

Small-scale poultry keeping – brooding and rearing chickens

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Introduction

The period from hatching until the chickens no longer require supplementary heat is called the 'brooding period' and usually lasts for 3–6 weeks, depending on seasonal temperatures and the type of housing.

Chickens need supplementary heat when they hatch, because they are unable to maintain their body temperatures. The heat can be supplied by a broody hen or, more usually, by brooders fuelled by electricity, gas or oil.

As the chicken grows, its downy coat is replaced by feathers, and the brooding temperature can be gradually reduced, until supplementary heat is discontinued at about 3–4 weeks.

During the brooding period, the chickens need warmth, shelter, fresh air, proper food and clean water.

Temperature

The brooder must be capable of providing a temperature of 33°C, even in the coldest conditions. It must be adjustable, so that a steady temperature can be maintained. Simple electric hobby brooders can be obtained from poultry equipment suppliers, and will successfully brood up to 50 chicks. The brooding temperature for day-old chicks should be 33°C at the level of the chickens' backs; that is, about 50 mm above the litter. As the chickens grow, the temperature can be adjusted as shown in Table 1. To alter the temperature in accordance with Table 1, it should be reduced gradually by 1°C every 2–3 days.

Table 1. Correct brooding temperatures (at chick height) for chicks of various ages

Age (days)	Temperature at chick height (°C)
1	33
2	33
3	33
4	32
7	30
14	26
21	22
28	20

Generally, supplementary heat can be discontinued at the end of the fourth week, but in winter it may be necessary to provide heat on very cold nights in the fifth week.

Temperatures are to be used only as a guide, because the best way to adjust the temperature for the comfort of the chicks is to observe their behaviour. If they crowd near the heat source and chirp loudly, the temperature is too low. If they move well away from the heat source and start panting, they are too hot. Ideally, they should be fairly quiet and spaced evenly under and around the heat source (Figure 1).

During brooding, good observation skills and routine attention are essential, to ensure bird growth, health and low mortality.

A simple and effective means of brooding small numbers of chickens is to use an infra-red heat lamp. These lamps are designed for higher infra-red energy output and a lower light output than can be provided by ordinary electric light bulbs. The infra-red energy passes through the air without heating it, but when it strikes an absorbing body, such as a chick, the energy is absorbed and



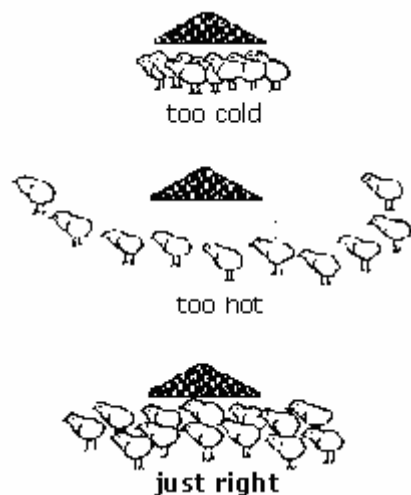


Figure 1. Adjusting temperature according to chicks' behaviour

transformed into heat. The litter is also heated and the surrounding air warmed by heat convected from the heated bodies.

A single infra-red lamp will brood up to 50 one-day-old chickens. The lamp should be suspended 350–400 mm above the litter and the temperature checked by laying a thermometer on the litter directly under the lamp. The temperature can be adjusted by raising or lowering the lamp. Heat lamps should be hung securely by a chain, to minimise the risk of fire. They must not be hung by the electric lead. Because of the possibility of a lamp failing, a spare globe should be available.

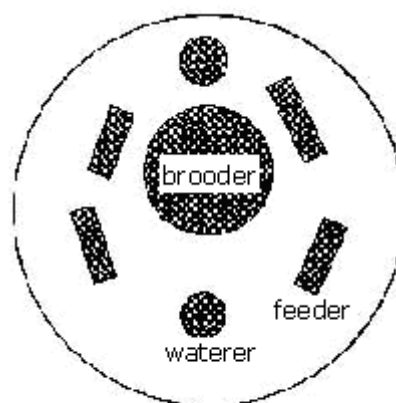
For brooding small batches of chickens (up to 50) a normal incandescent 100 W spotlight globe may be used, but these are not as efficient as the infra-red lamps.

Preparing for the chickens

Clean and disinfect the brooding area some days before the chickens arrive, so there is time for the area to dry. Cover the floor with dry absorbent litter material (wood shavings, rice hulls, chopped straw, sawdust or shredded paper) to a depth of 50 mm.

Place a surround of cardboard, metal sheeting or masonite around the brooding area. The surround should be about 450 mm high to protect the chickens from draughts, and the enclosed area should provide at least 50 cm² of floor space for each bird.

Figure 2 shows a plan for a brooding area. For the first two days the litter in the brooding area should be covered with newspaper. Starter feed and clean, fresh water must be provided. Ideally, the water should be in specially designed drinkers consisting of a plastic jar inverted into a shallow circular trough. The drinkers hold about 2 L of water, and the shallow troughs are designed so that the



surround of cardboard, metal sheeting or masonite

Figure 2. Brooding area

chickens cannot drown in them. Ordinary flat dishes can also be used, but if the water is too deep the chickens may drown. A large stone or block of wood placed in the centre of the pan will usually prevent drowning by reducing the amount of water in the vessel, without restricting access by the birds.

