Effect of unprocessed raw soybeans and the influence of an exogenous protease on broiler performance

M. Umar Faruk[1] , R. Aureli[1], W. Schliffka [2], K. Pontoppidan[3], P. Nielsen[3], and J. Broz[2]

[1] Research Centre for Animal Nutrition and Health, DSM Nutritional Products, F-68128 Village-Neuf, France

[2] DSM Nutritional Products Ltd, BP 3255, CH-4303 Kaiseraugst, Switzerland

[3]Novozymes A/S, DK-2880 Bagsvaerd, Denmark

Presenting author: Murtala Umar Faruk@dsm.com

BACKGROUND

Poultry industry is facing numerous challenges in providing quality feed to optimize animal performance and profit. Generally, raw soybeans is known to reduce poultry performance due to the presence of anti nutritional factors such as trypsin inhibitors. However, the potential influence of exogenous proteases to alleviate this impaired performance requires more investigation.

TRIAL OBJECTIVE

Evaluate the influence of a novel protease (RONOZYME® ProAct) to improve the performance of broiler birds fed diets containing unprocessed raw soybeans (RSB)

TRIAL DESIGN:

Animals and treatments: 480 day-old Ross PM3 broiler chickens in a 3x2 factorial arrangement (3 diets; 0, 10 and 20 % raw soybean (RSB) and 2 levels of Ronozyme® ProAct ; 0 and 15000 PROT /kg of diet[(1)]); **Diets composition:** iso-nitrogen and iso-energetic (21,4% CP; 12.6 MJ/kg ME). The levels of trypsin inhibitor activity were 0.941, 3.501 and 6.066 mg/g TIA-AOCS in the diet containing 0, 10 and 20% full fat soybeans respectively; **Trial duration:** day 0-21 of bird age; **Data & analysis:** Body weight gain, feed intake and FCR. ANOVA ($p<0.05$) followed by Newman-Keuls test where appropriate.

[1]One PROT unit is defined as the amount of enzyme that releases 1 µmol of p-nitroaniline from 1 µM of substrate (Suc-Ala-Ala-Pro-Phe-p-nitroaniline) per minute at pH 9.0 and 37°C.

RESULTS:

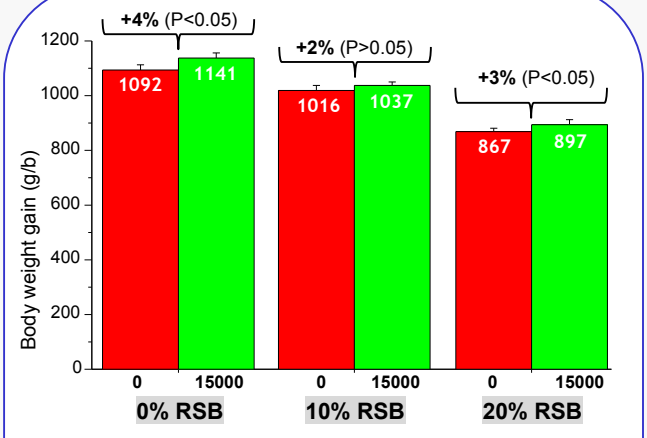

Figure 1. Effect of raw soybean (0, 10 & 20 %) and RONOZYME® ProAct (0, 15000 PROT/kg feed) on BWG of broiler birds from day 0-21 of age.

Table 1. Main effects of inclusion of unprocessed raw soybean (0, 10 & 20 %) and RONOZYME® ProAct (0, 15000 PROT/kg feed) on BWG, FI and FCR of broiler birds from day 0-21 of age.

Effect	BWG (g/b)	Feed intake (g/b)	FCR (g feed/g BW)
Treatment	<0.0001	<0.0001	<0.0001
RSB	<0.0001	<0.0001	<0.0001
ProAct	0.0205	0.0301	0.0301
Interaction	NS	NS	NS

- **Feed intake was significantly reduced with the increasing level of full fat soybeans (1403 g/bird, 1345 g/bird, 1250 g/bird for 0, 10 and 20% RSB inclusion in the diet respectively).**
- **RONOZYME® ProAct compensated the reduced feed intake and resulted in similar FCR with the control.**

- **Overall body weight gain was significantly reduced with the increasing level of RSB in the diet.**
- **RONOZYME® ProAct significantly improved body weight gain (4 and 3 % in diet containing 0, and 20% RSB respectively).**

Inclusion of unprocessed raw soybeans in the diet of broiler birds significantly reduced feed intake, body weight gain and deteriorated FCR. Supplementation with RONOZYME® ProAct improved these parameters.

RONOZYME® ProAct

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