



# Backyard and Small Flock Poultry in Boulder County



# Introduction

The popularity of keeping poultry especially backyard chickens has exploded. Many urban and small acreage residents who want to provide fresh food for their families are now keeping a small flock mostly for egg production. This brochure is not meant to provide everything a family needs to know in order to keep a few birds but to provide basic information and additional resources.

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Whitney Cranshaw, Colorado State University, Bugwood.org



## Getting Started

Owning a small poultry flock is a responsibility much like having a pet. You need to be actively involved every day to keep your birds happy and healthy. If you go on vacation, you need to arrange for a knowledgeable person to take care of your flock while you are gone. They can also be an expensive experiment by the time you invest in a coop and run, the birds, feed and possible veterinarian bills. Owners need to consider the cost and commitment prior to getting birds and then have to figure out how to get rid of them.

You will need to decide if you want to raise your birds for egg production or meat production (make sure you know where you can slaughter before getting your birds, most municipalities do not allow slaughtering) and choose the breed appropriately. You will also need to decide if you want to raise your birds conventionally, organically or pastured if you have the land. Good nutrition is critical for good health and needs to be adjusted for age, type (meat or eggs) and habitat. Their housing should be kept clean, protect your birds from predators, provide protection from the elements, be large enough for all your birds, provide enough nests, provide protection from the sun and have good ventilation.

## Housing

Housing for your birds needs to have the following attributes:

- Easy to clean, a clean coop will help prevent issues such as mites and lice, attracting rodents and odor issues.
  - Deep-litter method – Use pine (not cedar) shavings on the floor
  - Concrete versus wood or dirt floor – concrete easier to disinfect
- Free of drafts but ability to be well-ventilated to minimize ammonia buildup, especially in hot months.
- Light enough to see but not so much for heat buildup. East facing windows are good.
- Roosts are an important part of your coop/house design. Poultry have a basic instinct to roost at night. You should allow for 6 - 12" per bird (based on breed size) when designing your roosts. Having the roost over a screen with a removeable area below will help keep the coop cleaner. The removable area can be cleaned more frequently than the rest of the coop.
- Your laying hens need a nesting box with clean material to lay eggs. The key to getting clean eggs is keeping the boxes clean and designing them with this in mind helps a lot!
- Access for people and access to run- same place or different doors?
- Coop needs to be resistant to unwanted animals coming in, such as coyotes/foxes/skunks/raccoons in addition to being rodent proof.
- Floor space needed- You will need from 2 – 4 sq. ft. per bird depending on breed size
- Heating needs for winter – usually not needed unless temperatures fall below freezing
- Artificial light- for year-round egg production, need light on timer to make day longer.

## Nesting boxes:

### Space needed inside the Coop

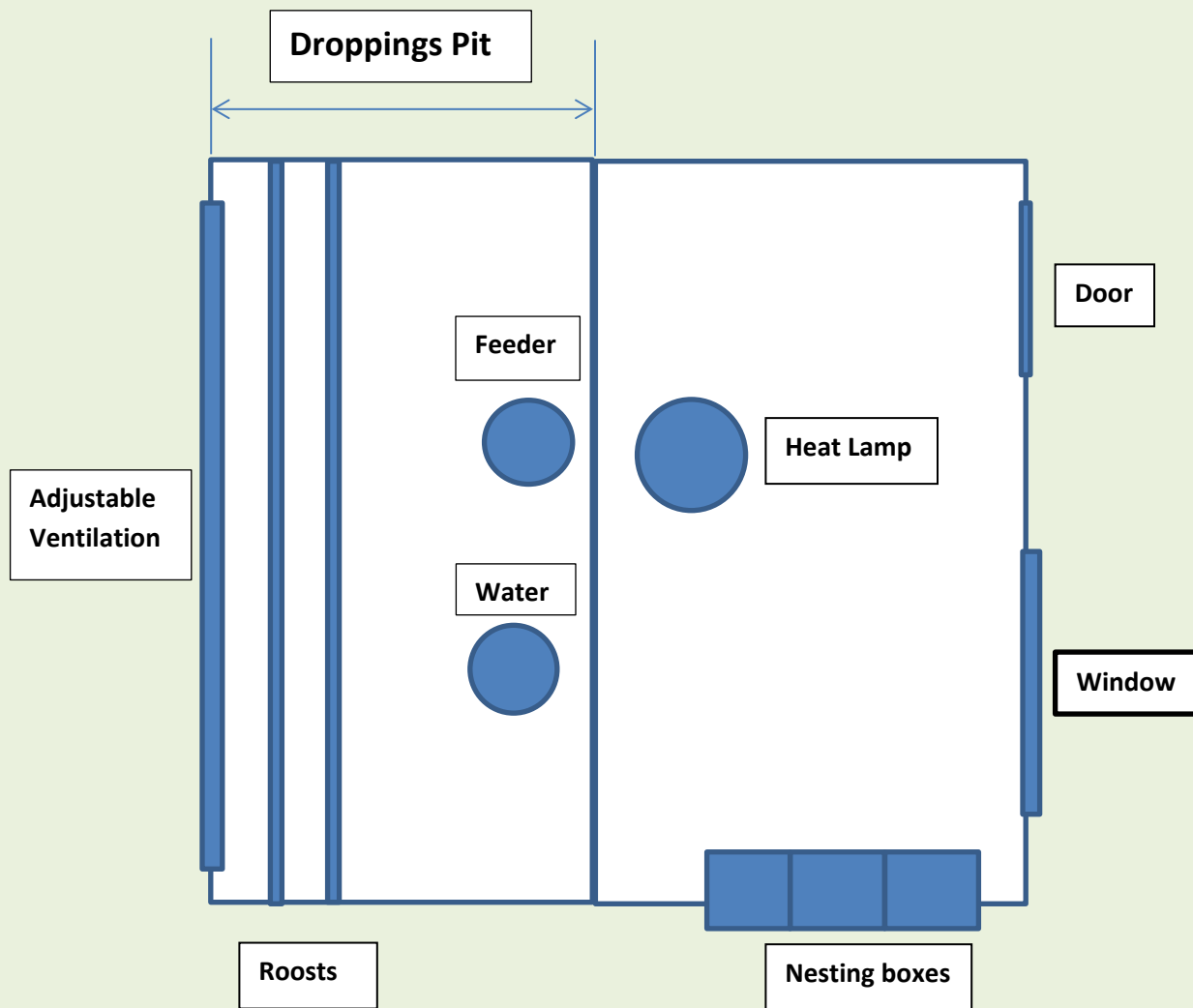
Weeks	1/2 sq. ft./bird
0-4	1 sq. ft./bird
4-8	2 sq. ft./bird
8-12	2 1/2 - 3 sq. ft./bird -- light weight breeds
12-older	3 - 3 1/2 sq. ft./bird -- heavy weight breeds

