

THE KEY TO RELEASING THE FULL BENEFITS

of dietary protein in animal production is to boost its digestibility and increase the availability of amino acids - regardless of the protein source used in the feed formulation. This ensures digestible amino acid requirements can be achieved with lower levels of crude protein, without compromising feed conversion and body weight gain.

Value Added Services

We offer the highest level of technical and commercial expertise to support your use of Aextra® PRO including:

- Analytical and testing facilities
- On site applications support
- Technical and business advice

Product Form and Application

Aextra® PRO is:

- A Subtilisin protease (3.4.21.62) with a broad specificity to peptide bond sites
- TPT formulation: Thermostable up to 95°C; making it suitable for most feed manufacturing conditions
- Appropriate for application alongside other feed enzymes
- Free-flowing and dust-free for safe and accurate handling in the mill

Recommended usage rate: 0.05 kg tonne to provide 4000U/kg of feed.

Factors influencing protein digestion include:

- ▶ **Feed ingredients are variable both in terms of quality and price; with cheaper options often delivering lower protein digestibility**
- ▶ **Processing methods, high temperature and the presence of protease inhibitors can all hinder the breakdown of protein into more digestible amino acids**
- ▶ **Premium soybean meals which offer a high-quality feed protein option - thanks to balanced amino acids and high digestibility - are subject to variability issues linked to harvest conditions, processing parameters and country of origin**

CONTACT YOUR DANISCO ANIMAL NUTRITION REPRESENTATIVE OR DISTRIBUTOR FOR RECOMMENDATIONS ABOUT YOUR SPECIFIC APPLICATION NEEDS.

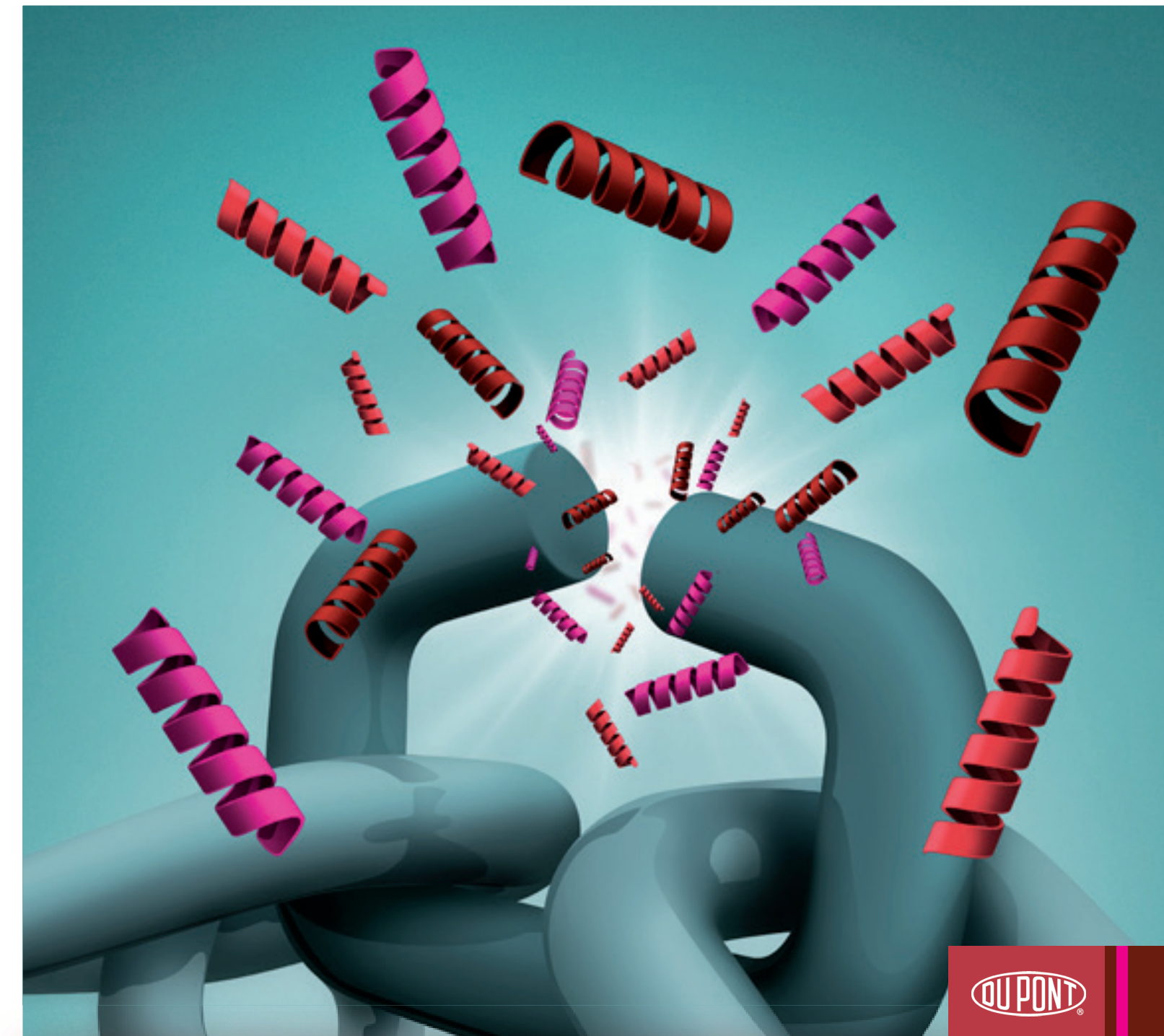
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11/2017



