

MAX-PRO

**Thermostable Protease 50,000U
Feed Grade Granular Enzyme**



**The maximum protease for the maximum
protein digestion: Add to make difference**



ASB Enterprises

"The Best Additives for The Best Feed: Add to Make Difference"

Challenge

Protein is the second-most important and costly nutrient in the diets and is primarily derived from feed sources such as soybean meal, canola meal, and animal by-products.

Incomplete breakdown of proteins in poultry diet poses a significant challenge, resulting in limited availability of essential amino acids.

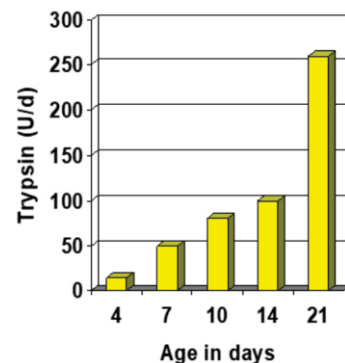
A significant amount (18–20%) of the protein consumed by broilers skips the digestive system without being fully digested and absorbed (Angel et al., 2011). This deficiency impacts not only the growth and development of birds but also their overall feed efficiency.

This insufficient digestion and absorption also result in protein waste, higher production costs, and a detrimental environmental effect (Gerber et al., 2015). Additionally, poultry manure contains undigested proteins and other excreted materials that pollute nitrogen and phosphorus (Gerber et al., 2015).

Solution

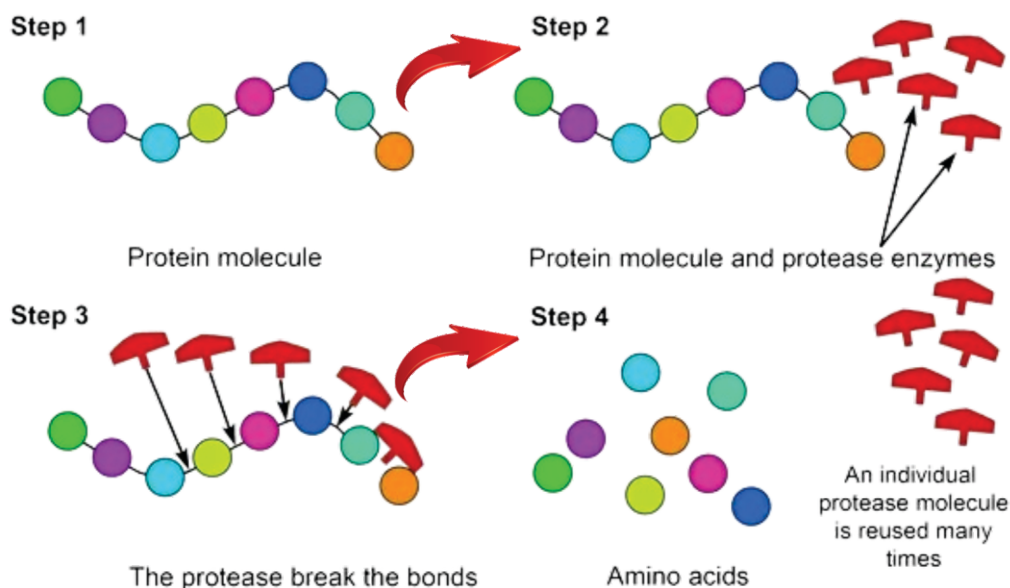
Ensuring efficient protein and amino acid utilization is critical for maximizing growth rates, improving feed conversion ratios, and supporting the health and productivity of poultry. Exogenous enzymes like proteases can be added to poultry diets to improve protein digestibility, decrease protein waste, and reduce associated costs and environmental effects (Amer et al., 2021).

Early secretion of trypsin enzyme in chick



From Noy and Sklan, Poultr. Sci. 1995, 74:366-373

Enzymes that break down proteins are proteases, e.g. pepsin and trypsin.



MAX-PRO is a compound protease comprising two distinct enzyme activities: aspartic acid protease (acid protease) extracted from *Aspergillus niger* fungus, and serine protease (alkaline protease) extracted from *Bacillus licheniformis*. Both enzymes are produced separately through solid-state fermentation technology and refined using advanced post-treatment techniques to ensure optimal activity and purity.