- Nesting boxes/bird: 1 box for every three to four birds. Nesting box of 12"X12"X12" should accommodate most chicken breeds. Boxes should be placed off the floor up to 18" high.
- Consider a small ledge to keep nesting material in place. Clean the nesting material frequently to keep eggs clean.
- Darker site without direct sunlight. Straw or wood shavings make good nesting materials.
- Make sure nesting boxes are easy to collect eggs, easy to clean and disinfect, accessible for birds and people alike.
- Slope nesting box top to keep birds from roosting on it and defecating in the box



N.A. Irlbeck, Bugwood.org

Figure 1: Example coop layout



## Run

- Area needed per bird- 6 – 10 sq. ft. per bird based on breed size
- Easy to clean; material will need cleaned out to help avoid smell, contamination, etc.
- Consider shade for the birds, especially in the summer. You can put up shade cloth over run when the hot months come.
- Well-drained area be cognizant of where runoff goes in a major rain/seasonal runoff event
- Consider overhead protection from raptors. The fence/run needs to be raccoon/weasel/ skunk resistant. These animals can also dig, so consider burying fencing material into the ground up to 12" deep.

## Nutrition

- Chick starter of 20% crude protein (CP) until 6 weeks; then can transition to pullet grower if available, average 15% CP.
- After 20 weeks, move to layer ration, 15-18% CP. Pellet or crumbles. Free choice. Choose a feeder that will keep feed clean and not waste a lot.
- Feeding scraps can be an excellent way to use food that would otherwise go to waste. Consider leafy greens, vegetable peelings and discards, bread products. Make sure they are not salty. No citrus or avocado. Be careful with potato peelings (solanese poisoning). Scraps also provide a change from the 'norm' and provide some entertainment for the chickens. Don't feed more than can be consumed in 20 minutes to not attract nuisance animals. Also don't 'fill' your chickens with too many scraps as they need to get enough protein to meet daily requirements, and that is accomplished only if they eat enough rations to meet those needs.
- Keep feed handy but make sure it's in a location that's safe from wildlife. Store feed in a container (i.e. metal with a secure, tight locking lid) that is rodent/raccoon proof. Purchase smaller amounts so that you use it quickly enough that it doesn't become stale or rancid.
- Supplement with grit to keep gullet working correctly.
- Calcium supplementation is needed for strong shells. Either buy or re-feed ground egg shells. \*be careful to let shells fully dry or microwave before grinding so hens don't get a taste for the egg, as this can lead to cannibalization of eggs.
- Treats are good for the hens. Hang a corn cob or cauliflower or broccoli head for them to peck at and play with. Warm oatmeal can be a great treat in the coldest winter days.
- Free choice clean water. In winter, use a heater to keep water unfrozen. Chicken 'nipples' in a PVC pipe or 5-gal bucket can be a good choice. Keep water clean and in plentiful supply.



### Feed Requirements per bird per week for Leghorn type pullets and hens

Age in Weeks	Chick Weight	Feed Consumption/Bird/Week
0	1 oz.	1.6 oz.
2	4.8 oz.	3.2 oz.
4	9.6 oz.	6.4 oz.
6	16 oz.	9.3 oz.
8	1.4 lb.	11.6 oz.
10	1.7 lb.	13.7 oz.
12	2.1 lb.	15.3 oz.
14	2.4 lb.	16.4 oz.
16	2.6 lb.	16.4 oz.
18	2.8 lb.	16.4 oz.
20	3.0 lb.	16.4 oz.
22	3.2 lb.	18.8 oz. starting to lay
30	3.8 lb.	1.7 oz.
40	4.0 lb.	1.7 oz.
50	4.1 lb.	1.7 oz.

