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Brooding Chicks Is Easy If You Learn From The Experts

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Photo by Bonnie Long

To become an expert at brooding just-hatched chicks, learn from an expert: Spend some time watching a mother hen to see how efficiently she provides for all her babies' needs. The chicks' down doesn't insulate them as well as their eventual feathers, so should it get breezy the hen calls them to huddle under her breast and wings for some on-the-spot warming. If a rain shower blows up, she finds dry shelter. She spends most of her time finding high-quality natural feeds for her chicks, ensuring rapid growth and excellent health. Finally, the hen will defend them from predators looking for a meal. (I have seen one of my Old English Game hens thrash a Cooper's hawk trying to grab one of her chicks. When that whirlwind of fury hit, the hawk's only



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concern was finding something to do somewhere elseanywhere else.)



Those lessons from a pro mostly sum up all we need to know about brooding chicks until they are well feathered, less vulnerable, and ready to take care of themselves: Keep them warm and dry. Protect them from predators. And feed them as diverse an array of live, natural feeds as you can, from day one. If your brooder and your management meet these requirements, brooding chicks is easy and success is virtually certain.



A mother hen caring for her little ones can teach us almost all we need to know about brooding chicks. Unless otherwise noted, photos by Harvey Ussery.

The Brooder

I will assume that you're brooding at the home scale, say somewhere between 25 and 100 chicks at a time. For brooding at this scale, set-up can be simple indeed. Most home flocksters do not maintain a permanent, dedicated brooder, but simply set up a temporary one for the three or four weeks needed. We brooded our first batch of 25 chicks, for example, in the carton in which a new refrigerator had been delivered, parked temporarily in our shop. (Do note, though, that by the end of the brooding period there was a coating of dust everywhere in the shop!)

Most flocksters use electricity to warm the brooder, so a convenient outlet is a better option than a long set of extension cords, which creates hazards.

A basic layout:

A friend of mine simply blocks off the end of a small tool shed with a thin plywood barrier as a temporary brooder space. Another blocks off a corner of a horse stall in her barn using straw or hay bales, and tops it off with a mesh gate to keep the chicks inside and protect them from intruders.

It is essential that the brooder be well ventilated, to allow for constant air exchange. At the same time, a direct air draft on the chicks can chill them dangerously. The compromise between the two needs is ensuring there is no draft at floor level where the chicks are, but providing plenty of air flow above them. Abundant ventilation is not only necessary to ensure constant fresh air for the chicks it helps as well keep the brooder dry, preventing health problems related to damp conditions.

Many flocksters employ a "draft shield" to block drafts at floor level, perhaps a long strip of cardboard 12 to 18 inches high, set in a circle around the space under the heat source, or a long strip of metal flashing which gets rolled up and stored until the next batch of chicks. In either case, the draft shield should be expanded as the chicks grow and need more space.

In addition to blocking drafts, a draft shield prevents right-angle corners in the brooder in which chicks can "pile up" if cold, frightened, or otherwise stressed, leading to suffocation in the worst case. Avoiding sources of stress is better than providing solutions, of course. I have never used such a circular shield and have never had a problem with piling up.

The usual source of heat for the chicks is either an electric heating element or heat lamps, suspended overhead. Heating elements with a rheostat for dialing temperature up or down are readily available from poultry supply houses. If you rely on lamps, it's better to use two, so heat remains available even if one burns out.

My farm co-op offers both 150-watt flood lamps and 250-watt heat lamps, either of which screws into the same shiny metal reflector hood with porcelain base. Some flocksters prefer an infrared heat lamp, others opt for heat lamps with ordinary clear light. I've used both and have seen little difference in performance.

Whether suspended or clipped to a handy anchor, the lamp must be securely attached to prevent falling onto a combustible surface. Heat lamps (250 watts) should be no closer than 18 inches, 125- or 150-watt lamps no closer than 13 inches, from a flammable surface underneath. There should be no danger of accidental wetting of bulbs, sockets, or plugs.



A temporary plywood partition turns the end of a tool shed into a basic brooder, complete with rheostat-controlled electric heater, anti-waste feeder, waterer which is raised as chicks grow, and free-choice grit. Pine-shavings litter provides best manure management and keeps the chicks entertained as they scratch in it.

