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The effect of feeding heavy and medium weight weaned nursery pigs increased levels of amino acids in relation to energy intake

Pietig, J. and Hostetler, C. South Dakota State University – Brookings

A body of research has been created to quantify the required levels of amino acids in nursery pigs. However, little research has been conducted on the amino acid requirements of both high performing nursery pigs and average performing nursery pigs in a comparative study. Therefore, a nursery pig feeding study was conducted to determine the effect of feeding increased levels of essential amino acids on nursery pigs considered heavy and medium weights at weaning. During the nursery period pigs were housed in concrete walled pens (1.8 m by 1.2 m; 3 pigs per pen) over completely slatted, steel floors. A total of 144 (N=144) crossbred, mixed sex, pigs were randomly assigned to receive four dietary treatments over a three phase ration regiment during the traditional nursery period. Phase one diets were fed for days 1-7 after weaning, phase two diets were fed for days 8-14 after weaning, and phase three diets were fed for days 15-35 after weaning. Treatments consisted of nursery diets with increased levels of the amino acids Lysine, Methionine, Threonine and Tryptophan. A control diet was designed to meet industry standards (IS; n=36). Increased amino acid levels were accomplished by increasing the fore mentioned amino acids above the control diet by 10% (10%; n=36), 20% (20%; n=36), and 30% (30%; n=36). Heavy pigs were defined as those pigs with a body weight greater than one standard deviation above the mean (>7.5 Kg). Medium pigs were defined as those pigs with a body

weight within one standard deviation of the mean (5.68 Kg to 6.14 Kg). Pigs selected for the trial averaged a 21.7 days of age at weaning from a single farrowing group at a 6,400 sow farm. Pigs were blocked by body weight (Heavy; 7.87 kg BW and Medium; 5.88 kg BW) weaned and medium weight pigs were selected. All pigs were bled on day 4, 11, and 28 after initiation of the trial to allow animals to adjust to diets for subsequent determination of blood urea nitrogen levels as an indication of protein utilization. After the nursery period, pigs were housed in pens (3 pigs per pen) over totally slatted, concrete floors in the South Dakota State University grow/finish barn. During the growing and finishing phases, all pigs will be fed the same ration regardless of dietary treatment during the nursery period. This will allow the determination of the effect the previous nursery diets may have on subsequent performance. At the close of the trial, all pigs will be slaughtered and carcass evaluations completed. With the arrival of new feeding technologies, new production gains may be accomplished by feeding amino acid profiles tailored to high performing, and average performing nursery pigs.