Success of the Sow Herd Starts with Building Robust Gilts

The introduction of gilts in a sow herd is a critical process for efficient reproduction and economic success of piglet production. Keeping the gilts healthy, robust, and performing is the backbone of this success, in which trace minerals have a big role to play.

Dr Stefan Langer,
Business Development Manager, Swine
Zinpro Corporation

Profitable pig farming is all about the right management practices and healthy animals. And this is especially true when dealing with gilts and sows at piglet breeding farms. While new, young animals (replacement gilts) are needed to replace the older, less- or non-productive sows, buying modern genetics gilts can be quite expensive. Adding too many gilts at once is not only costly but will consequently reduce the reproduction performance of the farm as a result of an increase in the non-productive days (up to 30%).

Performance of Sows Takes Time

The production losses that are linked with inefficient or imbalanced gilt management are the result of the fact that primiparous sows have fewer piglets born with lower birth weight and growth performance than multiparous sows[1]. And this can trickle down to production losses along the full growing period of the piglets, up to the fattening period[2,3]. A rule of thumb is that sows become profitable from their second or third parity, and to reach maximal litter growth rate (and milk production) it even takes four parities. Starting with parity six, the

reproduction performance of sows starts to decline again[4]. Therefore, for reaching the highest sow farm performance most of the sows in a farm should be between parity three and six. In practice, this means a replacement rate of 18-20% per breeding cycle. This practice will allow genetic progress and avoid too high impact of gilts on farm performance and high cost of replacement gilts.

Keeping the parity numbers and replacement rates in balance is one thing. Keeping the animals in the right shape and health is just as important. Unfortunately, young sows, or even gilts, are often culled too early because of reproduction issues and foot/claw and leg problems. These issues are related to the growth rate, body weight and the age at first service. This is not only an economic loss, but also reprehensible from an animal welfare perspective. To prevent unnecessary culling and to obtain high, but also long-term sustainable, reproduction performance, the nutrition, health, and management of the gilts need to be optimal.

Focus on Body Condition and Strength

The body condition and the backfat thickness are important parameters in gilt and sow management and have been identified as crucial to optimise the number of piglets born alive and to the subsequent reproductive success of (highly prolific) sows[5]. Modern genetic gilts today, however, are leaner and start the breeding period with less body reserves. In the past, gilts often came with 18-20 mm backfat thickness at breeding. Today's genetics lines sometimes don't even reach 12 mm backfat thickness. This should not necessarily lead to problems, yet it requires extra attention in the gilt rearing program to ensure the animals are in good condition but not overfat. In practice, programs are therefore often aimed to have gilts (ready to mate) between 140-160 kg of bodyweight at around 32-36 weeks of age, with a backfat reading of at least 12 mm (at P2). This translates into 600-650 gr daily gain from birth till breeding. When growth rate and body condition during the rearing period and the age at first service is controlled, the success of reaching the animals full genetic potential is increased.

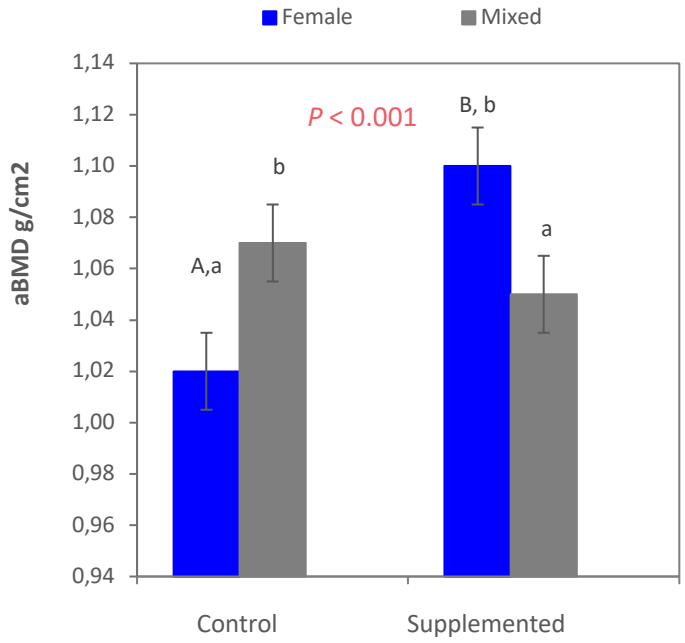
At the same time, the bone, joint and cartilage development of legs and feet to carry the weight of the sow should not be overlooked. Problems like osteochondrosis (joint disease), claw lesions and lameness can increase the culling rate of gilts and sows before they reach their maximal reproduction performance. And these problems can flare up when we have increasing body weight in combination with challenging housing conditions like overcrowding, wet and slippery floors as well as nutritional factors and inflammation. A large loss of body weight and backfat at a later stage (during the first lactation) can further increase problems.

