

**186 Effects of soybean meal concentration in lactating sow diets on sow and litter performance.**

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A total of 133 sows (Line 241; DNA, Columbus, NE) were used to evaluate the effect of increasing soybean meal concentration in lactating sow diets on sow and litter performance. Sows were blocked by body weight and parity on d 112 of gestation and allotted to 1 of 3 treatments of increasing soybean meal (25, 30, or 35% of total diet). Diets were formulated to contain 1.05% SID Lys with L-Lys HCl decreasing as soybean meal increased. All other amino acids and nutrients were formulated to meet nutrient requirement recommendations with L-threonine, DL-methionine, L-tryptophan, and L-valine added to the 25% SBM diet. Diets were fed from d 112 of gestation until weaning (d  $20 \pm 2$ ). Litters were cross-fostered until 48 h after farrowing to equalize litter size. Sow average daily feed intake from d 0 to 7 was similar across dietary treatments. However, ADFI decreased from d 7 to 14, d 14 to weaning, and overall, (linear,  $P = 0.017$ ) sow BW loss, and tended to increase (quadratic,  $P = 0.052$ ) backfat loss from farrowing to weaning. There was no evidence for difference between dietary treatments in litter size, litter weight, nursing litter weight gain at weaning, or wean to estrus interval. Sow serum urea nitrogen concentrations taken on d 14 increased (linear,  $P = 0.001$ ) as soybean meal concentration increased; however, there was no evidence for difference in serum creatinine. In summary, sow feed intake decreased and sow weight and backfat loss increased with increasing soybean meal concentration with no differences observed for litter performance.

**Key words:** lactation, soybean meal, sow

**373 Efficiency of standardized ileal digestible lysine utilization for whole body protein retention in pregnant gilts and sows during early and mid gestation.**

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NRC (2012) gestating sow model assumes the efficiency of AA use is constant across gestation, which may not reflect changes in metabolic demand during gestation. Efficiency of utilization is determined as the slope of the response to graded levels of test AA. Previous work reported a lack of response to graded Lys [60–90% of NRC (2012) predicted requirement] in early and mid gestation. Therefore, a study was conducted to determine efficiency of SID Lys utilization for whole body protein retention in gilts and sows during early (d 48–52) and mid (d 75–79) gestation. Four isocaloric (3,373 kcal ME/kg) and isoproteic (12.75 % CP) diets containing 40, 50, 60, and 70% of NRC (2012) model-predicted daily SID Lys requirement (10.1 and 9.3 g/d in early and mid gestation, respectively) were randomly assigned to 50 females (PIC 1050; 12 gilts, 21 Parity 1, 17 Parity 2). Dietary indispensable AA contents were set to meet 100–200% of AA:Lys ratios. Whole body nitrogen (N) retention was based on N-balance studies in early and mid gestation (7-d diet adaptation and 5 d total urine collection and grab fecal sampling). Lysine efficiency was determined by simple linear regression using PROC GLM procedure of SAS. Reproductive performance data were analyzed using PROC MIXED procedure of SAS. Reproductive performance of sows (birth weight, born alive, stillborn, and mummies) was not different by parity or diet. Whole body N and SID Lys retention increased linearly ( $P < 0.0001$ ) with increasing SID Lys intake in early and mid gestation. Efficiency of Lys utilization in early gestation was 0.60, 0.46, and 0.50, and in mid gestation 0.58, 0.44, and 0.48 for gilts, parity 1, and parity 2 sows, respectively. Parity may play a greater role in efficiency of AA use than stage of gestation.

**Key words:** efficiency, lysine, sow, gilts, gestation