Evaluation of the effects of a Protease combined with a Phytase on growth performance, phosphorus and nutrient utilization of broiler chicks fed a low phosphorus basal diet

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INTRODUCTION

RONOZYME® ProAct (CT) is a novel protease product that has been shown to increase broiler performance. Due to the fact that most of today's broiler diets are supplemented with phytase, this study was carried out to evaluate a combination of both enzymes. The effects of **RONOZYME® ProAct (CT)** and a phytase, **RONOZYME® P5000 (CT)**, supplemented alone or in combination were evaluated in a suboptim al P basal diet based on corn-soybean meal.

DESIGN

Animals: 9 x 8 male birds (Ross PM3) / treatment

Treatments: Control
Phytase (CT) at 750 U/kg
Protease (CT) at 18000 PROT/kg
Phytase + Protease at 750 U/kg + 18000 PROT/kg

Duration: Day 8 to day 22

Feed: Pelleted corn / SBM basal diet, 5.4 g P /kg

Parameters:
Growth performance (WG and FCR) (**Table 1**)
Apparent utilization of phosphorus (AUP) (**Figure 1**)
Apparent ileal digestibility (AID) of protein (**Figure 2**)

Statistical analysis:
ANOVA on the measured parameters followed by Newman-Keuls test as post hoc test ($p<0.05$)

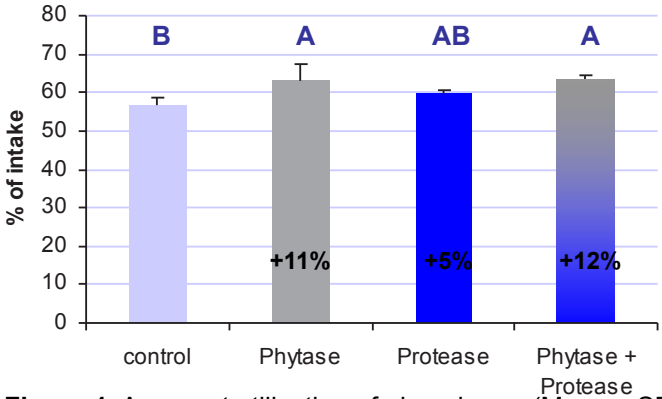

Figure 1: Apparent utilization of phosphorus (Mean ± SD)

RESULTS

Each of the products improved the WG and the FCR of the animals, though numerically. In combination their effects were additive and FCR was significantly improved by 3.8 %. The combination of the protease with the phytase improved the AUP by 12.0 % compared to the control diet. The AID of protein was also numerically improved by inclusion of phytase, protease and a combination of both.

Table 1: Performance of broiler chicks from day 8-22 (Mean ± SD)

Treatment (T)	Weight gain (g/ bird)	FCR (g feed / g gain)
Control (CTRL)	601^{A} ± 38.0	1.534^{A} ± 0.034
Phytase	635^{A} ± 42.5	1.508^{AB} ± 0.047
Protease	613^{A} ± 30.3	1.510^{AB} ± 0.038
Phytase + Protease	642^{A} ± 29.9	1.476^{B} ± 0.014

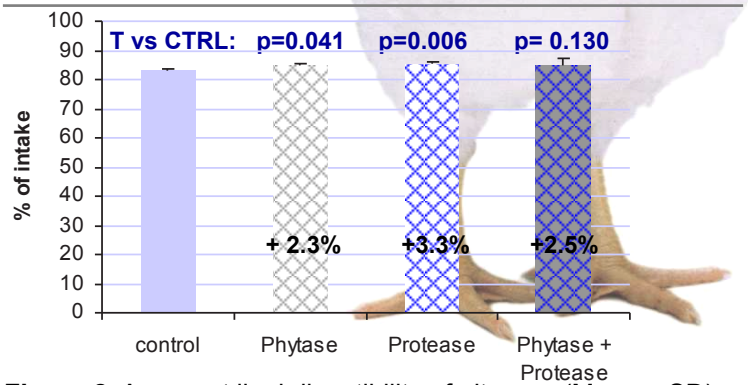

Figure 2: Apparent ileal digestibility of nitrogen (Mean ± SD)

CONCLUSION

RONOZYME® ProAct (CT) and RONOZYME® P5000 (CT) tested alone or in combination were effective in improving animal performance in a suboptimal P basal diet. The enhancement of performance was related to an improvement of the utilization of dietary phosphorus and crude protein by the enzymes.

In combination, the two products were able to improve the digestibility of nutrients and minerals which resulted in an at least additive effect on FCR.

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