Feed requirements will vary with breed and size of birds.

### Water Requirements per day for 10 chicks

Weeks	Container size
0 – 1	1 quart container
1 – 4	1-gallon container
4 – 12	2-gallon container

## Types of Feed

### Layer starter

This feed is for chicks that will grow into layer chickens. This feed has 18% protein, higher calcium for bone development, and is available medicated or unmedicated.

### Broiler starter

This feed is for chicks that will be raised as broilers for food. This feed has 22% protein, higher calcium for bone development and is also available medicated or unmedicated.

### Grower and Developer

This feed is for general use with older chicks before they transition to adult feed. This feed has approximately 18% protein and is intended for general use. Chicks, adult layers and broilers each have specific feeding needs.

### **Layer**

This feed is for laying hens and is mixed for their needs. This feed has about 16% protein and has the correct calcium percentage for strong eggs.

### **Broiler or Finisher**

This feed is mixed for growing poultry for food use. This feed has about 22% protein due to high growth rate.

### **Scratch**

A feed that is only used for poultry that are not growing or not laying. This feed can only be used during times of low production because it doesn't have enough protein (7.5%) and is less digestible than the other feeds. It can be used as a treat.

### **Oyster shell or Grit**

Contains small pieces of stone or insolvent natural material that is eaten by the bird. This grit material will be used by the gizzard to grind the food for better nutrient absorption.

### **Feather Fixer**

Specialty feed formulated for problems with mites and to help birds molt faster. This is not a medicated feed; it simply makes conditions inhospitable for mites to live and provides nutrients to assist in new feather formation. It has 18% protein.



## **Keeping Your Birds Healthy**

Here are a few tips for general health and welfare.

The best thing a flock owner can do is to be actively involved with their flock. Owners should inspect their birds daily and note if any birds are not acting normally or have any fluids coming from eyes, nose or rear. Find a local veterinarian, preferably before you get your birds, that is willing to treat poultry. Read information from reliable research based sources to keep up on current issues. While getting to know other local producers is a good idea, make sure to practice good biosecurity when visiting their properties.



## Health

Poultry owners should know how to identify sick animals

- A. Owner should have a good understanding of “normal” or “healthy” bird behavior.
- B. Detection of abnormal or unhealthy bird behavior may be early disease warning signs.
- C. A trained owner or veterinarian can recognize disease symptoms.
- D. Symptoms of disease may include the following:
  - 1. Respiratory
    - a. Coughing, sneezing, swollen sinuses, abnormal tearing, labored breathing, nasal discharge.
  - 3. Gastrointestinal issues
    - a. Persistent watery diarrhea, bloody or mucoid diarrhea.
  - 4. Reproductive problems
    - a. Decreased hatchability, infertility, reduction in rate of lay, soft or misshaped eggs, early chick mortality.
  - 5. Neurological
    - a. Twisting of the head and neck, circling, falling to one side, unable to stand, complete or partial paralysis.
  - 6. Skin
    - a. Sloughing, pale comb and wattles.
  - 7. Decrease in food and water consumption, listlessness, reluctance to move, increase in mortality, ruffled feathers.

## Common Health Issues

- **Mites and Lice** are common problem with chickens. Prevention is the best method to prevent problems. Keeping the coop clean (critical), providing dust baths and treating infected birds can limit problems with lice and mites. Mite and lice symptoms include scabs near the vent, mite and lice eggs near the base of feathers, also mite droppings can make the base of the feather look dirty. Lice can be seen if you look carefully. If you find mites or lice on one bird, you will need to treat **ALL** birds **and** the coop. There are treatments available in feed stores and organic producers can use a pyrethrum product.
- **Coccidia**, a common parasite causes blood and/or mucus in the feces (especially in chicks). Birds become lethargic, fail to feed and thrive, and can die. Keep coops clean, buy vaccinated chicks, or use a medicated feed or water treatment. Treat the entire flock.
- **Intestinal worms** can also be a problem. You will see the worms in the feces or birds will appear to be unhealthy.
- Backyard chickens have a higher risk of being obese as they are often treated as pets. Backyard chicken owners often provide too many treats and not enough opportunity for exercise. Obese birds run the risk for heatstroke, egg-binding, and prolapsed vent.

## Other Common Issues

**Feather Pecking/ Cannibalism/Egg eating** - Birds can pick at each other and peck out feathers leading to bleeding, feather loss, and even death. Causes are usually stressors such as overcrowding or not enough food

or water, heat or boredom. Broken eggs left in the nest can encourage egg eating. Prevention and culling of offending birds are the management methods.

**Molting** – One to two times per year, chickens will molt causing them to look ragged and produce fewer eggs. It can take 3 months for them to produce new feathers and resume normal egg laying.

