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RAISING BACKYARD CHICKENS: 10 THINGS TO DO THAT NO ONE EVER TELLS YOU

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Keeping backyard chickens has been a common pastime across the country for generations. However, raising backyard flocks has become even more popular since the COVID-19 pandemic as more people take a greater interest in where their food comes from and as more individuals choose to become increasingly self-sufficient and live a "homesteader-type" lifestyle, particularly in urban and suburban areas that may prohibit the keeping of larger domestic livestock (cattle, swine, sheep, goats, etc.). Many urban areas have relaxed their rules on the keeping of backyard chickens in recent years, making it easier for more individuals and families to participate in the popularity of backyard chickens. A backyard flock can be a source of fresh, high-quality meat and eggs. In addition, a home flock can be a valuable learning experience for both adults and children, teaching responsibility along with the care, management and welfare of other living creatures.

Nevertheless, a backyard chicken flock requires an investment of time, money, and labor. Understand before getting too deeply involved the huge commitment it will take on your part to successfully care for and look after a backyard poultry flock. It also requires a working knowledge of animal management practices, creating and following an effective biosecurity plan to keep the flock disease free, a well-designed feeding program centered around a balanced ration for optimum performance, provision of adequate housing and predator protection to keep the flock safe, and being a good neighbor to those around you and the backyard and commercial poultry sectors at large. Chickens can be a source of much enjoyment when properly managed and given the appropriate care and protection. However, there are things that everyone considering raising backyard chickens should know and understand to be ahead of the game. Listed below are 10 commonsense practices that perhaps no one ever tells you but all are critical to know and follow to be successful.

1. Get off to a good start

Raising your own backyard flock may seem like a good idea but be aware that there may be bumps in the road. Few things are as easy as they seem in the beginning, and that is true for raising backyard chickens. Understand going in that chickens will require time, money and effort on your part. In addition, it is likely less expensive to buy meat and eggs from the store than to produce it yourself at home. Saving money on groceries should not be your main goal for having a backyard poultry flock because that likely will not happen. To be successful and make your flock an enjoyable experience, you have much to do long before chickens ever appear in your backyard. Fortunately, Extension is here to help you if you are committed to raising backyard chickens. Before you begin, map out a strategy of exactly what you want from your backyard flock adventure. Think long term and always start with your end goal in mind. What is that end goal—fresh eggs, meat, pets (keep in mind that chickens are farm animals and belong outside), teaching your children about livestock and caring for animals, 4-H or FFA projects, exhibition and showing your birds, or simply enjoying the various antics and personalities your chickens will display? Whatever the end goal may be, there is lots of planning to be done before you call up the mail-order hatchery and order chicks or swing by the local feed store or co-op during baby chick season.

Start planning months before the first chicken arrives. Check local city/county ordinances to make sure regulations do not prohibit backyard chickens in your area. You don't want to spend time, money and labor on housing, fencing, and chickens only to learn

later that you can't have chickens where you live. Do some homework and then, if you can have chickens, inquire about the limit on numbers and whether roosters are allowed. Some locations allow hens but no roosters. Roosters crow and make a lot of noise, which often causes municipalities to ban roosters to avoid noise complaints from the neighbors. Check for setback distances from property lines. Also, consider your neighbors when planning the location of the coop. If chickens are allowed in your area, consider the importance of good neighbor relations. Visit your neighbors and let them know you are considering backyard chickens so that they aren't blindsided when your chickens arrive.

Decide how many chickens you will have and then consider housing and pen space. Think carefully and be flexible when considering housing because you may want to increase your flock size later. Again, think down the road and keep the end goal in mind. Maybe you want to start with six birds but increase to a dozen (or more) at some point in the future. If so, build your coop and run with your eye on future expansion to house additional birds, not just the initial six. You only want to build everything once so prepare in the beginning for possible expansion. Also, have a game plan in place. Who will be the primary caretaker of the chickens? Who will be the backup caretaker? Chickens will need feed, water, protection, and care every day, including weekends, holidays, vacations, etc. Someone must always be available to care for them.

