

# Relationship between Litters Per Sow Per Year Breeding Value and Sire Progeny Means for Farrowing Rate

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### Summary and Implications

The purpose of this study was to determine the relationship between individual sires breeding values (BV) for litters/sow/year (LSY) and progeny farrowing rate means. The correlation between the LSY BV and the sire progeny mean farrowing rate was 0.21 for those sires who had 10 or more daughters. The correlation between LSY BV and sire progeny mean for farrowing rate suggests that selecting for LSY could positively impact farrowing rate.

### Introduction

One of the major components of litters per sow per year (LSY) is non-productive sow days. Increasing the litters per sow per year would influence the components of LSY thus influencing the non-productive sow days. Another indicator of non-productive sow days is farrowing rate. Determining a relationship between LSY and farrowing rate could represent a way to select for fewer non-productive sow days in a herd.

### Materials and Methods

A data set from a commercial production system consisting of records for 48,663 sows from 9 herds was used for the analyses. Landrace, Large White, and F<sub>1</sub> (Y×L or L×Y) crossbred females were included in the analyses. Breed, contemporary group of last litter, parity of last litter, and herd status were used as fixed effects. All fixed effects

were significant ( $P < 0.01$ ). Age at first service was included as a quadratic covariate. Sows were considered to be removed, or active. Sire progeny farrowing rate means were calculated as total number of services divided by the total litters farrowed. The contemporary group was defined as the herd, year, and season (3 month period, starting in January) based on the sows' last parity. Breeding values for LSY were estimated using ASREML and the heritability for this dataset was found to be 0.08 ( $P < 0.01$ ). The correlation between the LSY BV and the farrowing rate of the sires was computed (SAS Inst., Cary, NC) implementing the previously mentioned model.

### Results and Discussion

When all sires were included in the analysis (2,392 sires), the correlation between the sire's LSY BV and mean for farrowing rate was 0.11 ( $P < 0.01$ ). When sires with 5 or more daughters were included (1815 sires), the correlation was 0.15 ( $P < 0.01$ ). When sires with 10 or more daughters were included (949 sires), the correlation was 0.21 ( $P < 0.01$ ). The sire progeny mean farrowing rate of those sires in the top 10% of LSY BVS was 86.35%. The sire progeny mean farrowing rate for the bottom 10% was 81.78%. This means that those sire who are expected to have daughters with a higher LSY on average that the average of the herd would also tend to have a higher farrowing rate than the daughters of sire who are expected to have lower LSY than the average of the herd.

The results of this study suggest that improving LSY could result in indirect improvement of farrowing rate as well. Being able to positively impact the farrowing rate of a herd by selecting for LSY would improve the number of pig weaned per sow which is the main revenue of a commercial pork operation.