

14. Sow body condition losses during lactation and relation with litter gain

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The increase in sow litter size has brought higher risk of increased body condition losses during lactation. As modern sows also have a lower body fat mass, these body condition losses increasingly consist of protein compared to fat. This on farm study assesses the extent of these losses and the relation with litter gain (i.e. sow milk production) during a 26.8 ± 0.8 day lactation in 85 TN70 sows (parity 3.7 ± 0.2 , litter size at birth 16.2 ± 0.4). Sows were transported to the farrowing pens and weighed 8.1 ± 0.2 days before farrowing (283.5 ± 3.0 kg). Fifty-four sows were weighed after farrowing (260.6 ± 3.2 kg), and the body weight after farrowing of the other sows were estimated based on sow weight at entering the pens, days between entering and farrowing, and the litter weight at birth. Sow backfat (mm) and loin muscle thickness (mm) were measured at the last rib using a linear ultrasound probe (Aquila, Easote, Genova, Italy) on the day before farrowing and weaning. Sows in the first two parities ($N = 31$) lost more body weight (45.4 vs 22.0 kg, 16.4 vs 8.2 %, $P < 0.01$), loin muscle (8.4 vs 4.8 mm, $P < 0.01$) but not more backfat (3.9 vs 3.6 mm) than sows in higher parities (3 to 9, $N = 54$). Body weight loss and loin muscle loss linearly decreased from parity 1 to 9 ($\beta_{bw} = -3.4$ kg/parity, $P < 0.01$; $\beta_{lm} = -0.8$ mm/parity, $P < 0.01$, respectively). Litter gain was positively correlated with body weight loss, backfat loss and loin muscle loss in lactation. Every extra piglet at weaning was associated with 7.3 kg more litter gain ($P < 0.01$), 0.7 mm more loin muscle loss ($P < 0.01$) and 0.3 mm more backfat loss ($P < 0.01$) in lactation. The litter size at weaning was not related to total weight loss in lactation. In conclusion, lower parity sows lost more body weight and loin muscle during lactation. The increasing litter size at weaning was not only associated with greater litter gain, but also related to higher loin muscle and backfat loss in both young and high parity sows in lactation.