

Synchronized estrus for efficient artificial insemination of pigs

Adaptability of the technology

It is difficult to detect accurately the time for artificial insemination (AI) if weaned sows are coming into estrus naturally. This can result in low efficiency, particularly in preparing liquid boar semen for AI.

An appropriate method of synchronizing estrus, using hormones in batches, will increase reproductive efficiency and make it easier to manage pig reproduction.

Procedure

There are several ways to synchronize estrus and AI time for weaned sows. The conduct of estrus synchronization is shown in Table 1.

The collected liquid semen was taken from six boars. The sperm concentration was adjusted to 3.0×10^9 sperm cells per dose with Beltsville Thawing Solution (BTS) diluents. AI was performed twice a day (12 hr interval), at a fixed time according to the different hormone treatments (Fig. 1).



Fig. 1. Artificial insemination with liquid boar semen

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Efficacy

The fertility results of synchronized estrus are shown in Table 2. The T¹(PMSG +hCG +AI) method has the highest farrowing rate and also shows higher non-return rate and litter size than the control.

Fixing the time of AI with synchronized estrus using PMSG + hCG method can increase fertility

efficiency and reduce the labor requirement in reproduction management of pigs.

Important notice

Synchronizing estrus by the use of hormones in sows must be done carefully, to avoid poor reproduction during the next breeding season.

Table 1. Synchronized estrus method with fixed AI time on weaned sows.

Treatment Estrus synchronized method and AI time on sow ¹	
Control	Weaning (5 days) → standing estrus (12 hrs) → AI
T ¹	Weanibg → Progesterone (18 days) → PMSG (72 hrs) → hCG (24 hrs) → AI
T ²	Weanibg → PMSG (72 hrs) → hCG (24 hrs) → AI
T ³	Weanibg → PG 600 (96 hrs) → AI

¹Progesterone(Regumate® Hoechst Roussel Vet., France): In feed mixed, 20 mg/head
PMSG(Foligone, Intervet International B.V. – Boxmeer-Holland): 1,000 IU
SC. hCG (Chorulon, Intervet International B.V.-Boxmeer-Holland): 500 IU. IM
PG600 (PMSG 400 IU + hCG 200 IU, Intervet International B.V.-Boxmeer-Holland): 5ml. IM.

Table 2. The effects of synchronized estrus method with fixed AI time on the fertility of weaned sows.

Treatment	No. of sows	Non-return rate (%)	Farrowing rate (%)	Litter size (head)
Control	46	91.3 ^a	84.7 ^b	10.62 ± 0.52
T ¹	47	87.2 ^b	87.2 ^b	11.36 ± 0.33
T ¹	42	95.2 ^a	90.4 ^a	11.39 ± 0.42
T ¹	47	93.6 ^a	78.7 ^c	11.13 ± 0.40