Probiotics for sows and suckling piglets

It all starts with the sow. Her genetics, traits and health lay the foundation for her piglets. Over the years, the sow has been bred to deliver more pigs per litter and now the focus has expanded to include the number of piglets weaned per litter.

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To maximise sow performance, many parameters need to be optimised, including feed composition and additives. Common for all feed additives is that the price of the product must at least be covered in the pig production profit.

The market has grown in recent years for feed additives, including probiotics. Probiotic products can consist of lactic acid bacteria, yeast or enzyme-producing bacteria known as bacillus.

The main idea of adding probiotics to the feed is to improve the intestinal flora, as this reduces the number of harmful, pathogenic bacteria in the intestines, such as E. coli, salmonella and clostridia.

Healthy intestinal flora not only help to maintain a high health status, but also contributes to improved nutrient absorption and feed conversion.

Probiotics with enzyme-producing bacillus can help optimise feed conversion, as they contribute to the breakdown of the feed. However, before the pig can take full advantage of the added probiotics, certain criteria must be met. Among other things, the product must be capable of withstanding the stomach's pH barrier. The three aforementioned types of probiotics can be added to meal feed, but if the product is to be added to a pellet mixture, it is important that it is heat stable (>85°C). Otherwise, it cannot survive the pelleting process.

A product consisting of lactic acid bacteria or yeast cannot withstand the high temperatures, while a probiotic consisting of bacillus can. Bacillus is added to the feed in an inactive form and is activated in the intestine, where it proliferates.

Better condition

Feed absorption during the nursing period is essential to milk yield, as well as to the maintenance of the sow's condition. If the sow loses too much weight during nursing, it can have a negative impact on her subsequent reproductive performance. In addition, high weight loss can have a negative influence on feed consumption, as it will be necessary to supplement with extra feed to get the sow back into good condition. According to the Danish Pig Research Centre's (VSP) Report No. 618, 1kg of gain costs 3.2 FEsow (~3.5kg sow feed) in the early gestation period.

Results from a German feeding trial showed that sows given PorcBoost probiotics had less weight loss compared with a control group. This trial included 209 litters and the sows' condition was evaluated using a scale from 1-5, with 1 indicating a very thin sow and 5 indicating a very fat sow.

Table 1. Scoring scale for condition evaluation.

Condition	Characteristics
1	Very thin. Spine and ribs are very visible
2	Thin. Spine and ribs can be felt with a little pressure
3	Optimum. Spine and ribs can be felt with firm pressure
4	Fat. Spine and ribs cannot be felt
5	Very fat. Spine and ribs cannot be felt

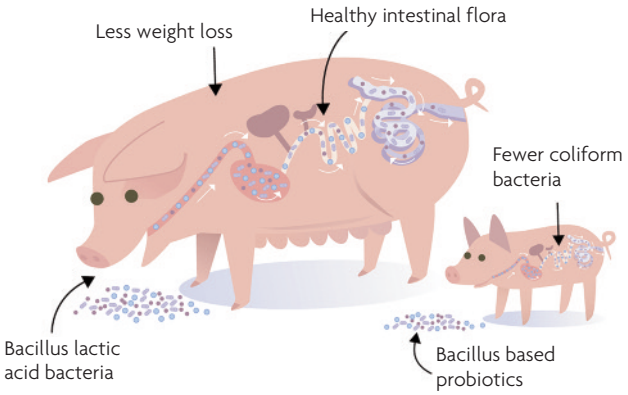

Fig. 1. Route of PorcBoost probiotics through the sow and to the piglet.

A condition score of 3 was found to be optimal (Table 1). Before farrowing, the sows had an average condition score of 3.5.

After nursing, the sows in the trial group had a condition score of almost three, while the sows in the control group had a condition score of just over two. There were 65 sows in the control group and 144 in the trial group. The probiotics were mixed in with the gestation feed two weeks before the expected farrowing, as well as in the nursing feed.

Another European feeding trial also indicated lower weight loss during the nursing period in sows given PorcBoost probiotics, as well as a lower return rate. Weaned pigs from sows given the probiotics also had significantly higher weaning weights. This trial included 126 sows and 63 sows, respectively, in the trial and control groups

Healthy sow, healthy pigs

Bacillus ingested with the feed colonises in the intestine and thus reduces the presence of coliform bacteria and increases the prevalence of lactic acid bacteria.

A higher proportion of lactic acid bacteria and bacillus can be found in the sow manure, and through their natural curiosity and rooting behaviour, piglets will ingest bacillus and it will colonise their intestines.

Just as in the sow, it will create a good environment for the good bacteria and the intestinal flora of the piglet will be optimised (Fig. 1).

More pigs per sow

As mentioned earlier, the number of weaned pigs per litter is an area of focus in pig production.

Results from feeding trials conducted in Danish sow units (13,000 sows in total) have shown a reduction in mortality among piglets from sows that have had bacillus-based probiotics added to the feed.

This trial also showed that there were 0.9 more weaned pigs per sow from sows fed bacillus-based probiotics (Table 2).

The probiotic impact on the number of weaned pigs/year/sow have also been tested through feeding trials in other European countries, confirming the excellent data from the Danish trials. ■

Table 2. Results from feeding trials from eight Danish herds where PorcBoost was mixed with the feed.

	Control	PorcBoost
Number of sows	6125	6875
Born alive per litter	13.8	13.7
Mortality before weaning (%)	13.1	10.3
Weaned per litter	12.0	12.3
Return rate (%)	4.4	3.2
Weaned pigs per year sow	27.6	28.5