How to maximize profitability from phytase use

Phytase is the most widely used feed enzyme in the world, with an estimated penetration of over 90% into poultry formulations. The question we therefore get asked most frequently is not whether or not it should be used but how best to use it to maximize production value.

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There are three key ways to do this:

1. Select a highly bioefficaceous phytase

For over 20 years the industry standard phytase dose for broilers has been 500 FTU/kg. Today, inorganic phosphorus costs more, phytase costs less and some phytases are more effective than others, (*Tran et al.* 2011), yet the standard dose has not changed significantly.

To achieve optimum phosphorus uptake, reduce the anti-nutrient effects of phytate and increase the availability of costly energy and amino acids today, you need to select a phytase enzyme that is highly active at the low pH conditions prevailing in the animal's upper digestive tract.

The first *E. coli* phytase on the market - launched in 2003 - offered a 20% improvement in bioefficacy and associated feed cost savings compared to traditional fungal phytases available at that time. Advanced phytase sources, such as the one based on a *Buttiauxella* spp. that was first launched in the US early last year, can further increase the availability of phosphorus, calcium, energy and amino acids to the animal by rapidly reducing phytate levels.

2. Use value-add services to maximize dose

An optimized dose of phytase will deliver substantial economic benefits by maximizing:

- uptake of phosphorus and reduce the need for costly inorganic phosphorus supplementation
- release of energy and amino acids by rapidly reducing the anti-nutritional effects of phytate

Formulating feed with the right phytase dose will also help balance calcium and phosphorus levels to avoid costly bone and metabolic disorders.

To establish the most profitable dose, you need to use accurate, appropriate and well-researched matrix values that take substrate levels and other variations by diet and region into account. Extrapolating data from broilers to pigs or vice versa is unacceptable given their differing digestive physiology, so particular attention should be given to source information of matrix values supplied.

A recently launched online tool incorporating evidence-based matrix values facilitates the process of establishing the optimum phytase dose for your animals.

3. Make sure your phytase is heat stable

Significant loss of phytase activity during steam conditioning and pelleting of feed negatively impacts profitability. A phytase can be made more heat stable by using a well-researched coating to protect it.

Advanced dry, granular phytases use unique themostable coatings to ensure heat stability up to 203ºF (95ºC) but still allow rapid release in the upper part of the bird's digestive system, ensuring optimum bioefficacy.

You can download brochures detailing the benefits of our bioefficacious, thermostable phytase solutions and evidence-based phytase dose optimization tool at http://animalnutrition.dupont.com

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