**Dehydration** - Poultry must have good clean water at all times. They cannot go for more than a few hours without water without causing a reduction in egg laying. If you purchase chicks from a reliable source they should be fine but make sure that they have access to water as soon as possible once you get them.

**Pasty butt** – Chicks may poop out soft feces that stick to the vent. The feces can dry and harden and plug the vent. The hardened feces need to be removed as soon as they are noticed. This can be done by using warm water to help soften them and then carefully picking them off without wounding the chick. When the area is clean dry the area and then put petroleum jelly over the area to protect it and prevent feces from collecting again.

**Introducing New Birds** - While it is not a good idea to introduce new birds to your flock, you can do it with some precautions. New birds should be quarantined to make sure you are not introducing disease to your flock. Introducing new birds also raises the stress level of all birds lowering the immunity of all the birds.

## **Waste**

If you have an active compost pile, you can add coop and run waste materials to the pile. Otherwise, use the material in non-food landscaped areas or send it to a commercial compost facility. Do not use fresh manure and waste materials in a food crop area. The waste may carry diseases such as salmonella which can contaminate your food. If you use wood chips in the coop, they are high in carbon. You may need to add some additional nitrogen source to get them to compost quickly (i.e. fresh grass clippings).

## **Disposal of carcasses and unwanted birds (those no longer laying)**

What You Can Not Do:

1. Release birds into parks or rural areas. Domestic chickens have no survival skills. They won't be able to find food and will be easy targets for predators.
2. Butcher birds on your property in incorporated towns and cities. This is permitted in unincorporated rural parts of the county and is allowed in some municipalities (check your municipality's code).
3. Dispose of dead birds in your garbage or trash which is hauled to a land fill. Call a vet or the humane society to ask if they will dispose of birds for you.

What You Can Do:

1. Advertise on Craigslist for free birds to a good home. Many poultry people are currently buying and selling on the internet. This is better than asking local 4-H kids, farm families or poultry clubs to take your unwanted birds.
2. Check FowlBlog.com and other internet poultry websites. Put in "how to dispose of unwanted birds". There are lots of options.
3. Sell birds at bird swaps.

## Protecting Your Flock from Predators

1. Husbandry is one of the first steps you should take to reduce predation, and includes: a) Keeping the grounds around your chicken coops clean, b) Removing piles of yard debris, trash, and construction waste, which provides cover and housing for rodents, c) Eliminate food sources that will draw unwanted visitors, d) Clean under bird feeders and, e) Keep chicken housing and runs out in the open if possible, away from the edges of woodlands and riparian areas.
2. Train your birds to return to the coop every evening – and be sure to securely close it. If you raise your chicks in that coop, they will naturally return to lay eggs and roost at night after you let them range for the day. Make sure the house is varmint-proof.
3. Raise the chicken coop off the ground by a foot or so to discourage rats, skunks and snakes from taking up residence beneath it and stealing eggs, chicks or young hens. Be certain to keep the henhouse floor tight and patch any holes that snakes and rodents can get through.
4. Enclose the coop in a secure poultry run to discourage dogs, coyotes, bobcats and other four-legged carnivores from gaining access to your flock. You can choose poultry wire, welded-wire mesh, electric netting or other fencing materials with sufficiently small openings (or sufficiently high-voltage electrical pulses) to keep your birds in and predators out. Bobcats and coyotes are fantastic jumpers and can easily clear 4-foot-high fences, so build your enclosure appropriately tall, or add a cover net to keep the varmints from vaulting the fence.
5. Cover the chicken run with welded-wire fencing, chicken wire or game-bird netting, or install a random array of crisscrossing wires overhead to discourage hawks and owls from making a buffet out of your birds. If you shut your chickens in the coop at night, owl attacks will not be an issue. But hungry owls are cagey and may grab their meal right at dusk, or slightly beforehand, so if owls are a problem in your area, don't wait until after dark to close the coop.
6. Choose small-mesh fencing materials for enclosing coops and runs when raccoons and members of the mink or fisher family are among the predators. Raccoons and other dexterous animals are infamous for reaching through larger meshed fencing or chicken wire and killing the chickens they can snag a bird through the fence. This is especially important when you keep your chickens in a fully enclosed wire coop/run, such as a chicken tractor (moveable coops without a floor). Although 2-by-3-inch welded-wire fencing is less expensive, you will lose fewer birds if you use 1-by-2-inch mesh or smaller welded wire.
7. Bury galvanized hardware cloth or other welded-wire fencing around the perimeter of the chicken run if you have problems with predators digging beneath your surface fencing.
8. Provide a night light (motion-sensor-activated) that will flood the chicken run with light after dark. This will keep most nocturnal predators away from the coop.
9. Give your chicken-friendly dogs the run of the chicken yard – particularly at night. Be sure your dogs aren't tempted to chase running, squawking chickens if you choose not to close up the coop at night or choose to leave the dogs in the chicken yard during the day.
10. Prepare to take swift action when you discover predation. You can take measures to eliminate the predator or to eliminate its access to your birds. Failure to do so will result in subsequent losses, if the

predators think the buffet line is open. Prior to taking any lethal action, know the wildlife laws for eliminating any predators.

