



Cooperative Extension Service
Institute of Food and Agricultural Sciences

The Home Broiler Chicken Flock¹

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Broilers are meat-type chickens. Sometimes they are called fryers or frying chicken. Commercial broilers are crossbreds, primarily involving White Cornish and White Plymouth Rock. Today's commercial broilers are marketed at 4-10 weeks of age, depending on the body weight desired. Broilers are used for products such as Cornish Hens (2.85 lb live weight at about 4 weeks of age), chicken for fast food restaurants (4.1 lb at about 6 weeks of age), chicken for grocery stores (6.0 lb at about 7.5 weeks of age), and deboned chicken for sandwiches, nuggets, etc. (6.5 lb at about 8.5 weeks of age).

Many families are interested in producing their own broilers for home consumption (for home processing of broilers refer to Factsheet PS-8, *Procedures for Killing and Dressing Home Grown Fowl*). It may cost more to raise broilers than to buy them at the supermarket, but the recreation and satisfaction derived offset the higher cost. In addition, manure and litter from broiler production can be used to fertilize the family garden and flower beds (refer to Factsheet PS-1, *Poultry Manure as a Fertilizer*).

Broiler projects are popular with 4-H and FFA members and are an integral part of many youth livestock shows. Broiler projects are especially suitable for youngsters with limited space.

Remember that home flocks, even small ones, require daily care, including weekends, vacations, and holidays. The time and effort required for this care

should be considered when deciding whether or not to start a poultry flock of any kind. It is also important to check on zoning regulations in your area.

EQUIPMENT REQUIRED

Expensive housing and equipment are not necessary. However, you will need:

- a clean, dry structure that will protect your broilers from predators, cold and rain, or hot sun
- a brooder or heat lamp(s) to warm the chicks
- feeding and watering equipment

Housing

Broilers reared for home use should have 1 square foot of floor space per bird. Almost any small building that meets the floor space requirements for the size of flock desired can be used. A small number of chicks can even be brooded in a corner of a garage. Most poultry meat birds are raised under total confinement, although some flocks are allowed access to a limited amount of fenced range or yard area.

Remove all sticks, boards, and sharp objects from the broiler pen. This will reduce the likelihood of your birds getting injured.

Never place chicks on a slick surface such as cardboard, plastic or newspaper. The smooth surface may result in spraddled legs or other leg problems. Bedding material is usually placed on the floor for the

1. This document is FACTSHEET PS-42, one of a series of the Dairy and Poultry Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published June 1998. **Please visit the FAIRS Website at <http://hammock.ifas.ufl.edu>**
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chicks. In addition to providing a non-slick surface for the chicks, it absorbs the moisture from the manure and helps to maintain a “clean” environment. Wood shavings, cane fiber, ground corncobs, peanut hulls or rice hulls make good litter. Hay or straw make very poor litter and should not be used.

Brooder

Baby chicks need heat during the first few weeks of life because they cannot yet adequately regulate their body temperature. This is known as the “brooding period”. The area where they are kept during this time is referred to as the “brooder”. It is important that the chicks have enough room to move toward or away from the heat source and thereby find their own comfort zone.

Electric brooders are available for brooding small numbers of chicks. Electric heat lamps or infrared bulbs are also good sources of heat for brooding chicks. If infrared bulbs are used, two 125-watt bulbs per 50 chicks are recommended. Make certain the lamps are secured so they cannot fall to the litter and create a fire hazard. Use porcelain sockets approved for these lamps and suspend the lamps with a chain or wire (not the electric cord). The lamps should hang so the bottoms are 18 inches from the litter. Raise the lamps 2 inches per week to a maximum height of 24 inches. Place watering pans a good distance from the lamps to prevent splashed water from cracking the hot bulbs. Make sure you have a spare bulb.

With infrared lamps you are heating the chicks and floor only and not the air, so air temperature measurements cannot be used as a guide to chick comfort. The chick is the best thermometer available. Observe the chicks to gauge their level of comfort. If they crowd together under the lamp or are huddled and peeping, increase the heat by lowering the lamp, increasing the wattage, or by adding a second lamp. If the chicks tend to move away from the heat source, or are panting with their beaks open, reduce the heat by raising the level of the lamp or reducing the wattage. Watch your chicks closely for the first few days and nights to be sure they are comfortable. Adjust the lamps if they are not.

