



EFFICIENT SOLUTIONS  
TOTAL NUTRITION™



ENGINEERED FOR EFFICIENCY

**KemZYME® Protease**

**Precision Delivery with Accuracy**

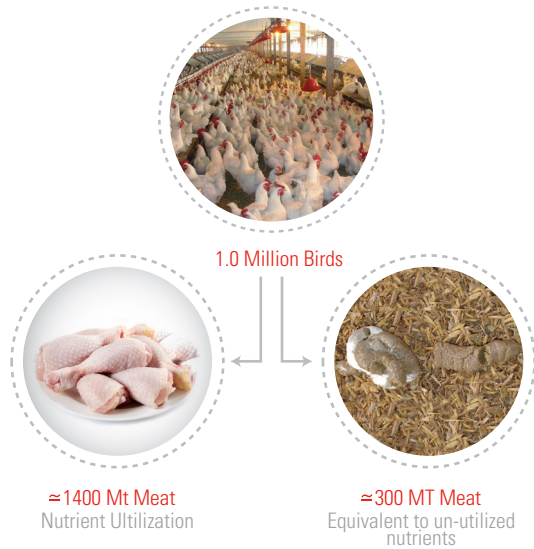
**KEMIN®**

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# EFFICIENCY IN ANIMAL PROTEIN PRODUCTION

Efficient animal protein production is the driving factor for sustaining profitability. Feed nutrient utilization remains single most inevitable factor on efficiency in animal protein production.

## Scope for Nutrient Utilization Improvement in Broilers

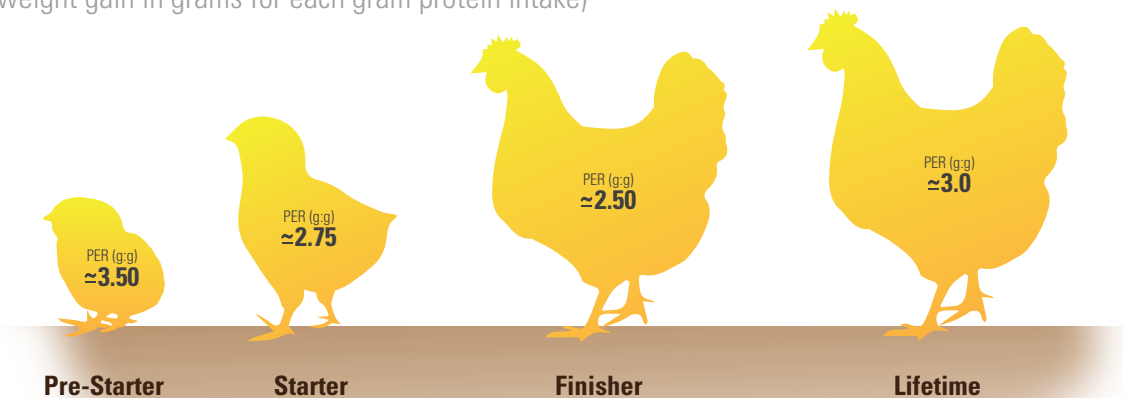


## Protein Nutrition at Different Stages of Broilers

	YOUNG	ADULT
Feed Protein Intake	★★★	★★
Protein Requirement	★★★	★★
Endogenous Protease	★	★★
Protein Utilization	★★	★★
Protease Requirement	★★★	★★★

## PROTEIN EFFICIENCY RATIO (PER) IN BROILERS

(Body weight gain in grams for each gram protein intake)