11. Create a predator-danger zone around the coop and chicken yard. Most terrestrial predators are uncomfortable crossing an area with minimal cover. Go ahead and plant bushes inside the chicken run – your birds will love the shade and nibbling on the leaves – but leave the perimeter as cover-free as you can. Raccoons are less likely to try to work their “hands” into a welded-wire enclosure when they have to sit in the open to do it.

## Biosecurity

Biosecurity is the measures taken to prevent disease from entering a backyard/farm and to prevent transmission within a backyard/farm. Biosecurity maximizes flock health and minimizes potential for disease spread.

According to USDA APHIS

### **Biosecurity means:**

Using common sense practices to protect your poultry from all types of disease agents - viruses, bacteria, fungi, or parasites.

- Doing everything possible to protect your birds from infectious diseases like exotic Newcastle disease (END) and avian influenza (AI) and
- Preventing disease-causing pathogens from entering your premises.

The three basic biosecurity tenants are: Isolation, Traffic Control and Sanitation. The major components are exclusion and containment.

What does that mean for the poultry flock owner?

All flock owners should have a biosecurity plan to minimize the risk to their birds. There are many good sources that will guide you in developing a plan. Resources are listed at the end of this section.

The first step is to isolate your birds from wild birds. Wild birds can be carriers of diseases such as Avian Influenza. By allowing your flock to free range and possibly interact with wild birds and their excrement, you may be allowing disease transmission to occur. If your property attracts a lot of wild geese and ducks, do not allow your birds to use areas where the wild birds congregate. If you use a chicken tractor to move your flock around the property, make sure to avoid areas where wild birds have congregated. It is also a good idea to have a roof on your enclosure not only for biosecurity purposes but also from a predator protection point. All openings in the coop should be screened to prevent insects, rodents and other potential disease carrying vertebrates and invertebrates from accessing the coop. Allowing your flock to free range is not a good idea either from a biosecurity or predator management point. Flocks should be locked in a coop at night.

It is best to practice an all-in and all-out flock management system. This means that you start with a specific same age flock and you do not add any new birds to the flock. When you are ready to sell or harvest them,

they all go. You do not keep any of them. After the flock is gone, you can thoroughly clean and disinfect the coop and run. The coop should be not be restocked for at least 2 weeks after disinfecting. You can then bring in a whole new flock of chicks or birds. You can have several different flocks of birds of different ages but be sure to keep them separated and harvest or sell all of one flock at one time. If you do bring in new birds or take birds to shows, isolate them for 4 weeks just in case they are carrying a disease. Try to get the health and vaccination history of any birds you purchase and purchase them from a reliable source. This way you will not run the risk of having the whole flock get sick. If you notice that one of your birds is sick, isolate that bird so that it does not spread the illness to the rest of the flock. Flock owners need to know what a healthy bird looks like and what normal behavior is. Coops need to be kept clean and built so that rodents and other wildlife cannot enter the coop. Coops should be cleaned and disinfected between flocks or for egg layers on a routine basis of at least twice a year. Bedding and manure need to be removed from the coop and run and either composted or disposed of properly. Do not keep them near the coop as this may attract rodents.

At your property, have separate boots and clothing that are only worn on your farm and when you are working with your birds. Wear different clothing and boots when visiting other facilities. Disinfect this clothing when you get home before you work with your flock. If other flock owners visit your property, have a disinfectant foot wash or disposable booties at a minimum so they don't bring disease to your property. Be aware of other vehicles that can bring disease on your property. Do you have large quantities of feed delivered? If so, you may want to have your feed delivered to an area that is separate from your flock. Rodent proofing your coop and preventing rodents and wild birds from getting access to feed will also keep your flock healthy. Clean up feed spills to prevent attracting rodents and wild birds. Your birds water source should be clean and not from a supply where wild birds have been.

Tools and equipment should not be shared with other poultry owners and should routinely be cleaned and disinfected and stored so that wild birds do not have access. You should wash your hands prior to working with your birds. Handwashing and sanitizing stations (foot baths and booties) should be set-up for visitors to your farm. Keep your property clean by mowing grasses and weeds and not having trashy areas where rodents can hide. If you have multiple flocks take care of them in order from the youngest (most vulnerable) to the oldest (least vulnerable) and from healthiest to sick. At a minimum, disinfect shoes and wash hands between working with each flock. Keep pets out of the flock area. Check on your flock/s daily looking for birds that appear ill or injured. Remove and dispose of carcasses within 48 hours. Check with your local Extension Office for carcass disposal options.

