

Research Abstract

METABOLISM AND NUTRITION

Studies on the Feeding Value of LinPro for Broiler Chickens

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Purpose :

- Digestibility Trial: To determine the apparent metabolizable energy (AME), and amino acid and fat digestibility of LinPro when fed to broiler chickens.
- Broiler Trial: To study the use of graded levels of LinPro on the performance of broiler chickens and to study the impact of diet on the fatty acid profile of broiler chicken carcasses.

Methodology :

Digestibility Trial:

- Extruded LinPro at 30% of a basal diet was compared to an equal amount of flaxseed and peas that were ground in a hammer mill before use.
- Chicks were fed a commercial diet from 1 to 24 days of age and then transferred to a treatment diet containing 0 or 30% of the test meal.
- After 7 days, the contents of the proximal ileum, terminal ileum and faeces were collected for analysis.

Broiler Trial:

- Four dietary treatments were used (0, 5, 10 or 15% LinPro), with each formulation containing equal protein and energy.
- Each treatment was replicated five times with 124 birds per replication.
- Birds were on trial from 0 to 39 days of age.
- Body weight, feed consumption, daily mortality and a subjective litter quality assessment were recorded throughout the trial.
- At 19 and 39 days of age, ileal contents and fatty acid profiles of carcasses were examined.

Results :

Digestibility Trial:

- Birds fed extruded LinPro gained more weight and converted feed more efficiently than those that were fed the same ingredients in a non-extruded form.
- Diets including LinPro had a lower AME, as well as reduced fat digestibility in comparison to the non-extruded form. However, all amino acids except methionine and serine were more digestible for LinPro.

Broiler Trial:

- LinPro resulted in a linear decrease in growth rate for 0-19 days, but had no effect on gain from 19 to 39 days. The degree of this effect was relatively small.
- LinPro did not affect the total fat content of the carcass; however, including LinPro had a major effect on the fatty acid composition of the carcass fat. Most notably, omega-3 fatty acids increased while palmitic and oleic acid decreased.

Conclusion :

- LinPro caused a major increase in the omega-3 content of carcass fat with the largest portion of this increase coming from linolenic acid.
- Extrusion does improve nutrient utilization.