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Formatting

Tina Smith

CD-ROM

David Brown

Logo Design

Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

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The effect of selenium supplementation and source to gilts during gestation and lactation on immunoglobulin concentration in the neonatal pigs.

Streff, A., and Hostetler, C., South Dakota State University, Brookings, SD

Abstract: A feeding study was conducted to determine if amount and type of selenium (Se) source fed during gestation affects passive transfer of immunoglobulins from mother to offspring. Approximately 60 days prior to breeding, a total of 27 crossbred, sexually mature gilts were randomly and equally assigned to one of three treatments as follows; Control (C, no Se supplementation; n=9), Inorganic (I, 0.3 ppm Se as sodium selenite; n=9) and Organic (O, 0.3 ppm Se as selenized yeast; n=9). During gestation, gilts were individually housed in 1.2 m x 1.8 m pens on partially slatted concrete floors in an environmentally controlled room. Gilts were fed their respective diets (1.81 kg a day) for the duration of the gestation period directly on the cement floor and had ad libitum access to water. Gilts were bred by artificial insemination on their first estrus after synchronization with Matrix® (Intervet/Schering-Plough Animal Health) according to manufacturer's protocol. Pregnancy was confirmed by ultrasound at greater than 28 days post breeding. Gilts were bled via jugular

venipuncture at the onset of the trial, days 57 and 113 of gestation, and on day 21 of lactation (weaning) for determination of circulating levels of Se, IgG, IgA, and IgM. Gilts were transferred to the farrowing room on day 107 of gestation. They were fed their respective lactation diets to meet consumption and had ad libitum access to water via a nipple waterer. Gilts were milked at farrowing (d 0) and then weekly (d 1, 7, 14 and 21) during lactation for subsequent determination of colostrum and milk Se and immunoglobulin concentrations. At birth, piglets were dried and placed in plastic totes under a heat lamp for warmth to ensure that no pigs suckled prior to being bled. After initial bleeding, piglets were placed back on the sow. Neonates were bled via jugular venipuncture prior to suckling (d 0) and weekly (d 1, 7, 14 and 21) thereafter for subsequent determination of whole blood Se and circulating immunoglobulin concentrations. Results from this study will show the effect of Se supplementation from two different sources on transfer of immunoglobulins from gilts to neonatal pigs.