While many folks like to free-range their birds during the day, it is safer to pen the flock instead of letting chickens run free. This will keep them at home where they can't bother the neighbors, lessen the disease threat, and better protect them from predators (both aerial and ground predators). Consider that there are numerous critters such as coyotes, foxes, skunks, opossums, snakes, hawks, owls, weasels, dogs, cats and others that like chicken dinners; and many of these predators are just as common in urban areas as they are in rural areas. Keep in mind that chickens come with expenses. Chickens, housing, and feed all cost money, especially feed (which will be your greatest expense), accounting for roughly 70 percent of the cost of maintaining a flock of chickens. Also, if you want eggs, and you plan to start with baby chicks, you will have about six months of time, effort and expense invested in the flock before the hens are sexually mature and old enough to lay eggs. Still, chickens are less expensive than other livestock and benefit from the fact that they are:

- Small and easy to handle (particularly for women and children),
- Relatively inexpensive (compared to cattle, hogs, sheep, goats, or horses),
- Less manure output than larger livestock (but highly nutritious fertilizer for backyard gardens),
- Easy to acquire (mail order hatcheries are all over the internet and most feed stores have baby chicks available in the spring),
- Don't require a lot of land (compared to cattle, hogs, sheep, goats, or horses).

2. Provide Adequate Housing

Chickens need protection from weather and adverse environmental conditions, predators, injury, and theft. A coop is a building for housing poultry. There are a variety of coop styles and designs, but all successful coops should include several key elements. You should be able to close the birds in their coop at night for safety. Keeping chickens confined with fencing and a covered run is the best protection from predators (Tabler et al., 2013). Bury the fencing wire and turn it outward for 10-12 inches under the surface to prevent predators from digging under and reaching the birds. Fencing wire must have small enough holes to prevent chicks from crawling out as well as wild birds and predators from gaining access. Carefully select the site to house your poultry. How close will the poultry housing be to your house? The closer the better if predators attack and you must reach the coop quickly. However,

many areas have zoning laws that limit how close to your house the coop can be. The housing and pen should be on high, well-drained and gently sloping ground to assist drainage and keep the chickens out of the mud during wet weather. Do not place the coop and pen on a low or poorly drained site.

Will you have electricity and running water to the chicken housing or will you carry water and check them with a flashlight after dark? Chickens should have access to dry, draft-free housing that is easy to clean. Raising the coop one foot or more off the ground may help discourage opossums, skunks, rats, and snakes from getting in the coop. Housing may be movable or fixed. Movable housing should have wheels or skids to assist in movement from one location to another. Minimum space requirements for various types of poultry are listed in Table 1.

Table 1. Minimum space requirements for various bird types (Clauer, 2009).

Bird Type	Sq. ft. per bird (inside)	Sq. ft. per bird (outside)
Bantam chicken	1	4
Large chicken	2	10
Laying hen	1.5	8
Quail	1	4
Duck	3	15
Pheasant	5	25
Goose	6	18

Ventilation is critical to remove ammonia fumes, moisture, and carbon dioxide from the coop and bring in fresh air. Depending on the region of the country, coops may not require insulation, but they should be dry and draft free. Chickens do not like drafts. A well-designed coop has adequate air exchange without creating drafts. Additionally, a good coop should facilitate easy collection and management of manure with no detrimental effect on the environment such as ground or surface water contamination.

3. Provide Perches

Perches are essential elements that should be included as integral components of housing systems as they fulfill a crucial role in satisfying one of the fundamental natural behaviors of chickens: perching. Chickens use perches to sit, stand, rest, or sleep. The provision of elevated perches at differing heights is considered a priority for laying hens (Olsson & Keeling, 2002). The motivation for perching is greater at night as compared to daytime (Liu et al., 2018). Hens raised without perches often struggle to use them later in life when provided because of factors like less muscle strength, limited motor skills, balance issues, or impaired spatial abilities required for navigating three-dimensional spaces (Kafle and Tabler, 2024). The use of perches has shown both beneficial and adverse outcomes. Perches are vital for the physical development of birds, as they encourage jumping and flying behaviors, thereby supporting their overall fitness and growth (Campbell et al., 2016). Hens provided with perches typically exhibit stronger bones compared to those without access to perches (Fleming et al., 1994). Early use of perches contributes to skeletal development and increases leg bone strength and muscle growth in birds through continuous use of the perches (Kiyma et al., 2016; Leyendecker et al., 2005). Offering perches to encourage activity effectively reduced abdominal fat deposition during the laying period (Jiang et al., 2014). Utilizing perches led to increased body weight and body condition scores in hens while maintaining egg quality, feather coverage, floor/ground egg proportions, and egg-laying performance (Donaldson & O'Connell, 2012). In essence, perches enable birds to engage in natural behaviors, thereby fostering better health and welfare (Pickel et al., 2011).