The "Ohio" brooder:

If you brood only the occasional batch of chicks, the more casual approach sketched above works fine. An alternative with a couple of advantages is the "hover" type brooder, sometimes called the "Ohio" brooder because it was developed at the Ohio Experiment Station in the early 1940s.

It's easy to make a hover style brooder with a single 4 x 8-foot sheet of plywood or particle board. Just cut it in half and use one 4 x 4 piece for the top, and rip the remaining 4 x 4-foot piece into strips 12 inches wide by 4 feet long to make the sides. Attach "legs" of 1 x 1 or 1 x 2 wood strips, 16 to 18 inches long, in each corner, to create a 4- to 6-inch gap between the lower edge of the hover sides and the floor. (Alternatively, you could suspend the hover from the ceiling or rafters of the building in which the brooder is housed.)

The original design featured two interior lamps mounted on opposite sides, one of 250 watts and one of from 115 to 150 watts. If you are not brooding in freezing conditions, however, you can and probably should, for safety use bulbs of lower wattage. Porcelain bases are essential. (An alternative design for brooding in very cold temperatures, featuring top-mounted 250-watt lamps, is shown in the bottom photo on page 36.)

The Ohio brooder is considerably more energy efficient, since only the space directly under the hover is heated, rather than the entire space inside an open brooder. The space outside the hover remains much closer to ambient temperature, which could be quite cool, maybe even freezing. That's actually an advantage: The chicks self-regulate for temperature, running about in the cooler space outside when inclined and retreating under the hover to sleep or for a quick warming

session. After the first couple of days, place the feed and water outside the hover to encourage more time in the cooler air, which speeds feathering.

It's convenient to set up a hover type brooder in the living space the chicks will "mature into." For example, I screw my hover together when needed right in one of the sections of my poultry house, temporarily blocked off from the main flock with a wire partition and a wire-on-frame door. Once the chicks are well feathered and no longer need the warmth of the brooder, I disassemble it and hang it flat on a wall. An acquaintance of mine in the American Pastured Poultry Producers Association broods his layer chicks (up to 200 per batch) under a hover set up temporarily inside a 10 x 20-foot "eggmobile" that will be their movable pasture home their entire lives.

Protecting the chicks:

Most of us will set up the brooder inside a building that protects from the usual suspects fox, raccoon, weasel, mink, possum, skunk. Remember, however, that rats can be devastating to helpless chicks. If you have rats around, either trap them all or secure the brooder with half-inch hardware cloth. Snakes have a taste for chicks as well, so make sure they have no place to hide. Prevent access by the family dog or cat, who can leave a lot of mayhem behind even if only "playing" with the chicks.

Younger children are not predators, but need close supervision in order to enjoy the exciting new project without excessive handling of the chicks. As for older children, what better opportunity to learn responsibility and empathy with our domesticated companions than being given a role in brooder management?



An even simpler brooder set up in the corner of a horse stall, blocked off with hay bales. Additional hay inside brooder provides fun for the chicks.

The Chicks Are in the Mail

Just before hatch, a chick absorbs the last of the egg's yolk, and thus has sufficient water and nutrients on reserve for a period of two or even three days before it has to have food and water. During this "on hold" period day-old chicks (and ducklings, goslings, turkey poults,

and guinea keets) can be sent through the mail. Shipping is unquestionably stressful for the chicks, so it's a good idea to check first for local sources of day-olds. For many of us, though, our only source may be from hatcheries far away. Our first priority must therefore be helping our new wards recover from their trip.

Hatcheries usually ship a minimum of 25 chicks for maintenance of sufficient shared warmth inside their shipping boxes so most brooding projects involve at least that many chicks. Actually, a few hatcheries now ship as few as three chicks in an order, sending them Express Mail and adding long-acting heating packs to help keep the chicks warm. Cost per chick can get pretty steep in these small orders, but if there are stringent limits on the number of chicks possible in your project, look through an issue of Backyard Poultry to find advertisements of hatcheries offering orders of just a few chicks. Your local farm co-op may also sell chicks in small lots, though their selection may be quite limited.

While it is possible to order chicks "sexed" (separated by gender at the hatchery), it is just a fact of life in the industry that when most flocksters place all-pullet orders too many cockerel chicks remain unsold, and they are "euthanized" by the hundreds of thousands. I choose not to contribute to that outcome, so I always order chicks "straight run" that is, in the natural ratio of about half cockerels and half pullets and that might be your preference as well. Remember, though, that "free to good home" roosters are not a hot item, and you should be prepared to butcher excess males for the table as they grow and require culling.