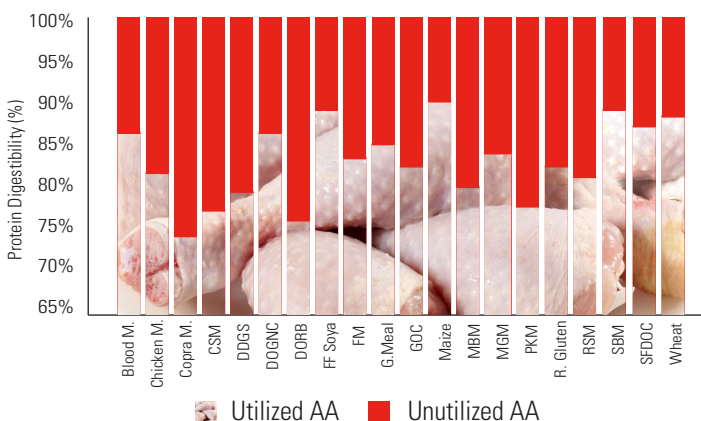


Protein utilization in converting the feed protein to meat protein is approximately 40% in broilers.

Improving the protein digestibility will help to enhance the PER and Protein Utilization.

## SCOPE FROM FEED MATERIALS

## NEED FOR A PARADIGM SHIFT

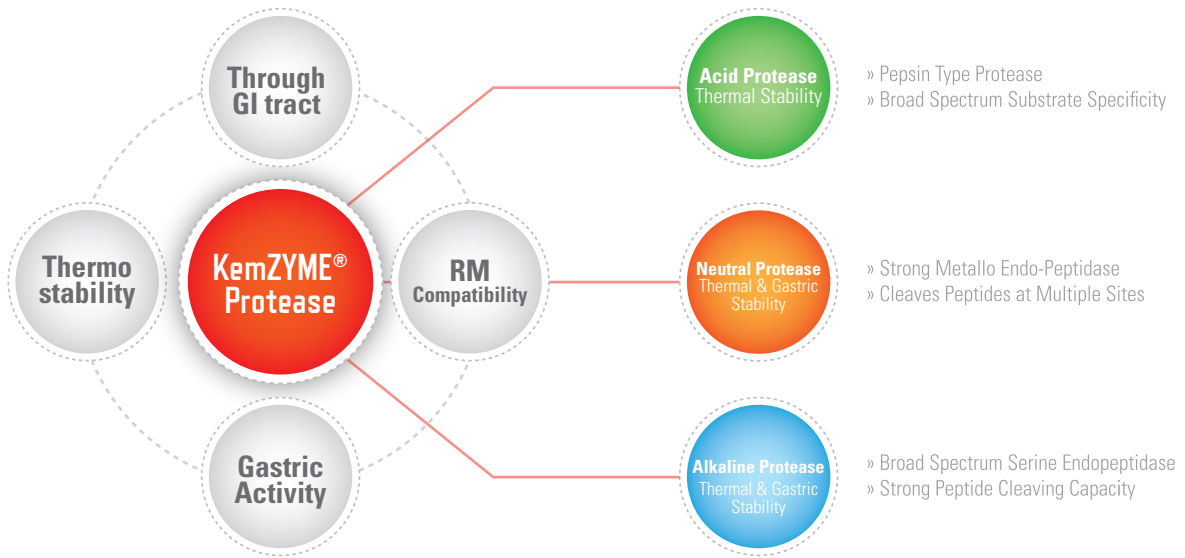


Percentile of Utilized & Un-utilized feed Nitrogen

Criteria	Other Protease	KemZYME® Protease
Type of Protease	Single Protease	Multi Protease
Thermo-stability	Yes	Yes
Gastric-stability	Low	High
Sustained Release	Low	High
RM Compatibility	Medium	High
Nutritional Matrix	Yes	Yes
Performance	Medium	High