Its main activity is protease, capable of hydrolyzing complex protein structures, thus increasing amino acid content, can also complement animal endogenous enzyme deficiency, improve feed utilization of energy, to promote animal growth, improve daily gain, lower feed conversion than to improve its performance.

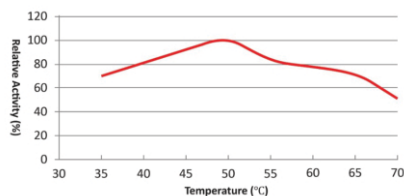
MAX-PRO is a micronized, granular protease with exceptional thermostability, featuring a highly active combination of acidic and alkaline proteases. This unique blend ensures optimal performance throughout the gastrointestinal tract (GIT).

Max-Pro effectively hydrolyzes proteins with broad specificity. This enzyme is ideal for inclusion in protein-rich diets (such as those containing soybean meal) and other substrates, where it works in synergy with other enzymes to counteract anti-nutritional factors.



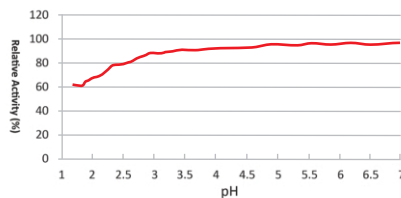
The Optimal Temperature Range

The optimal temperature range of **MAX-PRO** is 40 -55 C and there is still more than 80% of the enzyme activity in the range of 37-40 C to ensure that it plays a highly efficient enzymatic role in poultry.



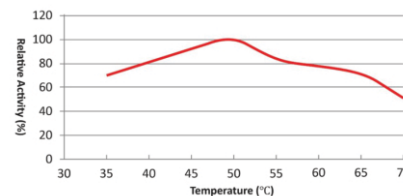
The Optimal pH Value

The optimal pH value of **MAX-PRO** is in the pH range of 3-7, which ensures that it plays an efficient role in the gastrointestinal tract of poultry.



Temperature Stability

Under the water bath conditions **MAX-PRO** treated at 50-80 C for 5 min, and the enzyme survival rate was more than 80%; where as when treated in a water bath at 90 C for 5 minutes, the enzymes survival rate still remained above 70% to with stand the high temperatures.



Research Trial

Objective:

This research trial aimed to explore the impact of nutritional protease addition on the growth performance, carcass characteristics, nutrient digestibility, caecal microbiota, and immune status of broiler chicks.

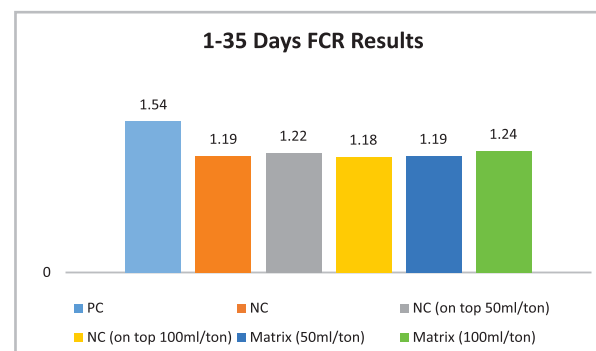
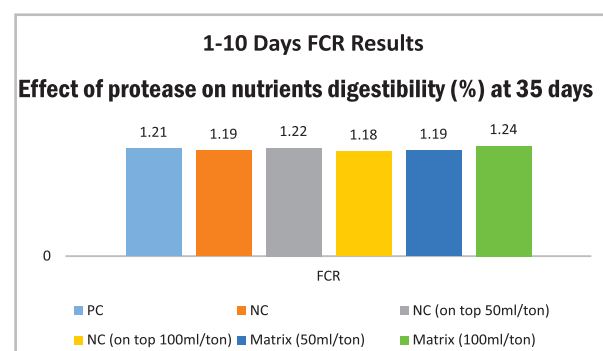
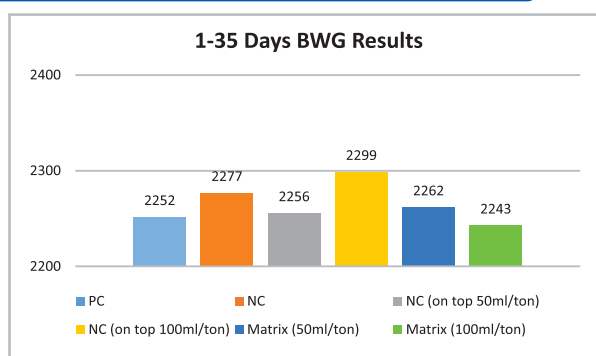
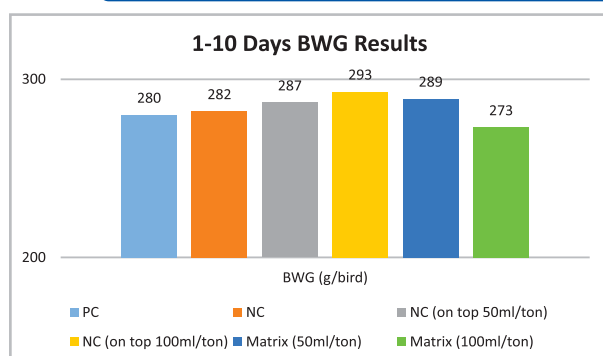
Experimental design:



