

Generally Accepted/Normal Agricultural Practices and Best Management Practices

Keeping Chickens for eggs and meat

Presented by the Halifax Agricultural Commission

This Document is meant to be used a guide for keeping and raising Chickens

The trend of keeping backyard chickens has been on the rise over the past number of years, and it's easy to see why. A steady supply of fresh eggs produced by chickens kept in your own humane environment is by far the biggest reason people give for raising their own chickens. Eggs from your backyard, non-caged birds have been shown to have a far greater nutritional value and are far fresher than the eggs from the average grocery store, which can be up to 2 months old when you buy them. There is more than seven times the Vitamin A and Beta Carotene (essential for good eye sight) and almost double the Vitamin E in cage free eggs. When it comes to the essential fatty acid Omega 3 (which is necessary for heart health, healthy cholesterol levels and positive mental and behavioral health) the cage free variety win again with an incredible 292mg, versus a pitiful 0.033mg in commercial eggs. You'll also get less saturated fat in cage free eggs.

A less popular reason, but equally good reason for raising chickens and Turkeys is for meat. Meat birds are usually processed around the age of 7 – 9 weeks. So after feeding them for only 2 months, you can stock your freezer with your own wonderful, fresh, home-grown meat. When you raise your own chickens, you know what went into the meat. Done correctly, it is a safer and healthier alternative to factory farmed poultry. The meat of farm-raised chicken usually has significantly less fat (and fewer calories) than typical store-bought chicken.

Before you go out and buy your flock of chickens, some planning is in order:

The first thing you must do before building your coop and acquiring your hens it to check with your local building inspector, zoning board and board of health to determine what building codes apply to you and zoning limits your town has regarding animals.

- 1) Shelter - For small-scale production, coops can easily be fashioned from already existing buildings, or from other rather inexpensive materials. The coops can be as simple or as elaborate as you desire. Talk with people in your community who have chickens; they are probably happy to share their knowledge with you. Also, begin with a design that has already proven to be effective or you can purchase a readymade chicken coop from a farm supply store. Many plans for chicken coops can be found on the internet.

Best Management Practices: Housing Facilities for Mature Poultry

- Build the coop on high, well-drained area.
- Face the front of the coop, all windows, and run (if incorporating one) to the south.
- Use sliding windows so birds cannot roost.
- Use building materials that are easy to clean, and will not rot quickly.
- Slope the floor toward the door to prevent puddling

2) Types of coops

Portable Coops - A portable coop is a coop that has a bottomless floor and is moved as needed either by hand (skids are incorporated into the design) or by a tractor (the term "chicken tractor" is used), allowing chickens to forage for their food and take in fresh air. The coops are dragged around to new areas of grass depending on how destructive your chickens are to the grass, how much manure is produced, and the size of the coop. This design is highly recommended for broiler chickens and not for hens.

Overall design goals of a portable coop:

- Easy to move.
- Does not harm chickens when moved.
- Withstands high winds.
- Protects from predators and harsh weather.
- Low maintenance cost.
- Enables chores to be done proficiently.
- Sustains the needs of growing birds.

Permanent Coops – This would be a fixed building such as a shed.

Overall design goals of a permanent coop:

- Insulated efficiently.
- Potential openings are tightly secured to prevent predation.
- Proper ventilation provided.
- House is sturdy enough to sustain inclement weather.
- Adequate space provided.
- Sustains the needs of growing birds.

The following are general requirements for all coops:

Adequate Space - Birds need an ample amount of space for exercising, nesting, and roosting. Cramped conditions lead to disease. If chickens are kept inside, they need more space, if kept outside, they need less space. Overall, approximately 2-10 sq. ft. of space per bird is needed; the exact space requirements are determined by the type of bird raised.

Cleanliness – Coops should be cleaned regularly, optimally daily, with manure removed and fresh water and food provided. Chicken manure can be composted and it makes some of the best fertilizer you for your garden you can find.

