

INTERVIEW: Danisco Animal Nutrition Predicts Shift Towards More Profitable Phytase Dosing

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27 February 2014 - Last year, DuPont subsidiary Danisco Animal Nutrition introduced Aextra® PHY, its patented bacterial phytase, to the poultry sector. The company also achieved FDA agreement for a highly cost-effective lower Aextra® PHY dose level for swine (250 FTU/kg feed).

Danisco Animal Nutrition argues that the industry standard phytase dose of 500 FTU/kg, which was agreed over 22 years ago, needs to be reviewed following the launch of new, more bio-efficacious phytases that deliver improved nutrient uptake and maximum phytate destruction at more flexible levels. The company is of the opinion that a lot has been said about phytase super-dosing and that if advanced phytase technology is backed up with well researched, species specific matrix values, the customer will arrive at the right dose to deliver maximum profitability.

Feedinfo News Service spoke to Dr. Gwendolyn Jones, Technical Services Manager at Danisco Animal Nutrition, to find out more about cost-effective phytase dosing and the company's prospects for Aextra® PHY moving forward.

[Feedinfo News Service] Dr. Jones, some would say the super-dosing of phytases has become standard practice. What is your opinion?

[Gwendolyn Jones] Customers ultimately care most about getting the optimum dose to deliver the greatest return on investment. Those who were already switched on to phytase benefits such as improved nutrient release and a reduced need for costly phosphate supplementation are now becoming even more aware of the positive impact phytase can have on dietary anti-nutrient levels. There is also a greater understanding that factors such as the type of phytase, animal species, diet and age of the animal need to be taken into account to determine the optimum dose for phytase for maximum return. Given that this is the case, it is far more likely that the global feed industry will be moving away from any kind of standard dose - be it the traditional industry standard of 500 FTU or a « super dose » that is typically 1500 FTU/kg feed or higher. Customers instead will be moving towards more flexible dosing based on feed optimization using evidence-based metrics.

Dr. Gwendolyn Jones
Technical Services
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[Feedinfo News Service] Then why resort to super-dosing?

[Gwendolyn Jones] There is evidence that dosing above the traditional industry standard of 500 FTU/kg, can have a beneficial effect on performance in pigs and poultry, particularly in diets with higher levels of phytate. This is because a higher dose can help to decrease the anti-nutrient effects of phytate by breaking down phytate molecules faster in the digestive tract and releasing more energy and amino acids. So-called super-dosing is often associated with a phytase dose of 1500 FTU/kg of feed or higher. Depending on the type of phytase and the level of phytate in the diet, this can have a beneficial effect in terms of minimizing the anti-nutrient effect of phytate. However, there are inherent differences between phytase sources in terms of efficacy against the anti-nutrient effect of phytate, meaning not all phytases will require a very high dose to achieve the same effect in the animal.

The Axtra® PHY phytase has been specifically selected for faster and more efficient breakdown of phytate at low pH in the pig's upper digestive tract. In fact it has been proven to break down phytate at least twice as fast compared to an E.coli phytase in vitro. As a result of the increased bioefficacy of Axtra® PHY we generally don't have to resort to super-dosing when applying Axtra PHY to pig diets.

[Feedinfo News Service] Higher phytase doses are also being used nowadays partly due to the decline in the unit price of phytase to the customer. What is your message to the customer who is happy with this scenario and might be sceptical to changing habits?

[Gwendolyn Jones] We have carried out extensive studies on global phytate variation in feed materials and, consequently, the phytate substrate levels in diets. This knowledge is fundamental to optimizing phytase dose rates. It is also essential to quantifying the release of 'extra-phosphoric' nutrients (e.g. amino acids and energy). Understanding substrate levels and their properties is also a pre-requisite to understanding synergies between our phytases and our strong carbohydrase and protease offerings, and the additional cost savings that can be made by using them in combination.

The Danisco Animal Nutrition Optimize Feed® Service enables customers to calculate the optimum dose of phytase enzyme needed to achieve the strongest performance benefits and cost savings using accurate and well-researched matrix values that take substrate levels and other variations by diet and region into account. Customers can use it to assess phytase performance and work out the best phytase dose for their needs, confident in the knowledge that the calculations are backed up by solid global trial evidence. In addition, our new phytase FASTkit® assay ensures that the required optimum level of phytase has been applied to achieve maximum economic benefits and that the enzyme is both present and is active.

[Feedinfo News Service] Will Danisco Animal Nutrition make the 'flexible dosing for maximum profit' concept the spearhead of its phytase marketing strategy moving forward?

[Gwendolyn Jones] We will continue to provide strong evidence that our phytase offerings are a step ahead in delivering additional savings and improved performance. This will be supported by advancing our services and knowledge to help determine the best performing, most profitable phytase dose for poultry and pig producers' feed formulations. We expect that our continuous investment into research of substrate levels in feed ingredients, as well as interactions of substrates with and between enzymes in the animal will help us maintain our leading position in phytase technology and application.

[Feedinfo News Service] Last year, Danisco Animal Nutrition achieved FDA approval for a cost-effective Axtra® PHY dose level for swine in the U.S. What does this represent for the company?

[Gwendolyn Jones] The low dose approval is helping us to achieve our goal to help customers stay on course to profitable pig production. It allows our customers to choose the dose that delivers the greatest value in their feed formulations. They can do this secure in the knowledge that our claims for Axtra® PHY are based on well-researched matrix values for pig diets, that range from 250 up to 2000 FTU/kg of feed and are backed up by a significant number of trials in pigs. We expect that this will facilitate the switch to Axtra® PHY by phytase users in the U.S. pig industry.

[Feedinfo News Service] What impact do you anticipate the FDA approval will have on sales of Axtra® PHY in the U.S. swine sector? Axtra® PHY is currently authorized for sale in US, but should demand for the product increase, how easily can you adapt?

[Gwendolyn Jones] The FDA approval for the full Axtra® PHY dose range in swine was granted in September 2013, and since then we have already seen a very positive impact on

our sales in the swine sector in the U.S. Customers welcomed the cost savings they were able to make by formulating with this advanced phytase technology in swine diets and also the services they received to help them optimize the application of our product in the feed. The product is of even greater value to customers pelleting their feed. Axtra® PHY is currently available in the thermostable form, which has an advanced unique coating technology that offers heat stability up to 203°F (95°C) and fast release in the animal's digestive system.

With positive feedback from the early adopters in the market, we anticipate a greater majority in the swine sector wanting to take advantage of this new development in the phytase market. We have been expanding our production facilities in Cedar Rapids, Iowa to accommodate an increased demand for Axtra® PHY in the U.S. and other markets.

[Feedinfo News Service] Axtra® PHY (for poultry) was launched in the U.S. in January 2013. Now, a year later, how successful has the roll-out been?

[Gwendolyn Jones] The initial launch into the poultry sector was a huge success with leading companies in the industry switching to Axtra® PHY. Positive feedback post-implementation stage proves that we can provide the expected value from Axtra® PHY in feed formulations. In addition, we had a large number of US commercial mills testing Axtra® PHY TPT in their pelleting process and confirming high recoveries post pelleting. The FDA approval for the full Axtra® PHY dose range in swine in the second half of the year gave us some additional breakthroughs in the phytase market, first with existing, and then new customers moving to Axtra® PHY for swine feed formulations.

Overall we have had a great start and we expect that the pace with which phytase users will be switching to Axtra® PHY will be picking up significantly in 2014 as a result of the positive feedback in the market so far. More data is also becoming available to prove the value that Axtra® PHY is bringing to pig and poultry diets, and to our customer's bottom line.

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