UF | IFAS Extension
UNIVERSITY of FLORIDA

An Equal Opportunity Institution

SOLUTIONS

Feathered Facts

Volume 2, Issue 3 March 2015

UF | IFAS Extension | Baker County

- Please send comments or questions to baker@ifas.ufl.edu
- Archives of past issues can be found here.
- Email announcements of official UF | IFAS poultry programs to baker@ifas.ufl.edu

Inside this issue:

Small Flock Poultry Nutrition Overview

The feed that is consumed by the poultry flock is used for two main purposes: growth and maintenance. For meat type birds, all nutrition that is not used for maintaining the current body status is used for additional muscle mass (at least up to a certain point). In the case of laying hens, this extra nutrition is used for the production of eggs. It is important to remember that growth and performance (whether meat or egg production) is determined by the genetic potential of the animal and proper nutrition will help your flock grow and produce to its potential.

Feed for the poultry flock must supply the essential nutrients for the bird. These nutrients include carbohydrates, protein, fats, vitamins and minerals. Many issues that occur with flocks can be attributed to improper or inadequate nutrition. Because of the advancements in chickens that have been made through selective breeding, a flock can produce more eggs or meat today from the same nutrition than a same size from 30 or 40 years ago.

The overall poultry feed is composed of many different feedstuffs. These feedstuffs can include corn, barley, oats, soybean meal, fish meal and others. By themselves, none of these feedstuffs can provide all of the nutrition that is needed by the bird. They are mixed together in a certain ratio so that the nutritional deficiencies from one feedstuff are covered by another feedstuff. A good example of this is corn and soybean meal. Corn contains a lot of carbohydrates but does not contain much protein. Conversely, soybean meal contains a lot of protein but is lacking in carbohydrates. By combining these two we can make a ration that provides the correct amount of carbohydrates and proteins that is needed.

It is also important to remember that the makeup of the feed will vary depending on the type of bird that it is intended for. Young chicks need a different nutritional makeup than older broilers and also from laying hens. Feeds will also be offered in varying consistencies such as mash, pellet or crumble. Using the correct feed consistency will help to reduce feed waste and will help to deliver the feed to where it needs to go: namely into the bird.

Environmental factors can also affect the type of feed that you use and the amount of feed that is consumed. Colder temperatures require that the birds expend more energy on maintaining their body temperature so feed intake may increase during the cooler months. Conversely, feed intake may decrease during warmer months and you may need to use a feed with a different energy or protein percentage to make up for the decrease in intake.

Nutrition for the Backyard Flock

An example of a poultry "tube" feeder. These feeders are gravity fed and are typically used after birds have moved from a "starter"

Small aluminum pie pans are commonly used as feeders for small chicks.

Example of a one (1) gallon poultry "jug" waterer. This type of waterer is routinely used for backyard poultry flocks.

Correct nutrition is essential if you want your poultry flock to perform and produce well. The cost of feeding your flock can account for up to 70% of the cost of raising chickens, so it is also important concerning your investment. Nutritional requirements for poultry vary between ages and flock type. There will be certain times when the requirements will overlap and in these cases substitutions for feeds can be made. Additional information about poultry nutrition can be found by consulting Nutrient Requirements for Poultry, 9th Edition.

WATER—Water is likely the most important nutrient that poultry require and is usually the one that is most neglected. Flocks that do not have an adequate supply of clean drinking water will suffer in both health and performance. Water makes up about 70% of the body weight of a chicken and is about 65% of the total weight of an egg. By weight, water intake is approximately two (2) times higher than food intake. When temperatures are hot, this ratio is even higher. In general an adult chicken will consume approximately 6 to 10 fl. oz. of water per day during cooler months and 10 to 20 fl. oz. During warmer months.

CARBOHYDRATES—Carbohydrates are the major source of energy for chickens. Since energy is the highest requirement for the chicken, carbohydrates make up the largest percentage of the ration. Chickens can digest simple sugars and starches; however, they are not able to digest complex carbohydrates such as cellulose. Grains such as corn, wheat and milo are typically used as the carbohydrate source in poultry feed.

