RESPONSE OF SOWS TO VARYING LITTER SIZE

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There is current interest in genetic selection based on increased litter size (Webb 1991). While previous work by King et al. (1989) has shown an almost linear response in milk yield as litter sizes increased from 6 to 10 piglets, little is known about the milk yield of sows with larger litters. It is known that the major limitations on piglet weaning weight are sow milk yield and quality. The experiment was therefore conducted to determine the potential milk yield of sows and to investigate the response of piglet weaning weight to litter size.

Gilts were mated at second oestrus and fed appropriately throughout gestation to ensure uniformity of liveweight and body composition at farrowing. Liveweight and backfat (P2) were measured at farrowing and sows allocated to their respective litter size groups. Litter sizes of 6, 8, 10, 12 and 14 were established by cross-fostering where necessary within 48h post-partum. Sows were offered 5 kg/d of a wheat based lactation diet (14.5MJ DE and 200g CP/kg) until weaning at day 28. Piglets were weighed birth, day 10, day 14, day 24 and at weaning; liveweight and backfat of the sows were also determined at weaning.

Table 1: Effect of litter size on sow liveweight and backfat loss during lactation and litter and piglet average daily gain.

	Number of piglets in litter						
	6	8	10	12	14	sed	P value
Sow liveweight loss (kg)	3.30	10.10	15.30	14.2	23.0	4.18	<0.001
Sow backfat loss (mm)	2.60	3.40	5.90	4.50	8.80	1.43	<0.001
Litter ADG (kg/d)	1.70	2.12	2.39	2.52	2.84	0.11	<0.001
Piglet ADG (g/d)	282	265	239	210	203	0.10	<0.001

ADG = average daily gain between birth and weaning

As evidenced by the reduction in liveweight and backfat sows responded to the increased sucking demand of larger litters by mobilising body stores to produce more milk. While litter ADG increased with litter size, individual piglet ADG decreased. Sow milk production, therefore, increased with litter size but the rate of milk consumption per piglet declined.

In conclusion, sow milk production increases with litter sizes but milk production per piglet declines. The potential adverse effects of larger litter sizes on sow energy balance and piglet weaning weight should be considered in selection programs based on increased litter size.

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