

# MU Guide

## Small Flock Series:

# Brooding and Growing Chicks

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To raise a flock of chickens that will suit your needs, whether for eggs, meat or show, start with quality chicks. Obtain chicks from a hatchery that participates in the National Poultry Improvement Program. There are some advantages in buying chicks or fertile eggs from local sources if they can provide quality chicks or eggs as well as information and service to their customers. In general, if you are interested only in egg production, order sexed pullets of Leghorn or other egg-type strains. If you are interested in meat, order one of the popular Cornish broiler crosses or White Plymouth Rocks. Dual-purpose strains are well suited for growers interested in both eggs and meat production. Birds for show and fair competition will require special strain evaluation and appraisal.

## Brooding chicks

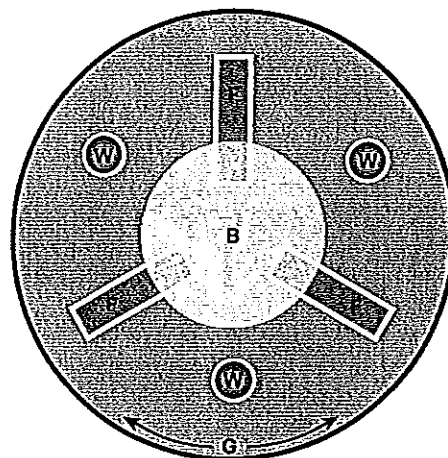
Poultry housing should provide clean, dry, comfortable quarters for birds throughout the year. To brood chicks, you need adequate heat and space. The house and equipment should be clean and in good repair. Set up and warm the brooding area before the chicks arrive. Chicks will need a warm, draft-free location with proper ventilation and access to clean water, appropriate feed and protection.

## Space and equipment

The normal brooding period, when heat is required, is from the time chicks hatch until they are about six weeks old. Chicks may be brooded many places on the farm. The main requirements are adequate space, a reliable source of heat and proper ventilation. The floor space required for each chick is as follows:

Age of chicks	Floor space per bird
0-4 weeks	½ sq ft
4-8 weeks	1 sq ft

A brooder house measuring 10 by 12 feet will take care of 120 chicks to eight weeks of age. Figure 1 shows the layout of a standard brooding area. The chick guard ring is 12 inches high arranged in a circle 6 feet in diameter around the brooder stove. The feeders are placed in



- B brooder stove with hover
- F feeders arranged in spokelike fashion
- W waterers (quart size)
- G chick guard 12 inches high in 6-foot circle around brooder

Figure 1. Brooder arrangement for 50 chicks.

a spokelike arrangement radiating outward from underneath the outer portion of the brooder canopy. This provides chicks access to feed and allows them to move freely in and out from the heat source.

## Feeder space

The feeder space recommended for 100 chicks is:

Age of chicks	Feeder space
0-4 weeks	12 linear feet or two 3 ft feeders
4-8 weeks	20 linear feet or two 5 ft feeders

## Waterer space

The amount of waterer space recommended for 100 brooding chicks is:

Age of chicks	Waterer space
0-1 week	Six 1 qt jar waterers
1-4 weeks	Two 2 gal waterers
4-12 weeks	Two 5 gal waterers

Automatic waterers may be used after the first week. New designs in nipple waterers and other types will allow starting chicks on the automatic systems. Automatic water systems are available from larger poultry equipment supply companies. Many types of fountain and water jar devices are available from local farm supply stores.

### Preparing the house

Prepare the brooder house several days before the new flock arrives. Use a good, absorbent litter material for bedding for all chickens maintained on the floor. Never house chicks on smooth, slick surfaces such as flat cardboard or newspaper. This can lead to leg problems. The litter should be clean, free of mold and dry but not dusty. Litter may be any absorbent material that controls the moisture in the poultry house, serves as an insulating material in cold weather, and offers good support for the birds. Pine shavings, rice hulls, peanut shells and ground corncobs are all good products. Hardwood shavings are not recommended. They sometimes produce a mold that can cause a serious infection when inhaled by chicks or human caretakers. Place a 3- to 4-inch layer of litter on a base of clean, dry sand or directly on the clean floor of the brooder house several days before chicks arrive. Add new litter as needed during brooding. During cold weather, litter may reach a depth of 8 to 10 inches. Less litter is needed in hot weather. Provide a source of fresh air by opening curtains or windows. A circulating ceiling fan also enhances air movement in large houses.

