

**TITLE**

**HEMOGLOBIN CONCENTRATIONS IN SOWS: CORRELATION WITH THE NUMBER OF STILLBORN PIGS**

Glen Almond<sup>1</sup>, Elizabeth Noblett<sup>1</sup>, Juliana Ferreira<sup>1</sup>, Chris Olsen<sup>2</sup>, Jens Peter Nielsen<sup>3</sup>

<sup>1</sup> *North Carolina State University*

<sup>2</sup> *Pharmacosmos*

<sup>3</sup> *University of Copenhagen*

**CONTENT**

**Background and Objectives**

Hemoglobin (Hb) concentrations are low in late gestation and early lactation, Sows with Hb levels < 9g/dL are at risk for an increased occurrence of stillbirths. The objective of this study was to determine the correlation between sow Hb concentrations and the numbers of stillborn piglets.

**Materials and Methods**

Sows (n=50-150/farm) from varying parities were selected on five farms (1700-4000 sows/farm). Blood samples were collected in late gestation (>110 days) and after farrowing for Hb determinations. Blood was obtained from ear veins and processed in a HemoCue™ Hb 201. Litter demographics were recorded for each sow. Lung flotation tests were performed to distinguish post-partum deceased piglets and intra-partum or pre-partum deaths. Pearson correlations were used to assess relationships among the various parameters.

**Results**

Post-farrowing Hb concentrations were less ( $P<0.05$ ) than the late gestation concentrations. Parity >4 sows had lower ( $P<0.05$ ) post-farrowing Hb concentrations than sows in other parities. Total number of stillborn pigs was  $1.08\pm0.07$ /litter and pigs born alive was  $13.3\pm0.16$ /litter. Late gestation Hb concentrations were negatively correlated ( $P<0.01$ ) to the number of stillborn pigs, and the number of pre-partum stillborn pigs.

**Discussion and Conclusion**

Based on the results, Hb concentrations are associated with the occurrence of stillborn piglets, particularly, pre-partum stillbirths. The precise mechanism to explain the relationship between sow anemia and stillbirths is speculative; however, iron deficiency may contribute to impaired uterine contractions at farrowing. The low Hb concentrations in late gestation are likely due, at least in part, to reduced transfer of iron from the dam to the fetuses through the maternal uteroferrin - transferrin – ferritin pathway. Additional studies are required to devise methods to reverse the anemia in older parity sows.