Sponsors

University of Minnesota
College of Veterinary Medicine

College of Food, Agricultural and Natural Resource Sciences

Extension Service

Swine Center

Thank you to **IDEXX Laboratories** for their financial support to reproduce the conference proceeding book.

Production Assistant
Janice Storebo

Formatting
Tina Smith

CD-ROM
David Brown

Logo Design
Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

Lifetime efficiency and culling interval in female pigs by culling reasons in breeding herds that were differently performing

Y. Sasaki and Y. Koketsu
Meiji University, Kawasaki, Japan

Introduction and Objectives

Female pigs (females) culled for reproductive failure had the highest lifetime nonproductive days and the lowest parity at culling among all the culled females (Lucia et al., 2000). Prolonged culling interval may decrease lifetime efficiency. In addition, compared with ordinary herds, high-performing herds have better management including culling decisions (Stein et al., 1990). The objectives of this study were to compare lifetime measurements in females by culling reasons in two herd groups that were differently performing.

Material and Methods

This study was conducted by obtaining herd data with mean measurements of five years from 2000 to 2004 in 103 breeding herds using a recording software system (PigCHAMP®) in Japan and female data with 60,772 lifetime records born between 1999 and 2002 in the 103 herds. Two herd groups were formed on the basis of the upper 25 percentile of pigs weaned per mated female per year: high-performing and ordinary herds. Culling reasons were grouped into five groups: "old age," "reproductive failure," "locomotor problems (Lameness)," "peripartum problems," and other reasons (Others). Annualized lifetime pigs born alive (PBA) was calculated as the sum of PBA in lifetime divided by the female life days, multiplied by 365 days. Culling interval in gilts was defined as the number of days from the first mating to culling, and in sows, it was the number of days from weaning to culling. All statistical analyses were performed in SAS (SAS Inst. Inc., Cary, NC).

Results and Discussion

Frequency distributions of "old age," "reproductive failure," "Lameness," "peripartum problems," and "Others" were 31.1, 27.8, 7.7, 5.4, and 28.0%, respectively. In only females culled for "reproductive failure," parity at culling in high-performing herds was higher than those in ordinary herds ($P < 0.05$). Sows in high-performing herds had 2.0 pigs greater annualized lifetime PBA than those in ordinary herds ($P < 0.05$). In gilts and sows, culling interval in high-performing herds were 14.9 and 7.4 days lower than those in ordinary herds, respectively ($P < 0.05$). Gilts culled for "reproductive failure" (110.7 days) had 20.9 and 11.6 days higher culling interval than those culled for "Lameness" and "Others" ($P < 0.05$), but had culling interval similar to those culled for "peripartum problems" (126.6 days). In sows culled for "reproductive failure," culling interval in high-performing herds was 18.9 days lower than those in ordinary herds ($P < 0.05$; Table).

In conclusion, reducing culling interval in the females culled for reproductive failure can improve lifetime efficiency and herd productivity.

Table. Annualized lifetime PBA and culling interval by the herd and the reason groups

Reason for culling	High-performing		Ordinary	
	n	Mean ± SEM	n	Mean ± SEM
	Annualized lifetime PBA			
Old age	4,284	22.7 ± 0.1ax	14,619	21.0 ± 0.1ay
Reproductive failure	3,179	15.1 ± 0.1cx	8,943	13.1 ± 0.1dy
Lameness	506	15.1 ± 0.3c	3,471	14.1 ± 0.1c
Peripartum problems	874	16.1 ± 0.2bx	2,227	14.3 ± 0.1cy
Others	2,557	16.4 ± 0.1bx	11,775	14.1 ± 0.1by
	Culling interval in sows, day			
Old age	4,284	10.8 ± 0.3ey	14,619	15.5 ± 0.2dx
Reproductive failure	3,179	75.0 ± 0.7ay	8,943	93.9 ± 0.6ax
Lameness	506	26.0 ± 1.5c	3,471	28.8 ± 0.7c
Peripartum problems	874	23.6 ± 1.5d	2,227	27.7 ± 1.0d
Others	2,557	36.1 ± 0.9b	11,775	46.4 ± 0.6b

Means with different superscripts within the column (a-e) or the row (x-y) differ significantly ($P < 0.05$).

References

Lucia et al. 2000. Livest. Prod. Sci. 63: 213–222.
Stein et al. 1990. J. Anim. Sci. 68: 3972–3979.