

Biosecurity for the Small Poultry Flock

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Biosecurity is a set of practices that are designed to aid in the prevention of disease on a farm. Disease can be a threat to your poultry flock no matter the size of the operation. Maintaining the premise and facility in such a way that the spread of disease-causing organisms is the basic tenet behind the concept of biosecurity; and not only is biosecurity one of the best tools to keep disease from your flock, it is also one of the least expensive. The use of biosecurity practices can help to break the chain of disease transmission.

In practice, biosecurity has three major components that can help to reduce the potential for disease in your flock. They are: 1) isolation, 2) traffic control, and 3) sanitation. While all of these components can be used independently with some degree of success, the combination of all three will certainly help decrease the chance of a disease infecting your flock.

Isolation, of course, refers to the keeping your animals confined within a controlled environment. A good example of this is fencing. Fencing the area that your animals are kept in certainly keeps them within the area, but it also helps to keep other animals, which may be carrying disease, out. Isolation can also refer to keeping your animals segregated by age. In large poultry operations, this is done by an all-in/all-out type of

management. However, this may not be practical for the small flock owner. If possible, try to keep older birds and younger birds separated as each can carry diseases that may not be problematic in their age group, but could cause problems in the other. It is also important to keep your birds separated based on nutritional needs.

The idea of traffic control refers to both traffic onto your operation and traffic within your operation. It is always a good idea to keep personnel (including clothes and footwear), machinery, and equipment that are not part of the operation out of the area as diseases can be transmitted this way.

The concept of sanitation refers to the use of disinfection and cleaning agents on materials, people, and equipment that is used in the operation. Not only will sanitation efforts help to keep disease from spreading to your flock, it will also help to decrease the likelihood that any disease-causing agents that the flock may harbor will not be spread to you.

In reality, the two most important checkpoints when using a biosecurity plan are the introduction of new birds to the flock and traffic patterns around the operation. Focus on these two, especially, but don't forego the other principles as well.

USDA/APHIS information on biosecurity for your flock can be found [here](#).



Video from USDA-APHIS on backyard bird health. The video discusses the importance of segregating new birds from the established flock and other information on diseases. It features Healthy Harry, the healthy birds spokesperson and USDA veterinarian Dr. Kate Bowers. Click on the picture above or this [link](#) to view the video.

A reference for many poultry diseases, *Poultry Disease Manual*, can be ordered [here](#).

Making Biosecurity Work for You

A biosecurity plan should be one of your top priorities as a small flock owner. However, like all preventive measures and plans, you have to look at a lot of data to make sure that the plan you have works for your operation. No two operations are the same, and no two have the same resources available to them. You should make sure to look at what your needs really are and compare that to the threat and make your plan accordingly. Since disease can be an issue no matter the size of the operation, you should always look at biosecurity through the lens of three qualifiers: 1) risk (actual & relative), 2) costs & economics of your situation, and 3) the use of common sense.

The introduction of new birds into a previously established flock is a large risk when it comes to biosecurity. New birds have an unknown disease status. They could be carriers of disease that could infect your flock or they could be susceptible to a disease that your flock is carrying. This can certainly be mitigated by following a good vaccination schedule for your birds and by making sure that any new birds that you purchase have been vaccinated against the most common diseases as well. Even if you do this, you should have an isolation or quarantine area that you can place the new birds into before introducing them to the flock. It is recommended that you isolate new birds for at least two (2) weeks before introduction. If you are able to quarantine the birds for four (4) weeks, that is even better. These isolation pens should be as far from the main flock as possible. Make sure to keep an eye on the new birds for the duration of the quarantine for any signs of disease.

Traffic on the premise is also a major concern when it comes to the spread of disease. In general you should make

sure that all traffic, including machinery, equipment, and foot traffic flows from the youngest birds toward the oldest birds. Many disease-causing organisms may not affect the older birds (which typically have a more robust immune system), but they can cause problems in younger birds. It is also advisable to have disinfectant foot baths or disposable foot coverings that you can change when moving from one age group or pen to another. Foot covers are also essential if you happen to have any visitors to your flock area. It is also advisable to keep the immediate area around your coop or pen free of most types of vegetation. This is because rodents and insects (who are natural carriers of disease) can use the vegetation as cover.

While disinfection of the coop and growout area is something that most people think about, they often forget to disinfect themselves. You should always wash and/or disinfect your hands after handling one age group or isolation group before moving to another. Humans can be one of the most prolific transmitters of disease.

Finally, make sure to keep the equipment that your birds rely on clean and sanitary. This includes the feeders and the waterers. Waterers should be cleaned on a daily basis and feeders should be cleaned at least one per week. A more rigorous schedule should be adopted if you notice that feeders or waterers are increasingly soiled. Make a plan for a total cleanout of your pen or coop area. These should be cleaned at least once per year, but can be cleaned more often. This annual cleanout is also a good time to go over your rodent and pest control procedures.

