

# Probiotic improves sow and litter performance

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The aim of this field study was to assess the efficacy of the probiotic BioPlus 2B on the health status and performance of sows and their litters. A total of 109 gilts/sows on a commercial pig farm was allocated to either a probiotic supplemented or non-supplemented group from two weeks before farrowing to weaning. The probiotic supplementation increased sow feed intake and reduced weight loss during lactation and improved the proportion of sows returning to heat after first service. Suckling piglets of BioPlus 2B supplemented sows had a reduced mortality rate, better diarrhoea score, higher creep feed intake and improved growth rate compared to the piglets of the sows in the negative control group.

The forthcoming ban of antibiotic growth promoters in the European Union challenges scientists to explore reliable alternatives not only to maintain but also improve the performance of sows and their litters.

Probiotics with documented consistent effect provide reliable solutions. The aim of this field study was to assess the efficacy of a probiotic, BioPlus 2B on the health status and performance of sows and their litters.

## Materials and methods

The study was carried out on a commercial farrow-to-finish pig farm with a breeding stock of 500 sows. Two weeks prior to expected farrowing a total of 109 gilts/sows were allocated to two experimental groups:

- Control group (55 animals).
- Treatment group (54 animals): feed supplemented with BioPlus 2B.

Dates of farrowing, weaning, post-weaning oestrus and return to oestrus were recorded as well as gilt/sow body

weights at allocation day, farrowing, and 14 days post partum and at weaning.

Daily sow feed and litter creep feed intake and regular assessment of health status of gilts/sows and their litters were also recorded.

Furthermore, blood samples were taken from all sows 15 days post partum and

included piglets born alive, dead and mummified, and weaned piglets as well as litter weight at birth and at weaning.

Finally, a diarrhoea score on litter basis was calculated after a daily monitoring of each litter.

## Results

The probiotic group showed a significant ( $P<0.05$ ) 42% reduction in pre-weaning mortality compared to the control group and, as a consequence, the weaned litters were significantly ( $P<0.05$ ) 8% larger in the treated group than the control group (Table 1).

The reduced pre-weaning mortality was associated with a significantly

	BioPlus 2B	Control
Litter size at weaning	9.7	9.0*
Pre-weaning mortality (%)	7.0	12.1*
Piglet diarrhoea score <sup>1</sup>	0.08	0.24*
Piglet weight at weaning (kg)	8.40	8.02*
Total creep feed intake per litter	6.4	5.9*

<sup>1</sup>Indicates a statistical significant difference. <sup>1</sup>(0 = no diarrhoea, 1 = slight; 2 = middle; 3 = acute) pen based score; average of daily score over the suckling period

Table 1. Effect on economically important characteristics in piglet production.

analysed for total lipid concentration and milk samples were collected from all sows 14 days post partum and analysed for fat, and protein.

The recording scheme for each litter

( $P<0.05$ ) improved diarrhoea score in the BioPlus 2B group (Fig. 1).

Suckling piglets in the BioPlus 2B group showed greater creep feed intake than suckling piglets from sows receiving control feed. Supplementing lactating sows with the BioPlus 2B increased piglet and litter weight at weaning significantly ( $P<0.05$ ) by 5% and 13%, respectively (Fig. 2).

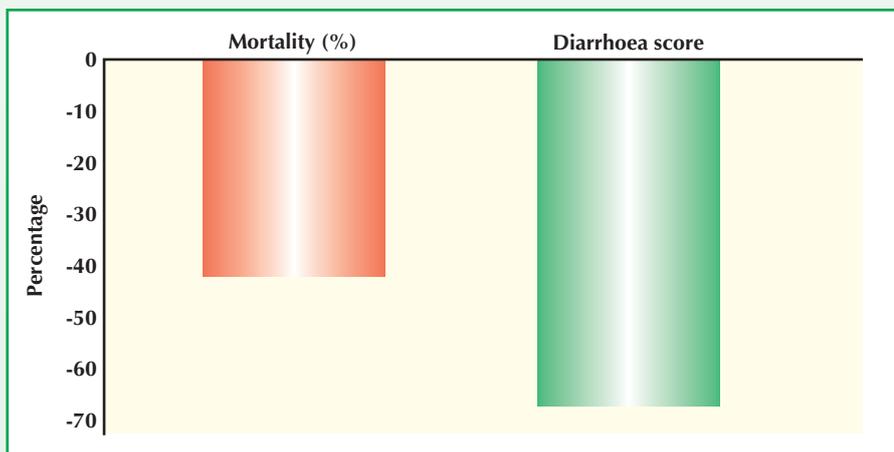
An important factor behind the extra productivity in the BioPlus 2B group was the significantly ( $P<0.05$ ) higher fat and protein content in the sow milk compared to the control group (Table 2).

Two weeks post partum sow milk in the probiotic group contained 3% and 4% more milk fat and protein compared to the control group.

Increased milk fat concentration is associated with an increased total blood serum concentration of fat, in this trial by a significant increase of 4% ( $P<0.05$ ).

Continued on page 12

Fig. 1. Relative effect of BioPlus 2B on diarrhoea score and pre-weaning mortality.