However, there are some concerns related to perch usage. Two primary concerns have been identified as being influenced by the addition of perches into a system—keel bone damage and footpad disorders (Käppeli et al., 2011; Hester, 2014) . The tendency of increased risk of keel bone fractures is positively linked to the height of the perches (Wilkins et al., 2011). Keel bone fractures are painful and affect the mobility of the bird as evidenced by behavioral differences observed during mobility tests between birds with and without old keel bone fractures (Nasr et al., 2012; 2013). Improper perch design can result in unstable footing (Scholz et al., 2014) and elevated pressure load on the footpad leading to footpad problems (Appleby et al., 1993; Pickel et al., 2011) as well as affect coop ventilation, heat release and stocking density.

4. Choose the right breed

There are more than 400 varieties of chickens to choose from, so decide what best suits your end goals. Are you interested in:

- Breed preservation
- Dual-purpose chickens
- Egg production
- Meat production
- Developing a new breed

What you wish to achieve in the end will guide your path today and into the future. Take the climatic and environmental conditions into consideration when making your choice. American breeds do better in cooler climates. Mediterranean breeds do better in warmer climates. Birds with large combs do better in hot areas (large combs may freeze in cold areas during the winter); birds with small combs perform better in colder regions. Tables 2 and 3 list popular dual-purpose and egg-laying breeds. Note that while dual-purpose breeds tend to have calm dispositions, most egg-laying breeds have flighty or very flighty dispositions and are nervous chickens. This may be a factor if you have young children or grandchildren that will be around the flock.

Table 2. Common dual-purpose chicken breeds.

Breed	Egg production	Egg size	Egg color	Disposition	Foraging ability[1]
Rhode Island Red	good	large	brown	calm	fair
Dominique	fair	medium	brown	calm	good
Orpington	fair	large	brown	calm	poor-fair
Plymouth Rock	fair	large	brown	calm	fair
Delaware	fair	large	brown	calm	good
Wyandotte	fair	large	brown	calm	fair
Brahma	fair	large	brown	calm	good

[1]Ability of the birds to find and acquire food.

Table 3. Common egg-laying chicken breeds.

Breed	Egg production	Egg size	Egg color	Disposition	Foraging ability	Broody
Leghorn	excellent	large	white	very flighty	good	no
Sex-link	excellent	large	brown	calm	poor	no
Australorp	excellent	large	brown	calm	poor	yes
Minorca	excellent	x-large	white	flighty	good	no
Ameraucana	good	large	blue-green	calm	good	yes
Fayoumi	good	small	off white	very flighty	excellent	somewhat
Hamburg	good	small	white	very flighty	good	no
Ancona	good	large	white	flighty	good	no
Maran	good	large	dark brown	flighty	poor	yes

5. Do your homework before purchasing chicks

If your primary goal is to raise pullets (immature female chickens) for egg production, you may want to order sexed chicks when purchasing and request only female chicks. The females will lay eggs when they reach sexual maturity without the presence of a male (rooster). You will only need males if you want fertile eggs for hatching chicks or if you are growing birds for meat production. Males perform better (weight gain, feed conversion ratio) than females if you are growing birds for meat production. In your search for the right breed, you may come across the term "sex-linked chickens." These are a type of hybrid chicken breed with unique characteristics. Hybrid chicken breeds are the result of crossbreeding two or more heritage or purebred chicken breeds, usually to produce offspring that lay more eggs, produce more meat, or have other specific, desirable traits like a particular plumage color, body shape, or temperament (Hayman et al., 2023). Sex-linked chickens can be identified by their dominant feather color on the day of hatch (males and females will be different colors). Keep in mind that the offspring of a sex-linked cross cannot be used to produce a second sex-linked cross. Sex-link birds are hybrids so you must continue using the original cross to achieve the same results. The ability to determine a chick's sex at hatch is limited to the first generation only.

