

EFFECTS OF HEAT STRESS ON REPRODUCTION AND PRODUCTIVITY OF PRIMIPAROUS SOWS AND THEIR PIGLETS' PERFORMANCE

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ABSTRACT

Heat stress (HS) produces seasonal infertility in sows and decreases reproductive efficiency. Sows were exposed to HS during a production cycle (gestation [gest], lactation [lact], and breeding) to examine productivity. First parity Landrace/Large White F1 sows rotated through chambers in the Brody Environmental Center for 55 d. The ambient temperature sequences included thermoneutral (TN; 18 to 20°C) or HS (24 to 30°C) for each production phase (TN-TN-TN [n=15], TN-HS-TN [n=14], HS-TN-HS [n=14] or HS-HS-HS [n=15] for gest-lact-breeding [20, 24, and 11 d, respectively]). Thermal responses, body weight (BW), backfat (BF), loin eye area (LEA), feed intake (FI), metabolites, energy balance, piglet weights, and reproductive performance were measured. Rectal temperature differed (38.33 and 38.22, 39.47 and 39.22, 38.79 and 38.74°C (SEM < 0.05) for HS and TN during gest, lact, and breeding, respectively; P < 0.001). During lact TN sows had greater daily FI than HS sows (3.75 vs. 3.12 kg; P < 0.001). Total born (11.7 pigs), piglet birth weight (1.46 kg) and total weaned (10.3 pigs) were similar, but weaning weight was greater for TN sows (6.21 vs. 5.76 kg; P < 0.053). Weaning to estrus interval (4.70 d), percentage inseminated sows after weaning (85.7%), subsequent farrowing rate (82.6%) and subsequent total born (10.8 pigs per litter) were not different by treatment. In summary, HS decreased FI during lact and was associated with reduced piglet growth. Breeding performance was not compromised by HS. To conclude, HS slowed piglet growth perhaps through its effects on sow milk production without affecting sow breeding performance.