

# Characteristics of high and low prolific sows on high-performing Spanish farms



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## Introduction

- ✓ There is a large difference across parities between sows for prolific performance capabilities on commercial farms<sup>1</sup>.

## Objectives

- ✓ To compare high and low prolific sow performance on high- and low-performing farms, specifically
  - 1) reproductive performance in consecutive parities
  - 2) lifetime performance

## Materials and methods

### Farms

- Data collected from 98 Spanish farms cooperating with the consultancy firm PigCHAMP pro Europa S. L. (Segovia, Spain).

### Performance data

- We analyzed 437,554 service records in first-service of gilts to removal of 85,096 sows in 98 Spanish farms, served between 2008 and 2013.
- Three sow groups based on upper and lower 10th percentiles of pigs born alive (PBA) at parity 1<sup>2</sup>, as follows:
  - 15 pigs or more (high prolific: **H-PLF**),
  - 8-14 pigs, and 7 pigs or fewer (low prolific: **L-PLF**).
- Three farm groups based on the upper and lower 25th percentiles of the farm means of annualized lifetime pigs weaned per sow: high- (**HP**), intermediate- (**IP**) and low-performing (**LP**) farms.

### Statistical analysis (SAS)

- Applied linear regression models to examine two types of factorial arrangement data:
  - 1<sup>st</sup> type: 3 farm groups x 3 sow groups x 6 parity groups with repeated measures for by-parity reproductive performance of sows.
  - 2<sup>nd</sup> type: 3 farm groups x 3 sow groups for lifetime performance.

