

Raising Chickens for Egg Production

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If you plan to start or have started raising chickens for egg production, you need to understand flock production capabilities. You need to know how to gauge the number of eggs your flock can produce and be aware of the variables that affect egg production. You should be able to identify which hens are laying and determine why your hens are not laying. By having a firm grasp of these factors, you will help ensure the success of your flock.

Production Expectations and Variables Affecting Production

A hen can lay only one egg in a day and will have some days when it does not lay an egg at all. The reasons for this laying schedule relate to the hen reproductive system. A hen's body begins forming an egg shortly after the previous egg is laid, and it takes 26 hours for an egg to form fully. So a hen will lay later and later each day. Because a hen's reproductive system is sensitive to light exposure, eventually the hen will lay too late in a day for its body to begin forming a new egg. The hen will then skip a day or more before laying again. See the related article discussing the [reproductive tract of a chicken](#) for more information on the specifics of egg production.

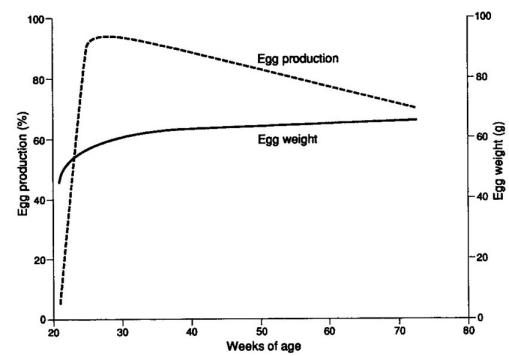
Also, hens in a flock do not all begin to lay on exactly the same day, nor do they continue laying for the same length of time. Figure 1 shows a typical egg production curve for a flock. The flock comes into production quickly, peaks, and then slowly reduces the level of production.

Fig. 1. Typical egg production and egg weight values for egg-laying flocks.

The length of time that a flock will produce eggs varies as well. Many home flocks produce eggs on and off for three to four years. Each year, the level of egg production is lower than the previous year. Also, egg size increases and shell quality decreases each year.

Both the number of eggs you can get from a flock and the number of years a flock will produce eggs depend on several variables, including the following factors:

- breed
- management of pullets prior to lay
- light management
- nutrition
- space allowances



Breed

Some commercial breeds of chickens have been developed specifically for egg production. The commercial White Leghorn is used in large egg production complexes, but these birds typically do not produce well in home flocks. They are simply too flighty. Moreover, they lay white-shelled eggs. People purchasing eggs from small flocks often prefer to buy brown-shelled eggs, even though no nutritional differences exist between brown-shelled eggs and white-shelled eggs.

Breeding companies also have developed commercial layers for brown-shelled egg production, with some bred specifically for pasture poultry production. In addition, many hatcheries sell what are called sex-link crosses. These specific crosses allow the hatchery to sex the chicks at hatch based on feather color. As a result, the number of sexing errors is reduced, so you are less likely to get an unwanted rooster.

Some people like having a flock composed of different breeds. Such a flock can produce eggs having a selection of shell colors. Many dual-purpose breeds, such as Plymouth Rocks and Rhode Island Reds, lay eggs with light brown shells. Maran hens lay eggs with dark, chocolate-colored shells, which have become popular lately. The Araucana is a South American breed that has feather tufts around the face and no tail and lays eggs having light blue shells. By crossing Araucanas with other breeds, breeders have produced "Easter Egger" hens that lay eggs with light blue, green, or pink shells. The chickens produced from these crosses have beards and muffs rather than the tufts seen on Araucanas, and they have tails. If bred to the purebred standards, such a cross will result in an Ameraucana, which lays eggs having blue-green shells.

Obviously, you can choose from several breeds. When making your decision about which breed or breeds to raise, keep in mind that commercial-type hens may give you a higher level of production initially, but other breeds tend to lay for more years. For additional assistance in deciding which breed to choose, see the related article on [which chicken breed is best for a small or backyard flock](#).