Nesting Boxes - Chickens need their privacy when laying their eggs. Wouldn't you? Incorporate nests boxes in a separate area away from others. One box for every four birds is enough; they will share and sometimes even lay in the cozy corner not utilizing the boxes. The dimensions should be slightly larger than your birds. A slanted roof (to deter buildup of manure) should be placed over the nest boxes to ensure comfort and privacy to the birds.

Roosts - practically anything can be turned into a roost, where the animal can sleep. Some of the best roosts are large sticks laid across the coop. Another example is an old step ladder, which provides several resting places. Manure will build up around roosts. A pan with wire mesh may be placed underneath to catch feces, allowing for quick manure clean up and less odor.

Walls - Most people use a wood frame construction. Experimenting with different materials can lead to unstable coops. Vertical 2 by 4 studs are sufficient with some type of sheathing, either planks or plywood attached on the outside. If not constructed tightly enough, the walls should be insulated depending on the climate.

Floors - The media used for flooring is a matter of preference. Place soft bedding, such as wood shavings, on top of flooring to lessen strain on chicken's feet. Provide a scratching area to ease the cleanup of manure and decrease smell. Dirt- is cheap and easy, but difficult to remove manure. If the soil is not permeable, it will turn into mud, creating a muddy mess that will harbor pathogens and bacteria. Prior to implanting a dirt floor, perform a test. Dig a small hole in your chosen site, add water and see what happens. If the water does not permeate through the soil, then a dirt floor is not your best option. Wood- can be bought or salvaged from the dump, provided it is in good condition and not treated with chemicals. 1-2" thick of wood should be sufficient. Joists are needed for underneath the planks to support the wood. The wood will eventually rot. Concrete-is a great choice for a permanent coop. It is easy to clean, impervious to rodents, and acts as a barrier to clever predators. Concrete is the most expensive and requires the most effort.

Predators – There are a number of animals in the environment that consider chickens to be a very tasty meal. Some of the most common local chicken thieves include foxes, coyotes, fisher cats, raccoons and hawks. A neighborhood dog or even a cat may also decide to do a little chicken hunting. So use common sense when building your coop. Place locks and heavy, tight wire fencing around the coop. As much as we would all love to see our flock ranging freely though out the yard, it is not safe for them, it is better to keep poultry confined with a covered fence. You might also find since chickens don't recognized property lines, your neighbors would also appreciate a secure chicken run. Any openings, such as a window or door, should have heavy gauge mesh wiring. Predators are sneaky and intelligent animals that have no problem squeezing through any small opening. Automatic, battery powered doors have been shown to be very effective as well as time saving. A timer may also be incorporated with this system. Outside runs-protect your birds by burying a mesh wire fence at least 12" into the ground. This will impede predators from digging under the fence. An electric fence may be place around the coop and run to ensure more protection. Eliminate attacks from avian species, such as hawks and other birds-of-prey alike by avoiding perches, such as window sills, and covering runs with mesh wire or netting.

Fresh Water - Waterers should be placed throughout the facility. On warm days, place water outside to avoid increased moisture inside the coop. Make sure the water containers are oriented in a way that the birds will not defecate in them and make a mess. The height of food and water containers should not be lower than the birds' back. During the winter it is always challenging to keep water liquid. You can either change the water several times per day or if you have access to a safe source of electricity heated waterers are readily available at local feed and grain stores or on the internet.

Food - The simplest and best way to ensure proper nutrition for small flock of chickens is to purchase a complete feed from a feed store. Complete feeds provide nutritionally balanced diets for chickens. These feeds come in both as certified as organic or non-organically certified and often already contain the oyster shells the chickens need for hard egg shells. If you use a good diet that meets the dietary needs of your flocks, supplementing with other items will upset the balance of the diet.