Check all equipment to see that it is working properly. Operate brooder stoves for at least 24 hours before the chicks arrive. This will warm the house, dry the litter and allow you to check the accuracy of the brooder control and thermostat. When chicks arrive, be ready for them and place them near the waterers.

### Brooders

To give day-old chicks a proper start, the brooder must provide a temperature of about 95 degrees F in winter and 90 degrees the rest of the year. Some types of brooders heat the entire room or house. Other types warm the area under or near the hover, while the rest of the room remains relatively cool. Chicks feather better when they have a cool place to exercise.

The most popular brooders are infrared heat lamps, propane gas brooders and propane catalytic brooders. Your choice among these should depend on convenience, installation cost and operating cost.

The infrared heat lamp (Pyrex-type) is ideal for brooding small lots of 200 chicks or less. Make certain that the lamp is equipped with a porcelain socket and a lamp guard and is adequately wired. Provide one 250-watt lamp for each 50 to 75 chicks.

Gas brooders are reliable and may be used if gas is available in sufficient volume. The main advantage of

the catalytic brooder is that it is flameless and almost 100 percent efficient.

During normal weather, infrared heat lamps placed 1 to 1½ feet above the chicks will usually provide enough heat to start with. Particular care should be taken when operating these lamps. Follow brooder lamp load limits for lamp receptacles and electric circuits. Securely support the lamp reflector and make sure that the lamp does not come in contact with other objects. Avoid spilling or splashing water on the lamp or wiring. The local electric supply company will be able to assist you in obtaining information and assistance in the installation and operation of these devices.

Chicks need enough space under the brooder so that they can keep warm without crowding, piling up or smothering. Under normal conditions, each replacement chick needs about 6 or 7 square inches of brooder space. In cold weather, use electric brooders only in well-insulated houses. If a house is not insulated, these brooders may not produce enough heat during the winter to keep chicks warm and the litter dry. You may need auxiliary heat during cold weather, especially when using heat lamps as the primary heat source.

### Brooder operation

Set the brooder area temperature at about 95 degrees F in cold weather and 90 degrees in hot weather. Make sure the temperature is adequate before placing the chicks under the hover. Maintain the room temperature for day-old chicks in a cold-room system at a minimum of 65 degrees; where an economical source of fuel or a well-insulated house is available, it is desirable to maintain a temperature of about 75 degrees.

Place the chicks under the hovers as soon as possible after they arrive. Keep chicks comfortable. Their actions provide a good guide to their comfort. Chicks crowd together near heat when they are too cold, and they pant and gasp (often at the outer edge near the chick guard ring) when overheated. Check the chicks periodically to make final temperature adjustments.

Follow the brooder manufacturer's recommendations on temperatures for operating the brooder. In general, drop the temperature 5 degrees each week until the chicks are five weeks old; then maintain the temperature at 70 degrees.

The cardboard chick guard ring keeps the chicks near the source of heat the first week. Make sure, however, that there is enough room within the ring area for the chicks to move away from the heat in case they become overheated. A diameter of 6 feet should provide plenty of space for 50 chicks. In cold weather with larger brooder stove operations, place the guard on the floor 2 feet from the other edge of the brooder. Move the guard farther away from heat every day, and remove it after about a week, or when it is no longer needed.

Keep track of the temperature at chick level by hanging a thermometer inside the cardboard ring at the

same height as the chicks about 3 inches inside the outer edge of the hover. Check the temperature under the hover twice daily during the first week. Continue to check it twice a day as long as the chicks need heat.

When not using a hover guard, block the corners of the house with cardboard or wire to prevent chicks from crowding and smothering. Adjust the height of the lamp to adjust the temperature. Raising the lamp a few inches a week should be about right. Measuring of the ambient air temperature under infrared lamps is not a direct measurement of the heat that the chicks will feel. Watch the chicks' reactions and adjust the height of the lamp.

Some people cover litter for the first few days of brooding. If you do, use rough, crinkled paper. Smooth paper causes chicks to slip and develop spraddled legs. Molds will develop if paper is left on the litter more than three or four days. Remove guard after seven days.

Keep litter as dry as possible. Whenever necessary, stir the litter to keep it from packing. Move feeders and waterers to new locations to help prevent the development of wet areas. As wet spots develop, remove the wet and "caked over" litter and add new, dry material.

Provide heat until chicks are well feathered. Birds are more likely to develop respiratory troubles if heat is removed too early. In winter, heat may be continued for six weeks to prevent waterers from freezing. Do not crowd chicks. Larger breeds and older birds require more space. Birds may pile up or smother if they do not have enough space or if they are frightened. For summer brooding, protect chicks against temperatures above 95 degrees F. Keep them comfortable.

