Poultry Nutrition

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Feed Chickens Properly

- Poultry feeds are referred to as “complete” feeds, because they are designed to contain all the protein, energy, vitamins, minerals and other nutrients necessary for proper growth, egg production and health of the birds.
Three Basic Types of Poultry Feed:

- **Pelleted** feeds are concentrates of high quality grain ingredients with vitamins and minerals added.

- “**Crumbles**” pellets are “broken” making it easier for poultry to eat. Same as pellets: concentrates of high quality grain ingredients with vitamins and minerals added.

- “**Mash**” – crumbles are “smashed” to make a “meal”. Concentrates of high quality grain ingredients with vitamins and minerals added.
Carbohydrates - Starches and Sugars

- Starches (grain) and sugars are key energy sources for poultry. Grain components of a balanced diet, like corn and wheat, provide dietary starch and sugar. These nutrients will be digested in the bird’s small intestine. They can then be quickly converted to glucose, which can be used immediately for growth and egg production.
Fats (Fatty Acids)

- Fats are excellent sources of energy. Fats contain more than twice the calories per pound than either carbohydrates or protein, so adding fat to the diet allows birds to ingest more calories in a smaller quantity of feed. Fatty acids are also important in maintaining feather and skin quality, and are an important component in eggs.
Protein & Amino Acids

- Proteins are the building blocks for muscle, organs, eggs and feathers. Proteins are composed of different combinations of amino acids. There are a total of twenty different amino acids. Of these, 10 are "dietary essential" which means they must be included in a bird’s daily diet. The other amino acids a bird can convert themselves for the 10 essential amino acids.

- Proper protein and amino acid nutrition is essential for laying chickens. Eggs proteins are termed a "complete protein", since eggs not only contain all of the essential amino acids that humans need, but eggs contain the amino acids in the perfect proportions.
Minerals

Minerals are involved in the formation of structural components of the skeleton. Some minerals are also integral parts of amino acids, vitamins and hormones. Levels of major minerals (macrominerals) are critical, especially for young, growing poultry. Calcium and phosphorus are two macrominerals of great importance. Young chicks and pullets require calcium and phosphorus in relatively large amounts for bone growth. The ratio of calcium to phosphorus is important to facilitate mineral absorption and metabolism. A 2:1 ratio of calcium to phosphorus is best.
Minerals (con’t)

- Mature egg-laying birds have an even greater requirement for calcium. Calcium is the nutrient that forms the hard “shell” of the egg. Adequate calcium plus phosphorus and vitamin D3 are all required to help ensure that your hen lays eggs with strong shells.
Minerals (con’t)

Trace minerals are those required in small amounts by birds. Essential trace minerals include cobalt, copper, iodine, iron, manganese, selenium and zinc. Deficiencies and/or imbalances of trace minerals may cause decreased growth rate, lowered resistance to disease, lack of stamina and reduced reproductive rate. Manganese is also essential for proper egg shell production.
Vitamins

Vitamins are divided into two general categories: fat-soluble vitamins (A, D, E and K) and water-soluble vitamins (B-complex). The vitamin content of grains is highly variable, and the drying down of grains typically results in significant losses of vitamin activity. Thus a properly formulated complete poultry diet will contain all of the required fat and water soluble vitamins.

The most important vitamin for young growing chicks is vitamin D3. Vitamin D3 is part of the regulation system for calcium and phosphorus metabolism. To ensure that skeletons develop properly in birds, and to ensure egg-laying birds produce eggs with strong shells, vitamin D3 needs to be added along with the proper amount of calcium and phosphorus.
Water

- Birds will survive a long time without food, but just a couple of days without water would be fatal. Not only that, but if water is not available in a sufficient quantity, food intake will be reduced. If you notice a reduction in feed intake, it’s always best to check the water availability. A good general recommendation is to provide birds with all the clean water that they will drink. Water bowls should be cleaned out periodically. If automatic waterers are used, a routine disinfecting program for the water lines should be part of the management program.