Finding chicks when the time comes may be the easiest part of getting into the chicken business. Multiple online mail-order hatcheries will ship chicks to you by way of the U.S. Postal Service. This is possible because the egg yolk is a source of energy for up to three days for newly hatched chicks. Most hatcheries have a minimum number of chicks that must be purchased. You can often mix and match orders, but you should know what breeds you want and how many chicks of each breed when you make the order. Some hatcheries may sex chicks (for a fee) if you only want males or females. Others may only ship straight run chicks (whatever hatched that day, roughly about 50 percent males and 50 percent females). If you purchase your chicks from an online hatchery, make sure the hatchery participates in the National Poultry Improvement Plan (NPIP). This is your assurance that your chicks are healthy and disease-free. Often, feed stores, co-ops, or farm supply stores may have chicks available for sale at certain times of the year, especially during spring. Check with management to make sure the hatchery supplying the chicks participates in the NPIP program.

Managing a small flock of chickens can be divided into three stages with different management intensities, 1) brooding, 2) growing, and 3) egg production/breeding. Brooding will require the most intensive management and care on your part. It is the time from delivery to 14 days when the chick's most rapid development takes place. Survival depends on how quickly the chicks adjust to their new environment. They need your help to provide proper housing, protection, temperature, ventilation, feed, and water. You are replacing the mother hen, and you must care for them accordingly. How well you manage the **FLAWS** determines how well and how quickly chicks adjust. **FLAWS** is an acronym for **F**eed, **L**ights, **A**ir, **W**ater, and **S**anitation. Successful brooding depends on six critical areas:

1. **Pre-placement preparation (critical to give chicks a good start; have everything ready *before* bringing your chicks home (feed, water, lighting, correct temperature)).**
2. **Feed management (use the proper feed for this stage of development, chick starter with ~22 percent protein).**
3. **Light management (make sure birds have enough light so that they can find the feed and water).**
4. **Ventilation/air quality management (chicks will need fresh air but avoid drafts or breezes that can chill the birds).**
5. **Water management (fresh clean water is important, may need to change daily to keep it fresh).**
6. **Temperature management (start with a temperature of 92 F and then adjust to meet the needs of the birds as they age).**

The growing stage covers the period from 14 days until birds are harvested for meat (males) or become sexually mature and start laying eggs (females). Birds now know how to find feed and water and can maintain their own body temperature. Therefore, management is not as intensive in the growing stage. For best performance, do not allow birds to run out of feed. Monitor feeder height closely because, if too low, birds will waste large amounts of feed. Keep good, fresh, quality water available at all times. The importance of water cannot be overstated because birds consume twice as much water as feed on a pound for pound basis and five times more during extremely hot weather.

Age at sexual maturity varies by breed. However, most females start to lay eggs between 18 and 22 weeks of age. Lighter-weight breeds tend to mature faster than heavier breeds. Adequate water is very important as it is the major component of eggs. Egg production will drop if water is restricted or unavailable for long periods during the day. At sexual maturity, the birds should be switched to a layer feed that will contain additional calcium to keep eggshells hard. Do not feed layer feed to growing birds as it contains too much calcium for hens not in lay. Provide hens with a nest box or someplace to lay their eggs once sexually mature. Sexually mature hens will lay eggs without a rooster. However, the eggs will not be fertile. If you want fertile eggs to hatch baby chicks, you will need a rooster. A rooster may also help protect the flock from predators.