Research Trial Conducted at R&D Farm, Zubair Feeds, Mandra

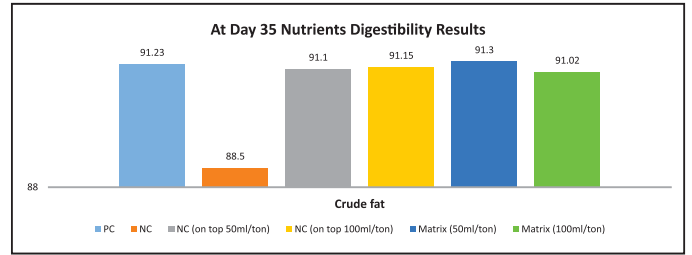
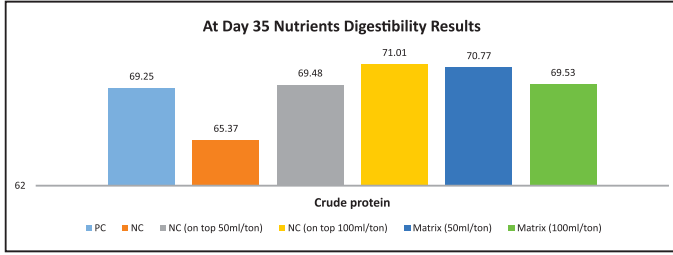
Groups	Treatment/feed
T1	Positive Control (PC), Control diet
T2	Negative Control (NC), Diet with 3% amino acids reduction
T3	NC+50 ml protease/ton of feed
T4	NC+100 ml protease/ton of feed
T5	NC+50 ml protease/ton of feed with matrix
T6	NC+100 ml protease/ton of feed with matrix

Effect of protease on body weight gain (BWG) & feed conversion ratio (FCR) of broiler



Effect of protease on nutrients digestibility (%) at 35 days

Effect of protease on nutrients digestibility (%) at 35 days



Major Findings:

1. Feed intake was increased significantly of group supplemented 100ml protease as compared to control diet.
2. Body weight was also improved in pre-starter phase significantly among all treatments with protease supplementation.
3. Feed conversion ratio was significantly improved significantly in same group as compared to other dietary treatments.
4. Nutrient digestibility of Crude protein (CP) and crude oil was also improved by supplementation of protease.
5. Protease supplementation not only alters Crude Protein digestibility but at the same time Crude Fat digestion also improved significantly.

Conclusion:

It is concluded that protease added in diet up to 100 g/ton of feed improved bird performance in most of the parameters without any harmful effect on bird health.

