TAILORED DOSING APPROACH MAXIMISES PHYTASE PERFORMANCE

For quite some time, phytase has been used in swine diets to liberate phosphorus in the diet and to replace inorganic phosphate. Recent efforts to maximise its application have made the extra-phosphoric effects of phytase more evident; meaning that it is clear that phytase has the ability to do more beyond liberating phosphorus. Phytase has been shown to increase the availability of amino acids, energy and minerals, all of which are the main drivers for improved growth performance and feed efficiency.

As phytase use increases due to the realisation of these extra-phosphoric effects, nutritionists need to be aware that a traditional dosing recommendation of 500FTU/kg regardless of age and diet is insufficient. Every pig producer has different requirements for optimising animal performance and requires a tailored phytase dosing approach based on life stage and specific feeding program. Achieving success with tailored dosing requires continuous investment in research and innovation to generate species, life stage and diet-specific data that can be applied by nutritionists. As a leading phytase supplier, Danisco Animal Nutrition has claimed this research responsibility, enabling animal producers to make smart decisions.

Greater efficacy gained from fast-acting phytase

The faster and more thoroughly that phytate is degraded, the better the outcome in the animal. Therefore, phytase must actively work in the acidic environment of the stomach and upper gastrointestinal tract. One in vitro study examined the activity of six different phytases based on pH to determine which demonstrated the greatest level of activity under gut conditions. Axtra PHY (shown as Phytase 1) was most active at the pH that is akin to stomach acidity, demonstrating its ability to degrade phytate faster than competitive products.

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Identifying phytase with the highest bio-efficacy

Both in vitro and in vivo pig research showed that Axtra PHY has the highest bio-efficacy and acts twice as fast as other phytases. In addition to rapidly degrading phytate in the upper gastrointestinal tract for better release and faster absorption of nutrients, Axtra PHY increases bone mineralisation, amino acid digestibility and overall nutrient uptake.

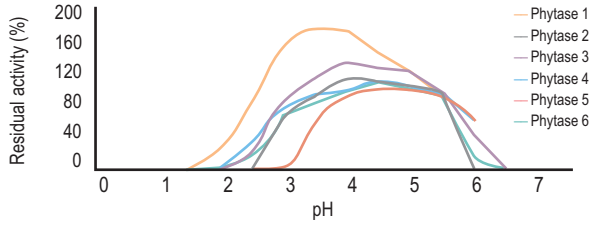
A meta-analysis of trials conducted in different pig production stages clearly showed dose-dependent benefits of Axtra PHY. Piglets experienced a 9.1% increase in BWG and FCR in grower pigs reduced by 2.6% (6 points) compared to the positive control by increasing the Axtra PHY dose up to 2000 FTU/kg.

In finisher pigs (>75kg), the optimal dose for FCR was found at 500 FTU/kg. For sows, increasing levels of Axtra PHY at 1000FTU/kg reduced weight loss by 27% relative to the positive control.

Tools to support optimised dosing

Danisco Animal Nutrition supports optimised phytase dosing for maximum performance and benefit with the Optimise Feed program. This is an online tool that uses matrix values generated from more than 14 swine trials to calculate the optimum enzyme dose needed in order to achieve the strongest performance benefits and cost savings.

Fig. 1. The phytase activity relative to pH 5.5 (expressed as 100% standard FTU for commercial phytase) in a pH range of 1.5-6.5.



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or email us at info.animalnutrition@dupont.com

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