

## **Backyard Chicken Nutrition**

**Patrick Biggs, PhD.**

Backyard chickens continue to grow in popularity. Chickens and other fowl can be found everywhere! What once might have just been on a farm in a rural community can now be found in the busiest of cities in the most unlikely locales. Apartment building rooftops, urban backyards, suburban hobby farms, and even rural farms have chickens that can be classified by their owners as pets rather than livestock. In addition to the variety of locales that these birds may be housed, you are also going to encounter owners of those birds that vary in their knowledge of caring for animals.

In some cases, the human side of the equation will have a vast knowledge of raising and caring for animals. However, for many, this may be the first animal that they have ever cared for! It becomes the tasks of the veterinarians and nutritionists to provide guidance to these flock owners on how best to care for their new-found family members. In many cases, these chickens are not just a source of eggs or livestock; they are family members. Many of these chickens are treated similarly to how we expect dogs and cats to be cared for in a home environment. The chickens have names. They are members of their owner's family. The people want what is best for their chickens.

Raising chickens in a backyard setting is quite different from raising birds for commercial purposes. Commercially, birds are raised as part of a business. Those producers wish to maximize egg production and keep feed costs low to make a profit. The birds are only kept for a few years while egg production is profitable. In some settings, these birds will be fed 6 different feeds from hatch to 18 weeks of life to ensure that the nutrient requirements of those birds are being met to maximize growth and development of those birds. Once they hit the egg-laying stage of their life, they may get a different feed formulation every 4 weeks to target their nutrient needs and maintain egg production at the high level demanded of commercial production. These same things are not going to be the case for the backyard flock. Their goals are different.

While egg production is certainly a benefit of raising backyard chickens, it is not the driving force behind having the birds. In most cases, these birds are not being kept for business purposes. There is an emotional attachment to the chickens when they are raised in your backyard and the eggs are being fed to your family. Many of these birds have names – Omelet, Oprah Henfrey, BockBock, Clucky! With only a handful of birds, it is not practical to offer diet changes every couple of weeks for the lifetime of the birds. Most often, the birds are fed two diets their entire lives – a starter feed and a layer feed. While the care and well-being of these animals is important to both commercial and backyard chicken raisers, it is much easier to focus on that care when there are only 6 or 10 birds as opposed 60,000 or 1,000,000 birds.

Raising chickens is not as ubiquitous as raising dogs or cats. Many people have had experience raising a cat or a dog when they were young and have continued that into adulthood. Friends and family have had dogs and cats. When the dog or cat gets sick, they know to take it to a veterinarian to get answers. This is not the case for chickens. Few people have raised and cared for chickens when they were young and into adulthood. There is not an expectation of what is or isn't normal when you have your first backyard flock. There are always lots of questions because few people have the experience to understand what is going on with their flock. There is a lot of learn-as-you-go with chickens. Social media/the internet can be a blessing and a curse since it lets you look for answers to questions that may

come up, but it can be difficult to sort through what is helpful and what is harmful or misleading. People will reach out to their veterinarians to try and determine what is going on with their birds.

There are going to be health challenges for these flock owners. In general, chickens are quite healthy and given proper care and management, they should stay healthy throughout their life. Problems may occur on occasion, and the flock owners are going to want to know how to take care of their birds or fix any problems that do occur. Finding a veterinarian to care for chickens and other fowl is the biggest problem with backyard chicken owners. Many times, the nearest veterinarian willing to see birds is an hour or two away from them, and that puts the owner in a difficult situation. More veterinarians are getting comfortable with seeing chickens now that more people have chickens and continue to ask for help. The solutions to these health concerns are beyond the scope of this talk. I would like to make you aware of some of the problems that you may encounter:

- Bumblefoot
- Gout
- Predator attacks
- Tumors/Cancer
- Worms
- Coccidiosis
- Respiratory illnesses
- Lice/mites
- Egg binding
- Sour crop
- Nail trimming
- Salpingitis
- Hardware disease
- Angel wing

Keep in mind that to these people, these chickens and other birds may be a part of their family. They are going to care for their birds the same as they would care for a dog or a cat. If something goes wrong, they are going to want to fix it. They may also be concerned about some of the eggs that come out of their chickens. Everyone knows what an egg is supposed to look like, but not every egg comes out looking like what we expect. Misshaped eggs are a common occurrence for all chickens and should not be a cause for concern. Some eggs will come out more round than oval while others may be elongated. There may be wrinkles or rough-shelled eggs. Occasionally, a shell-less egg appears. Very large and very tiny eggs will often happen. You may even hear of an egg with a complete egg inside of it. All these things are normal and are not a sign of a bigger problem. When you see nearly every egg that comes out of your birds, you are going to see some unusual eggs.

Many of the backyard flock owners are going to just have chickens, but there will be some that have turkeys, ducks, geese, and other birds. They will also want to feed one feed to all of them. Although they are all birds, their nutrient requirements are not all the same. To compound the problem even more, the male birds have different nutrient requirements than the female birds. Egg production requires specific nutrients to be successful, and the nutrient profile for an egg-laying bird is not the same for a non-egg-laying bird. Let us talk a high-level look at some of those differences.

Laying chickens are a slower growing breed of chicken than broiler chickens (meat birds). Most meat birds are fully grown between 6-10 weeks of age, so they need a feed that supports that high level of production. Meat bird feeds should be higher in protein and energy to support that growth. Egg-laying chickens are a slower growing type of chicken. It is beneficial that they receive feed intended for that type of chicken. Laying chickens do not get as heavy as broiler chickens and take about 18 weeks to reach maturity. It is more important for the laying chickens to develop a little more slowly so that the supporting components of the chicken's body are as strong as possible. Growing too fast can also lead to more fat deposition, which can diminish the bird's ability to lay eggs.

Turkeys, pheasants, quail, guinea fowl, chukars, and pea fowl have higher protein and amino acid requirements than chickens do in the first few weeks of life. These birds are started on feed containing 26-30% crude protein to ensure that their amino acid requirements are being met. If people are raising both chickens and any of these birds together, it is important that the birds are being fed the proper diet. The starting nutrient requirements for these birds are different, and you will not have success feeding one diet to everybody during the first 6 weeks of life. Research has shown that after about 6-8 weeks the turkeys and game birds can be fed a lower protein diet that is similar to what chickens require. At that point, you can feed a mixed flock the same diet if it is non-medicated.

The calcium requirement for birds creates a challenging situation for feeding a mixed flock of birds. Birds that are laying eggs require more calcium in their diet for eggshell formation than do birds that are not laying eggs. This presents a problem when the males and females are housed and fed together. Layer feed can contain between 2.5 and 4% calcium. Birds that lay eggs for longer periods of time – chickens and some ducks – benefit from having a higher calcium content. Birds that are more seasonal in the egg laying – game birds, most ducks, geese, turkeys, etc. – have a lower requirement for calcium. Male birds have an even lower requirement for calcium. For most male birds, the amount of calcium needed is around 1% or less. Feeding a higher calcium layer feed to male birds can be detrimental to their overall health. The excess calcium that birds take in is filtered out through the kidneys. Over time, the high calcium going through the kidneys can lead to health issues and even death. It is recommended that male birds are fed a lower calcium feed than their egg-laying counterparts. This is a challenge, and there are not great solutions for this problem when the entire flock is housed together. For the birds that tend to be more seasonal in egg production, their calcium requirement will change. While laying eggs, they should be on a high-calcium layer feed; however, once they stop laying eggs for the season, they should be switched to low-calcium feed. When those hens begin laying eggs again, they should be returned to a layer feed. That cycle will repeat if the birds continue to lay eggs.