PROTEINS (AMINO ACIDS)—Proteins are complex molecules that are made from simpler molecules called amino acids. There are different feed ingredients that can be used to meet the amino acid/protein requirement of chickens, with soybean meal being chief among them. Many amino acids can be synthesized by the chicken from other amino acids, but there are some that cannot be synthesized and must be supplied in the diet. Methionine is an example of this and you will usually see the percentage of methionine included as information on the feed tag.

FATS (FATTY ACIDS)—Fats in the poultry diet are important as an additional source of energy as they contain around twice as much energy by weight as other feed ingredients. Fats are also important as there are many vitamins that transported via fats that are not soluble in water.

VITAMINS—There are thirteen (13) vitamins that are required by poultry for normal growth and production. These include both fat-soluble and water-soluble vitamins. While certain feedstuffs may contain some of these vitamins, many feed companies will add a vitamin premix to the feed to ensure that vitamin requirements are met.

MINERALS—Minerals are classified into two groups: macrominerals (those needed in relatively large amounts) and microminerals (those needed in relatively small amounts). Even though these substances are a small amount of the poultry feed, excluding minerals can have very detrimental effects on growth and/or production. Minerals are involved in blood cell formation, blood clotting, enzyme activation, metabolism, muscle function and (in the laying hen) egg shell formation. Most of the grains that are used in poultry feeds are low in mineral concentration so feed companies typically include them from supplemental sources.

OTHER FEED ADDITIVES—In many cases there are other additives that are included in a poultry ration that are not included in the main nutrient categories. These include antioxidants, binders, coccidiostats and antibiotics. In general, these additional additives serve a very specific purpose. A good example is the addition of a coccidiostat in feed for young birds. Coccidiosis is a very detrimental disease but it can be avoided by using a feed with a coccidiostat included. Please note that certain feed additives, such as antibiotics, may include withdrawal times. This information can be found on the feed tag.

Ask the Expert

This month's question relates to flock nutrition. **I have just ordered baby chicks from a hatchery. What type of feed should I give them when they arrive?**

The table below lists the guidelines for the nutrient requirements of poultry that are different types and ages. You should always inspect the feed tag of the feed that you are purchasing to make sure that the minimum requirements for energy, protein, calcium and phosphorus are met. Please also note that certain minerals such as calcium are extremely important for laying hens. However, if you feed a laying diet to young birds that are not actively laying it can have serious detrimental effects on the birds. Please follow the guidelines below to avoid any issues with nutrition in your birds.

Bird Type	Age (in weeks)	Diet Type	Metabolizable Energy (kcal/lb.)	Crude Protein (%)	Calcium (%)	Available Phosphorus (%)
Dual Purpose Type Egg or Meat Crosses						
Broilers	0—4	Starter	1350—1385	20—23	0.9—1.0	0.42—0.45
	4—8	Grower	1385—1405	19—20	0.86—0.92	0.38—0.43
	> 8	Finisher	1425—1450	15—18	0.78—0.88	0.32—0.40
Pullets	0—4	Starter	1275—1300	18—19	0.85—1.00	0.40—0.45
	4—12	Grower	1275—1300	17—18	0.80—0.95	0.35—0.42
	12—20	Developer	1260—1280	15—16	0.75—0.90	0.32—0.40
Laying	> 20	Layer	1225—1300	14—16	3.0—5.0	0.34—0.41
Leghorn Type Crosses for Egg Laying						
Pullets	0—6	Starter	1290—1315	20—22	0.85—1.0	0.40—0.45
	6—14	Grower	1290—1315	16—18	0.80—0.95	0.35—0.42
	14—20	Developer	1250—1290	14—16	0.75—0.92	0.30—0.38
Laying	>20	Layer	1290—1315	15—19	3.60—4.20	0.32—0.40

Information in the table was adapted from Nutrition for Backyard Chicken Flocks, Alabama Cooperative Extension Service (ANR-1317); Blake, Hess and Macklin, 2007.

