



The nutritional value of animal by-products for use in Poultry

Dr Leon Ekermans – Bester Feed and Grain (Pty) Ltd

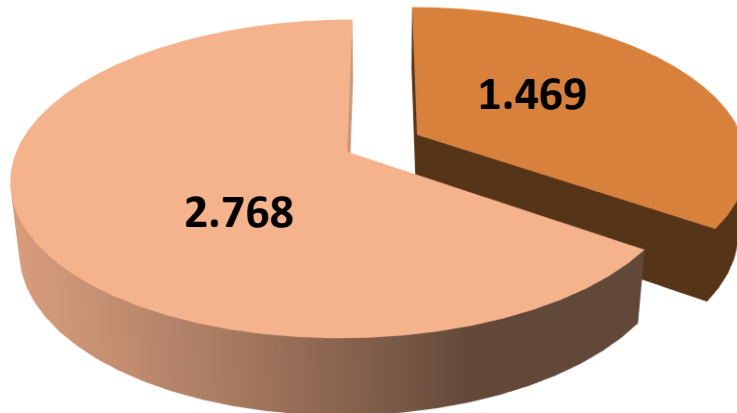
The nutritional value of animal by-products for use in Poultry

- Poultry Feed Production in South Africa
- Demand for protein and essential amino acids
- Profile of amino acid deposition in chicken and eggs
- South African legislation in the use of Animal By-products in Poultry Feed
- Rendered Fats
- Use of Rendered Protein Sources
 - Poultry meal
 - Poultry by-product meal
 - Hydrolysed poultry feather meal
 - Poultry Blood meal
 - Fishmeal
- Summary

Poultry Feed Production in South Africa

Members of the South African Association of Animal Feed Manufactures (AFMA):

- 1.469 million metric tons of feed for layers and parent stock
- 2.768 million metric tons broilers feed.



- Layers and Parent Stock
- Broilers

Demand for protein and essential amino acids

- Least cost in its simplistic form not always the best
- Basis is maize and soy mixes
- Processed soybean meal might create problems (under / over processed, oligosaccharides, etc)
- Physical properties, pelleting etc.

Ration and Recommended Amino Acids for Mixed Flock Broiler 13-22 Days Composition of Ration % of Ration



Evaluate a Ration

User : Leon Ekermans

Corn 57.00

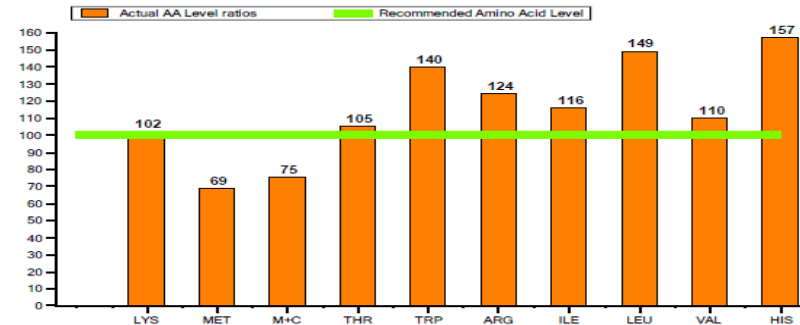
Soybean Meal, Argentina 38.00

Feed Ingredient Without AA 5.00

Sum 100.00

▪

Your amino acids balance



Ration and Recommended Amino Acids for Laying Hens

105 g/day Intake

Composition of Ration % of Ration

Corn 65.00
Soybean Meal, Argentina 23.00
Feed Ingredient Without AA 12.00
Sum 100.00

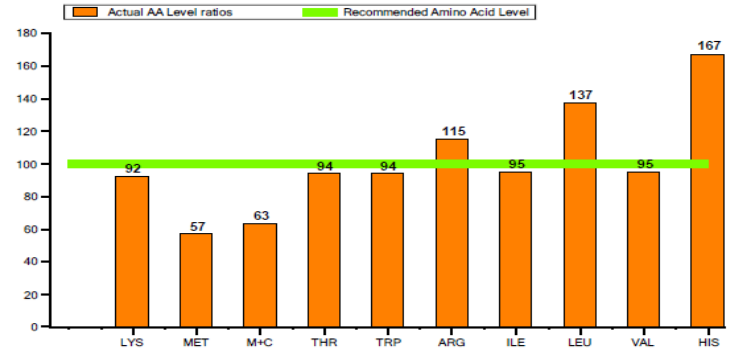
Demand for protein and essential amino acids