پولٹری کی غذا اہم مسئلہ بعض پروٹین ذرائع، جیسے سویا پین میل کا مکمل طور پر ہضم ہونا ہے۔ یہ پروٹین اکثر ہاضمے کے نظام (Digestive system) میں مکمل طور پر نہیں ٹوٹتی ہے جس کی وجہ سے غذائی اجزاء ناقص کم جذب ہوتے ہیں بلکہ ان کا گروتھ میں کردار بھی محدود ہو جاتا ہے۔ مزید یہ کہ، آنتوں میں ہضم نہ ہونے والے پروٹین نقصان دہ بیکٹیریا کی افزائش کو فروغ دے سکتے ہیں، جس سے آنتوں کی صحت متاثر ہوتی ہے۔ اس غیر موثر عمل کے نتیجے میں غذائی اجزاء کا ضیاع، نائٹروجن کے اخراج میں اضافہ، اور مہنگے، اعلیٰ معیار کے پروٹین ذرائع کی ضرورت پیش آتی ہے، جس سے پیداواری لاگت میں بھی اضافہ ہوتا ہے۔

MAX-PRO ایک انتہائی مفید فنگس (*Aspergillus niger*) اور بیکٹیریا (*Bacillus Licheniformis*) سے حاصل کیا گیا ایک کمپاؤنڈ پروٹیز انزائم ہے۔ جو خوراک میں موجود پروٹین کو ہائیڈرولائز کر کے امینو ایسڈ کی مقدار بڑھاتا ہے، جس سے جانوروں کی اینڈوجینس انزائم کی پوری ہوتی ہے۔ اس سے توانائی کا بہتر استعمال ہوتا ہے، جانوروں کی نشوونما میں مدد ملتی ہے اور روزانہ وزن میں اضافہ ہوتا ہے جبکہ فیڈ کی کارکردگی بھی بہتر ہوتی ہے۔

اہم خصوصیات

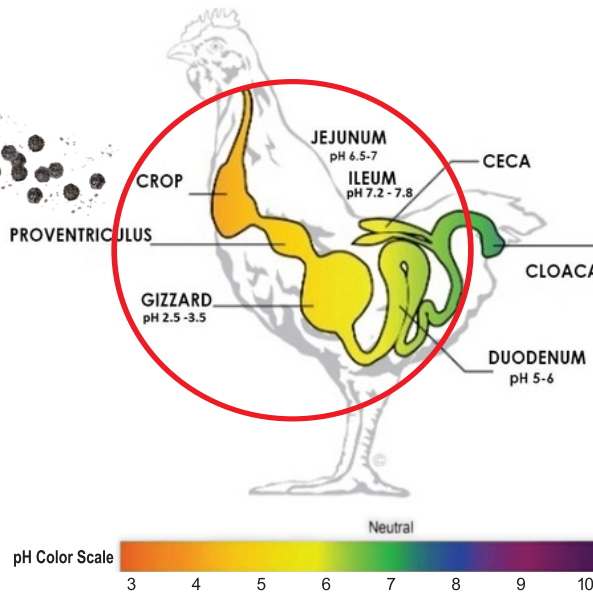
- ✓ پروٹین کی ہاضمے میں بہتری لاتا ہے
- ✓ امینو ایسڈ کی دستیابی میں اضافہ کرتا ہے
- ✓ آنتوں کی صحت کی حمایت کرتا ہے
- ✓ تیز اہیت والے ماحول میں مستحکم
- ✓ نائٹروجن کے اخراج میں کمی
- ✓ فیڈ کی تشکیل کو بہتر بناتا ہے
- ✓ فیڈ کی کارکردگی کو بڑھاتا ہے۔
- ✓ فیڈ کی قیمت کو کم کرتا ہے۔

طریقہ استعمال

خوراک: 100-200 گرام فی ٹن فیڈ

پیکنگ: 25 کلو گرام

خشک دانے دار پاؤڈر



Recommended Dose: 100-200 g/ton of feed
Packing: 25 Kg Bag
Dry Granular Powder



ASB Enterprises

"The Best Additives for The Best Feed: Add to Make Difference"



ANHUI ZHENGLANG JIUZHOU BIOLOGICAL TECHNOLOGY CO.,LTD
NO.01, GUOHUA ROAD, PING QIAO INDUSTRIAL ZONE, YUAN DISTRICT, LUAN CITY, ANHUI PROVINCE, CHINA