Common mistakes made with supplements include the following:

- Providing vitamin and electrolyte supplements for more than 10 days
- Supplementing complete feeds with cracked corn, oats, or other grains
- Regularly adding green chops, lettuce, or other low nutrition ingredients to the diet
- Administering inappropriate or unnecessary medication
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A chicken's daily consumption of feed depends on the composition of the diet and weather conditions. Chickens typically adjust their feed intake in order to meet their energy requirements. As the energy content of a diet increases, feed intake decreases, and vice versa. Environmental temperatures also play an important role in determining how much Feed a flock will consume. During hot weather, feed intake decreases. Feed intake increases during cold weather as chickens consume more to supply the extra Energy needed to maintain regulation body temperature. Therefore it is a good idea to keep a supply of food available for you flock and allow them to self-regulate their intake.

Other Considerations regarding food

- 1) Table Scraps - Chickens are often fed table scraps (peelings, stale bread, and leafy vegetables) as treats, but excessive table scraps and greens can adversely affect egg production. The total supplementation of table scraps and scratch grains should be no more than chickens can finish in 20 minutes. Make sure that the scraps are not allowed to rot, or botulism might result. It is also recommended that scraps with strong taste, such as onions, not be fed to laying hens because eggs might take on those flavors. Sour milk can also be fed to chickens.
- 2) Clippings - The amount of complete feed consumed can be reduced by supplementing with pasture or lawn clippings. Young, tender plants are a valuable source of nutrients for chickens, but chickens are not able to digest old, fibrous plants. Do not feed grass clippings from lawns if pesticides have been recently applied.
- 3) Medicated Feeds - Medicated poultry feeds, which typically contain a coccidiostat and/or an antibiotic, are available and are generally fed to chickens under a month old. Coccidiosis can be hard to control through sanitation practices alone. Chickens benefit from being fed a coccidiostat at low levels. Mature chickens develop a resistance to coccidiosis if allowed to contract a mild infection of the disease. Chickens can be fed a coccidiostat containing feed for the first 16 weeks of life. The medicated feed should then be switched to a nonmedicated feed. Medicated feeds should not be fed to laying hens.
- 4) Feeding and Storage - The way the chickens are fed is as important as the feed itself. Supply enough feeder space for all the chickens to eat at one time. With limited feeder space, some chickens do not get enough to eat. Place the feeders so that the trough is at the level of the chickens' backs. This will reduce feed spillage. If bantams and large fowl are being fed from the same feeder, adjust the feeder to the height of the bantams. Feed should not be stored for more than two months. It is also important to keep it in dry, cool place. Old feed can lose its nutritional value and is susceptible to mold.

FEED	PROTEIN LEVEL (%)	AGE OF BIRDS	FEED INTAKE/10 BIRDS/ AGE PERIOD
Chick starter	20-22	0-6 weeks	20-29 lbs
Pullet grower	14-16	6-20 weeks	120-130 lbs
Layer	15-18	20 weeks on	18-24 lbs/week
All purpose*	16	All ages	

* Feed if only a single feed is available, and use during the entire growing period.

- 5) Laying Hens - Once your chickens start laying eggs (around 20 weeks of age) they should be switched to a layer feed. Layer feeds are formulated for chickens laying table eggs (those used for human consumption). Broiler feeds are formulated for those chickens producing hatching eggs (breeders). The diets are basically the same, but the breeder diets typically have slightly more protein and are fortified with extra vitamins for proper embryo development. Laying hens require large amounts of calcium for eggshells. Laying mashes typically contain 2.5% to 3.5% calcium. Growing chickens require only 1.2% calcium in their feed. If you feed high calcium diets to growing chickens, kidney damage can result. It may also be necessary to supplement the diet of laying hens with ground oyster shell on a free choice basis. Some high producing laying hens may require the extra calcium that the oyster shell provides. Monitor the quality of eggshells to determine whether or not you need supplemental oyster shell. If hens produce eggs with thin shells

or shells that are easily cracked, oyster shell supplementation might help. Layer diets should contain at least 14% protein to ensure continued egg production. Layer diets that contain 16% protein are more common.

