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## Low-lifetime efficiency sows in high-, intermediate- and low-performing herds

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### Introduction and Objectives

Lifetime efficiency of sows is critical for producers managing commercial herds (Lucia et al., 1999). Lifetime efficiency can be measured by annualized lifetime pigs born alive (ALPBA; Sasaki and Koketsu, 2008). Increasing number of low-lifetime efficiency sows (LE sows) based on ALPBA may decrease herd productivity. High-performing herds are under better management than intermediate- and low-performing herds (Koketsu, 2005). However, LE sows in commercial herds having various herd productivity have not been investigated. The objective of the present study was to characterize the sow's lifetime performance, using a 3 x 3 factorial arrangement with the main effects of three herd groups and three sow groups.

### Materials and Methods

This study was conducted by obtaining herd data with mean measurements from 2001 to 2006 in 101 commercial herds using a recording software system (PigCHAMP® Inc., Ames, IA, U.S.A.) in Japan and sow data with 34,929 lifetime records entered into the herd from 2001 to 2003 in the 101 herds. ALPBA was defined as the sum of pigs born alive in lifetime divided by the sow life days and multiplied by 365 days. Lifetime nonproductive days (NPD) for a sow was defined as the total number of days that sows were neither gestating nor lactating from the first mating as the gilt to culling. Sows were categorized into three groups based on the upper and lower 25th percentiles of the ALPBA: LE sows, intermediate-lifetime efficiency sows (IE sows) and high-lifetime efficiency sows (HE sows). Three herd groups were formed on the basis of the upper and lower 25th percentiles of pigs weaned per mated female per six years: high-, intermediate- and low-performing herds. All statistical analyses were performed in SAS (SAS Inst. Inc., Cary, NC, U.S.A.).

### Results and Discussion

Mean values ( $\pm$  SEM) of ALPBA and lifetime NPD were  $17.2 \pm 0.03$  pigs and  $94.0 \pm 0.41$  days,

respectively. Proportions (%) of LE sows in high-, intermediate- and low-performing herds were 19.2, 24.7 and 35.7%, respectively (Table). No difference between the herd groups was found in the ALPBA of LE sows. Any sow groups in high-performing herds had shorter lifetime NPD than those in low-performing herds ( $P < 0.05$ ). We recommend decreasing lifetime NPD and a proportion of LE sows within the herd.

Table. Comparisons of lifetime measurements by three herd groups and three sow groups

Sow groups	Herd groups		
	High	Intermediate	Low
n	11,426	16,862	6,641
	Proportions (%) of sows <sup>1</sup>		
LE sows	19.2	24.7	35.7
IE sows	46.2	51.4	52.9
HE sows	34.6	23.9	11.4
	ALPBA (RtR*=2.50)		
LE sows	8.7 <sup>c</sup>	8.6 <sup>c</sup>	8.7 <sup>c</sup>
IE sows	18.1 <sup>bx</sup>	17.9 <sup>by</sup>	17.2 <sup>bz</sup>
HE sows	24.6 <sup>ax</sup>	24.2 <sup>ay</sup>	23.9 <sup>az</sup>
	Lifetime NPD (RtR*=70.81)		
LE sows	73.5 <sup>ay</sup>	99.2 <sup>by</sup>	131.3 <sup>ax</sup>
IE sows	80.9 <sup>ay</sup>	105.3 <sup>ay</sup>	126.1 <sup>bx</sup>
HE sows	62.5 <sup>by</sup>	74.6 <sup>cy</sup>	89.6 <sup>cx</sup>

<sup>1</sup>Frequencies within columns add up to 100%.

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

\*RtR=the root residual of the covariance parameter estimate in the mixed model. Pooled SEM would be estimated by the root residual divided by root n.

### References

- Koketsu. 2005. J. Anim. Sci. 83: 1406–12.
- Lucia et al. 1999. JAVMA. 214: 1056–9.
- Sasaki and Koketsu. 2008. Livest. Sci. 118: 140–6.