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## Birth Sequence and its Effects on Litter Size

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Summary

Average farrowing interval and duration were 15.8 and 143.8 minutes for 1766 pigs born in 169 litters. Pigs born later in the litter were larger ( $r=.43$ ) at birth. The correlation was  $-.14$  between farrowing interval, average time between the birth of pigs within the litter, and litter 21-day weight. Sixteen pigs were classified as mummies and their birth sequences ranged from 1 to 15 with an average of 6.5. In 53.5 percent of the litters, the first pig born was a gilt and in 18.4 percent of the litters the first pig born was the largest in the litter. However, the first pig born was the smallest in the litter in 13.5 percent of the litters. The last pig in the litter was the smallest pig in 8.5 percent and largest in 16.3 percent of the litters. Pigs dead at birth, but not classified as mummies, ranged in birth order from 1 to 15 and had an average rank of 7.5. Among pigs dead at birth, 67 percent were boars.

Average birth weight of dead pigs was 2.2 pounds, though some were quite small, others were large enough that size probably contributed to their death. The sixth pig in the litter was more often dead, 14 percent of the dead pigs. Of the pigs born dead, 21 percent were recorded as having broken umbilical cords. Forty percent of the dead pigs were born during the latter third of the litter and 37 percent during the middle third of the litter.

Introduction

Farrowing interval, time between the birth of consecutive pigs in a litter, is negatively associated with sow productivity, number of pigs born alive and litter weight at 21 days. Farrowing is one of the most critical stages in the swine-production cycle so if farrowing duration and interval are repeatable and heritable, selection for reduced intervals should increase swine industry profits.

Experimental Procedures

Birth sequence, farrowing duration, birth weight, and interval between pigs are being recorded. Influence of these traits on weaning weight and subsequent rate of gain in nutrition trials will be evaluated. Heritability of these farrowing traits will be estimated.

### Results and Discussion

Farrowing duration is a variable trait that in some studies ranged from 30 minutes to 16.5 hours. There was no real relationship between litter size and duration of farrowing in litters of up to 16 pigs, though larger litters tended to take longer. From these studies, it was concluded that total farrowing time was unaffected by litter size and that farrowing interval is a better criterion for measuring speed of farrowing. Intra-partum deaths were most frequent in the last third of farrowing, whereas the pre-partum deaths were more evenly distributed throughout the litter.

How important is heredity in determining farrowing interval and duration? Basically, traits pertaining to reproduction are at best only lowly heritable. However, if the two reproductive traits are heritable at all, genetic progress can be realized by selecting for them.