Let There Be Light - If raising egg layers, make sure there is adequate light all year round. Windows should be placed on the south side of the coop. This will ensure proper ventilation in the summer months and light and warmth during the winter months. Lights should be installed to maximize production. Hens require at least 15 hours of “daylight”, and will usually lay one egg every 25 hours. Hens exposed to decreased hours of light will go into a molt and quit laying.

Weather Control High Winds- Build portable housing close to the ground, with sturdy enforcements and tie-downs. The tie downs in particular will secure the frame of the house. This is a very important preventative measure to employ.

Heat- As mentioned before, windows, cupolas, and insulation should be installed. Fans may also be of use.

Cold- Most hardy breeds of chickens survive quite well in the cold of New England with adequate shelter. Coops should be seal for drafts and insulation can be installed.

Ventilation - Proper ventilation ensures fresh air to the birds. Chickens are unable to sweat; they start to pant like a dog around 95 degrees F. They give off moisture, heat, and carbon dioxide as they breathe, and as manure mixes with litter, more moisture and ammonia are released. If levels of moisture and ammonia build-up, airborne pathogens are released, causing health problems. To increase air flow, windows should be installed along the south or east side, away from prevailing winds. Well ventilated coops must also have appropriate insulation to prevent moisture accumulation on the walls and ceiling. When installing windows, make sure there are no flat surfaces for the birds to sit on, for they will defecate there.

Picking your Flock:

In general people start their flocks from chicks. Chicks can be purchases from local feed and grain stores in the spring or they can be purchase on-line. There are many different breeds and some research should be done before buying on a whim. If you are looking for laying hens you should be careful to choose a breed that is suited to the climate. Here in New England you will want a hardy chicken for our cold winters. Some of the most common laying breeds include Rhode Island Reds, Leghorns, Orpington's, Wyandotte's, Barred Rocks and Americauna's (the Americauna chicken lays blue eggs). But there are hundreds of other breeds and the variety of different colored plumage you can fill your yard with is endless. Meat birds are usually a Cornish cross.

A word on roosters. Unless you are actively breeding chickens, roosters provide little benefit to your back yard egg factory. Your hens do not need a rooster to produce delicious eggs. A rooster can provide some protection against predators for your hens but a determine coyote would have no problem dispatching a rooster. There is also a lot of negatives to having a rooster. Roosters can be very aggressive and have sharp spurs and have been known to chase and hurt humans, including children, and dogs. Also rooster will not only crow when the sun comes up in the morning, but anytime day or night he thinks it is a good idea. Many roosters crow constantly. This tends to leads to disagreement with neighbors. So unless you plan on breeding chicks yourself, it is best to avoid the rooster problem completely by buying “sexed” chicks. Occasionally a rooster will slip by, but not often. If the chicks are advertised as “straight run” that means then are not “sexed” and they could be all hens, all roosters or a mix. If you don't want a rooster it is best to avoid “straight run” chicks.

Starting with Chicks:

Day-old chicks are available on line from hatcheries as well as most local farm supplier in the Spring. Massachusetts law (MGL Ch 129 sec 26B) requires that all live poultry or hatching eggs moving within the Commonwealth originate from current certified Salmonella pullorum clean flocks. So always buy your chicks from a reputable dealer and look for certification of Salmonella and Pullorum Typhoid clean and H5/H7 Avian Influenza clean you'll have to wait about 6 months for eggs. Chicks will need special housing until they are old enough to be outside.

1) The baby chick house (also known as the "brooder")

Baby chicks need to be protected from drafts but still have adequate ventilation. This can be in the form of a cardboard box with holes for ventilation, a single-faced corrugated cardboard roll, 12" or higher, a large plastic storage bin, or even a kiddie pool! All of the above have been used with success. Whatever housing solution you go with, make sure it provides 2 square feet per chick. It sounds like an awful lot, but as they get older (and bigger) you'll realize why this is necessary. Although most grown chickens are pretty pathetic flyers, young chicks are much more capable. If your brooder is only 12 inches high, don't be surprised if you find your week-old chicks perching on top of it! To prevent this, we recommend you cut a section of deer netting or chicken wire just big enough to drape over your brooder, or use a 2-foot-high brooder box to increase the length of time before they're able to "fly the coop".

