

RONOZYME® ProAct

THE PROBLEM

Poultry diets contain significant amounts of protein and amino acids that birds aren't able to fully utilize. With feed costs accounting for 65% to 70% of broiler production costs, it's important that every component of the rations work efficiently.



RONOZYME® ProAct —THE PROVEN PROTEASE

RONOZYME® ProAct is a protease that allows a more efficient use of feed by breaking amino acid bonds in proteins, generating more available amino acids and peptides that can be used by the animal.



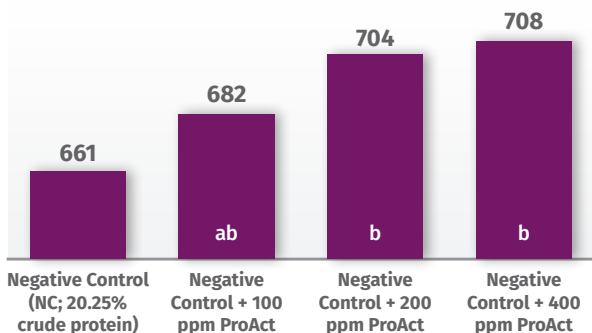
WHAT IS PROTEASE? Protease (also termed peptidase, proteinase or proteolytic enzyme) breaks down proteins. A protease is any enzyme that conducts proteolysis, which begins catabolism by hydrolysis of the peptide bonds that link amino acids together in the polypeptide chain forming the protein. Proteases occur in both fungi and bacteria.

IMPROVES PROTEIN AND AMINO ACID DIGESTIBILITY

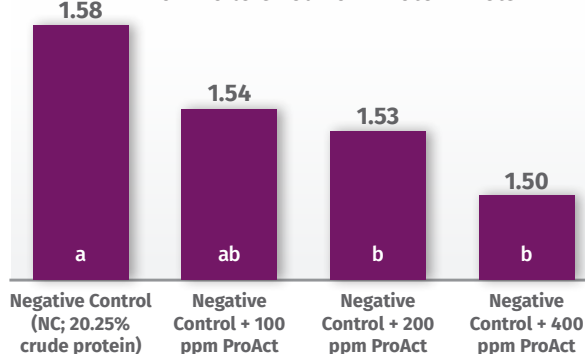
RONOZYME® ProAct generates more available amino acids and peptides from the same protein.

Research trials give proof of RONOZYME® ProAct's merit: at the recommended 200 ppm (0.40 lbs/2,000 lbs feed), body weight and feed conversion were both improved over the low-protein negative control.

RONOZYME® ProAct Improves 22-day Body Weight (grams) in Broilers Fed Low-Protein Diets



RONOZYME® ProAct Improves 22-day Feed Conversion of Broilers Fed Low-Protein Diets



Source: University of Maryland study; abP<0.05 designates difference

INCREASES FLEXIBILITY IN FEED FORMULATION

University of Nebraska and University of Maryland trials show amino acid digestibility was improved by significant margins (3.3% to 8.2%) in multiple ingredients

Ingredient	RONOZYME® ProAct	Threonine	Cysteine	Methionine	Lysine	Arginine
Broilers		% digestible				
SBM	0	75.2cd	74.9de	83.1c	83.7c	87.3b
	200 ppm	83.2ab	81.7c	86.3b	87.1a	88.7b
Corn	0	80.6bc	86.6b	84.0b	81.9b	87.8b
	200 ppm	88.2a	92.5a	90.3a	84.4ab	91.0a
DDGS	0	68.1e	73.5e	76.9ef	62.5e	71.8e
	200 ppm	72.5de	77.7d	79.9d	65.3e	76.6d
MB M	0	76.8cd	42.6g	79.3d	78.7c	81.4c
	200 ppm	80.7bc	53.4f	82.6c	81.8b	82.8c
Bakery	0	84.2ab	90.2a	75.2f	72.7	73.4e
	200 ppm	89.1a	92.9a	78.4de	75.6	76.6d
% Improvement		7.47	8.27	4.99	4.03	3.38
RONOZYME® ProAct	<i>P value</i>	0.0001	0.0001	0.0001	0.0001	0.0001
Ingredient x RONOZYME® ProAct	<i>P value</i>	0.8369	0.0193	0.3821	0.9941	0.4027

IMPROVES FEED COSTS

RONOZYME® ProAct offers savings of approximately \$2.00 to \$3.50 per ton in broiler feed costs (at a rate of 0.4 lbs/2,000 lbs feed).

- The basis for the matrix values includes eight ileal digestibility studies across a wide range of feed ingredients
- Allocating this matrix into least-cost feed allows the nutritionist to place an upper limit on the enzyme in feed formulas. This determines the economical validity for the use of RONOZYME® ProAct in feeds

PRODUCT SPECS

- Broilers, turkeys: 200 g/MT or 0.40 lbs/2,000 lbs feed to provide 15,000 PROT/kg feed
- Layers: 120 g/MT or 0.24 lbs/2,000 lbs feed

Amino Acid	Matrix value, %	Actual uplift, %
Dig Lysine (%)	170	0.034
Dig Methionine (%)	53	0.011
Dig Meth + Cys (%)	169	0.034
Dig Threonine (%)	207	0.041
Dig Tryptophan (%)	23	0.005
Dig Arginine (%)	148	0.030
Dig Valine (%)	133	0.027
Dig Leucine (%)	85	0.017
Dig Isoleucine (%)	102	0.020
Dig Histidine (%)	61	0.012
Dig Gly + Ser (%)	270	0.054
ME (Kcal/lb)	56,818	12