

# Successful Broiler Production Depends on a Sound Feeding Program

*The old saying, “you are what you eat” relates not only to humans, but also to chickens. Feeding programs for broilers, breeders, and layers are more than buying, blending, and scheduling feed.*

Poultry has been produced commercially since the early 1900s, and research has been conducted for years to improve production efficiency. Poultry nutrition experts employed by the industry have access to a great amount of information allowing them to optimize the particular production parameters most important to the companies’ markets (such as breast meat yield, feed conversion, or even paw quality).

A good example of some of this information is that supplied by the National Research Council for Poultry. NRC has published suggested requirement estimates for many essential and nonessential amino acids, 12 minerals, 13 vitamins, and linoleic acid in chicken feed.

These estimates have been developed over many years and are complicated by the fact that nutrients present in some ingredients vary with time and source. In addition, the NRC provides the nutrient composition of 72 feed ingredients and regression equations to predict amino acid digestibility.

Many NRC publications provide this type of information for nutritionists. Years of research and scientific knowledge are used in formulating broiler diets. That means chicken feed is complicated.

The allied poultry industry provides a continual supply of new feed additives to improve poultry productivity or make poultry production cheaper. These allied poultry companies, however, must demonstrate the benefits of each new product, which then gives nutritionists more research results to be used to decrease cost and increase productivity.

These are the main responsibilities of a poultry nutritionist:

- Know the best nutrients required for greatest breast meat yield or know what is best for feed conversion in different environmental conditions or house types.
- Keep accurate information on nutrient composition for all ingredients purchased.
- Work closely with feed mills to coordinate feed systems and feed types.
- Stay informed about current knowledge that may improve the company’s bottom line.

But most important is knowing how to decrease feed cost and at the same time keep or increase poultry productivity. Nutritionists must work closely with the ingredient buyer to assure ingredient quantity and quality. And nutritionists must communicate with live production and processing divisions to know what parameters of production to maximize, such as breast meat yield or feed conversion.

Nutrient requirements needed to maximize feed conversion differ from those needed to maximize breast meat yield. Broiler feed varies among companies and within companies as to ingredient levels and nutrient composition.

Much of this variation depends on the integrator’s marketing goal, such as whole bird market, cut-up (KFC) market, or de-bone market. Also, an integrator’s contract regarding meat sales may affect nutrition, depending on the customers’ needs (fast food chain versus supermarket).



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Regardless of the company's goal, diets that better meet the "bottom line" allow the grower to raise a better bird.

Feed is the greatest cost in poultry production. It is important to balance nutrients so birds are not over- or underfed. The primary nutrients to balance are protein (amino acids) and energy.

In Mississippi, protein needs are primarily met with soybean meal and poultry byproduct meal. Energy needs are primarily met with corn and poultry fat. Buying these feed ingredients depends on price, particular nutrient content, quality, and availability. Corn and soybean meal are considered to be the best ingredients available in the world to blend a poultry diet.

How can a grower help the poultry nutritionist? A grower can have a tremendous impact on feed conversion by following the company's management guidelines for temperature and ventilation. A "hot" bird gets rid of heat, and a "cold" bird uses too much heat. Both conditions affect overall feed conversion.

It is important for growers to manage feed and water systems. Although the nutrient composition of broiler diets is complicated, it must be pointed out that the most important nutrient is water.

At Mississippi State University, research is ongoing to better define the nutrient needs for greatest poultry performance with nutrition at the least cost. We feel it is important to determine nutrient needs for commercial genetics as they are improved.

Research in protection against disease is a high priority, allowing us to learn more about feeding programs that improve flock health. Lastly, research is being conducted on new products to evaluate their success in situations relevant to Mississippi.



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