2) A heat source

Baby chicks need to be kept pretty hot. Think sauna! The first week of their lives they require an air temperature of 95 degrees, the second week 90 degrees, and so on - going down by 5 degrees per week until they're ready to transition to "outside". A 250-watt infrared heat lamp is the best way to achieve this, placed right in the middle of their living area and suspended off the ground. The height of the light will depend on what it takes to achieve your target temperature. A red heat bulb is recommended for a few reasons: one, with a bright white light constantly glaring it can be hard for them to sleep. The red light is darker and provides them some respite. Two, red lights help prevent them from pecking one another. Do not listen to anyone that tells you a regular old 60 watt bulb will suffice! They really need a lamp intended to produce heat.

3) A drinker/waterer

Don't try to use a dish, a rabbit drinker, or anything you have just "laying around". Baby chicks have special needs when it comes to water. Dishes can make it easy for chicks to drown, and they'll certainly do naughty things like walk in it, spill it, kick their bedding materials into it, and poop in it -- meaning you'll have to change it constantly. Rabbit drinkers aren't preferable, either, because not enough chicks can access it at once. For the best results, we recommend you use a chick waterer. You can purchase one at a local farm supply store or on-line. They come in a number of different sizes and shapes, all basically sufficient.

4) A feeder

Don't use a dish or bowl for feeding your chicks. They're messy, and they'll jump in and kick the feed all over the place, poop in it, and even tip it over and trap a baby underneath. Buy a "real" baby chick feeder, or borrow one from a friend.

5) Feed

Feed baby chicks "starter feed" for approximately 4 weeks before switching to a feed called "grower" or "chick grower". They will then stay on grower until 16-20 weeks when they are ready to start laying, at which point you will switch them to a Laying pellet. Small amounts of vegetable/dairy can be added to the chicks diet (and they'll love it!), and the same goes with bugs and worms. But consider those like dessert, not the main course. Starter feeds contain everything chicks need to survive and thrive, and filling them up with too much of the "other stuff" can throw off their nutritional balance. As for how much food, the answer is: as much as they want! Don't

ration it. Give your birds 24/7 access to all they should give their birds the food they can eat. They're not like dogs. They'll self-regulate.

Notes on the Avian Flu

Although there has been no cases here in New England of the Avian Flu, The recent devastating outbreaks of High Pathogenic Avian Influenza (HPAI) in poultry and wild birds in the Midwest have increased the likelihood of the disease affecting flocks in the East.

And although the avian flu has mainly been a problem for large commercial Midwest poultry farms rather than back yard flocks it is important for all chicken owners to be mindful of the realities. The avian flu is transmitted primarily by migratory water fowl. Chicken flocks and other domestic birds should be kept away from areas where migratory birds can be found.

Biosecurity is the best means of safeguarding your birds and your farm or other premises against the virus. The current strains of avian influenza can affect wild or domesticated birds. Most birds will die within days of exposure, although ducks and some other species can act as carriers without ever becoming sick. It is spread by contact with infected birds or items that have been exposed to infected birds or their feces. Although no humans have contracted the virus in these HPAI outbreaks, people can move the disease between flocks on their shoes, clothing, vehicles, or other equipment. Practicing biosecurity means taking the steps necessary to reduce the chances of infectious disease being carried onto or off of your farm. The first step is to identify the ways to mitigate the greatest risks to your birds or farm from Avian Influenza. Below are recommendations from The Massachusetts Department of Agricultural Resources. Not all will apply to small back yard flocks.

