

SUPER-ALIMENTATION OF GILTS DURING LACTATION

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Sows attempt to meet the sudden and large metabolic demand of lactation by increasing their level of voluntary food intake. However, the voluntary food intake of most sows during lactation generally does not provide sufficient energy or protein to meet their requirements for maintenance and milk production. By providing multiparous sows with extra food during lactation (via a gastric cannula) they remained in an anabolic state, and both milk production and piglet growth were increased (Matzat *et al.*, 1990). Do gilts respond in the same way as sows to extra food in lactation? Gilts are smaller than sows and would be expected to have a greater impetus for body growth because they have not reached their mature body size. If gilts are provided with extra food during lactation, they might partition more of it into body tissue and less into milk. Gilts, fitted with gastric cannulas, were used to test the hypothesis that they would respond differently from the sows of Matzat *et al.* (1990) to extra food in lactation.

Thirty-six PIC, Camborough × Canabrid gilts were fitted with gastric cannulas between 70-85 d of gestation (Pluske *et al.*, 1995). After farrowing they were allocated to one of three treatments: (i) *restricted* - gilts fed ≈ 50% of *ad-libitum* intake; (ii) *ad libitum* - gilts were encouraged to eat as much food as possible; and (iii) *super-alimented* - gilts were infused seven times daily through their cannulas to achieve a 25-30% increase in food intake above that of gilts fed *ad libitum*. Gilts farrowed at an average weight of 176.5 kg with 17.8 mm of backfat. During lactation they were fed a diet based on cereals, soya bean meal, fishmeal and sugar (18.5% CP and 14.4 MJ ME/kg). Milk production was estimated in early (10-14 d) and late (20-24 d) lactation using a modification of the D₂O dilution technique (Pluske *et al.*, unpublished). Piglets were weaned at an average age of 28 d.

Table 1. Gilt performance, milk yield and piglet growth during lactation.

	Restricted	<i>Ad libitum</i>	Super-alimented	SEM	P
Lactation					
Δ Live-weight (kg)	-38.1 ^a	-13.6 ^b	10.9 ^c	5.77	<0.001
Δ Backfat (mm)	-8.6 ^a	-3.6 ^b	1.8 ^c	1.09	<0.001
Food intake (MJ ME/d)	41.8 ^a	74.9 ^b	103.8 ^c	2.59	<0.001
Milk yield (kg/d)					
Early lactation	9.0	9.4	9.4	0.76	0.84
Late lactation	7.5	8.9	8.0	0.91	0.97
Litter size	8.4	8.5	8.6	0.47	0.37
Piglet growth (g/d)	215	242	236	14.9	0.13

^{abc}Mean values in the same row with different superscripts are significantly different.

Super-alimentation during lactation provided gilts with 38% more energy ($P < 0.001$) than their counterparts fed on an *ad libitum* basis. This increase in intake was associated with marked gains in both live-weight (10.9 kg) and backfat (1.8 mm) in lactation. Increasing energy intake of gilts above that of their *ad libitum*-fed counterparts did not stimulate milk production and suggests that, unlike the sows of Matzat *et al.* (1990), gilts are likely to partition extra energy into body growth than into milk production.

References

- MATZAT, P.D., HOGBERG, M.G., FOGWELL, R.L. and MILLER, E.R. (1990). In "Report of Swine Research", pp. 36-40, AS-SW-8904 (Michigan State University).
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