Following the procedures described above and using common sense will help keep your flock healthy.

Small Flock Poultry Nutrition

Providing the correct nutrition is essential if you want your poultry flock to perform well. Flock nutrition is an important investment, as this cost can account for 70% of the total cost of raising chickens. It is important to remember that nutritional requirements will vary between ages and flock type. Additional information about poultry nutrition can be found by consulting [Nutrient Requirements for Poultry, 9th Edition](#).

Water—water is likely the most important and most overlooked nutrient that poultry require. Flocks that do not have access to an adequate supply of clean drinking water will suffer in both health and performance. Water intake by poultry is approximately two (2) times the intake of food, by weight. During periods of high temperature, this ratio is even higher. In general, an adult chicken will consume 6 to 10 fl. Oz. of water per day and 10 to 20 fl. Oz. during warmer months.

Carbohydrates—carbohydrates are the major source of energy for chickens. Since energy is required in the highest amount, carbohydrates will make up the largest percentage of the ration. Chickens can digest simple sugars and starches, but they are not able to digest complex carbohydrates such as cellulose. Grains such as corn, wheat, and milo are common carbohydrate sources for poultry rations.

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 poultry. Soybean meal is one of the most common protein sources for poultry rations. While many amino acids can be synthesized by the body from other

amino acids, there are some that must be supplied in the diet. Methionine is an example of this for poultry and this is why you will usually see the percentage of methionine on the feed tag.

Fats (Fatty Acids)—Fats in the diet are important as an additional source of energy as they contain about twice as much energy by weight as any other ingredient. Fats are also important as a transporter of other molecules, including many vitamins.

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. Vitamin premixes are often added to the ration during formulation as many feedstuffs do not contain a high enough concentration of these components.

Minerals—Minerals are classified in to two main groups: 1) macrominerals (those needed in relatively large amounts) and 2) microminerals (those needed in relatively small amounts). Excluding minerals from the poultry diet can have highly detrimental effects on the growth and performance of the flock. Like with vitamins, many minerals are added to the ration during formulation.

Other Feed Additives—In many cases, other feed additives added to the ration during formulation. These include antioxidants, binders, coccidiostats, and, sometimes, antibiotics. In general, these additives serve a very specific purpose. A good example is the addition of a coccidiostat for young birds. Coccidiostats prevent coccidiosis, a disease that can be very detrimental to young birds. If your feed happens to include antibiotics, the withdrawal time for those chemicals will be listed on the feed tag.



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.

Additional Considerations for Poultry Nutrition

Complete poultry rations provide all the nutrition that is needed by your poultry flock. However, there are a few other points to remember when it comes to nutrition.

Grit Supplementation—many backyard producers provide supplemental granite grit to their flock to aid in digestion. If your flock has free access to range or if they consume an abundance of coarse material, grit supplementation is a good idea. However, if you are only feeding purchased rations, you most likely do not need to supplement grit in the feed. Also remember that calcium-based grit will dissolve quickly in the high acid level of the gizzard, so granite-based grit works best. Grit is typically available in both hen and chick sizes, so make sure that you pick the correct size for the age of your flock. Also remember that continuous feeding of grit is not necessary, but it should be supplied 2 to 3 days per month.

Separate Feeds for Separate Ages—Different age birds have different nutritional requirements, and it is always advisable to separate your flock based on age for nutrition and biosecurity purposes. Diets for hens that have not yet reached sexual maturity will be lower in calcium than laying diets. It is not advisable to feed a layer diet to birds that are not laying (or close to lay) as the increased calcium can cause kidney failure in younger birds. Conversely, feeding a diet that is low in calcium to birds that are laying will cause nutritional deficiencies and have a detrimental effect on egg production.

Mash vs. Crumbles vs. Pellets—Many of the different diets can be purchased in either mash, crumble, or pellet form. While all of these different consistencies can be used with your flock, there are definite pros and cons by using one consistency over another depending on the age of the flock. Mash feed is easiest on the digestive system, and, therefore, the choice feed for younger birds. However, older birds tend to be choosy and will sort the mash feed, which can lead to nutritional issues. Mash feed also allows the most waste to occur when compared to crumbles or pellets and it is dusty. Pelleted feed is typically used for older birds. Since the morsel size is larger and it is compacted, there is less chance for waste and no chance for sorting. Crumbed feed is a pelleted feed that has been sent through a rolling mill to break it into smaller pieces. Crumbles tend to provide a happy medium between mash feed and pelleted feed.

Additional questions about poultry nutrition can be directed to the email address listed below.

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.

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