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Low lifetime efficiency sows in commercial herds culled early due to reproductive failure

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Introduction and Objectives

Herd productivity decreases if there is a rise in the proportion of low lifetime efficiency sows (LE sows), based on annualized lifetime pigs born alive (ALPBA; Takanashi and Koketsu, 2009). Lifetime performance of culled sows varies depending on the culling reason. In particular, sows culled for reproductive failure have suboptimal reproductive efficiency and low longevity (Lucia et al., 2000). However, there have been no reports on the reasons for culling LE sows, or about the relationship between by-parity reproductive performance and reason for culling.

The objectives of this study were:

- 1) to examine parity at culling and reasons for culling LE sows
- 2) to assess by-parity reproductive performance of LE sows culled for reproductive failure.

Materials and Methods

Data were collected in August 2007 from producers in Japan using the PigCHAMP computerized recording system (PigCHAMP[®] Inc., Ames, IA, U.S.A.). The data comprised 157,909 parity records of 30,950 sows entered into 101 commercial herds between 2001 and 2003. The sow lifetime efficiency measure of ALPBA was defined as the sum of pigs born alive in lifetime divided by sow life days and multiplied by 365 days. Sows were categorized into two groups based on the lower 25th percentile of ALPBA: LE sows and OTHER sows. There were 4 categories groups of culling reasons, based on previous reports: “reproductive failure,” “locomotor problems,” “litter performance” and “others” (Lucia et al., 2000; Engblom et al., 2007). Mixed-effects models were performed for statistical analyses (SAS Inst. Inc., Cary, NC, U.S.A.).

Results and Discussion

Relative frequencies (%) of parity at culling and culling reason differed between the LE sows and OTHER sows ($P < 0.05$; Table). In parity 1, 50.2%

of LE sows were culled, compared with only 0.2% for OTHER sows. Nearly half of all LE sows were culled for “reproductive failure,” whereas the proportion was only 20.1% for OTHER sows. The LE sows culled for “reproductive failure” had 0.6 - 4.1 fewer pigs born alive and 29.5 - 45.1% lower farrowing percentage than OTHER sows in any parity ($P < 0.05$).

Therefore these results indicate that potential LE sows were more likely to be culled for suboptimal reproductive performance in low parity. We recommend that producers focus on decreasing reproductive problems and increasing reproductive performance of sows in low parity to increase lifetime efficiency of potential LE sows.

Table. Relative frequency (%) of parity at culling and culling reasons in sow groups

Measurements	Sow groups	
	LE sows	Other sows
n	7,735	23,215
Parity at culling		
1	50.2	0.2
2	23.0	3.5
3	13.2	6.7
4	6.4	9.7
≥ 5	7.2	79.9
Culling reasons		
Reproductive failure	47.8	20.1
Locomotor problems	11.0	4.3
Litter performance	6.5	3.4
Others	34.7	72.2

Frequencies of parity at culling and culling reasons within columns add up to 100%.

The frequency of parity at culling or culling reasons differed between the sow groups ($P < 0.05$).

References

- Engblom et al. 2007. *Livest. Sci.* 106: 76–86.
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