6. Provide predator protection and intrusion from wild birds

Chickens are prey animals, and poultry keepers must do everything possible to protect their birds from predators. Make sure your coop and pen are secure and well-built. Understand there is greater risk of predator losses if you free-range your birds, even for short periods of time during the day. If you do free-range your birds, have them safely locked in their pen or coop before nightfall. Chicks and young birds are most vulnerable and should be restricted to areas that protect them when predators are most active—late evening, overnight and early morning. Cover the pen from above to prevent ground predators from climbing over the walls or attack from aerial predators (hawks and owls). Do not locate the coop/pen near a wooded area. Place it in an open area that may help deter predators that tend to avoid large open spaces. If a predator does make it to your flock, it will be a repeat visitor, and the problem will only worsen over time once the predator knows you have chickens. You must remove the predator (not an option with hawks and owls that are federally protected by the Migratory Bird Treaty Act of 1918, one of the oldest wildlife protection laws on the books), provide better protection or expect more losses. Predators often leave calling cards if you know what to look for. Knowing what is after your chickens can be beneficial in providing protection, so know what predators are in your area and the signs they leave behind. A game camera may be a valuable tool to assist you with this. Table 4 lists common predators and their signs.

Table 4. Common predators of backyard chickens and signs they may leave behind.

Predator	Signs
Cat	Chicks or young birds missing
Coyote	Bird missing; sometimes scattered feathers; digging around pens
Dog	Birds usually mauled but not eaten; birds missing
Fox	Bird missing, with scattered feathers
Hawk	Bird eaten on-site, lots of feathers; birds carried to trees and eaten; feathers under trees
Mink/Weasel	Dead birds neatly piled; back of head and neck eaten
Opossum	Whole bird consumed, feathers and all; may leave wings or feet
Owl	Head and neck eaten; happens at night; lots of feathers; sometimes bird is missing
Raccoon	Breasts and entrails eaten, backs bitten, scattered feathers
Rat	Chicks or young birds missing; partially eaten chicks
Skunk	Entrails eaten but not muscles or skin; lingering odor
Snake	Missing eggs or young chicks

Furthermore, to the extent possible, prevent intrusion of wild birds and rodents into the coop and pen. Avian influenza remains a serious disease threat to domestic poultry and is often carried by wild birds. Failure to limit or impede access of wild birds and rodents to the pen and coop area may predispose your flock to parasites and disease pathogens.

7. Check for lice and mites

Lice and mites are sometimes a problem in backyard flocks and must be treated quickly before they spread through the entire flock. These pests travel on birds, rodents, other animals and wildlife. Common signs of an infestation include dirty-looking vent feathers, pale comb and wattles, decreased activity level, drop in egg production, weight loss, change in appetite, feather pulling, bald spots, redness or scabs on the skin, dull and ragged feathers, crawling bugs on the skin (lice and mites are small so inspect closely), or nits on the feathers (Hayman et al., 2023). Mites feed on the blood of chickens. Some live on the chicken, while some live in the chickens' housing and come out to feed at certain times (often at night). Lice do not feed on blood. They live by ingesting skin scales and debris from the birds' feathers. Poultry lice are different from human head lice, and people can't contract them from chickens. Monitor chickens and nests monthly for signs of lice and mites.

- Maintain a strong biosecurity program and quarantine all new birds for 30 days and keep them at least 30 feet (100 feet is better) from your existing birds during this time. Inspect new arrivals for external parasites.
- Look for lesions or skin irritation anywhere on the chicken.
- Inspect chickens at the base of the feathers and particularly around the vent area for adult external parasites or for evidence of eggs. Eggs may be difficult to see but may appear as dirty gray areas at the base of the feathers, especially near the vent area.
- Provide areas for chickens to dust bathe and care for their skin and feathers.
- Inspect nest boxes for evidence of mites.

If an issue develops, treat the entire flock even if parasites are found on only one bird. A variety of products are used to eradicate mites and lice with varying degrees of success. Follow recommended egg withdrawal times, which will vary depending on the products used. Read and follow label directions carefully on all products used. Be aware that none of these products work on parasite eggs, so a follow-up treatment a week to 10 days after the first treatment will be necessary to kill newly hatched larvae. The coop also should be treated to get the areas where parasites may hide.

Internal parasites such as roundworms or tapeworms may also be a threat to the flock. These worms may be seen in the droppings. If noticed, the flock may be dewormed to prevent ill health and maintain desired performance and productivity. Some backyard flock producers deworm their flock in the spring and fall while others deworm only if they see worms.

