conducted in a livestock unit of 500 brood sows and comprised a total of 40 animals of the same genetic potential and living under the same management conditions. Of the above animals, 20 were used as controls (group T1), while the remaining 20 (group T2) were treated as follows: a) on day 23 after farrowing, they were injected with 1000 i.u. PMS, b) on day 24 they were injected with 300 i.u. of HCG, c) on days 21-24 the litters were removed from their dams for 12 hours daily, d) on days 26 - 31 the sows were exposed to the presence of the boar, for 30' every morning. All litters of both groups were weaned on day 35 after farrowing. There were no significant differences in litter size, survival and body weight of piglets to the 35th day, as well as in the yields of the animals at the subsequent parturition. The sows of group T1 came into oestrus on day 44.75 ± 1.1 d. (85% of the sows in oestrus - conception rate 90%), while those of group T2 came into oestrus on day 35.85 ± 1.4 d. (80% of the sows in oestrus - conception rate 75%) ($P < 0.001$). The entire experimental work among the animals of group T2, however, caused considerable operational problems in the unit.

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