Most hatcheries offer vaccination and debeaking of their chicks, at a small additional cost per chick. Though many flocksters see vaccination (usually against coccidiosis or Marek's disease, though other vaccinations are available) as added "insurance," domesticated chickens are naturally healthy. I have never once chosen to have chicks vaccinated, and to my knowledge have never had a problem with coccidiosis or Marek's.



Hover type brooder with hinged top for easy access to the interior. Unless ambient temperatures are quite cold, lower-wattage lamps are sufficient in a

hover than are needed in an open brooder these are 100-watt and 150-watt, with firmly attached porcelain bases. Note placement of feeder and waterer outside the hover, which encourages chicks to spend more time in cooler air.

As for debeaking chopping off half the upper beak to prevent "cannibalism" let's recognize it for what it is: mutilation, practiced solely to correct for inhumane mismanagement. While routinely employed in industrial layer houses with up to a hundred thousand layers under enormous stress, our goal should be to avoid entirely any source of stress which would lead to crazed, destructive behavior.

Don't just take my word about avoiding these options. Ideal Hatchery, one of the nation's two biggest suppliers of chicks for home and small farm flocks, states unambiguously that it does not recommend either vaccination or debeaking for small-scale flocks.

Remember the need to help chicks get over the stress of shipment as soon as possible. Turn on the heat in the brooder the night before arrival, so it is nice and warm when you put in the chicks. Notify your post office of your expected shipment and be sure you are home to take delivery. I like to have my postmaster call me when my chicks arrive with the morning mail, so I can run in and pick them up right away.

The most important boost for the chicks is getting their first drink of water, which should be slightly warm rather than cold. You can usually order electrolytes from your hatchery as an additional boost, but my country boy version is a mix of half a gallon of water with a quarter to a half cup of raw honey, a couple of tablespoons of raw apple cider vinegar, and a couple of cloves of raw garlic squeezed through a garlic press. After the first 24 hours, I replace the honey mix with pure water.

Chickens instinctively look for food on the ground, so chicks may not at first recognize feed in the feeder as something to eat. I like to get them started with a little feed scattered over some newspaper or burlap sacking laid over the litter. If you use newspaper, lay down only a single sheet or two. A thick layer of newspaper will quickly become coated with manure, whereas the chicks will soon shred a couple of sheets and incorporate them into the litter. (An additional concern especially in the case of ducklings and goslings is the possibility of damage to the tendons of the legs if hatchlings are constantly walking on a slick or unyielding surface such as a thick layer of newspaper or cardboard.)

Once the chicks are eating from the feeders, dispense with the scattered feed.



Top-mounting is probably a safer choice for 250-watt lamps, for brooding in quite cold, even freezing, temperatures. This 3-lamp hover, 4 feet each side and 18 inches high, broods 200 layer chicks inside the 10 x 20-ft eggmobile which becomes their permanent pasture home. Photo courtesy of Tim Koegel, www.organicpasturedpoultry.com.

Managing the Brooder

The most essential way in which you should try to imitate the mother hen is to pay frequent attention to their needs: Monitoring the brooder as often as you can is the key to success.

Litter:

There is one thing we need to do in the brooder which the mother hen doesn't have to do for her chicks. When chicks are running about with their mother, their droppings are scattered at random over the ground, and decompositional organisms get to work right away to incorporate them into the soil. But in a brooder, the droppings continually accumulate. Without proper management, they quickly become highly unsanitary and unpleasant, to us as well as to the chicks, and create excess dampness.

Our key to natural management in this case is not the mother hen, but those decompositional organisms. That is, we should base management of the poops on the same sort of microbial action nature uses to break down organic residues like manures and return them to earth.

We create a field day for decomposer microbes when we provide them plenty of high-carbon litter that readily fluffs up (so there is always plenty of oxygen in the mix). My preferred litter material is kiln-dried pine shavings, available from my local farm co-op in compressed bales. You might use ground corncobs, thoroughly dried softwood sawdust, peanut or buckwheat hulls, or shredded sugar cane, depending on byproducts available near you. Some flocksters use straw, while others avoid it. Straw is high-carbon, to be sure, but if it gets too damp it can support the growth of *Aspergillus* molds, the spores of which are bad for the delicate respiratory tissues of the chicks (and yours as well), so monitor a straw litter especially carefully if you use it. In any case, do not use long straw, which will cake with manure into a nasty, impermeable coating. Use chopped or shredded straw instead.