Reduce Risks to the Flock

- Never introduce adult birds into an established flock unless they pass quarantine (30 days isolation) or are tested clean of disease. Treat birds returning from shows as if they were new to the flock.
- Do not mix different species in the same flock. Mixing species (e.g., chickens and turkeys or with waterfowl) on the same premises can be a deadly combination.
- Limit visitors from accessing your pens or coops. Do not visit other poultry facilities.
- Confine birds to a fenced area and limit contact with wild birds, mammals, and insects as much as possible.
- Do not share equipment, supplies, or vehicles with other bird owners.
- Clean and disinfect all coops, equipment, shoes, clothes, and vehicles every time, before entering poultry areas.
- Remove dirt and manure from surfaces before disinfection. "You can't clean dirt."
- Practice "all in, all out" when changing flocks. Get rid of all birds and disinfect the coop before getting any new birds.
- Check for parasites monthly and treat if necessary. Use a dusting area to prevent external parasites.
- Keep rodents, flies, dogs, and cats out of the chicken coop and feed. Common Sense Biosecurity Measures
 - Keep your birds in a safe environment
 - Make sure everyone that cares for your birds understands and abides by all biosecurity plans for your flock.
 - Wear separate dedicated clothing and shoes when working with your birds.
 - Clean up any spilled feed and discourage wild birds from accessing feed and your bird pens.
 - Never access your birds after hunting, fishing, or coming in contact with any other birds or areas that wild birds frequent.
 - Never buy birds from unknown sources like auctions or other live bird markets.

- Care for and visit birds in the order of bird age— youngest first to oldest last.
- Watch for signs of infectious disease in your birds. Report sick or dead birds to 617-626-1795.
- Always care for sick pens last or, better yet, have a separate person care for sick birds. BIOSECURITY: Protecting Your Backyard Flock If You Suspect Avian Influenza
 - Don't wait! Call immediately.
 - Report sick or dead domesticated poultry: • Call the Mass. Dept. of Agricultural Resources, Animal Health Division at 617-626-1795 or the USDA at 1-866-536-7593
 - Do not move any birds on or off your premises. • As soon as possible, double-bag and refrigerate (do not freeze) dead birds. They may be needed for testing.
 - USDA will pay indemnity for birds alive at the time of testing if the flock is positive for HPAI.
 - If HPAI infection is confirmed or very strongly suspected, the goal is to depopulate the flock within 24 hours to help prevent the virus from spreading to other flocks or farms. Time is of the essence.
- Precautions for Free-Range Poultry Poultry producers and backyard bird owners who raise birds in outdoor, non-confinement systems should prevent contact with wild birds, particularly waterfowl, and wild bird droppings.
 - Identify high risk areas, including wetlands along migratory flyways or other areas where wild waterfowl or shorebirds congregate, and high density poultry production areas.
 - Implement preventative measures for high-risk areas:
 - Keep birds indoors, as possible.
 - Restrict outside, open access by maintaining outdoor enclosures covered with solid roofs and wire mesh or netted sides.
 - Provide feed and water for all non-confinement-raised poultry in an indoor area.
 - Prevent access to outdoor creeks, ponds, or other surface water that could potentially transmit AI or other pathogens through contamination with wild bird excrement.

Look for Signs of Disease

It is important to know the warning signs of diseases such as avian influenza. Birds with HPAI produce more virus over time. Early detection helps prevent the spread of disease. Look for these signs:

- Increase in unexplained deaths in your flock, with or without symptoms
- Sneezing, gasping for air, coughing, and/ or runny nose
- Watery, green diarrhea
- Lack of energy and poor appetite
- Drop in egg production or soft or thin-shelled, misshapen eggs
- Swelling around the eyes, neck, or head

Other suggested links for information regarding keeping chickens;

<http://www.mass.gov/eea/agencies/agr/animal-health/poultry/>

<https://poultrykeeper.com/general-chickens/beginners-guide-to-keeping-chickens/>

<http://www.backyardchickens.com/>

<http://www.backyardchickens.com/a/chicken-injuries-diseases-how-to-diagnose-treat-your-chickens>

