Superior bioefficacy and proven benefits supported by science

Phytases add great value to broiler feed formulations and remain the subject of scientific development.

dupont.com

The ideal phytase should be highly active in the low-pH environment of the early gut to begin phytate hydrolysis as soon as possible. It should also be heat stable during the pelleting process and have a high specific activity at physiological temperatures.

AxtraPHY Gold, a novel phytase from DuPont Animal Nutrition, has been developed with this in mind. Its superior pH profile means it is most active at low pH; ensuring phytate is broken down quickly to overcome its antinutrient effects and release phosphate. This advanced phytase excels at replacing inorganic phosphorus supplementation in animal feeds, as demonstrated by in-vitro and in-vivo studies.

Research shows that a 100% vegetable, inorganic phosphate-free and high phytate diet can result in normal animal performance in a commercial setting.

AxtraPHY Gold is the new gold standard of phytases.

Improved intestinal integrity and nutrient utilisation

Elanco’s Hemicell HT is a feed enzyme targeting β-mannans, which are anti-nutritional fibres found in most vegetable feed ingredients. β-mannans have a negative health impact when ingested, causing unnecessary gut inflammation through activation of the innate immune system.

myelanco.co.uk

Hemicell HT breaks down these β-mannans in feed, resulting in improved intestinal integrity and nutrient utilisation of the animal. This heat tolerant product, available for use in broilers and turkeys, can be used in feed that will be pelleted.

There are many species of bacteria coexisting in the animal’s innate immune system. A fundamental goal of intestinal integrity is the effective management of these bacteria to create a stable microbiome to avoid unnecessary immune activity, reducing feed intake and reducing performance below optimal.

The availability of Hemicell HT as a mainstream premix ingredient makes it possible to ensure that all of these species are kept at the right levels for optimum performance.

It catalyses the breakdown of the β-mannans in soyabean meal, reducing the activity of the innate immune system and in turn allowing a greater proportion of the dietary energy to be used for growth. Although the precise extent of the energy sparing will depend on key factors in each individual situation, customers have observed a range between 60-90kcal/kg (dietary energy reduction).
Focusing on developing products through fermentation technology

Huvepharma is a global, fast-growing company with a focus on developing, manufacturing and marketing animal health products through fermentation technology. It is well known globally for its brands of phytase (OptiPhos, Hostazym P) and NSPase (Hostazym X).

huvepharma.com

Increasing sales in the enzyme segment has required the recent expansion of its production unit at Peshtera, Bulgaria to a total fermentation capacity of 10,000m³. This extra capacity will help them fulfil the increasing demand for their new phytase, OptiPhos Plus. OptiPhos Plus has already been launched in several major countries worldwide. Registration in many more (including the EU) are ongoing or close to being completed.

OptiPhos Plus is the answer to the demand for a phytase with increased intrinsic heat stability, allowing it to be used in pelleting processes exceeding 85°C. OptiPhos Plus G (granular) has shown in many research institutes to be heat stable until 85°C. When stability at higher temperatures is required, a coated OptiPhos Plus has been developed, showing pelleting stability until 95°C.

Both products also have a good stability as pure product (minimum 24 months) or when mixed in a concentrated premix (minimum six months).

Boosting digestive and exogenous enzymes thanks to clay and algae

An innovative algo-clay complex, MFeed+, developed by Olmix Group (France), has been shown to boost feed efficiency by increasing the activity of endogenous digestive enzymes.

olmix.com

A series of experiments conducted by Pr Rostagno and Pr Albino from the University of Viçosa (Brazil) recently demonstrated that the effect of MFeed+ on digestibility was independent of the use of exogenous enzymes in the diet.

The three studies used Cobb 500 broilers fed corn-soybean diets. The diets in the three studies differed by their supplementation in exogenous enzymes; none in the first study, phytase alone in the second study and phytase and NSP enzymes in the third study.

In each study, the control groups received the standard diet without MFeed+, while the test groups received the same diet with MFeed+ on top. Results of the three experiments follow the same trend, a significant improvement of feed efficiency (2 to 3% lower FCR, P<0.05) and an increased growth rate (up to 4% higher ADG, P<0.01) in MFeed+ groups compared to the control groups. These studies highlight the capacity of MFeed+ to improve broiler performance independently of the use of exogenous enzymes, in a very cost effective manner: up to €0.076/broiler net benefit.

How enzymes can boost the digestibility of amino acids

Feed enzymes have substantial potential to increase the digestibility of many economically important nutrients in the diets of livestock. The individual capacity of phytase, carbohydrase and protease to increase the digestibility of amino acids has been extensively demonstrated. Recently their significant potential when used in combination has become even clearer.

dsm.com

In a collaboration between DSM Nutritional Products, Switzerland and Massey University, New Zealand, the effect of phytase (DSM HiPhos), protease (DSM ProAct) and a mixture of phytase and protease on ileal amino acid digestibility in broilers was explored using three substrates: corn, soybean meal (SBM), and a mixture of corn and SBM.

Combining protease and phytase in the diet delivered clear additive effects for many amino acids and substantial synergistic effects on several essential amino acids such as lysine.

The beneficial effect of phytase on amino acid digestibility was significantly enhanced by the presence of protease in the diet. This new research clearly demonstrates the beneficial effect of supplemental protease in the presence of phytase and this ‘additivity factor’, as well as the synergistic effects also observed, have considerable potential for boosting margins in a highly competitive industry.

Fig. 1. Standardised ileal digestibility (SID) of lysine in corn, SBM and a mixture of corn and SBM without enzyme addition or with phytase and protease alone or combined (redrawn from Cowieson et al., 2020).

International Poultry Production • Volume 28 Number 4