Other things to consider concerning nutrition:

- Chickens get some nutrition from ranging, but typically only 15% of the requirement.
- Unbalancing a balanced ration with extra grains or treats can be just as detrimental to production as using the wrong feed. Be sparing in giving your flock 'treats'.

Examples of poultry feed consistencies: (a) Mash Poultry Feed, (b) Crumbled Poultry Feed and (c) Pelleted Poultry Feed. Mash Feed is typically fed to young chicks, while Crumbled and Pelleted Feed is used for older birds.

Additional Considerations for Poultry Nutrition

Commercially available poultry feeds do not contain added hormones.

If stored properly (in dry conditions with moderate temperature) purchased poultry feed will last for about 6 months.

The previous articles have covered many of the main points of nutrition for the poultry flock. However, there are a few other things to think about to ensure that your flock has the best nutrition available to meet the needs of maintenance and production.

GRIT SUPPLEMENTATION—Many backyard flock producers supply supplemental granite grit to their birds to help in digestion. If your flock has free access to range or if they consume coarse material, grit should be supplemented. Calcium based grit will dissolve quickly in the high acid level of the gizzard, so granite based grit will work best. Grit is typically available in both chick and hen size, so make sure to pick the correct size for the flock that you have. Continuous feeding of grit is not necessary, but it should be supplied 2 to 3 days per months.

SEPARATE FEEDS FOR SEPARATE AGES—Because of the differences in nutritional requirements for different age birds, it is always advisable to have you flock separated into age groups and feed them accordingly. Diets for birds that have not yet reached sexual maturity tend to be low in calcium and will have a detrimental effect on egg production if feed to birds that are in lay. Conversely, the high calcium levels in laying feeds can harm the kidneys of younger birds.

MASH vs. PELLETS vs. CRUMBLES—Many feeds can be bought in either mash, crumbles or pellet form. All of these types of feeds can be used for your flock, but there are advantages to consider in using one type instead of another. Mash feed is easiest on the digestive system. Young chicks are typically fed mash feed. You do not have to use grit if you are using mash feed. However, chickens can be a bit choosey and will sort through the mash to pick out the parts that they want. This can lead to nutrition issues. Mash feed also allows for waste as it is very easy for the feed to get scratched out of the feeder and many mash feeds are extremely dusty which can make them difficult to handle. Most growers will not use mash feed after the starter stage. Pelleted feed is typically used for adult birds. Because the morsel size is larger there is less chance for the waste and there is no chance of sorting. If you use a pelleted feed, you will need to supply grit to help aid in mechanical digestion. The middle ground between mash and pellets is crumble feed. Crumbles are pellets that have been sent through a rolling mill to break them into smaller pieces. Crumbles are a medium texture feed and will require minimum grit as a digestive aid. Crumbles are a happy medium between mash and pellets.

FEEDER & WATERER HEIGHT—It is also important to make sure that your feeders and waterers are at the correct height for the birds in your flock. Placing the feeders and waterers on the ground is perfectly acceptable when chicks are small, but you will want to raise the height as they get older. This will help to keep the feeder and waterer cleaner and will help to avoid waste. In general, the lip of the feeder or waterer should be at the shoulder height of the bird. That way they do not have to bend much or stretch to reach the food and water. Also remember to provide fresh water to the flock daily.

University of Florida | Institute of Food and Agricultural Sciences
Baker County Extension Service

UF UNIVERSITY of FLORIDA IFAS Extension Baker County Extension

1025 W. Macclenny Ave., Macclenny, FL 32063

Phone: (904) 259-3520
Email: baker@ifas.ufl.edu

Website: http://baker.ifas.ufl.edu

Hours: M—F 8:30am to 5:00pm (Closed Noon to 1:00pm for Lunch)