Feeding the high-performance sow

Having 30 piglets per sow per year is starting to become common practice. At the same time, this puts pressure on the sow. Increased focus on keeping pre-weaning mortality low and sow health high is therefore a prerequisite for a good performing pig farm.

**Factors influencing prolapses**

Jason Ross from Iowa State University in the US kicked off the seminar by explaining the sow health challenges in today’s production systems. Mr Ross explained that sow mortality, especially due to prolapses, has increased the past five years in the US swine industry. “It has become a significant welfare concern for producers. Such losses can often be prevented by a good feeding strategy, but a deep dive into sow gut health and how the sow’s microbiome may affect her pregnancy.”

**Essential fatty acid supplementation**

Eric van Heugten from North Carolina State University in the US presented some of the latest insights on high efficiency nutrition for maximal lifetime production. “The modern sow has more requirements for nutrients. Especially when high performing sows experience heat stress or are in lactation for example,” Mr Van Heugten explained. He further addressed the fact that a lactating sow produces almost as much milk as a high producing dairy cow, translated to bodyweight equivalent. This means that the sow requires high energy diets. Mr Van Heugten touched on a few studies that looked into the supplementation of lipids (level and type) during lactation on subsequent reproductive performance. In one study, the effect of essential fatty acid (EFA) levels were studied in lactating sows under heat stress conditions. The sows received either linoleic acid in a different inclusion rate: 2.1, 2.7, 3.3% or α-Linolenic acid at 0.15, 0.30, 0.45 inclusion rate. The inclusion rate of linoleic acid at the highest inclusion rate showed to have a positive effect on total pigs born and pigs born alive.

**Mycotoxins and sow productivity**

The seminar also touched on the quality of raw materials that end up in the sow feed. One important topic in this is the prevalence of mycotoxins and the effect of these toxins on sow productivity. Trevor Smith from the University of Guelph in Canada. “The United Nations Intergovernmental Panel on Climate Change has recently reported that global warming and extreme weather conditions are becoming more frequent. This increases the chance of mycotoxin contamination. Under drought conditions, there is an increased frequency of aflatoxin in and fumonisin contamination. Cooler temperatures and high moisture tend to favour production of DON and zearalenone,” Mr Smith explained. Soybean and corn oil are ingredients with a high linoleic content, compared to the animal fat.” Mr Van Heugten concluded.

**Focusing on nutribiosis**

An interesting talk was given by Crystal Levesque from South Dakota State University in the US. She delved into the topic nutribiosis, which stands for a state to describe the interactions between nutrition, microbiome, and functions of the gut and immune system. Ms Levesque studied this concept and looked at the effect this has on sow and progeny productivity, she explained that the microbial diversity in the gut of pigs increases as the animal gets older. This was tested in pigs of different ages and sows. The dominant species in a 1-day old piglets are Closstodium sensu stricto and Escherichia/ Shigella. Interesting to note is that at day 21 (weaning) no dominant species is detected in the piglet’s gut, which suggests a wide range of bacteria in the gut at this age. At day 28, the species Megaphaena, Lactobacillus and Acidaminococcus seem to be the dominant colonisers in the gut. Ms Levesque also touched on where the bacteria come from. Is sow faeces the main driver for the bacteria population in the piglet’s gut? Or does the piglet also become ‘infected’ through the crate floor, vagina and milk? All seem to be true, but (maternal) nutrition of the sow can also be used to target the gut microbial profile in the offspring. Studies showed that direct-fed microbial in sow diets (L. gasseri and L. johnsonii in ileum) resulted in greater incidence and quantity of these bacteria in the gut. Mr Smith concluded by saying that it would be great if we can target more on the function of the bacteria (independent of the which species) to improve gut health in pigs instead of having more of a certain bacteria.

BY EMMY KOELEMAN

This was one of the conclusions of a recently held event at the IPPE in Atlanta, US. The event was hosted by the American Feed Industry Association’s (AFIA) nutrition committee. Experts discussed how to maximise a sow’s lifetime productivity with nutrition, understand the impact on the health of the sow and they took a deep dive into sow gut health and how the sow’s microbiome may affect her pregnancy.

**BY EMMY KOELEMAN**