A practical guide to differential diagnosis in swine

5 – Depressed voluntary feed intake

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Voluntary feed intake is one of the most important and challenging factors of swine production. The amount of feed consumed is central to determining growth performance and tissue accretion rates.

Feed intake measurement and constant monitoring on commercial units is essential to formulating diets to meet nutritional requirements.

This article details the main factors that impact feed intake and highlights actions where management can influence the outputs (see table right).

● **Environmental factors:** The major climatic factor that directly influences feed intake is the environmental temperature. Pigs exposed to extreme cold consume excessive quantities of feed in an effort to maintain normal body temperature.

● **Diet composition:** Dietary energy levels have a significant impact on feed intake. Pigs can use a wide variety of feed ingredients and adjust their feed intake pattern to maintain a constant energy intake. Feed intake will also be influenced by the level of other nutrients in the diet, especially in case of deficiencies or imbalances.

● **Health status:** The immune system has a major impact on swine performance. Exposure to pathogenic agents has been shown to result in the release of cytokines that activate the immune system. Cytokines alter metabolic processes, resulting in decreased protein synthesis and increased protein degradation to maintain homeostasis during a health challenge.

● **Genotype:** Substantial genetic variation for lean growth rate, lean efficiency, carcase percent lean and feed intake exists between different genetic populations of pigs.

● **Mycotoxins:** Toxins can dramatically reduce feed intake levels. Many common feedstuffs contain natural toxins that may impair pig performance and/or voluntary feed intake, thus affecting nutrient requirements. ■

GUIDELINES/CORRECTIVE ACTIONS
Environment
• Optimum barn temperature range based on age and phase of production
• Optimum barn ventilation rates
• Proper operation of misting or water drip systems to promote evaporative cooling
• Barn controller adjustment based on seasonality were performed properly and equipment is fully operational
Diet and feed management
• Constant revision of nutritional program
• Proper levels of dietary energy
• Proper levels of protein
• Ingredient palatability – limit the inclusion of unpalatable ingredients and/or make gradual changes
• Feed form: pellets tend to give higher intake
• Particle size: ensure proper micron size
• Pigs have continuous access to feed
• Feed system supplies a continuous feed to the feeder
Feeder
• Feeder space is adequate for individual pig as well for total number of pigs in the pen
• Proper pan coverage
• Physical condition of feeders
• Consider in the potential benefits of wet dry feeders and overall feeder design with targeted operation outputs
Mycotoxins
• Check raw materials and complete feed. Establish a sampling monitoring system with analytical methods (LC-MS/MS, HPLC)
• Ensure hygiene in feed bins, feed lines and water lines
• Consider the inclusion of a feed additive with multiple counteracting strategies (adsorption, biotransformation and Bioprotection)
Water
• Drinkers are functioning properly
• Flow rate is adequate
• Drinkers are accessible to pigs (adequate height especially during the nursery phase)
• Ratio of drinkers to pigs is sufficient
• Water quality

References are available from the author on request. Photo courtesy of istockphoto.com, Stramyk.