Effect of Gestation Length on Litter Size and Piglet Birth Weight

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ABSTRACT

In swine, longer gestation length is positively correlated with piglet survivability, however, stillborn piglets are more frequent. Heavier birth weights also normally accompany longer gestation lengths. The objective of the study was to evaluate if gestation length would have a negative impact on number of piglets born alive and stillborn. At farrowing, measures were recorded via visual observation and through use of a hand-held scale. Twenty-seven sows and gilts ranging in parity from 0 to 9 were used (average parity; treated: 2.4; control: 1.5). Gestation length did not impact litter weight (P = 0.68) or number of pigs born alive (P = 0.16) or stillborn (P = 0.16). Gestation length however, did alter piglet birth weights (P < 0.0001). Changes to piglet birth weight reflect longer gestation lengths, but could also be influenced by sex. Birth weights tended to be different between males and females (3.4 vs. 3.0 pounds; P = 0.11). Piglet sex did not impact gestation length (P = 0.36). Parity however, did impact gestation length (P < 0.0001). Gestation length in swine varies based on a number of factors including parity and individual piglet weights. This project was supported by the MSU Undergraduate Research Fellowship program.

INTRODUCTION

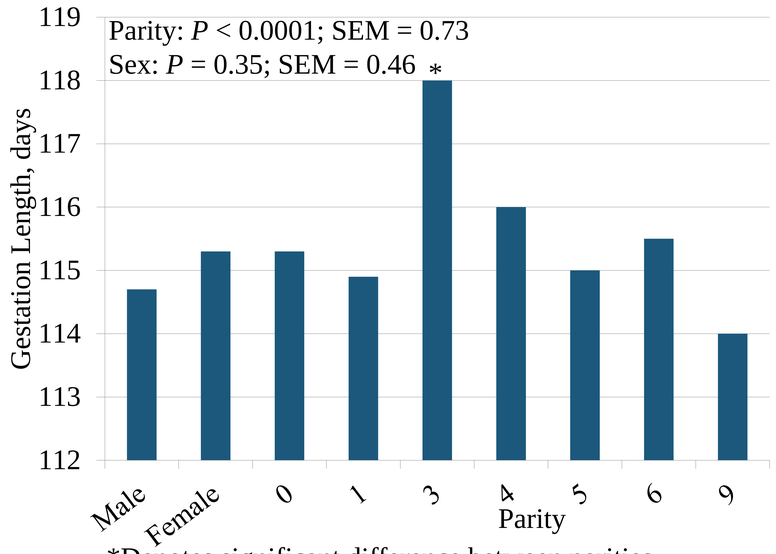
An increase in the duration of fetal development can lead to an increase in piglet birth weight. Increased birth weights normally result in greater survivability and are less likely to be born dead (Zaleski and Hacker, 1993). Gestation length was significantly correlated with the number of pigs farrowed per litter and piglet birth weight (Omtvedt et al., 1965). As parity increases, piglet birth weights also increase, suggesting that once a dam has farrowed at least once, anatomical changes allow for greater fetal development in subsequent litters. There was a positive trend in birth weights of piglets with increasing rank of parity. From the first parity, birth weights increased gradually, cumulated on the fifth parity, and then gradually decreased to the tenth parity (Cechova, 2006). Differences in piglet sex can have a significant impact on piglet birth weight, with male piglets having consistently higher birth weights than their female littermates (Cechova, 2006). When gestation length is shorter and piglet birth weights are reduced, the incidence of stillborn pigs is higher, particularly when gestation length is less than 114 days (Zaleski and Hacker, 1993). Therefore, we hypothesized that gestation length would alter birth weights and affect the number of piglets born alive/stillborn.

MATERIALS AND METHODS

- Conducted 12-16-17 through 3-2-18
- Trial conducted at the Derrickson Agricultural Complex
- This project was approved by the Institutional Animal Care and Use Committee, 17-10-01R1
- 27 crossbred sows and gilts, ranging in parity from 0 to 9 (average parity overall: 2.0)
- Observations were conducted during farrowing and date and time of farrowing were recorded as well as number born Birth weights were measured using a hand-held scale, recorded within 8 hours post-farrowing and recorded for each individual piglet, along with their sex.
- Birth weights were rounded to the nearest half pound
- A total litter weight was measured to the nearest pound
- Statistical analysis was completed using the mixed procedures of SAS

RESULTS

Effects of Sex and Parity on Gestation Length



*Denotes significant difference between parities

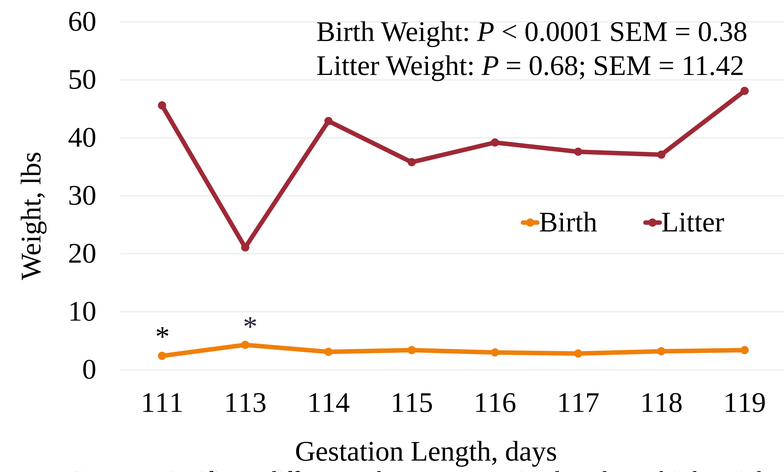
- Gestation length did not impact number born alive or the number of stillborns (P = 0.16)
- Male piglets tented (P = 0.11) to weigh more at birth compared to females (3.4 vs. 3.0 lbs)

ACKNOWLEDGEMENTS

This research was supported by MSU Undergraduate Research Fellowship Program.

RESULTS

Effects on Gestation Length on Birth and Litter Weight



*Denotes significant differences between gestation lengths on birth weights

DISCUSSION

Based on our results, the birth weight of the piglets increased with a longer gestation length. Number of stillbirths per litter was not significantly different due to the length of gestation. Our research agrees with previous literature as parity does show a numeric effect on litter size. Overall, many factors contribute to piglet birth weight and gestation length.

LITERATURE CITED

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