Evaluate a Ration

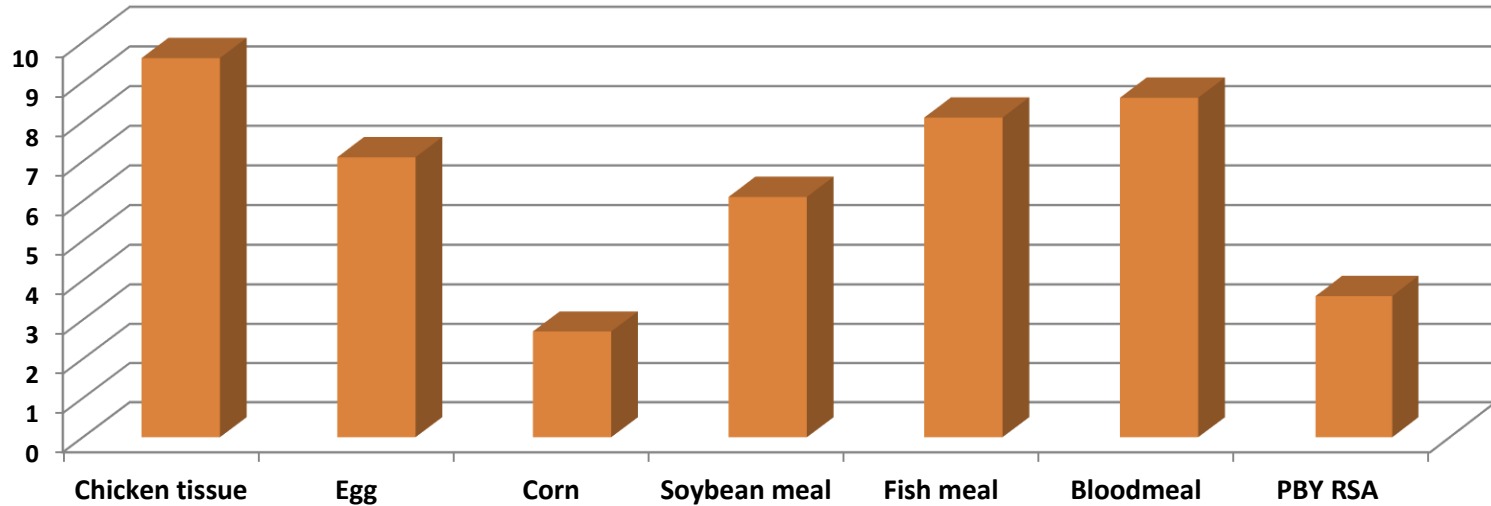
User : Leon Ekermans

Your amino acids balance



Profile of amino acid deposition in chicken and eggs

Lysine



South African legislation in the use of Animal By-products in Poultry Feed

The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947), prohibits the use of mammalian origin by-products.

Except: where farm feeds are manufactured only for predators, dogs and cats (separate premises)

Meat and bone meal - **No**

Bovine blood meal - **No**

Poultry blood meal - **Yes**

Poultry by-product meal - **Yes**

Rendered Fats

Benefits of fat:

- Concentrated source of energy - main method of increasing the energy content.
- Increased rate of gain can decrease age at market.
- Increased feed efficiency, decreased feed intake.
- Source of linoleic acid
- Decreased dustiness of feeds and reduced dust losses
- Increased palatability of feeds
- Lower heat increment during heat stress keeps caloric intake up.

Rendered Fats

Concerns that should be noted with fat utilization:

- Use of higher levels of fat may negate the effects of pelleting.
- Measurement of metabolizable energy (ME) content can be difficult.
- Potential for rancidity.
- Poor digestibility of saturated fats by the young bird.

Use of Rendered Protein Sources:

Advantages:

- Generally, cost competitive relative to vegetable protein sources
- Source of high quality protein
- Highly digestible
- Balance the amino acid needs
- Provide slightly faster growth rates than vegetable protein-only diets
- Excellent source of highly available phosphorus and other minerals

Use of Rendered Protein Sources:

Concerns:

- Poor quality control could result in decreased amino acid digestibility.
- Proper formulation methods must be used to make most effective use.
- Potential for microbial contamination if improperly handled.
- Variation in product due to material mix, processing methodology.

Use of Rendered Protein Sources:

1. POULTRY MEAL

- Poultry meal is the dry rendered product from a combination of clean flesh and skin with or without accompanying bone.
- Derived from the parts of whole carcasses of poultry.
- Exclusive of feathers, heads, feet, and entrails.

Use of Rendered Protein Source:

2. POULTRY BY-PRODUCT MEAL

- **PBY**
- **Wide definition of content = variation in nutritional value**
- **Ash content varies significantly**

Use of Rendered Protein Sources:

3. HYDROLYSED POULTRY FEATHER MEAL

- **Not less than 75% of its crude protein content must be digestible by the pepsin digestibility method.**
- **Poor amino acid balance and is thus not heavily used in the poultry industry**
- **It is generally economically priced.**

Use of Rendered Protein Sources:

4. POULTRY BLOOD MEAL

- The method of drying does affect the nutritional quality of the protein.
- The process of manufacturing spray dried blood meal is similar to that of skim milk powder.
- Spray dried blood meal in comparison with other drying methods has a greater content of total and available amino acids and is of better nutritional quality.

Fishmeal

- **Historically the most important animal protein, but highly popular as component of aquaculture diets, especially in the international trade.**
- **Export prices and quality parameters often results in low spec meals offered to the local market.**
- **New advanced analytical parameters should be applied when local fishmeal is traded for use in poultry diets.**
- **otwithstanding above a very good source of AA.**

Summary

- **Animal proteins are an important class of ingredients for animal nutritionists.**
- **Poultry meat meal provides an excellent source of amino acids and phosphorus.**
- **Feather meal is very high in sulphur amino acids.**
- **Combined, these products can be used to provide a substantial cost savings to the poultry industry and use of the products is quite high by the industry.**
- **The rendering process kills *Salmonella* and other food pathogens, although post process contamination can still occur.**