An absorptive litter at least several inches thick is almost magic stuff.

Kennard and Chamberlin (the same researchers who helped design the Ohio brooder) discovered in a number of critically important experiments in the early 1940s that "built up" litter (litter allowed to become more and more biologically active over time) not only provides sanitary decomposition of the droppings, but provides positive feeding benefits as well. The decompositional microbes produce Vitamins B12 and K, which the chicks take in as they find interesting things to eat in a mature litter. The experiments even demonstrated that biologically active litter compensates for deficiencies of key nutrients, including protein, in ways that are not fully understood.

Should you do successive batches of chicks in your brooder, please don't heed the advice you are likely to see on the subject to "clean out and sterilize" between batches. If all that biological activity is so beneficial, why would we want to get rid of it? All my correspondents who allow the litter to develop report without exception that later batches of chicks actually do better than earlier ones.

Do add fresh litter frequently, however. If you smell ammonia, immediately top off with more high-carbon material. And next time, make the addition just before the "whiff point," since ammonia can damage chicks' lungs at a concentration too low for our noses to detect.

Adjusting temperature:

You may see instructions to "maintain temperature at 95°F the first week and reduce by 5° each week." But I advise forgetting the thermometer! I've never used one in a brooder and key instead on the behavior of the chicks. If they're clustered under the heat source, they're chilly and you need to increase the heat by lowering a heat lamp or turning on another or dialing up the rheostat. If they're crowded around the perimeter of the brooder as far as they can get from the heat source, it's too warm. If they're scooting about like water bugs on a pond, that's the Goldilocks point ("just right"). Of course, like all babies they need to sleep a lot, so don't be perturbed to see chicks beak-down in the litter.



Be sure everything in the brooder is ready before the big moment the arrival of the chicks.

Watering Brooder Chicks

Do not use any waterer that allows chicks to wade or splash if they get wet, they can quickly chill and die even at room temperatures. There are a number of options for chick waterers, but they all feature a "lip" that holds the water but is too narrow for the chicks to get in. Water in the reservoir, whether a quart Mason jar or a gallon plastic tank, flows freely into the lip through a hole in the base until the hole is covered, when a vacuum forms inside the reservoir which prevents further flow.

I like to set the waterer on a stand or suspend it, to keep it free of litter kicked up by the chicks. Drinking water should be at about shoulder height, so the waterer should be raised by setting on blocks, or by shortening the cord if suspended as the chicks grow. I clean waterers frequently, but only by rinsing or by swabbing with a brush. It is not necessary to sterilize by boiling or using toxic chemicals such as chlorine bleach.

Prevent wet spots around the waterer, since damp litter is more likely to support growth of molds or pathogens and parasites such as cocci and roundworms. If the litter gets wet, remove it and add fresh, dry material. Be especially vigilant when brooding ducklings and goslings, who are exuberantly messy with their water.



The first priority is a drink of water the best antidote for shipping stress. I like to dip each chick's beak into water to get them drinking right away.

Feeding Brooder Chicks

Chicks are notorious wasters of feed, so feeders should be designed so they cannot get inside and scratch for the most desirable bits.

Chick feeders usually have a cover with holes for the chicks' heads, or a rotating reel which both prevents perching on the feeder and scratching in it.

Despite the shortcomings of highly processed feeds of uncertain freshness, most of us are stuck with purchased feeds. (Of course, you could well experiment with making your own, as I do. See sidebar.) Poultry feeds are usually offered in three formulations: chick or starter (highest in protein), grower or pullet developer, and layer (lowest in protein, highest in minerals needed for laying, should not be fed to chicks).

Most starter feeds are "medicated" with coccidiostats to prevent infection by cocci (the parasitic protozoans that cause coccidiosis). I have always avoided medicated feeds, trusting that normal exposure to cocci (almost universally present wherever chickens are raised) will actually strengthen my chicks' naturally robust immune response. If you are unable to find non-medicated starter feed, you can feed your brooder chicks from the beginning with the second stage "grower ration," and supplement protein with added fish meal or raw beef or deer liver.