Pullet Management

It is important to manage pullets correctly, especially in the areas of nutrition and light management, because correct management will affect the level and quality of egg production once the birds start to lay. If the pullets come into production too early, they may have problems with [prolapse](#), which can cause health problems across the flock. Also, the hens may lay smaller eggs throughout the production cycle.

When raising pullets from day-old chicks, brood the chicks as you would any other type of chick. See the related article on [brooding poultry hatchlings](#) for information about basic care of chicks. For future laying flocks, keep in mind that light management is important from brooding through all laying periods.

If you purchase pullets ready-to-lay, you should ask how the pullets were raised with regard to nutrition and light management so that you can adjust your subsequent management of the flock accordingly. For example, you may have to delay light stimulation if the hens are too small.

Light Management for Year-Round Production

Chickens are called long-season breeders, meaning that they come into production as days become longer. That is, they start producing eggs when there are more hours of light per day. Typically, day-old chicks are kept on 23 to 24 hours of light per day for the first few days to make sure that they are able to find food and water, especially water. After that time period, you should reduce the number of hours of light per day. If you are raising the birds indoors, you can give them just 8 hours of light per day. If you are exposing them to outdoor conditions, you are limited by the number of hours of light per day in your area, of course. When the pullets are ready to start laying, slowly increase the light exposure until they are exposed to about 14 hours of light per day. This exposure should stimulate the flock to come into lay. To keep the flock in lay year-round, you will need to maintain a schedule of at least 14 hours of light per day. You can increase the amount of light slowly to 16 hours per day late in the egg production cycle to help keep the flock in production. For most flock owners, this strategy involves providing supplemental lighting. Using a light with a stop/start timer, you can cause the light to come on early in the morning before sunrise and in the evening before sunset to ensure that the length of light exposure for the flock totals 14 to 16 hours. Also, you can get a light sensor so that the light bulb does not come on when natural daylight is available. By using such a device, you minimize your electricity use. The supplemental light you provide does not have to be overly bright. A typical 60-watt incandescent light bulb works fine for a small laying flock. For a discussion of other light choices, watch the recording of the webinar [Lighting for Small and Backyard Flocks](#) by Dr. Michael Darre from the University of Connecticut.

Nutrition

Chickens of any type and age require a complete, balanced diet. Feed mills assemble the available ingredients in combinations that provide all the nutrients needed by a flock in one package. Some producers mix complete feeds with cheaper scratch grains, but doing so dilutes the levels of nutrients the chickens are receiving, and nutrient deficiencies can occur. Nutrient deficiencies can adversely affect the growth of pullets and the level of production of hens.

It is also important to feed the specific feed tailored for the type and age of the chickens you have. For example, do not feed a "meat-maker" type diet to growing pullets or laying hens as it will not meet their nutritional needs. Likewise, do not feed a layer diet to growing chickens. The diet of a laying hen is high in calcium, which is needed for the production of eggshells. This level of calcium, however, is harmful to nonlaying chickens.

Some hens have a higher need for calcium than others. It is always good to have an additional source of calcium available. Oystershell, usually available in feedstores, is an excellent calcium supplement for a laying flock.

For more information, read the related article on [feeding chickens for egg production](#).

Space Allowances

To produce effectively, laying hens must have adequate space. The amount of floor space required by a flock depends on the size of the chickens (which is related to the breed of chicken chosen) and the type of housing used. A minimum of 1.5 square feet per hen is recommended, with 2 square feet per hen being the most commonly used space allowance. Larger allowances are required for some of the larger breeds.

To make use of the entire housing facility, you can incorporate perches. The hens will sleep on the perches at night, keeping them off the floor. The use of perches also helps concentrate much of the manure in a single location for easier cleaning of the poultry house. Moreover, chickens have a desire to perch, so providing for this behavior contributes to animal welfare. For more information, read the related article on [perches](#).