Positive Effect of Mineral Supplementation

Providing the best starting conditions for the gilts and avoiding large fluctuations in body weight and condition score between parities should be the major focus for any piglet producer. In other words: when we start with a robust gilt on a solid foundation it will have a direct positive effect on performance indicators such as feed intake, number of piglets, milk production and conception rates. Trace mineral supplementation can play a big role in producing robust gilts. Pigs need trace minerals for optimal performance and health. Zinc, copper, and manganese are required for numerous functions, including immunity, reproduction, and hoof integrity. Animal nutrition company Zinpro® has developed Zinpro® Availa® Sow (hereafter called performance trace minerals), a nutritional feed ingredient for swine that contains a combination of organic zinc, manganese, and copper. These trace minerals come in a highly bio-available organic form that use a unique metabolic and absorption mode of action, which means more of the minerals are absorbed by the animal to deliver their full benefit.

A study conducted by the research institute Teagasc in Ireland[6] on growing gilts shows that the supplementation of organic trace minerals during the developing phase of gilts can reduce heel overgrowth and erosions, increase the bone density of the humerus and radius/ulna joints (*Figure 1 showing the results for the upper leg bone mass density*) and reduce the incidences of cartilage lesions (a possible stating point of osteochondrosis) in the female only group.

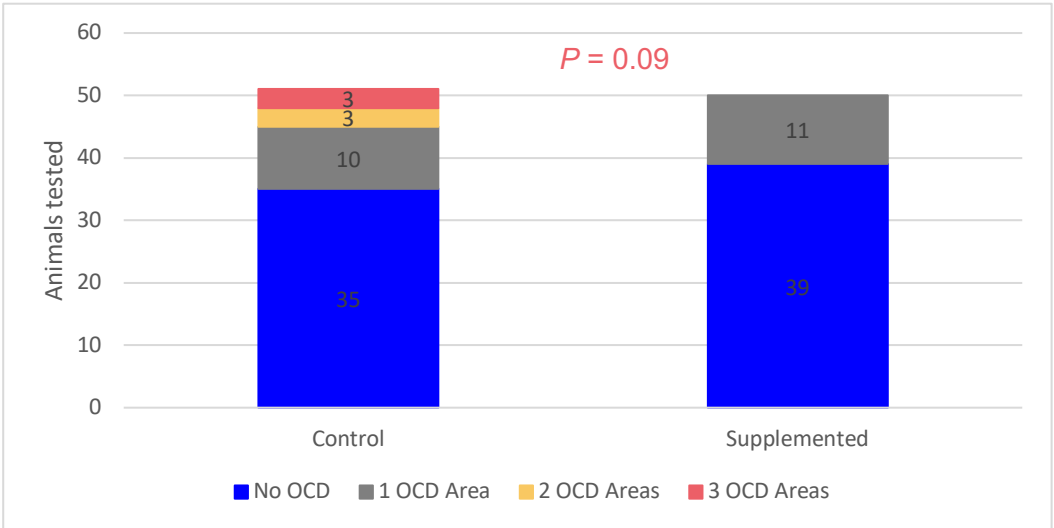
Figure 1 – Mineral supplementation improved bone mass density (aBMD) in female pigs.