After the broilers are 3 to 5 weeks old and fully feathered, heat is seldom required. It will depend, of course, on the temperature in their pen. Some

exhibitors tend to keep their birds much too warm. This will affect feathering, flock uniformity, fleshing and finish. The ideal growing temperature is 60° to 75°F after the broilers pass 4 weeks of age. Supplemental heat may be needed in cold weather. In hot weather, use fans to move air across the broilers.

Feeding and Watering Equipment

Supply enough feed and waterer space for all broilers to be able to eat at the same time. You can purchase feeders from the store, or make your own. For the first day or two you should use a shallow pan or an egg carton without a lid to make it easier for the chicks to find their food. After a few days, you can use an egg carton with the lid on. You will need to cut holes in the top to allow the chicks access to the feed. The holes should be about 1½ inches in diameter. Using an egg carton with the lid on will reduce the amount of feed spillage.

When the birds are older, you will need a bigger feeder, such as the one shown in Figure 1. The feeder is made out of wood. The bar across the top is to prevent the birds from spilling the feed.

A plentiful supply of cool, clean drinking water is one of the most important requirements in raising chicks. You will need to make sure your chicks will have adequate water all day long. Waterers should be placed on a wooden block to help keep them free from litter.



Figure 1. A wooden chick feeder.

You can purchase a waterer from the feed store, or you can make your own from a 48 oz fruit-juice can and an aluminum pie plate. Make two holes on opposite sides of the can, about ¾ inches from the open end. Fill the can with water, place the plate on top, and turn the can over. For the first few days, you

can also use a saucer with an inverted cup placed over it.

PURCHASING CHICKS

Good quality broiler strain chicks should be purchased from a reputable hatchery. Some families prefer to raise pullet chicks. Others buy unsexed chicks. Pullets carry more flesh over the back and breast than cockerels and will generally have a more rounded appearance to the breast, thighs, and legs. However, cockerels grow more rapidly and reach slaughter weight 1-2 weeks earlier than pullets.

Chicks are often vaccinated at the hatchery against Marek's disease. Marek's disease is a type of avian cancer caused by a virus. Chickens 2 to 16 weeks of age (i.e., prior to sexual maturity) are most susceptible. It occurs worldwide, wherever poultry are produced. It is recommended that you purchase chicks already vaccinated against Marek's disease.

PREPARATION

Clean and disinfect the broiler house, feeders and waterers at least 2 weeks before the chicks arrive. Wash the pen down with soap and water. Then spray a commercial disinfectant labeled for use in poultry houses.

Be prepared for the chicks 2 days in advance. Put the bedding material (e.g., wood shavings) on the floor of the cleaned and disinfected house. Turn on the heat lamps the day before the chicks are to arrive. This will allow the area time to warm up before the chicks arrive.

You need to think about how you are going to transport your chicks home. A small box will work. Cut three to four small holes along the top to make sure the chicks get enough air to breathe and don't get too hot. Chicks are quite resilient, but try to handle them as gently as possible to minimize the possibility of injury.

Put litter material or some type of rough surface material for insulation and to prevent spraddled legs.

LIGHTING

It is often recommended to provide continuous lighting for broilers. Twenty-four hour lighting allows the broilers access to feed at all times and increases body weight, especially during the summer months. This can be done by providing continuous artificial lighting, or by supplementing natural daylight. Keep a 40-watt bulb at least 6 feet above broilers after removing heat lamps.

If there is a possibility of a power outage, with a subsequent loss of lighting, it is recommended to provide the birds with at least 1 hour of darkness a day. This will let them get accustomed to the dark so they will not panic, pile up and suffocate if the power should go off.

Broilers also can be grown with fewer than 24 hours of light per day or with only natural light, but growth rate will be slower than with 23- or 24-hour lighting.

FEEDING AND WATERING

Optimum performance of broilers is dependent on proper nutrition. It is recommended that broilers be fed a 23% protein starter diet for the first 4 weeks. They are then fed a 19% protein grower diet from 4 to 8 weeks of age. (For more information on poultry diets, refer to Factsheet PS-6, *Poultry Diets for Small Flocks*.) Your local feed store, however, may not carry these diets. It is absolutely essential that broiler chicks be fed a high quality broiler feed containing at least 20 percent protein. Lower protein feeds will result in lower weight gains. Do not feed a layer diet to growing chicks because of the high calcium level.

