

Carry-over effect of feed levels in late gestation on subsequent lactation milk yield in sows

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Mammary gland growth and development is rapid during late gestation in sows. Feed levels during this period likely affects these traits, and in turn influences subsequent milk yield. This study investigated the carry-over effect of feed levels in late gestation on the subsequent lactation performance of the sows. Forty-eight sows were assigned to one of six feed levels (1.8, 2.4, 3.1, 3.7, 4.3 and 5.0 kg/d) from day 108 of gestation until farrowing, but fed same amounts in lactation. We standardized litters to 14 piglets and weighed once weekly until weaning. Data were analyzed on weekly basis using the MIXED procedure of SAS by including feed levels and parity as fixed effects. Orthogonal polynomial contrasts were used to evaluate the linear, quadratic and cubic effects of feed levels on the response variables. The overall mean lactation feed intake was not affected by the feed levels in late gestation. Mean daily milk yield was higher in sows' fed 3.7 kg/d (14.2 kg) than those fed 1.8 kg/d (11.6 kg; $P = 0.001$) and 2.4 kg/d (12.8 kg; $P = 0.07$) in late gestation. The cubic contrast estimated 4.2 kg/d as the optimal feed level in late gestation to maximize milk yield in the subsequent lactation. Litter growth in the second week of lactation ($P = 0.006$) and during the full lactation ($P = 0.04$) was lower when sows were fed the lowest feed level (1.8 kg/d) in late gestation as compared with the other groups. Litter performances and milk yield were lower in first-parity than in second-parity sows. In conclusion, insufficient feed in late gestation negatively affected subsequent milk yield and litter performance without affecting subsequent lactation feed intake. Feeding below the maintenance requirement of energy in late gestation appears to impair mammary growth and development.

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