## **Poultry Food Safety**

Whether you are raising poultry for egg production or meat production, you want to raise and process the eggs or birds in a manner to provide a safe product for your family and your clients. Food safety starts with healthy birds. Healthy birds are a result of healthy chicks, a nutritious diet, plenty of water, clean facilities with good ventilation. Your facility should have a biosecurity plan to minimize potential for diseases to enter your property. See the biosecurity section for information and resources. Poultry naturally may carry bacteria such as *Salmonella* and *Campylobacter* that can affect your family or those who purchase eggs or meat from you. Birds may be carrying and shedding one of these bacteria or others and not appear to be ill. Handle all

your poultry products in such a manner to keep everyone safe and healthy. Never eat raw eggs. It is always best to fully cook eggs and to cook products with eggs to 160°F.

## **Egg Production**

Small flocks can produce a larger number of soiled eggs. This may partly be due to eggs being layed on the coop floor as opposed to in a nest box. All dirty eggs should be properly cleaned and sanitized prior to being used. While you cannot stop hens from laying eggs on the floor you can train them so that you minimize the number. When the pullets reach 16 to 18 weeks old, they should have access to the nest boxes only during the day. A minimum of one nest per every 3 - 4 pullets is ideal. Close the entrance to the nesting boxes off at night so the pullets have to use the roost and then open them up in the morning. The pullets don't have access to the boxes except during the day. If you have one or two birds that are consistent floor layers, you can train them by picking them up and putting them in the nest. Providing birds with a roost with an open mesh covered droppings collection box underneath will make it easier for you to keep the coop clean. Birds will roost at night and poop into the collection box. Remove and clean the droppings collection box on a routine basis.

At a minimum you should collect eggs twice a day, three times is preferable, twice in the morning and one mid to late afternoon. The longer the eggs stay in the nest the more likely they will get soiled, broken or eaten. The nest boxes should be cleaned at least once a week, removing the old bedding and manure and providing new bedding. Putting a piece of cardboard cut to the size of the nest box can make cleaning the box easier. The cardboard is removed when you clean the box and replaced with a new one. The cardboard can be composted with the nest box material.

Plastic coated wire baskets or plastic egg cartons are best for collecting eggs. You will need to clean and disinfect the collection baskets just as you clean and disinfect the cartons after every use. Discard any eggs that are cracked or broken.

Despite all your efforts, you will still get some dirty eggs. When you are collecting eggs, the dirty eggs should be placed in a separate container so that you don't contaminate the clean eggs. You can clean all the eggs at the end of the day. You don't have to wash all the eggs; you can remove some dirt and debris with an emery cloth, fine sandpaper or a brush. Clean eggs do not have to be washed.

When washing eggs it is best to use water between 110°F and 120°F or at least 20°F warmer than the eggs. The principle behind this is to get the egg contents to expand preventing contaminants/pathogens from entering the eggs. Using cooler water will shrink the contents creating a vacuum that then allows contaminants/pathogens to enter the holes in the egg shell. Eggs should be washed individually in basins of non-foaming, unscented detergent and then rinsed in clean water. Make sure you use an unscented detergent as the scented detergent may give the eggs an off taste. If you have a larger flock, the washing solution should be replaced every 3 to 4 dozen eggs. Eggs should never be soaked in the water. To make a sanitizing solution for use after washing, mix 1 gallon of 120°F water with 1 ounce (1 tablespoon) of bleach. Either dip or spray the eggs with the sanitizing solution. After cleaning and sanitizing the eggs, dry the eggs thoroughly on a rack and then refrigerate them. Any containers that you use to store the eggs should be

either new or one that can be thoroughly disinfected (i.e. plastic re-usable egg cartons that can be put in a dishwasher). Re-using store bought fiber containers is not a good idea.

Eggs can be stored at room temperature for 2 - 3 days. If you plan on keeping them longer than that you need to refrigerate them. An egg stored at room temperature for a day is equivalent to 1 week properly refrigerated. Eggs should be stored large end up (to keep yolk centered) in the main area of the refrigerator not in the door, and preferably the lowest shelf. The main part of the refrigerator should be 35 to 40°F while the door can be warmer. Eggs stored properly can have a safe shelf life of 3 weeks. Make sure that you date the container so that you use older eggs first. If your birds are producing more eggs than you can use, you can freeze them. Only freeze fresh eggs. Break the eggs out of their shells, beat them and add a small amount of salt, sugar or corn syrup to preserve quality and prevent gelling. Place them in containers dating them and noting the number of eggs. You can also freeze whites and yolk separately.

## **Meat Production**

If you are raising birds for meat or are processing older laying birds, you need to process them in a manner to prevent meat contamination. Metal surfaces are best for processing as they can be cleaned and disinfected to prevent contamination. Wood surfaces should be covered with plastic as it cannot be sufficiently disinfected. Ideally, processing birds indoors is preferred to processing outdoors. The area should be free of flies and other insects. Disinfect all equipment prior to starting. If equipment falls on the ground or contacts offal, do not use it without disinfecting it first. Be aware of cracks and crevices in equipment that can harbor contamination. Thoroughly disinfect all equipment when processing is completed and disinfect it again prior to the next processing event. Make sure that you have the proper equipment in place prior to starting and that scissors and knives are sharpened to make evisceration easier and lessen the chance of puncturing the intestines. If you have not butchered and processed poultry before make sure that you know what you are doing. Care must be taken to minimize contamination of the meat. When cooling the meat, make sure that you use cool running water. The carcass needs to be cooled to 40° F as quickly as possible. If you use well water to cool your birds, test your water for bacterial contamination and that it is cool prior to use.