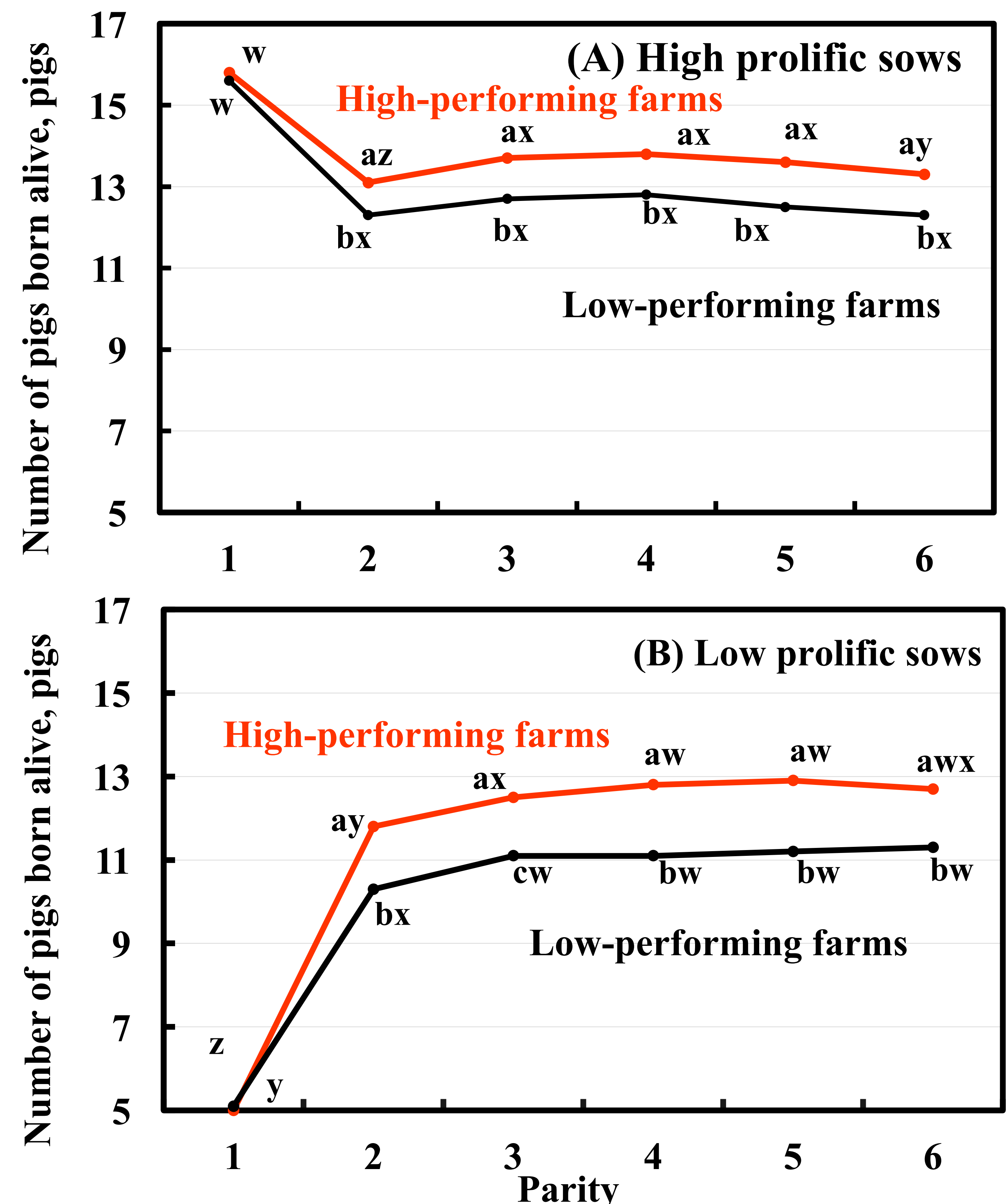
## Results

- In parity 1, HP farms had **18.9%** H-PLF sows and **8.9%** L-PLF sows, whereas LP farms had 6.4% H-PLF sows and 16.5% L-PLF sows. Also, in parity 6, there were **20.9%** H-PLF sows and **6.5%** L-PLF sows on HP farms, compared with 5.9% and 15.4% in respective counterpart sows on LP farms.

Table 1. By parity relative frequencies (%) of farm groups in three sow groups categorized by pigs born alive in parity 1.

Farm groups	Parity 1		
	15 pigs or more	8 to 14 pigs	7 pigs or fewer
<b>HP farms</b>	<b>18.9</b>	72.2	<b>8.9</b>
IP farms	10.2	78.1	11.7
LP farms	6.4	77.1	16.5
Parity 6			
<b>HP farms</b>	<b>20.9</b>	72.6	<b>6.5</b>
IP farms	10.2	79.9	9.9
LP farms	5.9	78.7	15.4

Fig. 1. Comparisons between the farm groups of the number of pigs born alive of either high prolific (A) or low prolific (B) sows across parities.



- From parities 2 to 6, HP farms had **0.8-1.1** more PBA in H-PLF sows and **1.4-1.7** more PBA in L-PLF sows than LP farms ( $P < 0.05$ ).

✓ <sup>a,b</sup>Different superscripts within a column represent significant differences in means ( $P < 0.05$ ).

✓ <sup>w-z</sup>Different superscripts within a row represent significant differences in means ( $P < 0.05$ ).

## Results

- **HP farms** had **7.7%** higher farrowing rates than LP farms, whereas H-PLF sows had only **0.7%** higher than L-PLF sows ( $P < 0.05$ ).
- With regard to lifetime performance, there was no difference in the number of parities at removal between the 3 farm groups ( $P = 0.43$ ).
- **HP farms** had **9.2** and **6.6** more lifetime pigs weaned in H-PLF and L-PLF sows, respectively, than LP farms ( $P < 0.05$ ).
- **HP farms** had **29.7** and **30.7** fewer lifetime non-productive days in H-PLF and L-PLF sows, respectively, than LP farms ( $P < 0.05$ ).

## Conclusions

HP farms achieved more lifetime pigs weaned for both H-PLF and L-PLF sows, by having higher PBA and higher farrowing rate, fewer non-productive days, and culling more L-PLF sows than LP farms.

### References

1. Stalder et al., 2012: Diseases of swine. 10th ed; 50-59.
2. Iida et al., 2015: JAS, 93(5):2501-2508.