Depending upon the outside temperature, switch the brooder on at least two hours before the chickens arrive, so that the area is warmed and the necessary adjustments to temperature can be made.

Place feeders and drinkers near the heat source and, for the first two days, sprinkle food liberally on the newspaper to encourage the chickens to eat. Also, dip each chicken's beak in the water as it is placed in the brooder, to encourage it to drink. With large numbers it will not be possible to do this with all of the chickens, but it is generally worthwhile dipping the beaks of 10% of the flock.

The base pans from hanging feeders can be used as feeders for young chickens; as the chickens grow, the tube hoppers can be attached. The tube will hold enough feed for several days. To reduce feed wastage, the feeders should be gradually raised as the birds grow. Small flat pans or trays can also be used for feed for the first week.

Keep fresh food and water in front of the chickens at all times, and clean and refill the feeders and drinkers regularly. Cleaning will have to be carried out at least twice daily until the chicks have grown sufficiently and the feeders and drinkers can be raised above the litter.

After three days, the newspaper can be removed, the feeders and drinkers moved further away from the heat source and the surround gradually expanded, until it can be removed completely at two weeks.

Make sure that the brooder room is well ventilated, but that the chickens are free from draughts.

Cold brooders

The cold brooder is an alternative method of brooding which can be used for small numbers of chickens. It is easy to make, ideal for chickens that have been 'started' under a lamp, and particularly useful where access to power is limited. After two days the chickens will have started to eat and drink, and will then take to the cold brooder readily. Figure 3 shows the side view of a cold brooder.

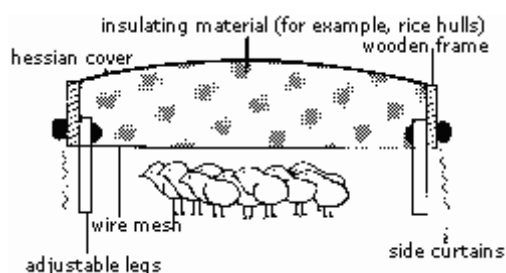


Figure 3. Cold brooder

The cold brooder conserves the body heat of the chickens and keeps them warm. A brooder suitable for up to 50 two-day-old chickens consists of a frame 100 mm deep, 750 mm long and 600 mm wide. The bottom of the frame is covered with wire mesh, and can be set above the litter on adjustable legs. The bottom of the brooder should be 80 mm above the litter when the chickens are started, and should be raised gradually as they grow.

Strips of hessian or plastic 50 mm wide and 80 mm long can be hung from the bottom edge of the frame to act as curtains. The curtains help to retain the body heat, while allowing the chickens to wander in and out.

The mesh on the frame can be covered with hessian and overlaid with a 100 mm layer of rice hulls, wood shavings or straw. A second layer of hessian placed on top will prevent the chickens from scratching the litter material out of the frame. In this way, the brooder is covered with a porous material which will retain the body heat but allow air to pass through.

The cold brooder can be set up in the surround in a manner similar to the heat lamp. However, for the first two days the chickens need to be confined close to the brooder.

The chickens should be introduced to the brooder in the evening and confined under it for the first night. This can be done by placing strips of hardboard over the curtains on three sides and wire mesh over the front curtain. This will keep the chicks warm while allowing air to pass through the

brooder. The wire mesh can be removed after the first night; however, it may be necessary to use the hardboard strips for a few nights during cold weather.

The chickens in a cold brooder need more attention during the first few days, but these brooders are simple to make and very effective.

Floor space and equipment

Overcrowding and lack of feeder and drinker space can cause some chickens to grow slowly. Suggested space requirements are shown in Table 2. For circular feeders and drinkers, the length of space available to the chickens can be found by multiplying the diameter of the feeder or drinker by three.

Table 1. Space requirements of chickens

Age (weeks)	Floor space (birds per m ²)	Feeder space (mm per bird)	Drinking space (mm per bird)
1–4	20	20	10
5–8	10	30	20
9–20	5	50	30

Feeding

Chickens that are to be grown for egg production need chicken starter crumbles or mash from one day old to about six weeks. The diet should contain 18%–20% crude protein and a coccidiostat (to prevent the disease coccidiosis) if the chickens are to be reared on the floor.

For small flocks from 6–18 weeks of age, growers' pellets or crumbles (15%–16% protein) are generally used. Birds should have unrestricted access to food and water. At 18 weeks the pullets should be fed a laying diet, which should be available at all times. It can be supplemented with scratch grain and kitchen scraps.

From one day until 18 weeks of age, a pullet will eat about 1.5 kg of starter diet and 7 kg of grower diet. During the laying period, each hen will eat up to 1 kg of feed a week.

The brooding and feeding systems described above are generally suitable for small numbers of chickens, turkeys, ducks and geese.

Diets containing anti-coccidial compounds are recommended only for chickens, and should not be routinely fed to laying hens. Commercial poultry farms use diets that have been formulated for particular breeds or strains of poultry. These diets are available for small flocks, but generally have to be specially ordered from local feed suppliers.

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