Chicks can be started on a high protein (26 to 30 percent) turkey or game bird starter to stimulate additional growth, but this may be more expensive. You can feed the higher protein feed for 2 to 4 weeks and then switch to a broiler feed for the remaining feeding period. Milk, greens, eggs, scratch feed, etc., are not needed and will probably retard early growth.

If you use a medicated feed, be sure to follow the directions on the feed tag with regards to withdrawal times. A non-medicated feed must be fed prior to slaughter to prevent the presence of drug residues in the carcass.

Young chicks do not have an innate ability to recognize food, but they do have a strong tendency to peck at small particles, both nutritious and non-nutritious. As time passes, however, pecking at inedible particles declines and pecking at food increases as they learn to respond to the consequences of consuming different items. When chicks are raised by their mother, their attention is directed towards food because they follow their mother around. Whenever she stops to peck at a food item, they gather around and join in the pecking activity.

For chickens, feeding is a social activity. Even when chicks are reared under commercial conditions, they tend to feed as a group whenever possible. If they are isolated, their food intake is depressed – chicks kept on their own eat less in the short term compared to chicks housed with a companion.

When the chicks first arrive, the feeders should be full, but after the chicks have learned to eat, the feeders should be no more than $\frac{3}{4}$ full to prevent feed waste.

Broilers respond to attention. Walk through the broilers and stir feed three to five times per day. This will provide exercise and increase feed consumption and growth.

Chicks need a source of fresh water. Clean the waterers at least once a day. The water should be changed daily. Even clear-looking water may have an awful smell because of the feed lost in it while the chicks are drinking.

You may need to teach your chicks where the water is. Chicks are not initially able to recognize water. They have, however, a tendency to peck at flat, shiny surfaces. This results in them pecking at a pool of water and, as soon as their beak is immersed, they begin to learn to drink. If your chicks do not drink within an hour or so of their arrival, carefully dip their beaks in the water. They will quickly learn where the water is.

HEALTH

If the litter gets wet, the wet portion should be removed and new litter put in its place. Wet litter is an excellent media for disease organism growth which can affect the health and production of the flock.

Chick feed usually contains a coccidiostat, which is a medication to prevent coccidiosis. Coccidiosis is the most common cause of death in young chicks. It is caused by single-celled organisms, called coccidia. The coccidia attack different parts of the intestinal tract, causing irritation of the lining that prevents the absorption of food. In minor outbreaks, the chicks appear droopy, have ruffled feathers, and lose weight. Severe cases result in death. It is important to keep the bedding dry and to purchase feed that contains a coccidiostat.

Blister-like lesions, called breast blisters, can develop on the keel bone area of the breast. They may be difficult to see under the feather cover but can be detected by blowing the feathers away from the breast to reveal the underlying skin. Maintaining dry litter condition, preventing overcrowding, using equipment without sharp edges, and using feeding programs that develop good body structure before heavy weights are reached, are all factors that can help reduce the incidence of breast blisters.

Feather pecking and cannibalism (birds being injured by the beaks of other birds) are other problems that may develop. Various factors such as crowding, nutrient deficiencies, inadequate ventilation, too little drinking and eating space, too much light, idleness, and the appearance of blood on an injured bird contribute to picking. Good management can frequently ward off cannibalism. If it occurs, a pick-paste remedy available at your local feed store can help reduce the incidence of feather pecking.

Internal parasites can cause poor weight gain. Roundworms (nematodes) cause the most trouble. Refer to Factsheet PS-18, *Nematode Parasites of Poultry (and where to find them)*, for more information on the identification and control of roundworms. A good sanitation program is usually sufficient to prevent an internal parasite problem. Remove the litter after each flock of broilers. Keep old birds separate from the broilers and do not walk into the broiler house without thoroughly cleaning shoes.

The external parasites most likely to be found on broilers are lice and mites. These parasites lower broiler quality by reducing weight gain and causing skin discolorations. Check broilers each week for these parasites. Refer to Factsheet PS-10, *Common*

Continuous External Parasites of Poultry, for more information on the identification and control of external parasites.

Isolation from other birds is a first means of preventing disease. Restrict unnecessary traffic of people and pets to the broiler flock.