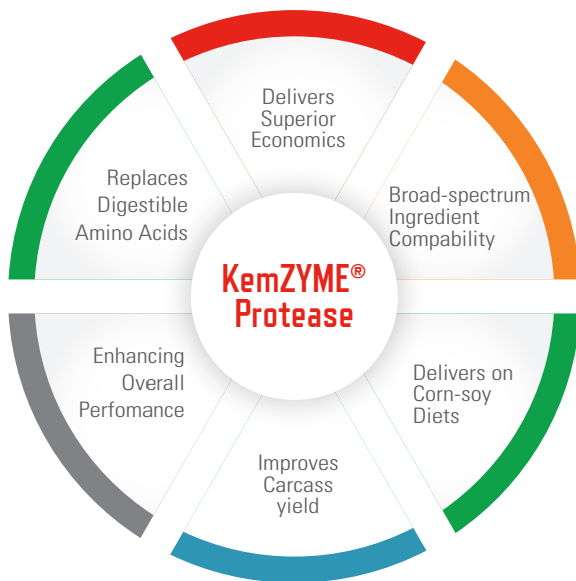
# MULTI-PROTEASE DELIVERS DIFFERENTLY

**KemZYME® Protease** is the unique multi-protease system with a patented *target release technology* for *gastric acid stability*; with *high activity* and thermo-stability delete. This ensures a superior amino acid release throughout GI tract as well broad-spectrum ingredient compatibility.



## Uniqueness of KemZYME® Protease

## KemZYME® Protease THE MULTI - PROTEASE ADVANTAGE



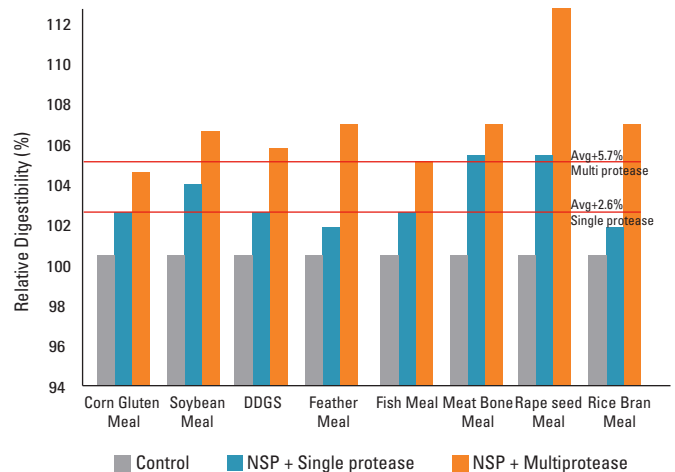
Differential benefits of KemZYME® Protease in Broiler ration

## DELIVERS ON CORN-SOYBEAN DIETS

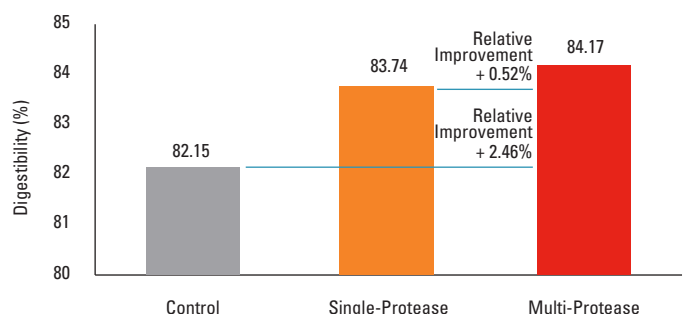
Use of multi-protease in corn soy diets allows better bio-availability of amino acids over single proteases. This allows replacing crude protein and amino acids to reduce production cost.

## BROAD-SPECTRUM INGREDIENT COMPATIBILITY:

The multi-protease in **KemZYME® Protease** ensures a better amino acids release from various feed ingredients over single alkaline proteases.



