


Feeding Chickens for Egg Production

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The simplest way to feed a small flock of chickens is to purchase a complete feed from a feed store. Complete feeds provide nutritionally balanced diets for chickens.

Today's chickens are descendants of the jungle fowl of Southeast Asia. Mature jungle fowl hens lay about 12 eggs per year, and only during the breeding season, but genetic selection has resulted in the development of a chicken that can lay almost 300 eggs per year and can lay year round. As a result of genetic selection and improved nutrition, hens start laying at a younger age and lay more, larger eggs, all with increased feed efficiency.

Commercial feeds from a reliable feed store have all the nutrients in the right proportions that chickens need. A balanced diet is necessary for optimal growth and production. 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. The ingredients used in different types of feed are similar, but the proportions vary depending on the particular chickens being fed. Each bag of feed is labeled with its specific use.

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

A chicken's daily consumption of feed depends on the composition of the diet. 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.

Supplements

Scratch Grains

Chickens are compelled to scratch at the ground. They use their toes to mix up litter or scrape the ground in search of various seeds, greens, grit, or insects to eat. Spreading **scratch grains** (cracked, rolled, or whole grains such as corn, barley, oats, or wheat) encourages this behavior. Scratch grains are relatively low in protein and high in energy or fiber, depending on which grain is used. When scratch grains are fed with complete feeds, they dilute the nutrition levels in the carefully formulated diets. Scratch grains are like french fries—chickens that eat too many scratch grains have less of an

appetite for more nutritious feed. If you are using scratch grains, feed them to chickens in the afternoon after birds have eaten complete feed, and then provide only as much scratch grains as chickens can finish in 15 to 20 minutes.

When feeding scratch grains to chickens, it is also important to provide grit to help the chickens grind and digest the grains properly (since chickens do not have teeth). If chickens have access to the ground, they can typically find enough grit in the form of small rocks or pebbles, but it is helpful to supply commercial grit, which is available in chick or hen size. Fine gravel is an acceptable substitute for commercial grit. Oyster shell should not be used as grit since it is too soft and does not aid in grinding. In addition, growing chickens have a lower calcium requirement, and too much calcium can adversely affect their kidneys.

Grit should also be provided to pasture-raised chickens. Grit is important for breaking down the grass chickens consume. Refer to the article on the [avian digestive tract](#) for more information.

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.

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.

Medicated Feeds

Medicated poultry feeds, which typically contain a coccidiostat and/or an antibiotic, are available. 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 raised for replacement 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 are not typically fed to laying hens. Examples of coccidiostats added to poultry diets include monensin, lasalocid, amprolium, and salinomycin. Examples of antibiotics added to feed include bacitracin, chlortetracycline, and oxytetracycline. Be sure to check the feed label for any warnings concerning the medication used in the feeds. Monensin, for example, can be toxic to horses.

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.

Replacement Pullets

The manner in which a pullet is raised to sexual maturity will have a lasting effect on the productive life of the hen. Pullets are grown to reach a certain body weight at a specific age. Many of the problems that occur in a laying flock can be traced back to insufficient body weight during the growing period.

Commercially raised pullets receive three diets during the growing phase: **starter**, **grower**, and **developer**. Most feed stores sell only one or two types of feeds for raising replacement pullets.

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.

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.

Molting

Each year chickens molt (lose older feathers) and grow new ones. Hens typically stop egg production until after the molt is completed. There is considerable variability in the timing and duration of a molt. "Late molters" lay for 12 to 14 months before molting, whereas "early molters" can begin to

molt after only a few months in production. Early molters drop only a few feathers at a time and can take up to six months to complete the molt. Late molters shed feathers more quickly, over two to three months. With late molters, the loss of feathers and their replacement take place at the same time. This enables hens to return to full production sooner.

There are many physiological changes in a chicken during the nonproductive molting period. There is a significant loss of body weight, 25% of which is due to the regression of the reproductive tract to the pullet state. The remainder of the weight loss is attributed to loss of body fat, feathers, liver tissues, musculature, and skeleton. The regression of the reproductive tract plays a significant role in the improvement of egg quality in the second production cycle: egg production levels, shell thickness, and egg quality improve after a molt.

In past practices, a producer would induce a molt in a flock by removing feed. Some refer to this practice as fasting, but because of the perception that feed removal is equivalent to starving the chickens, many countries now prohibit fasting as a means of initiating a molt. In the 1960s, researchers studied "low nutrient" molt diets. The diets were meant to be full-fed, but the reduction of dietary protein, calcium, or other critical nutrients reduced egg production to less than 5% and induced a molt. After the molt, the improvements to egg production appeared to be comparable to those of chickens induced to molt through fasting.

Possible methods for inducing a rest without withholding feed include feeding wheat middlings, a diet that combines wheat middlings and corn, a corn-gluten feed, soy hulls, or alfalfa. The postmolt production levels achieved when using these alternative feeds is lower than those achieved after inducing a molt through feed withdrawal, but they are nonetheless acceptable. Any molting procedure should cause the entire flock to rapidly go out of production, keep the flock out of production until it has had an adequate rest period, and rapidly bring the flock back into production after the rest.

For More Information

[How to feed your laying and breed flock.](#) James Hermes, Oregon State University.

[Feeding chickens.](#) University of California.

[Principles of feeding small flocks of chickens at home.](#) David Frame, Utah State University.

[Molting of laying hens.](#) Mississippi State University.

[Flock-friendly molting methods - a progress report.](#) Don Bell, University of California–Davis.

[Non feed withdrawal programs for laying hen molt.](#) Ken Koelkebeck, Patrick Biggs, and Carl Parsons, University of Illinois.