As previously stated, broiler chicks are frequently vaccinated at the hatchery against Marek's disease. Because of the short life span of broilers, no other vaccines should be necessary. If there is a heavy infestation of mosquitoes, however, it may be necessary to vaccinate against fowl pox. Fowl pox is a relatively slow-spreading viral disease of poultry of all ages. The virus is spread from bird to bird through the bites of blood-sucking insects (such as mosquitos) or through wounds and scratches by the birds when fighting. Fowl pox is characterized by raised, wart-like lesions on unfeathered areas (head, legs, vent, etc.) of the bird. Do not vaccinate, however, unless you have a problem with fowl pox on your farm or in your area. For more information on poultry vaccines, refer to Factsheet PS-36, *Vaccination of Small Poultry Flocks*.

SELECTING FOR SHOW

Broilers are sometimes included in youth poultry shows. Preregistration is usually required. Broiler chicks are purchased in bulk from a single hatchery and distributed to registered participants on a predetermined day (6-8 weeks before the fair). In most cases the participant must locate his/her own source of feed.

Pens of two to three broilers are entered and judged on individual size, condition, and conformation, as well as pen uniformity.

Broilers should be culled continually. Small, sick, stunted, deformed or crippled birds should be removed when detected. Just prior to the show, catch the remaining broilers and select well-fleshed birds. Examine each bird carefully for physical defects that would cause them to be downgraded. These include:

A. General defects

- cuts and tears
- broken and disjointed bones
- skin or flesh bruises anywhere other than on the wing tip

- breast blisters
- insect bites
- external parasites (lice, mites or fleas)
- skin discoloration

B. Feathering defects

- an abundance of pin feathers (new feathers just coming through the skin)
- areas of skin which may be discolored because of broken quills or sunburn resulting from inadequate feathers

Note: a lack of feather covering over the keel area of well-fleshed birds is not a defect and must not be considered as such.

C. Carcass defects

- breasts which have dented, crooked or knobby breastbones, or are abnormally shaped
- backs which are narrow, crooked, humped or hunched
- lack of body depth
- legs or wings that are deformed

Note: Defects such as crooked toes or beak are not important and should be disregarded.

The following factors should be considered when selecting the birds for your exhibition pen(s).

A. Conformation.

Conformation refers to the skeletal system, or shape of the bird. This term is often mistakenly used to describe the amount and distribution of flesh on the broiler. The ideal shape of a meat bird is rectangular.

Length: The breastbone should be long, straight, free from defects such as dents or knobs and carry well forward and back between the legs. The breastbone should be parallel to the backbone.

Width: The back should be long and wide with broad spring of ribs.

Depth: The body should be full and deep. Body depth must be consistent with breast width. Length, width and depth should be well-balanced.

B. Fleshing

Fleshing refers to the amount and distribution of muscle or flesh on the broiler. The breast, thighs, and drumsticks carry the bulk of the meat and should be examined closely.

The breast meat is the most valued part of the broiler and should be given maximum consideration. The breast muscle should be wide and full throughout the length of the keel bone. The muscle should carry well up to the crest of the bone.

The thighs and drumsticks should be heavily muscled.

C. Finish

Finish refers to the amount of fat in and immediately under the skin. A moderate amount of finish on a well-fleshed broiler will improve the eye appeal. The fat deposition between feather tracts on the side of the breast is the best indication of finish. Do not confuse finish with pigmentation (skin color).

D. Skin pigmentation

Skin pigmentation results from the deposition of yellow or yellow-orange pigments in the outer skin layer. It is not an indication of finish. Only minor emphasis should be placed on pigmentation.

E. Uniformity

Each bird in a pen should be as near a carbon copy of its pen mates as possible in sex, size, confirmation, fleshing, and finish. If one bird has a defect, it will affect the rating of the entire pen.

The birds should all be clean. Properly reared broilers usually are reasonably clean. If necessary, however, the birds can be washed. Refer to Factsheet PS-34, *Preparing Poultry for Show*, for details on how to wash your birds.

PROCESSING

Some youth prefer to sell their broilers live after they have taken them to a poultry show. Others prefer to prepare them for home consumption, but hesitate to because they lack knowledge of processing procedures. Factsheet PS-8, *Procedures for Killing and Dressing Home Grown Fowl*, gives a description of the equipment needed, and the procedures to follow for processing your birds for home consumption.