Aextra® PRO

FREE THE PROTEIN

The broad-spectrum protease that gives you more

Axtra® PRO

FREE THE PROTEIN

THE BROAD-SPECTRUM PROTEASE THAT GIVES YOU MORE

MORE DIGESTIBLE AMINO ACIDS: FOR BETTER POULTRY PERFORMANCE

THE IMPORTANCE OF PROTEIN

Protein is a vital part of compound feed because it provides the amino acids that are essential for growth and lean meat production. It is also one of the most expensive nutrients in the diet, as well as one of the most variable in terms of digestibility.

However, between 15-20% of dietary protein typically escapes digestion by the animal's endogenous proteases and passes through as waste – causing serious challenges for poultry producers.

This undigested protein not only directly affects formulation costs, it can also be used by non-beneficial bacteria to produce toxic compounds, such as amines, which can adversely impact gut health.

By facilitating higher levels of protein digestibility in the animal, Axtra® PRO improves poultry production with:

MORE growth: increased availability of amino acids for absorption boosts feed conversion and body weight gain. (See Fig 2)

MORE healthy gastro-intestinal tract (GIT): lower levels of undigested protein in the latter part of the GIT means that it is no longer available for non-beneficial bacteria to use as a substrate.

MORE favourable environmental conditions: less ammonia in the manure and litter reduces health risks and increases the welfare of both animals and farm workers.

MORE metabolizable energy on top of carbohydrases. (See Fig. 3)

IMPROVED FEED CONVERSION AND BODY WEIGHT GAIN

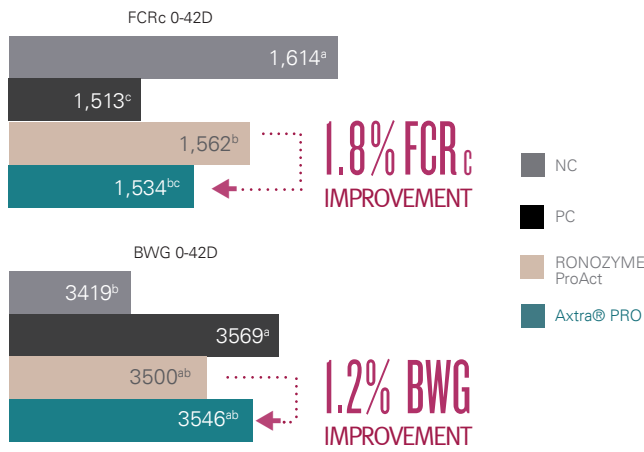


Figure 2

Axtra® PRO IMPROVES ENERGY RETENTION ON TOP OF CARBOHYDRASES

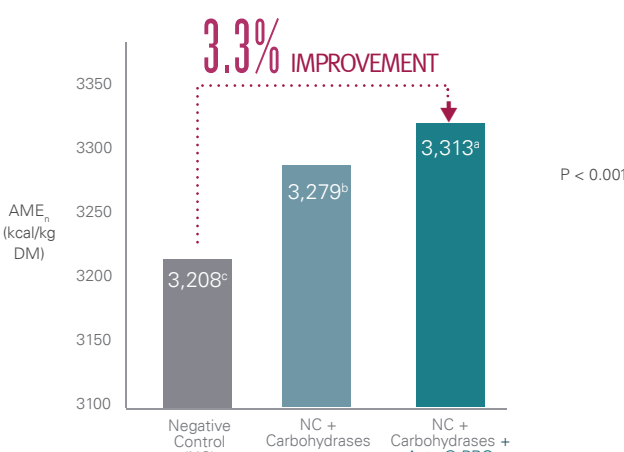


Figure 3

THE SOLUTION IS Axtra® PRO

How Axtra® PRO gives you more

Axtra® PRO contains a single-activity enzyme which overcomes the limitations of the animal's endogenous proteases to enhance and improve protein digestion.