Be on the lookout for a condition known as "pasting up" or "pasty butt": The chick's feces come out viscous and sticky, and coat the down around the vent. First aid for the condition is essential if we do not gently pull away the fecal mess, it will dry in place and occlude the vent. In a worst case, the chick could die, simply because it cannot poop.

Feeding a little raw cornmeal or fine oatmeal can help clear up pasty butt, and feeding finely cracked grains such as wheat and oats the first two days can help prevent it. Ensuring that the chicks are not chronically chilled is an essential preventive. But my key to prevention comes from the fact that I have never seen a single case of pasting up in a chick on pasture with a mother hen. I therefore offer brooder chicks a variety of natural foods from day one: dandelions and clumps of grass, pulled up by the roots with soil attached; lettuce trimmings; hard-boiled eggs crushed by hand, shell and all; earthworms and soldier grubs from my vermicomposting and black soldier fly projects.

In addition to preventing pasting up and boosting vitality, natural foods get chicks ready for hustling more of their own grub once they are out on pasture and you do plan to pasture your chickens, right, if only on your lawn?

Remember your chicks' need for grit, small pieces of stone taken into the gizzard to grind their feed in lieu of chewing. Chicks eating commercial feeds only may not need grit, but those eating whole grains or fibrous natural foods should certainly have it available. Chick-size granite grit (average size about that of radish seeds) is cheap and readily available. I sprinkle a little over the feed the first couple of days, and afterward offer it free-choice in a separate container.



Start feeding natural foods from the first day: clumps of grass, dandelion, or garden thinnings with soil attached, hard-boiled egg, soldier grubs, earthworms. Note how these broiler chicks are ignoring the certified-organic contents of the feeder, fresh-made at such effort and expense by yours truly, until they've had a run at the good stuff.

Leaving the Brooder

Your chicks must be fully feathered and capable of maintaining body temperature without added heat before leaving the brooder. Early in the season they might need to stay in the brooder four weeks; in the summer, only three or even less.

When you think they may be ready, turn off the heat in the brooder, then check on them at night. If they are sleeping comfortably rather than huddling together against the cold, it's time to take apart the brooder until the next batch of chicks.

Harvey Ussery is the author of [The Small-Scale Poultry Flock](#), which offers an integrated poultry husbandry based on imitation of nature for production of safer, more wholesome poultry at any scale.

For More Information

Further discussion of brooders and brooding can be found in Chapter 5, "Starting the Flock," in my book, [The Small-Scale Poultry Flock](#) (Chelsea Green, 2011).

Thanks to Robert Plamondon for providing easy access to reports from the Ohio Experimental Station in the early 1940s about more sensible poultry brooding:

For more details on building and managing an Ohio style brooder, see www.plamondon.com/brooder.shtml.

And see plamondon.com/faq_deep_litter.html for more fascinating

facts about the benefits of bioactive litter in the brooder.

I also highly recommend Robert Plamondon's excellent guide to brooders and brooding, *Success With Chicks* (Norton Creek Press, 2003).

Information on how to build a brooder can be found in "Build a Brooder for Chicks, Keets and Poult," by Gail Damerow, *Backyard Poultry* December 2010/January 2011, page 30 and considerations when buying a brooder in "Choosing a Brooder," by Gail Damerow, *Backyard Poultry* April/May 2011, page 28.

[My website](#) has lots more information about a number of topics referred to in this article. Using the "Livestock" drop down menu, choose "Poultry" and search table of contents for:

Information about using mother hens to raise your new chicks, see "[Working with Broody Hens: Let Mama Do It](#)," first published in June/July 2006 *Backyard Poultry* (and, for an even more extensive discussion, Chapter 27 of my book, which may be the best treatment of this topic available anywhere);

"Euthanizing" excess hatchery cockerels in "Moral Puzzles in the Backyard";

Deep litter as the ideal approach to manure management (which begins in the brooder): "Brooding Chicks on Deep Litter" and "When Life Gives You Lemons...";

"Making Your Own Poultry Feeds," along with several other articles about feeding using homestead resources, especially "Raising Earthworms to Feed the Flock" and "Cultivating Soldier Grubs to Feed the Flock."

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