

# Low protein diets for sows require further improvement

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Low protein, amino acid-supplemented diets for gestating and lactating sows were investigated over two consecutive parities. Sows were fed diets containing either 16.25 % CP (HP) or 13.52% CP (LP) in gestation and 21.09 % CP or 18.22 % CP in lactation. Crystalline lysine and threonine were added to the LP diets to match the levels found in the high protein diets. All other amino acids met or exceeded current requirements (NRC, 1998).

Sows fed the LP diet in gestation consumed similar amounts of feed, but less digestible energy and CP than HP sows. Weight loss during lactation was higher for LP sows, but both LP and HP sows had similar backfat loss. The greater lactation weight loss was due to the lower feed and nutrient intake of sows consuming the LP diet. Based on plasma amino acids, all sows may have consumed inadequate lysine to meet their requirements during lactation. However, the LP gestation diet supported similar gains in weight and backfat as the HP diet.

The number of piglets born was similar between HP and LP sows, however, piglets from LP sows were slightly smaller at birth than piglets from HP sows. Sows consuming the LP diet had lower daily milk production. As a result, nitrogen excretion was reduced by 26%, overall, by feeding the LP diet. Sows fed the LP diet had lower CO<sub>2</sub> and heat production, and O<sub>2</sub> consumption during gestation, and lower heat production and O<sub>2</sub> consumption during lactation, compared to HP sows. Piglets nursing LP sows grew at a slower rate, and were lighter at weaning (21 d) than those nursing HP sows

**Implications:** LP diets support similar gestation performance, but slightly lower lactation performance, while reducing nitrogen excretion, and heat and CO<sub>2</sub> production. Additional research on amino acid requirements of sows is needed to make LP diets more successful.

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