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# A herd management survey and reproductive data indicate how to improve gilt performance in commercial swine herds

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## Introduction and Objectives

Herd management practices are suggested to be associated with large variation in reproductive performance in commercial swine herds (Dial et al., 1992). Gilts are commonly the largest single age group (about 24%) of female pigs in a breeding herd (Koketsu, 2007). This means that any management practices that affect gilt performance will have an impact on overall herd reproductive performance. The objective of the present study was to examine the relationships between herd management practices and gilt performance by means of questionnaires and recorded reproductive performance.

## Materials and Methods

Questionnaire forms regarding gilt development and mating practices were sent in March 2009 to 115 commercial breeding herds in Japan that use a recording system (PigCHAMP<sup>®</sup>, Ames, IA, U.S.A.). Data from 96 completed questionnaires (83.5%) were co-ordinated with the 2008 reproductive data. Due to the limited number of responses for some of the possible answers, the 96 herds were grouped into two or three answer categories for each question. For example, the responses for first mating schedules were grouped into two categories: mating “immediately” or “6-24 hours” after first estrus detection. Those for second mating were grouped into three categories: mating “6-12 hours,” “18-24 hours” or “36-48 hours” after first estrus detection. Modeling with backward elimination was performed for age of gilts at first mating (AFM), farrowing percentage (FP) in parity 0 and number of pigs born alive (PBA) in parity 1.

## Results and Discussion

Means ( $\pm$  SEM) of female inventory, FP and PBA for the 96 herds were  $412.8 \pm 59.5$  pigs,  $81.9 \pm 0.78\%$  and  $10.8 \pm 0.07$  pigs, respectively. AFM was associated with type of boar contact ( $P =$

0.02), but not with gilt age at start of boar contact or the number of days of boar contact per week ( $P > 0.10$ ). Herds using direct boar contact (9.4%) had 13.1 days lower AFM than those using fence-line boar contact ( $P = 0.02$ ; Table).

For first-serviced gilts, FP was related to the first mating schedule ( $P < 0.01$ ), but not with mating technique, frequency of estrus detection each day or second mating schedule ( $P > 0.10$ ). Herds that performed first mating “immediately” after first estrus detection (61.4%) had 8.1% higher FP than those that performed first mating “6-24 hours” after first estrus detection ( $P < 0.01$ ; Table). In contrast to first-serviced gilts, in reserviced gilts, FP was not related to mating practice ( $P > 0.10$ ). PBA was not related to mating practices for either first or reserviced gilts ( $P > 0.10$ ).

In conclusion, in order to improve gilt performance we recommend changing herd management to hasten puberty by using direct boar contact for gilts and to perform first insemination “immediately” after first estrus detection.

Table. Comparisons of gilt performance at first service between herd groups based on the herd management practices

Measurements	n	Mean $\pm$ SEM
Age of gilts at first mating, days		
Type of boar contact		
Direct boar contact	8	$241.7 \pm 4.06b$
Fence-line boar contact	83	$254.8 \pm 1.67a$
Farrowing percentage in parity 0		
Mating schedule for first mating		
Mating immediately	56	$84.5 \pm 0.79a$
Mating 6-24 hours	34	$76.4 \pm 1.51b$

Means with different letters within a column (a-b) differ ( $P < 0.05$ ).

## References

- Dial et al. 1992. Diseases of Swine, 7th ed. Iowa State University Press, Ames.
- Koketsu. 2007. J. Anim. Sci. 85: 1086–1091.