8. Practice good biosecurity

A strong biosecurity program is a must for all backyard flock owners, regardless of how large or small the flock is. "Bio" means life, and "security" means protection; therefore, biosecurity means life protection for your flock. Much of biosecurity is simple common sense. It means doing all you can to prevent an infectious disease from being carried onto your property and taking steps to reduce the likelihood that disease will leave your property (should it occur). Biosecurity is important to prevent the spread of disease, maintain healthy flocks, and increase potential production and income from those flocks. There are three key components to biosecurity: 1) isolation, 2) traffic control, and 3) sanitation. None are less important than the others. All three are critical. Absence of one means you do not have adequate biosecurity regardless of how strong the other two are, placing the flock at greater risk of disease spread. The two main pathways for disease spread are 1) direct and 2) indirect transmission. Direct transmission is physical contact between infected and healthy birds. Indirect transmission occurs when a disease agent is carried to susceptible birds by:

- Humans (likely the number one threat)
- Feed
- Water
- Environment
- Shared equipment
- Rodents or other vermin
- Pets

There are several disease signs that chickens may display, and many respiratory diseases show similar signs, making an accurate diagnosis difficult without help from a diagnostic lab. Signs you may notice include, but are not limited to, the following:

- Sneezing, coughing, nasal discharge, swollen sinuses, watery eyes, twisted neck,
- Decreased egg production, decreased feed and water intake,
- Decreased fertility and hatchability, misshapen eggs, dehydration, huddling,
- Depression, lethargy, and increased mortality

In Tennessee, if you suspect a serious disease such as avian influenza or something other than normal mortality in your flock, contact:

- Your local county Extension agent
- Your local veterinarian
- C. E. Kord Animal Health Diagnostic Laboratory (615-837-5125)
- University of Tennessee or Tennessee State University poultry Extension specialists:
    - University of Tennessee (931-486-2129)
    - Tennessee State University (615-963-5823)
- Tennessee State Veterinarian's office (615-837-5120)

Consult with your local Extension agent and veterinarian on the prevailing parasite and disease challenges in your area. Based on this information, implement parasite and disease control and prevention measures as recommended in your area.

9. Recognize importance of feed quality

Chickens need a properly balanced, high-quality feed supply matched to their age and stage of production. Backyard chickens cannot live and thrive on bugs, worms and grasshoppers alone. Never offer stale, moldy, or rancid feed to your chickens. Immediately remove any feed that is obviously moldy or rancid smelling. If eaten, such feed could cause disease or nutritional deficiencies. Purchase feed as fresh as possible and do not store for long periods (never over two months). Store feed (preferably on pallets for good air circulation) in a dry, well-ventilated and rodent-proof area that is away from heat, moisture and direct sunlight. Recognize that no single feed ingredient has all the nutrients needed in the proper proportions for a complete, balanced ration. That is why a balanced ration is a combination of ingredients blended together in the correct amounts. Some ingredients are often high in one nutrient but lacking in another. For example, corn is high in energy (i.e. carbohydrates) but contains little protein, while soybean meal is high in protein but a poor source of carbohydrates. Together, however, corn and soybean meal complement each other quite well and each has a place in a balanced ration.

In addition to energy and carbohydrates, chickens also need fats, minerals and vitamins mixed in different proportions to balance a diet. The feed tag on a sack of commercial chicken feed is your guarantee that everything your birds need is in the sack in the correct amount. Know how to read a feed tag and understand the wealth of information the tag provides which includes:

- Product name
- Product purpose statement
- Drug purpose statement (if medicated feed)
- Guarenteed analysis
- Ingredient statement (all the different ingredients that make up the feed)
- Feeding directions
- Warning statements
- Manufacturer statement (address, lot number, etc.)
- Quantity statement

Feed is usually sold in the form of mash, pellets or crumbles. Mash consists of all the ingredients ground into particles and mixed (loosely) together. Pelletized feed is mash that is held together with a binder and then heat-treated, extruded and cut into various lengths and diameters depending on the type of feed manufactured (cattle, poultry, swine, etc.). Crumbled feed is pelletized feed that has been run through a roller and broken down into smaller pieces (critical for baby chicks that are too small to eat pellets).