Source: WP-07-00051



Average Amino Acid Digestibility Improvement (Corn-Soy Diets)

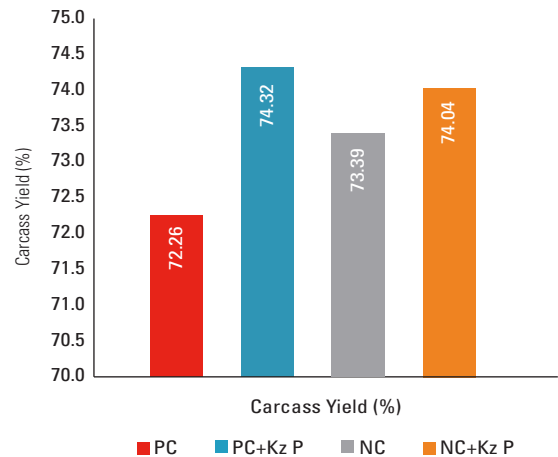
Source: WP-07-00051

# IMPROVES FLOCK PERFORMANCE & CARCASS YIELD

Incorporation of **KemZYME® Protease** for broiler diets allows reducing the crude protein from the diet, thus controlling the production cost. Both reformulation and on-top application improved the broiler performance and carcass yield with reduced production cost.

	ADG(g)	ADFI(g)	Livability (%)	FCR	Carcass Yield (%)
Positive Control (Normal Diet)	51.7	92.3	91.07	1.79	72.26
Positive Control + KemZYME® Protease	52.2	92.2	91.97	1.77	74.32
Negative Control (Reformulated)	52.8	97.1	93.75	1.84	73.39
Negative Control + KemZYME® Protease	53.8	96.2	91.97	1.79	74.04

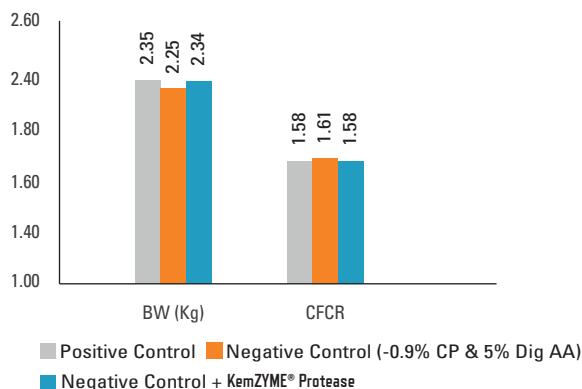
Source : PDP, Hyderabad (Data under publication)



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## REPLACES DIGESTIBLE AMINO ACIDS

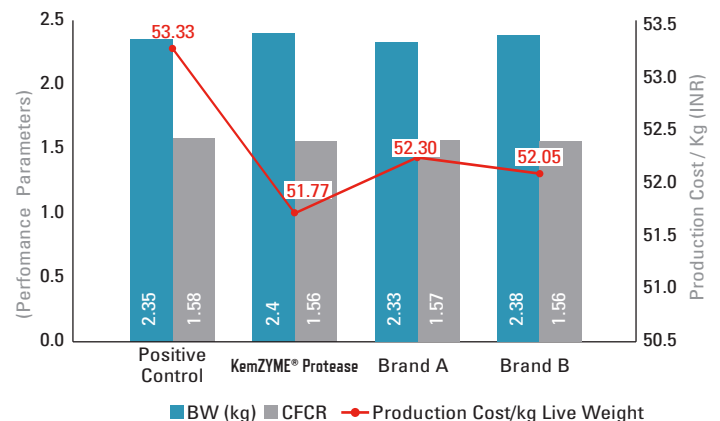
**KemZYME® Protease** allows reducing the digestible amino acid levels in the formulation with improved performance and flock economics.



Source: TILMAH (Data under publication)

## DELIVERS SUPERIOR ECONOMICS

On a comparative study with similar concepts on pellet diets with reduced protein, **KemZYME® Protease** helped to minimize the production cost.



Source: TILMAH (Data under publication)

## APPLICATION

**KemZYME® Protease** recommended through reformulation with diet specific matrix values as well on top application.

**Reformulation** : 300 g/mt with 3-5 % digestible Amino acids

**On-top Application** : 150 gms per tonne of feed.

**Note** : Please contact Kemin technical team for ideal application and matrix values



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