## **Selecting birds**

When selecting birds for harvesting, you should choose only those birds that appear to be healthy. Birds that are ill will not produce good meat. Selecting the healthy birds will provide the best possible meat. Birds that show any of the following signs should not be used for consumption.

1. The liver should be healthy with no signs of lumps or spots of any size on its' surface.
2. The body cavity should not contain any quantity of fluid.
3. The fat of a healthy bird should be yellow or white not orange.
4. No organ should be two or more times normal size (compare with similar size bird). The gall bladder can be ignored for this observation (it enlarges due to the bird not eating and needing bile for digestion).
5. The breast meat should be the same color as the meat of the thighs.

6. Meat with white streaks or area that is abnormally large when compared to the opposite side of the bird.

Prior to processing do not feed birds for 8 - 12 hours (minimum of 6 hours) prior to slaughter to lessen the amount of feed in the digestive system lessening the potential to contaminate the meat with this material.

Processing area should have access to plenty of clean water. If you are on a well, have your water tested for bacteria (a good idea whether you are processing birds or not). You will need cool, hot and running water for processing.

When removing the intestinal system, be very careful to not nick it and release any of the material. Do all you can to keep from getting offal on any of the meat. Any meat that has contacted offal should be tossed and not used. Make sure that you have adequate ice and water or refrigerator space to cool all the birds that you will be slaughtering to 40° F. Placing too many birds in a refrigerator or a container of ice and water will slow the cooling time down and raise the contamination potential. The cooling time should be as short as possible to limit contamination potential. If you use water, make sure to allow them to thoroughly drain prior to bagging for storage.

If you are canning your poultry, it is critical to make altitude adjustments to your processing time and pressure (utilize a reliable source of information such as those listed below). Poultry can only be pressure canned. Follow all the normal precautions when canning and make sure all equipment is clean and that your pressure canner lid is calibrated. Trim off bruised areas of meat prior to canning. Package and freeze meat as soon as possible after processing. Cook all poultry to 165° F

Have a container ready to catch blood and offal so that you can properly dispose of this material. It is not a good idea to leave it out for wildlife to utilize. This will attract them to your property and they may decide to use your remaining birds for meals. Have a plan for disposing of offal when you are finished processing birds. Most waste management companies do not allow you to dispose of the offal in your trash. You can bury it but need to bury it at least 3 feet deep and not in an area where it can contaminate ground water. Check with your local health department or Colorado Department of Agriculture for disposal recommendations. Offal can also be composted in well managed commercial compost piles. The piles must reach sufficient temperatures to destroy any pathogens.



Rebekah D. Wallace, University of Georgia, Bugwood.org



## References:

Many thanks to Dr. Ashley Stokes “Backyard Poultry Basics of Health and Welfare”, University of Hawaii Cooperative Extension publication; Dr. Marissa Bunning “Home Produced Chicken Eggs” Colorado State University Extension publication #9.377: and Claire Shier for allowing the use of sections of their publications in this publication.

### Egg Safety

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CDC Health Risks Associated with Raising Chickens, <https://www.cdc.gov/features/salmonellapoultry/index.html>

Colorado Department of Agriculture. Guidelines for egg washing for small flock owners, <https://colorado.gov/pacific/aginspection/eggs>

Moreng, R. and J. Avens. 1991. Poultry Science and Production. Waveland Press, Inc. Prospect Heights, IL. University of New Hampshire Cooperative Extension. Producing Your Own Eggs, [http://extension.unh.edu/resources/representation/Resource000472\\_Rep494.pdf](http://extension.unh.edu/resources/representation/Resource000472_Rep494.pdf).

USDA Food Safety and Inspection Service. Shell Eggs from Farm to Table, [https://www.fsis.usda.gov/wps/wcm/connect/5235aa20-fee1-4e5b-86f5-8d6e09f351b6/Shell\\_Eggs\\_from\\_Farm\\_to\\_Table.pdf?MOD=AJPERES](https://www.fsis.usda.gov/wps/wcm/connect/5235aa20-fee1-4e5b-86f5-8d6e09f351b6/Shell_Eggs_from_Farm_to_Table.pdf?MOD=AJPERES)

Virginia Cooperative Extension. Proper Handling of Eggs: From Hen to Consumption by PJ Clauser, [https://www.pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/2902/2902-1091/2902-1091\\_pdf.pdf](https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/2902/2902-1091/2902-1091_pdf.pdf)

### Biosecurity

Iowa State University <http://www.poultrybiosecurity.org/>

Colorado State University Veterinary Teaching Hospital, Poultry, 970-491-4008

#### Biosecurity

[https://www.aphis.usda.gov/publications/animal\\_health/content/printable\\_version/fs\\_bio\\_sec\\_07.pdf](https://www.aphis.usda.gov/publications/animal_health/content/printable_version/fs_bio_sec_07.pdf)

<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian-influenza-disease/birdbiosecurity>