	BioPlus 2B	Control
Sow feed consumption (kg):		
Farrowing to two weeks after farrowing	79	76*
Two weeks after farrowing to weaning	105	104
Sow weight loss during lactation (kg)	15	19*
Total litter growth (kg)	67	59*
Serum total lipid concentration		
Two weeks after farrowing (mg/100ml)	294	283*
Content in milk two weeks after farrowing (%):		
Fat	6.3	6.1*
Protein	4.7	4.5*
Weaning to heat interval (days)	6	6
Return to heat, frequency	6	20*

\*Indicates a statistical significant difference (P<0.05).

**Table 2. Effect on economically important characteristics for lactating sows.**

Continued from page 11

This finding proves that through maintaining the intestinal integrity of the use BioPlus 2B improves the metabolic balance of the sow, which is of great benefit for the piglets.

The additional nutrient demand for milk production in the probiotic group was not associated with the expected increased sow body weight loss.

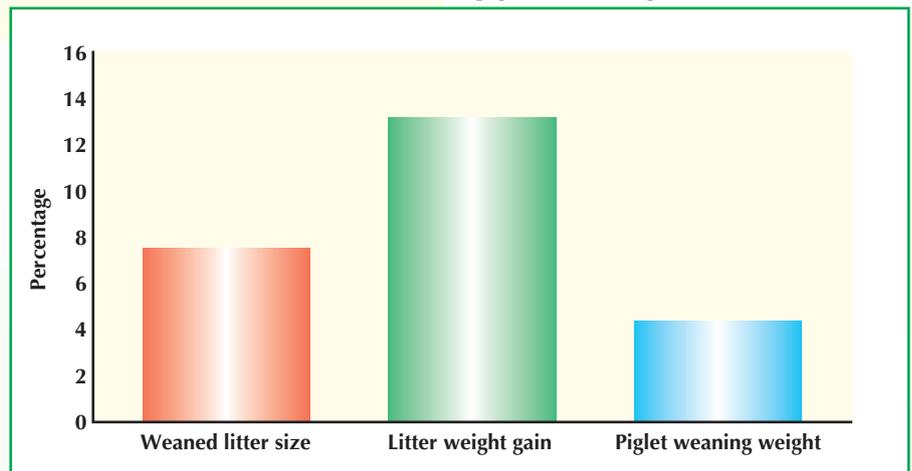
On the contrary sows in the probiotic group showed a significant 21% lower

body weight loss than sows in the control group (Fig. 3).

This was the consequence of a higher feed intake together with an improved health status, reflected by a reduction in MMA frequency (control 13% vs. BioPlus 2B 6%) of the sows in the probiotic group compared to the control group.

The improved energy balance of the sows in the probiotic group lead to a sig-

**Fig. 2. Relative effect of BioPlus 2B on litter size at weaning and weight of litter and piglets at weaning.**



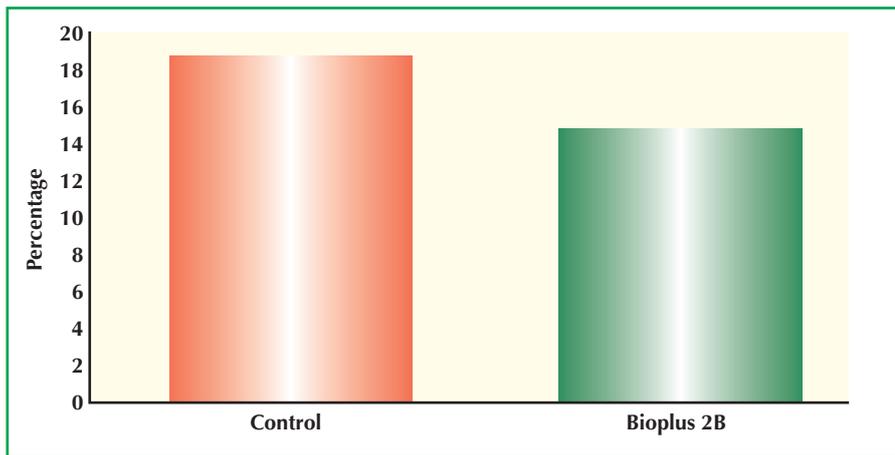


Fig. 3. Sow weight loss during lactation in the control and BioPlus 2B group.

nificant reduction in the proportion of sows returning to heat compared with the control group.

### Conclusions

Lactating sows supplemented with BioPlus 2B improved their nutritional status by increasing their feed intake, but mostly, in this trial, through an increased nutrient utilisation. The improved nutritional status leads to a reduced sow weight loss during lactation.

The improved sow condition at wean-

ing had a positive impact on reproduction through higher gestation rate.

The suckling piglets from the BioPlus 2B supplemented sows had an improved nutrient supply through a higher fat and protein content in the sow milk and larger creep feed intake.

These piglets also showed an improved growth and diarrhoea score. The above results prove that by maintaining the intestinal balance of the sow piglet production can be improved. ■

References are available from the author on request.

Further trials under institutional and controlled field conditions confirmed that the results of the trial shown here are reproducible. As the figures below show, the use of BioPlus 2B consistently improved the litter performance of the sow in seven consecutive trials under different climatic and management conditions.

