Applying science-based nutrition to set piglets up for lifetime performance

Environmental and marketplace disruptions including extreme weather, regional bans on the non-therapeutic use of zinc oxide, disease outbreaks, and supply chain issues are just some of the challenges pig producers continue to navigate in 2023.

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Given today's volatile production landscape, pig farmers are seeking strategies to help steer optimal animal health and performance.

New research insights into pigs' development, growth, and performance from conception through market age clearly show that science-based nutrition offers a constant opportunity to support health and performance across every growth phase. Early life is an ideal time to begin influencing a piglet's lifetime potential as research studies have shown that performance at six weeks of age is an indicator of a pig's lifetime performance.

Feeding a science-based diet formulated to support pigs during the critical post-weaning phase can aid in establishing gut health and efficient digestion, help mitigate challenges, and contribute to piglets achieving their full performance potential.

Five factors that drive gut health

As studies have revealed that the nutritional requirements of piglets differ from older animals, a feeding programme tailored to the piglet's developing digestive system and innate challenges was designed to respect five influencers of gut health:

• **Feed palatability:**
Piglets moving from sow's milk to a commercial diet commonly reduce their feed intake and sometimes even stop eating.

As abrupt changes in intake can be a risk factor for inducing gut health challenges, it is essential that piglets keep eating. Feed palatability is a combination of flavour, taste, and mouthfeel, as well as physiological responses following digestion that determine feed intake.

Targeted use of specific ingredients, a well-balanced nutrient profile, dedicated production processes for piglet feed and maintaining the highest ingredient quality standards contribute to palatable feed.

• **Specialty ingredients:**
Carefully selected combinations of ingredients in piglet feed and drinking water additives can enhance digestion efficiency, support the gastrointestinal tract's physiological barrier, maintain the microbial balance, and support immunity.

• **Correct formulation of amino acids:**
Amino acids are important to early life gastrointestinal development and support the immune system during times of stress. Optimising the amino acid profile to fit the specific needs of young piglets under challenging conditions can support the immune system and the animal's growth.

• **Optimal use of protein and fibre:**
Reducing protein levels in the diet and selecting highly digestible protein sources are beneficial strategies for reducing the risk of piglets' gut health challenges.

Selecting the correct level and fermentation profile of fibre in the diet can optimise the passage rate for feed, and also improve nutrient use and digestive health.

• **Safe feed and water:**
Both feed and water can potentially carry contaminants such as pathogens and mycotoxins. Many contaminants can threaten palatability or cause disease.

Analysing feed ingredients and water to ensure high standards are met, regularly monitoring quality, and introducing corrective measures when needed are critical steps to prevent gut health challenges and support digestive efficiency.

Performance and economics

Pig farming is a business and the benefits of a diet formulated to facilitate gut health must be compared to the cost of the investment. Applying targeted nutritional science to the piglet diet can reduce mortality and the need for treatment while maintaining performance and improving profitability.

A meta-analysis of five trials with gut-health challenges in four countries was performed. The metanalysis was comprised of 5,560 piglets of four different genotypes. Feeding the diet tailored to support piglets' gut health showed the relative highest feed efficiency (+0-4% higher) and lowest corrected cost to 20kg for feed, water, treatment and mortality (3-11% lower). Additionally, mortality and need for treatment were reduced when feeding the MKW Vital Start diet (Fig. 1).

Nutrition tailored to the post-weaning phase

Formulating a diet to address the challenges of a particular growth phase requires an understanding of the difficulties animals typically experience.

The post-weaning period is a particularly stressful time when the digestive system is still maturing, and animals are exposed to harmful contaminants in the environment. Feeding a diet formulated for palatability and designed to nurture gut health can help support the development of post-weaning pigs.

Farmers and nutritionists can leverage early nutrition as a tool to help piglets unlock their lifetime performance even in challenged production environments.

Powered by research, a tailored, piglet-centric feeding programme applies science-based nutrition to support pigs' health and performance during the critical first six weeks of life and beyond. ■

Fig. 1. A metanalysis compared standard diets with in-feed medication (positive control), standard diets with no medication (negative control), seven different medication-free diets targeting gut health (Benchmark), and a diet tailored to nurture the digestive and developmental processes in post-weaning pigs (MKW Vital Start). Different superscripts indicate significant differences (p<0.1).