Chickens eat to satisfy their energy demand, regardless of whether they have met their demand for other ingredients (vitamins, minerals, etc.). A chicken will stop eating once a certain level of energy has been consumed in a day. It is critical that the energy level be in balance with other nutrients in the diet. Commercial diet formulations take this into account, and the feed tag is your assurance that this is the case. Because of the complex nature and expense involved in properly formulating and mixing poultry diets, it is highly recommended that feed be purchased from a reputable manufacturer and not attempted to be mixed at home (Frame, 2008). Even though some backyard producers mix their own diets, it's easiest to purchase a complete ration from the local feed/farm supply store or co-op. Again, the feed tag on the sack is your guarantee that everything chickens need is in the sack in the correct proportions. Even with increasing feed prices, it is more productive in the long run to feed your chickens high quality, properly balanced commercial feeds rather than skimping on cost or brewing up some homemade recipe that may or may not be adequate. Balancing a ration is no easy task, and you don't want to mix up something that may be detrimental to the health or performance of your chickens.

Place feed in a shallow feed tray that young chicks can get in and out of easily, and place chicks on/near the feed to encourage them to eat. Start chicks on a "chick starter" feed in a mash or crumble form because baby chicks aren't big enough to consume pellets. Make sure all birds can eat at the same time. Chickens quickly establish a pecking order, so watch that the dominant birds do not keep the timid birds from the feed. Be cautious when offering treats or supplements to your birds. The commercial feed has everything your birds need in the right amounts. You can't improve upon its quality by feeding treats, but you can make things worse. Too many treats will dilute this balanced diet that your flock needs. Birds enjoy treats but may eat too many treats and not consume enough of the balanced diet they need to remain healthy and productive. If they receive enough of a balanced diet, they do not need treats or supplements. You may feed treats if you like, just don't overdo it. Only offer treats after your flock has consumed their balanced diet allotment for the day and never feed more than the flock can consume in about 10-15 minutes. Common mistakes made with treats or supplements include:

- Supplementing complete feeds with scratch grains, oats, or other grains.
- Giving vitamins and electrolyte supplements for more than 10 days.
- Regularly adding table scraps, green chops, lettuce, or other low nutrient ingredients to the diet.
- Administering inappropriate or unnecessary medications.

Never feed scratch grain as a complete feed for any type of poultry. A collection of cracked grains does not have a complete balance of the nutrients a chicken needs to live. Scratch grain should never be mixed with a complete formulated diet. Doing so dilutes the complete diet and causes an imbalance of nutrients, increasing energy while reducing the protein, vitamin, and mineral content. The two most common feeding mistakes backyard flock keepers make are 1) feeding the wrong feed and 2) not feeding enough of the right feed. Table 5 illustrates nutrition concentrations for various types of poultry.

Table 5. Typical nutrient concentration for various types of poultry[1].

	Protein (%)	Methionine (%)	Lysine (%)	Calcium (%)	Avail. Phos. (%)	Fat (%)	Fiber (%)
Broiler							
Starter 1-3 weeks	22	0.50	1.3	0.95	0.45	5.0	2.5
Grower 4-6 weeks	20	0.45	1.15	0.9	0.40	5.5	2.5
Finisher 7+ weeks	18	0.35	0.95	0.85	0.35	6.0	2.5
Pullet							
Starter 1-6 weeks	20	0.45	1.10	1.00	0.45	4.0	3.0
Grower 7-18 weeks	17	0.35	0.80	0.95	0.40	4.0	3.0
Laying Hen							
In production 18+ weeks	16-18	0.35-0.45	0.75-0.85	3.50-4.50	0.35-0.50	4.0	3.0-4.0

[1]Adapted from Fowler (2022).

Part of understanding nutrition is realizing that no single feed ingredient is the perfect food source. In addition, no animal is capable of producing every one of the specific chemical compounds necessary for optimum performance and survival. However, there are a vast array of nutrients that can be used by chickens and other livestock as feed ingredients, many of which are not used and do not compete with human nutrition. A variety of co-products such as oilseed meals, dried distiller's grains with solubles (DDGS), bakery waste, as well as animal agriculture co-products like meat and bone meal, blood meal, and feather meal all have nutritional value for livestock but are not consumed by humans. Chickens and other livestock can take these co-products and convert them into high quality meat and nutritious eggs. Again, however, no single ingredient is the perfect food source, so it is important to take into account the limitations in using these numerous co-products.