<http://extension.uga.edu/publications/detail.html?number=B1306>

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Bulletin 1306 - Biosecurity Basics for Poultry Growers - Univ. of Georgia -

[https://secure.caes.uga.edu/extension/publications/files/pdf/B%201306\\_4.PDF](https://secure.caes.uga.edu/extension/publications/files/pdf/B%201306_4.PDF)

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### Eggs

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ASC-217 - So You Want to Produce Your Own Eggs? - Univ. of Kentucky -

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Egg Program - Colorado Dept. of Ag - <https://www.colorado.gov/pacific/aginspection/eggs>

9.377 - Home-produced Chicken Eggs - Colorado State University - <http://extension.colostate.edu/topic-areas/nutrition-food-safety-health/home-produced-chicken-eggs-9-377/>

### **Predator Management**

ANSI-8204 - Predators: Thieves in the Night - Oklahoma State Univ.

[https://shareok.org/bitstream/handle/11244/50005/oksd\\_ansi\\_8204\\_2003-08.pdf?sequence=1&isAllowed=y](https://shareok.org/bitstream/handle/11244/50005/oksd_ansi_8204_2003-08.pdf?sequence=1&isAllowed=y)

ID 245 - Predator Management for Small Scale Poultry Enterprises in Kentucky - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ID/ID245/ID245.pdf>

### **Breeds**

ASC-190 - Selecting the Right Chicken Breed - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC190/ASC190.pdf>

### **Nutrition**

ASC-191 - How Much Will My Chickens Eat? - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC191/ASC191.pdf>

C 954 4 - Nutrition for the Backyard Flock - Univ. of Georgia -

[https://secure.caes.uga.edu/extension/publications/files/pdf/C%20954\\_4.PDF](https://secure.caes.uga.edu/extension/publications/files/pdf/C%20954_4.PDF)

### **Problems**

ASC-192 - Why Have My Hens Stopped Laying? - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC192/ASC192.pdf>

ASC-206 - Common External Parasites of Poultry - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC206/ASC206.pdf>

ENT-516 – External Mites and Insect Parasites of Backyard Chickens - Univ. of Kentucky -

<https://entomology.ca.uky.edu/ef516>

Common Poultry Diseases - Univ. of Florida - <http://edis.ifas.ufl.edu/pdf/PS/PS04400.pdf>

Carcass disposal – Guidelines from Colorado Department of Agriculture -

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### **Geese**

ASC-196 - Selecting Geese – Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC196/ASC196.pdf>

### **Turkeys**

ASC-197 - Selecting Turkeys - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC197/ASC197.pdf>

### **Ducks**

ASC-198 - Selecting Ducks - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC198/ASC198.pdf>

### **Other Poultry**

ASC-209 - Raising Guinea Fowl - Univ. of Kentucky -

<http://www2.ca.uky.edu/agcomm/pubs/ASC/ASC209/ASC209.pdf>

### **General Management**

C 969 4 - Management Guide for the Backyard Flock - Univ. of Georgia -

[https://secure.caes.uga.edu/extension/publications/files/pdf/C%20969\\_5.PDF](https://secure.caes.uga.edu/extension/publications/files/pdf/C%20969_5.PDF)

CSU Animal Science Avian Program - Colorado State University -

<http://veterinaryextension.colostate.edu/menu2/avian.shtml>

### **Housing**

Housing blueprints - Colorado State University- <http://extension.colostate.edu/publications-2/blueprints-and-housingequipment-plans/blueprints-poultry-equipment-and-housing-plans/>

### **General Poultry websites**

Colorado State University Fact Sheets - <https://extension.colostate.edu/topic-areas/agriculture/?target=publications#livestock>

Poultry Fact Sheets - North Carolina Cooperative Extension - <https://poultry.ces.ncsu.edu/poultry-technical-information/>

Poultry Fact Sheets - University of Florida - [http://edis.ifas.ufl.edu/department\\_dairy\\_and\\_poultry\\_sciences](http://edis.ifas.ufl.edu/department_dairy_and_poultry_sciences)

Poultry Resources - University of Georgia -

<http://www.caes.uga.edu/departments/poultry/extension/publications.html>

Poultry Publications - Mississippi State University - <http://extension.msstate.edu/publications/poultry/>

Poultry - Pennsylvania State University - <https://extension.psu.edu/animals-and-livestock/poultry>

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Poultry publications - University of Nebraska - <http://extensionpubs.unl.edu/search/?keyword=Poultry>

Poultry Resources - University of Virginia Extension - <http://pubs.ext.vt.edu/category/poultry.html>

Poultry Resources - Auburn University - <http://poul.auburn.edu/outreach/educational-resources/>

Poultry - Mississippi State University - <http://poultry.msstate.edu/extension/index.php>

Poultry - Purdue University - <https://ag.purdue.edu/ansc/poultry/Pages/Publications.aspx>

Poultry - Texas A&M - <https://posc.tamu.edu/texas-agrilife-poultry-extension-specialists/publications/>

Poultry – UC Davis - <https://ucanr.edu/sites/poultry/>

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