If you provide outdoor space for your chickens, the amount of outdoor space needed depends on the quality of the space. If your goal is to maintain a pasture, you will require more area than you would need if simply providing outdoor access for a small backyard flock. An allowance of 2 square feet per hen typically is recommended for simple outdoor access. If you do provide your flock with outdoor access, be aware of predator possibilities from both the ground and the air, and provide the hens with the protection they require.

Identification of Laying Hens

To determine which of your hens are laying, it is important to know more about the type of hens you have. For many breeds, hens that are laying eggs have large, bright red combs and wattles. For other breeds, the combs and wattles are normal color during the laying period but fade after the laying period. For hens with yellow pigment in the skin, such as Rhode Island Reds and Plymouth Rocks, the level of pigmentation is a good indication of where the hens are in the production cycle. Hens lose the yellow pigment in a specific order. The color fades first from the vent; then the face (beak, eye ring, and earlobe); and then the feet (shanks, toes, and hock). An additional method for identifying laying hens involves evaluating the level of fat in the abdomen and the abdominal capacity as measured by the distances between the pubic bones (abdominal width) and between the pubic bones and the tip of the keel, or breast bone (abdominal depth). The lower the level of fat and the larger the abdominal capacity, the more likely the hen is to be laying.

Reasons Hens Stop Laying

any factors can affect egg production, with health (before and after lay) being one of the most significant. If your hens stop laying, you may be able to identify the source of the problem by asking the following questions:

- **Have the hens been laying for 10 months or more?** Your hens may just be at the end of their laying cycle. If so, they will stop production, go through a molt (loss of feathers), take a break, and start laying again. If your hens have been laying for less than 10 months, something else may be causing their lack of production.
- **Are the hens receiving enough fresh, clean water?** The hens will not eat if they cannot drink, so make sure that your watering system is functioning correctly. Keeping a watering system operational can be a challenge in the winter when the water may freeze. You can purchase waterers that have heaters attached to keep the water from freezing. Otherwise, you will have to break up any frozen water on a regular basis. Problems can occur in summer as well. Summertime high temperatures can make the water so warm that the chickens will not drink

enough to meet their increased needs. For more information, refer to the related article on the [water requirements of poultry](#).

- **Are the hens eating enough of the right feed?** Feeding the wrong feed, diluting feed with scratch grains, or limiting the amount of feed available can result in your hens having a nutritional deficiency, causing them to molt and go out of production. When hens have a nutritional deficiency, it is common to see feather pecking as well as a loss of egg production.
- **Are the hens getting enough hours of light per day?** Decreases in the number of hours of light per day typically will put a flock out of production. For this reason, many flocks that are not provided with supplemental light go out of production during the fall and winter months.
- **Do the hens have parasites?** Various [internal parasites](#) and [external parasites](#) can infest poultry flocks and stress the hens. Heavy infestations of internal parasites can result in serious damage to the digestive tract and reduce hen performance. Heavy infestations of mites can cause anemia in the hens, also adversely affecting their performance.
- **Did any issues with eggshell quality precede the stop in egg production?** Several [diseases](#) can result in abnormal eggshells.
- **Have there been any health issues within the flock?** A flock that has been sick will not perform as well as a flock that has not gone through a [disease](#) challenge.

For More Information

[Factors affecting egg production in backyard chicken flocks.](#) J.P. Jacob, H.R. Wilson, R.D. Miles, G.D. Butcher, and F.B. Mather, University of Florida

[How much will my chickens eat?](#) Jacquie Jacob and Tony Pescatore, University of Kentucky

[Keeping garden chickens in North Carolina.](#) Anne Edwards and Donna Carver, North Carolina State University

[Managing a family chicken flock.](#) Jesse Lyons, University of Missouri-Columbia

[Proper light management for your home laying flock.](#) Chad Zadina and Sheila Scheideler, University of Nebraska