10. Know that chickens may carry *Salmonella*

Backyard poultry may carry Salmonella pathogens even though they are not sick and they appear healthy and clean. These pathogens can easily spread directly (e.g. contaminated feed or water, etc.) or indirectly (e.g., humans, rodents, wild birds, etc.) to anything in the areas where the poultry live and roam. Therefore, do not bring chickens into your home, even if you consider them as pets. Chickens are farm animals and belong outside with the cows and the hogs, not in the house with the cats and the dogs. Salmonella outbreaks occur annually in the U.S. and the country is currently dealing with one in 2024 that has been linked to backyard poultry (CDC, 2024). You can get sick from touching your backyard poultry or anything in their environment and then touching your mouth or food and swallowing Salmonella germs. Below are several practices the CDC recommends that backyard flock owners should do (and not do) to keep themselves safe.

- DO NOT kiss or snuggle backyard poultry.
- DO NOT eat or drink anything around your birds.
- DO NOT bring backyard poultry inside the house, particularly the kitchen.
- DO NOT allow poultry access to areas where food/drink are located.
- DO NOT touch your mouth after handling your birds.
- DO NOT bring baby chicks, poults, ducklings, or other backyard poultry to schools, childcare centers, or nursing homes.
- Always wash your hands with soap and warm water immediately after handling backyard poultry or anything in the immediate area.
- Adults should supervise activities and handwashing of children.
- Be cautious if allowing children younger than five to touch backyard poultry. These individuals are more likely to unknowingly put their hands in their mouths before Mom or Dad or Grandma or Grandpa have a chance to wash their hands for them.
- Keep hand sanitizer near the coop and use it.
- Be aware that children younger than five, adults older than 65, and people with weakened immune systems are at a greater risk for serious illness from diseases spread between chickens and people.
- Clean poultry equipment and supplies regularly (coops, cages, feed/water containers, tools, or anything used to care for poultry).
- Handle eggs carefully:
    - Collect eggs often (eggs left in the nest for long periods become dirty/cracked).
    - Throw cracked eggs away (germs easily enter through a cracked shell).
    - Don't wash eggs in cold water (which can pull germs into the egg through pores in the shell). Water needs to be at least 10 degrees warmer than the egg (at least 90 degrees but no more than 120 degrees).
    - Refrigerate eggs to keep them fresh and slow the growth of germs.
    - Cook eggs until the yolk and white are firm. Egg dishes need to reach an internal temperature of 160-165 °F to kill germs.

Chickens can be a wonderful thing to have, especially when everyone stays healthy. Commonsense practices can make staying healthy a reality.

Summary

Backyard chickens can be a fun, rewarding, educational, and enjoyable experience for you and your family. However, it's not fun and games all the time. Your flock, whether it is four birds or 400, depends on you for its survival and protection. That task comes with a lot of responsibility on your part, not to mention the time and money that backyard chickens require. Plan out long-term goals and have a vision of where you want to be with your backyard flock a year from now or even five years from now. Do this before you get your first chicken and consider all the aspects involved. Recognize that feed will be your biggest expense. Make sure you are providing adequate clean, quality water and enough of a complete balanced diet for your flock's stage of production. A few treats are fine, if done in moderation, and only after your birds have consumed their daily balanced diet.

You must also provide housing and predator protection. Accept the fact that, despite your best efforts, you may likely lose some birds to predators but do all you can to protect your flock and keep predator losses to a minimum. Maintain a strong biosecurity program to keep your flock disease free. Recognize the importance of isolation, traffic control, and sanitation in keeping your flock safe from disease. Chickens kept for egg production may live for several years but their egg numbers will start to fall off after two to three years and you will have to decide whether to keep or replace the flock after this time. Meat birds may be kept only six to ten weeks until the expected harvest weight is reached and the birds are processed. County Extension personnel can help you determine if raising backyard chickens is a good fit for you and your family. If you live in Tennessee, your local county Extension agent also can put you in touch with Extension poultry specialists at the University of Tennessee and Tennessee State University who can help you make informed decisions regarding the raising of backyard chickens.

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