Provide plenty of fresh air for chicks. Do not close up the brooder house to keep it warm. Chicks need fresh air, and air also carries moisture out of the house. The floor will be drier and the chicks healthier when proper ventilation is provided.

A 15-watt bulb for each 200 square feet of floor area should be kept on the chicks at night for the first week.

## Growing chicks

### Requirements

Controlling moisture becomes a larger concern with larger birds, which eat and drink more than chicks and produce more moisture in the house. Again, drafts may not be comfortable for the birds, although more ventilation is required to supply fresh air for the birds and remove moisture. Allowing larger birds to go outside is an option for the farm poultry flock during periods of moderate weather.

The floor space recommended per 100 chicks is:

Age of chicks	Floor space per bird
8-12 weeks	2 sq ft
12 weeks or older	3 sq ft light breeds 4 sq ft heavy breeds

The feeder space recommended per 100 chicks is:

Age of chicks	Feeder space
8-12 weeks	30 linear feet or three 5 ft feeders
12 weeks and older	40 linear feet or four 5 ft feeders

**Waterer space:** The two 5-gallon waterers recommended for 100 starting chicks will probably be adequate. However, these should be kept clean, filled and fresh. Automatic waterers are much more convenient and labor saving.

### Caring for growing birds

Litter types used in brooding also work well for growing birds; however, temporary litters such as stripped newspaper do not stand up to the increased moisture load and trampling by the larger birds. Add new litter as needed. Less litter is needed in hot weather. Keep litter dry, stir it frequently to keep it from packing, and remove the wet and caked litter and add new dry litter.

With heat lamps, watch that growing chicks do not become too warm. Normally, lamps should be set 18 inches high the first week and raised 3 inches each following week.

As the birds age, the lighting system used depends on the type of building. Any system that provides a maximum of 14 hours total light per day during the entire brooding and growing period should give satisfactory results.

Roosts are not used for broilers. They can be used for layer replacement pullets if desired. Install low roosts at four to six weeks of age, providing each chick with 4 inches of roost space.

As the birds grow, the level of feed in the feeder pans may be lowered. Prevent waste of feed by filling feeders only one-third to one-half full.

Proper feeding programs are necessary to produce good broiler and egg production performance. Complete feeds provide all nutrients at the proper level for each age. For small flock production systems, provide broilers a starter feed from 0 to 21 days and a grower feed from 22 to 49 days. The Leghorn uses a starter from 0 to 6 weeks followed by a pullet developer to 18 weeks. At 18 weeks, the pullet should be fed a layer diet to optimize skeletal development and egg production. Diluting a complete feed with a grain such as corn or milo or with table scraps will produce an imbalance and result in poor performance. For detailed information on poultry diets, see MU publication G8352, *Nutrient Requirements of Chickens and Turkeys*.

### Cannibalism

Any time birds are raised in significant numbers they are subject to cannibalism. If possible, buy chicks that have had their beaks trimmed at the hatchery.

Watch for early signs of feather picking, and trim beaks before this behavior becomes an established habit. Trim off the tip of the beak with a dog's toenail clippers or electric beak-trimming machine.

### Protecting the flock

Young chicks and growing birds should be protected and isolated from other animals and birds. Cats, rodents and various wild animals will kill young chickens. These animals can also spread diseases and parasites. They can consume or contaminate large amounts of poultry feed in addition to being destructive to the building structure.

### Sources of information

Local sources of information about brooding include hatcheries, feed and farm supply firms, and drug stores that deal in animal health products.

For a listing of Missouri hatcheries contact: National Poultry Improvement Program Contact Representative, P.O. Box 630, Jefferson City, MO 65102. Refer to the Small Flock Series of MU publications for general information about poultry strains and types.

### For further information

MU Extension Publications, 1-800-292-0969

- G 7030 *Fly Control in Caged Layer Buildings*
- G 8350 *Small Flock Series: Managing a Family Chicken Flock*
- G 8352 *Nutrient Requirements of Chickens and Turkeys*
- G 8353 *Small Flock Series: Incubation of Poultry*
- G 8903 *Prevention of Poultry Disease*
- G 8904 *Control of Poultry Disease Outbreaks*

Other publications

*The Family Poultry Flock* is available from Farmer's Digest, P.O. Box 63, Brookfield, WI 53005



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