Nutrient absorption in lactating sows drives sow and piglet performance

During lactation sows enter a negative energy balance. Very often, especially in modern prolific sow strains, feed intake is insufficient to cover the nutrient requirements. Insufficient nutrient supply has a direct impact on the performance of the sow and subsequently her piglets.

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Previous studies have shown lysophospholipid-based nutritional instruments, such as Lysoforte, improve nutrient digestion and absorption. In the present study we evaluate the consistency and magnitude of the effect of applying such nutritional instruments during the last three weeks of the gestation period and throughout the lactation period on sow and piglet performance.

A global evaluation

Seven separate experiments were conducted across the globe and over the period 2007-2017. In total 230 sows were used in the experiments.

For each experiment, the sows were equally allocated into two treatments according to their parity: a control treatment with sows fed standard diets, and a standard diet that was supplemented with the lysophospholipid-based nutritional instrument (Lysoforte; 250-750g/ton on top).

Each trial started approximately at day 90 of gestation and ended at weaning (average weaning age 22.6 days). All sows were fed commercially relevant diets according to standard local feeding regimes. The sows during gestation were group housed in pens.

Approximately one week before the expected farrowing (gestation day 108), sows were transferred to the farrowing-lactation room, in accordance with local animal welfare regulations.

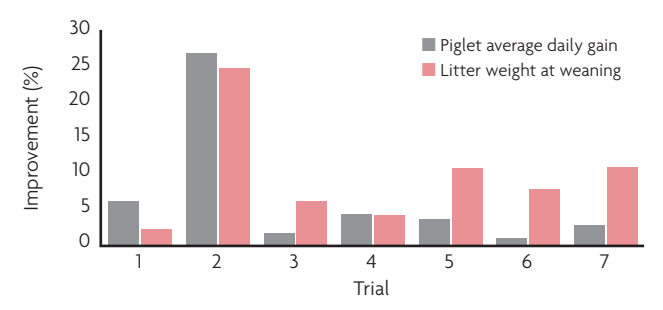
Sow performance

Sows fed gestation and lactation diets that were supplemented with the lysophospholipid-based nutritional instrument had, on average, higher feed intakes than sows fed standard diets (Table 1).

As a consequence of better feed intake, nutrient digestion and absorption, the average backfat loss during lactation was reduced. Sow output was also substantially better on average in supplemented sows, who required 2.23kg of feed per kg of piglet gain, compared to control sows who ate 2.48kg of feed per kg of piglet gain.

This improvement in efficiency was driven both by increased weight gain in piglets from sows fed the supplemented diets and by reduced pre-weaning mortality.

Fig. 1. Percentage improvement in piglet average daily gain and litter weight at weaning in litters from sows supplemented with a lysophospholipid-based nutritional instrument (Lysoforte).



	Control	Nutritional instrument	Difference
Sow parameters			
Daily feed intake (kg)	4.66	4.83	0.17
Sow output	2.48	2.23	-0.25
Backfat loss during lactation (mm)	4.65	3.75	-0.9
Piglet parameters			
Number of piglets born alive	12.45	12.47	0.02
Number of piglets weaned	10.39	10.85	0.46
Pre-weaning mortality (%)	14.63	12.85	-1.78
Litter weight at birth (kg)	17.72	18.07	0.35
Litter weight at weaning (kg)	66.99	72.43	5.44
Average individual weight at birth (kg)	1.50	1.51	0.01
CV of piglet weight at birth (%)	19.21	19.00	-0.21
Average individual weight at wean (kg)	6.30	6.57	0.27
CV of piglet weight at weaning (%)	17.66	15.00	-2.66

Table 1. Performance parameters of sows and their piglets. Control: sows fed standard diets; Nutritional instrument: sows fed a standard diet supplemented with Lysoforte.

Piglet performance

Average mortality was more than 10% in four of the seven trials. However, average mortality was lower in litters from sows fed diets that were supplemented with the lysophospholipid-based nutritional instrument than in litters of the control group (12.85% versus 14.63%, respectively).

Piglets from supplemented sows also grew faster, with average daily gains of 223.92g/day and weaning weights of 6.57kg, compared to litters of the control group, where average daily gain was 212.70g/day and weaning weights averaged 6.30kg. Over the course of the whole pre-weaning period, the combination of faster growth and reduced mortality resulted in an extra 5.44kg per litter at weaning.

Piglet weight at weaning was substantially more uniform in litters from supplemented sows, with a 2.66% drop in the coefficient of variation of weaning weight.

As shown in Fig. 1, the changes in average daily gain and litter weaning weight in piglets from supplemented sows were consistently positive across all trials. The extent of improvement varied from 1.78% to 26.57% for average daily gain and from 2.23% to 24.51% for mortality. The magnitude of improvement depends on the basal performance of the sows, as well as other husbandry and dietary factors.

In seven separate studies, conducted across the globe, on top application of a lysophospholipid-based nutritional instrument to commercial sow diets was found to increase sow feed intake and improve condition at weaning. This led to subsequent improvements in piglet growth rate until weaning, as well as reductions in mortality and variability in weaning weight.

The results of these trials indicate that the on top application of a lysophospholipid-based nutritional instrument to late gestation and lactation diets can consistently improve sow and piglet performance, leading to increased efficiency and profitability of pig production overall. ■

References are available from the authors on request