It bridges the gap between pepsin active in the proventriculus and gizzard, and the pancreatic proteases active in the intestine. Endogenous enzymes are affected by several external factors such as inhibitors and retention time; thus limiting their efficacy.

Axtra® PRO is active throughout the digestive tract. With a broad pH and ability to cleave a peptide chain at almost any position, this supplements natural enzymatic hydrolysis and ensures valuable amino acids are made available for muscle deposition and growth.

With its ability to overcome the low digestibility and variability of cheaper feed ingredients, Axtra® PRO delivers costs savings of up to US \$7.8/treated tonne by:

Reducing dependency on high cost soybean meals.

Allowing greater flexibility in terms of ingredient selection and use of alternative low cost protein sources.

Boosting production efficiencies with higher quantities of quality meat produced from less feed.

Ensuring more protein is fully utilized by the animal and is not excreted as waste.

15% LESS SOYBEAN MEAL

A 223-TONNE REDUCTION IN SOYBEAN MEAL CONSUMPTION PER 1 MILLION BIRDS

MORE FLEXIBILITY IN INGREDIENT SELECTION: FOR INCREASED PROFITABILITY

MORE CONTROL OF EMISSIONS: FOR A HEALTHY PLANET

Environmental benefits from using Axtra® PRO can include:

Higher protein digestibility improves nitrogen retention in the animal; leading to a potential 15% reduction in ammonia emissions. (See Fig. 4)

Less reliance on soybean as a source of protein reduces the need to expand farmland; leading to more sustainable soybean production.

Axtra® PRO IMPROVES NITROGEN RETENTION LEADING TO APPROXIMATELY 15% REDUCTION OF AMMONIA EMISSION

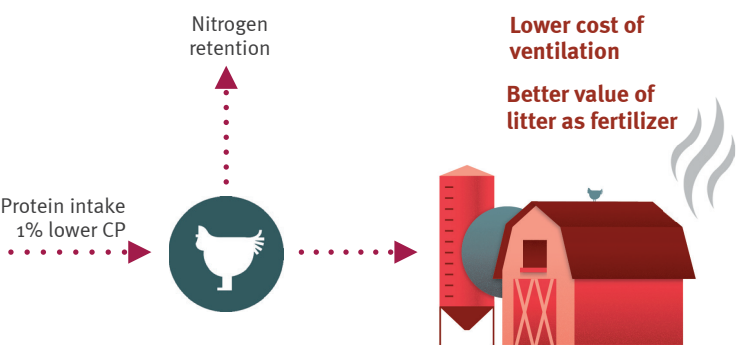
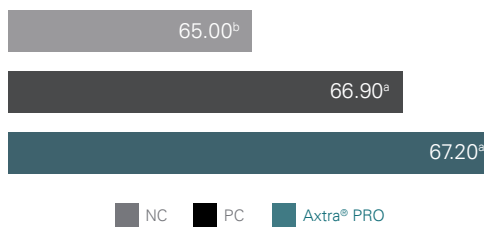


Figure 4

N RETENTION % INTAKE



a,b Means in the same row with different superscripts differ (P< 0.05)

IMPROVEMENT IN ILEAL DIGESTIBILITY OF AMINO ACIDS WITH SUPPLEMENTATION WITH Axtra® PRO

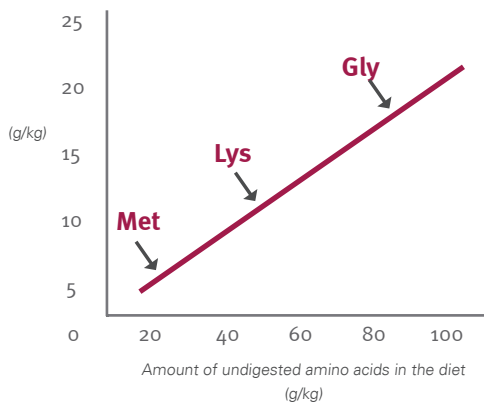


Figure 1

The greater the undigested nutrient fraction the greater the uplift with Axtra® PRO. For example, Methionine (Met) is relatively highly digested by the animal, so there is less of an uplift in Met digestibility in absolute terms compared to Lysine (Lys) and Glycine (Gly).

However, in all cases the uplift is related to the amount of undigested substrate available to the bird.