

# INFOsource

## Soybean Quality and Broiler Performance

Two trials were conducted at the Universidad Politécnica de Madrid (Spain) to study the influence of soybean meal origin on performance of broilers from 1 to 37 d of age. The crude protein, trypsin inhibitor units (TIU), and KOH solubility were 47% and 48.3%, 5.9 mg/g and 3.4 mg/g, and 81.2% and 86.8% for the soybean meals of Argentine and USA origin, respectively. The calculated digestible lysine and AMEn content were 2.54% and 2,310 kcal/kg for Argentine meal and 2.68% and 2,390 kcal/kg for the U.S. meal. For each of the two feeding periods, starter (1 to 21 d) and finisher (22 to 37 d), the diets had similar calculated AMEn and digestible lysine content.

In trial 1, 5,200 straight-run, one-day-old Hubbard chicks were allotted to four treatments with ten replicates (a floor pen with 130 chicks). Origin of the soybean meal did not affect performance at any age. In the second trial, 1,500 straight-run, one-day-old chicks were allocated to six treatments arranged factorially with three soybean meal sources (Argentina, USA, and local) and two levels (0 vs. 250 mg/kg of diet) of plant oil extract rich in terpenes. The local SBM contained 47.3% crude protein and had similar calculated nutritive value to the Argentine soybean meal. Each treatment was replicated five times. Results showed the birds fed U.S. and Argentine meals grew faster ( $P \leq 0.001$ ), and had better feed utilization ( $P \leq 0.01$ ) than birds fed the local SBM. The inclusion of prebiotic improved body weight gains and feed conversion in birds fed the local SBM, but not in those fed the other meal sources. The researchers concluded that the U.S. soybean meal had more AMEn and digestible lysine for broilers compared to the Argentine and local soybean meal and that the use of a prebiotic may improve performance in broilers fed low quality SBM.

*Frikhal, M. and co-workers. 2009. Effect of soybean meal origin on performance of broilers from 1 to 37 days of age. Annual Meeting of the Poultry Science Association, July 20-23. Poster 364.*

## Comparison of Methods for Determining Digestible Amino Acids

The objective of this study was to determine amino acid digestibility of various feedstuffs using the precision-fed cecectomized rooster assay (PFR), the standardized ileal assay (SID), and a newly developed precision-fed chick assay (PFC). For the PFR, cecectomized roosters were precision-fed approximately 30 g of feed sample and excreta were collected 48 hours post-feeding. For the SID, 16 day-old chicks were fed a semi-purified diet containing the feed samples from days 17-21, with ileal digesta collected at day 21. For the PFC, 22 day-old chicks were precision-fed 10 g of sample mixed with chromic oxide and ileal digesta were collected at 4 hours post-feeding. Apparent digestibilities were similar for SBM and MBM between the SID and PFC assays, with values for corn being lower for the SID than the PFC assay for a few AA. Digestibility coefficients were standardized using a nitrogen-free diet (NFD) for the SID and PFC assays and using fasted roosters for the PFR assay. Standardized AA digestibility values for SBM were generally higher than those for corn and MBM. There were generally no consistent differences in standardized amino acid digestibility values among assays and values were in general agreement, particularly for soybean meal and meat and bone meal. They reported that the standardized values for some amino acids in corn were higher for the PFR than for the PFC and SID assays. The results of the study indicated that all three assays are acceptable for determining the AA digestibility of feed ingredients for poultry.

*Kim, E.J. and co-workers. 2009. Comparison of amino acid digestibilities using three different methods. Annual Meeting of the Poultry Science Association, July 20-23. Abstract 93.*

## Using Enzymes to Improve Broiler Performance

Soybean meal often contains significant levels of soluble galactans, mannans or oligosaccharides of the raffinose series that may cause nutritional disorders when ingested. Cellulases and xylanases are very effective in improving the nutritive value of barley, wheat or rye based diets for broiler chicks through the hydrolysis of soluble glucans and arabinoxylans. A study was undertaken to identify the most important exogenous enzymatic activities for decreasing the detrimental effects associated with the ingestion of soybean meal soluble polysaccharides. The data showed that birds fed on a mash corn-soybean meal based diet supplemented with the enzyme mixture Ronozyme® VP displayed improved final body weight. *In vitro* enzyme assays suggested that the positive effect associated with the intake of Ronozyme® VP is correlated with the presence of galactanase and mannanase activities. This study suggests that hydrolysis of mannans and galactans by exogenous enzymes in maize-soybean meal based diets result in an improvement of broiler performance.

*Maria S.J. Centeno, Maria S.J. and co-workers. 2006. Galactanases and mannanases improve the nutritive value of maize and soybean meal based diets for broiler chicks" The J. Poultry Sci. 43: 344-350 (Japanese Poultry Sci. Association).*