Upper-case letters indicate significant (P <0.001) differences between control and supplemented group. Lower case letters indicate a difference between gilts kept in female groups and gilts kept in mixed-sex groups.

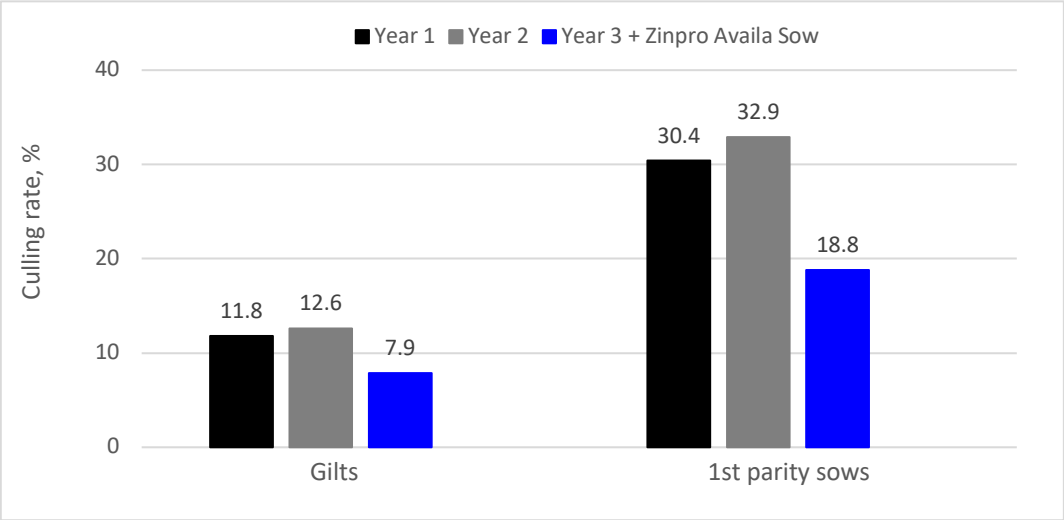
In the study, 51 animals formed the control group (basic finisher diet), and 50 animals were supplemented with the control diet + performance trace minerals. Here it was seen that the gilts in the supplemented group tended to have a lower number of OCD lesions (11 gilts with OCD) compared to the control group (16 gilts with OCD). Also less areas were affected (*Figure 2*).

Figure 2 - Gilts that received organic trace minerals in their diet reduced the total number of OCD lesions and reduced the number of areas in the joints affected.



And there is more data that performance trace minerals benefit the health and performance of sows. Research done by Zinpro shows that feeding performance trace minerals to developing gilts can reduce the culling rate of gilts and first parity sows (*Figure 3*), based on data gathered from several thousand sows. The study showed that supplementation of performance trace minerals reduced the culling rate to below 8% for gilts and below 20% for first parity sows. This means that 30% less gilts are needed for replacement. This is not only an economic win, but also will also lead to more and larger piglets born and weaned, lower mortality, and better growth rates throughout the whole growing period.

Figure 3 - Effects of trace minerals on culling rate of gilts and first parity sows.



Conclusion

Gilt management might be one of the most important, yet challenging part, of producing piglets. With the current genetic lines, the high production costs, and the pig sector's mission to improve general health and wellbeing of sows, it is important to make sure the animals are healthy and robust. Optimal trace minerals, supplied in the right form, can lead to big wins, and help to produce robust gilts, the basis for a healthy and profitable herd. The extensive research done on performance trace minerals, as discussed in this article, gives nutritionists an effective tool to reduce bone, hoof and leg problems and elevate reproductive performance, longevity, and lifetime performance of sows.

References:

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