

Axtra® PHY

THE FASTEST-ACTING PHYTASE THAT HELP YOU FINISH FIRST

Animal Nutrition



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Tailored Dosing Approach Maximises Phytase Performance

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INTRODUCTION

Ensuring maximum commercial return is a challenge.

The effective use of phytase matrix values can have a significant impact on feed formulation performance – resulting in savings. This article shows how applying Axtra® PHY matrix values in your feed formulation can improve performance, reduce costs & phosphorus waste and boost production efficiencies.

For quite some time, phytase has been used in swine diets to liberate phosphorus, to replace inorganic phosphate and to reduce phosphorus excretion to the environment. Recent efforts to maximise its application have made the extra-phosphoric effects of phytase more evident; meaning that phytase has the ability to do more beyond liberating phosphorus. Phytase has been shown to increase the digestibility 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 realization of these extra-phosphoric effects, nutritionists need to be aware that a traditional dosing recommendation of 500 FTU/kg regardless of age and a 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, DuPont has claimed this research responsibility, enabling animal producers to make smart decisions.

“The faster and more thoroughly that phytate is degraded, the better the outcome in the animal.”

GREATER EFFICACY GAINED FROM FASTEST-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 gastro intestinal 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.

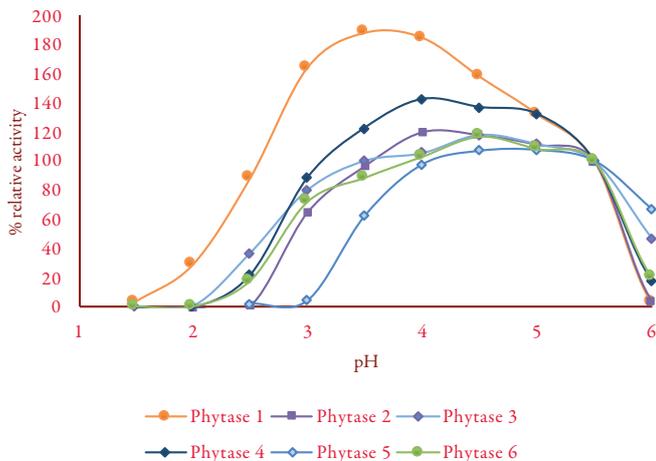


Figure 1. The phytase activity relative to pH 5.5 (expressed as 100% standard FTU for commercial phytase) in a pH range of 1.5-6.0 (Christensen et al., 2017)

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 (Dersjant-Li and Kwakernaak, 2017). In addition to rapidly degrading phytate in the upper gastrointestinal tract for better release and faster absorption of nutrients, Axtra® PHY increases bone mineralization, 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 OPTIMIZED DOSING

DuPont supports optimized phytase dosing for maximum performance and benefit with the Optimize Feed™ program. Optimize Feed™ 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.

REDUCING FEED COSTS

Although the exact net cost savings of using a phytase matrix will vary according to changeable market prices, the principal can be demonstrated effectively by using a 2018 snapshot of ingredient values in the EU.

In fact, in terms of overall feed cost savings, the latest calculations present a compelling argument for using the full matrix value (applying dig AA and ME matrix together with mineral matrix) for Axtra® PHY (see Figure 2).

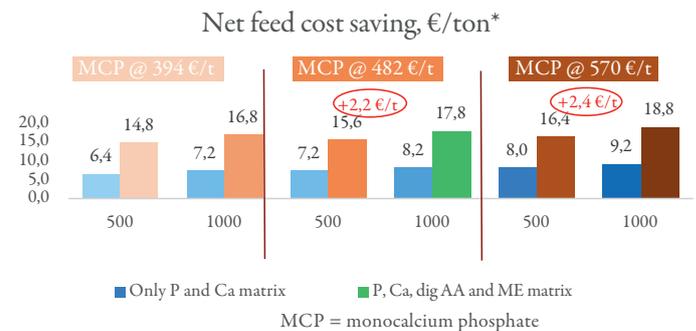


Figure 2: Feed cost saving calculated based on the current EU ingredients prices. (control diets without phytase cost: 233.9, 233.3 and 233 €/t for MCP priced at 394, 482 and 570 €/t respectively, with 0.85% Ca, 0.37% dig P, 19.7% CP and 12.95 MJ/kg ME. Wheat and SBM based diets with calculated phytate P level of 0.26%).

*Figures based on European prices, October 2018.

The calculation above demonstrates that applying full matrix values should always be considered as a highly effective way to achieve considerable production savings.

REFERENCES

References upon request.