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Inside this issue:

<i>Egg Size & Grade</i>	1
<i>Lighting Programs for Your Egg Producing Flock</i>	2
<i>Factors that Affect Flock Egg Production</i>	3
<i>Molting in Chickens</i>	4
<i>Contact Information</i>	4

Feathered Facts

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Egg Size & Grade



In the United States and many other countries, commercial table eggs are marketed to the consumer based upon egg size and grade. Many people automatically link these two factors, such as “Grade A Large”, when talking about eggs because that is the way that they are used to seeing them marketed. However, the size and the grade are independent factors when it comes to quality and quantity and one characteristic does not determine the other. In the United States, most eggs that are purchased in a retail grocery store are marked with a seal from the USDA. This means that the eggs in that carton were graded according to USDA Standards for Grading. All eggs that are sold at retail must be Grade B or higher, but it is unlikely that you will ever come across Grade B eggs at your local grocer. It is important to note that although the quality characteristics of Grade AA, A, and B eggs may differ, the nutritional quality does not. Eggs that are sold at open air markets, farmer’s markets, and direct sales to consumers will most likely have not been graded. After the eggs have been graded, they are sorted by size, or weight per dozen. The weights range from 18 oz. per dozen at the Peewee size all the way up to 30 oz. per dozen at the Jumbo size. Even though you could package eggs of greatly varying sizes and still meet the weight requirements, it is much easier to pack very similar sizes together so that the consumer buys a uniform product. It is also important to note that although you can use any size egg for individual use (frying, scrambling, etc.) most recipes that use eggs are based on the use of large eggs. It will take a different number of eggs for the recipe if you are using a size other than large. For example, if your recipe calls for the use of 4 large eggs, you would need to substitute 3 jumbo eggs or 5 small eggs. If you know the information on the table at the right, you can also price compare between egg sizes, based on the price per pound (price × 16 ÷ oz. per dozen). For example, if you have medium eggs that are priced at \$2.50 per dozen and extra large eggs priced at \$3.00 per dozen, which is the best price? For the medium eggs the equation is $\$2.50 \times 16 \div 21$, which is \$1.90 per pound. For the extra large eggs the equation is $\$3.00 \times 16 \div 27$, which is \$1.78 per pound. So, at these prices, extra large eggs are the better value.

Egg Size	Oz. per Doz.
Jumbo	30
Extra Large	27
Large	24
Medium	21
Small	18
Peewee	15

Lighting Programs for Your Egg Producing Flock

After nutrition, probably the most important aspect for the laying flock is light. Poultry, including chickens, respond to light for many factors, including growth and reproduction. Like other animals, chickens use light in the eyes for vision, but they also have extra-retinal photoreceptors that respond to light.

Reproduction in avian species, including chickens, is stimulated by increasing day length. Most hens will require a light period of around 14 hours to stimulate and stay in top production. Like other avian species, chickens naturally want to lay and hatch eggs in the spring and then rear the young to a certain age before cool weather sets in. Because the seasons correspond to changes in day length, owners of domesticated chickens can manipulate this natural process so that hens will be in high production year-round instead of decreasing or ceasing production during the cool months.

Light is part of the electromagnetic spectrum and can be categorized according to three different attributes: 1) wavelength, 2) intensity, and 3) duration.

The wavelength of light is often referred to as the color of light. Shorter wavelengths of light are in the blue and violet range, while longer wavelengths are in the orange and red range. Studies have indicated that, in general, blue light tends to calm birds, orange-red light tends to stimulate reproduction, and blue-green light tends to stimulate growth. This is important when choosing the type of light bulb that you will use for your lighting program as one way that light bulbs are rated is by their chromaticity, i.e. the warmth or coolness of the emitted light. Chromaticity is expressed in degrees

Kelvin. Cool lights (those that emit mostly blue light) have a chromaticity of 4000K and higher, while warm lights (those with mostly red light) are rated at 3000K and lower.

Intensity is another characteristic to consider if you are lighting your flock. There needs to be enough light to stimulate the sensors in the eye and brain. However, light that is too intense can cause cannibalism, flightiness, and stress. In general, a bulb that is 800 to 1000 lumens (60-watt equivalent) is sufficient for each 100 to 200 ft² of floor space. Make sure to position the light so that it casts as few shadows as possible and use multiple lights, if necessary. Dust and debris can decrease the intensity of a bulb, so keep them clean. Compact fluorescent bulbs will require a bit of heat up time to reach full intensity.

Finally, the light needs to be present in the correct duration. Since hens need approximately 14 hours of light each day, you should use a timer to increase the light cycle depending on the amount of available natural light. Many people will add the extra light in the mornings as turning off the lights suddenly after dark can stress some flocks. However, this may cause issues with crowing if you have roosters in your flock. It is also recommended to increase the duration of light gradually and only after hens have reached at least 16 weeks of age. Birds that are on lighting programs will typically need additional light for 6 to 8 months of the year in Florida. Should you wish to place your flock on a lighting program, please consult with someone who is knowledgeable about the practice as to not cause issues in your flock.

Additional information about lighting can be found [here](#).



The incandescent light bulb has been used for many years as a light source. Although not expressly invented by Thomas Edison, the light bulb was further advanced by his research. For additional information, click [here](#).



The compact fluorescent bulb has become the new standard of light bulbs as incandescent bulbs are phased out. Compact fluorescent bulbs use 1/5 to 1/3 of the power of a comparable incandescent and last eight to fifteen times longer. For more information, please click [here](#).

Factors that Affect Flock Egg Production

Most hens will begin laying eggs when they are between 18 and 22 weeks of age. In general, hens will lay for 9 to 12 months before ceasing production and going through a molt. This molting process is good for the hen, as it allows her body to recuperate from the stress of laying eggs for a long period of time. More information on molting can be found on page 4 of this newsletter. Peak production in laying hens occurs around 30 weeks of age and gradually declines over the course of the laying cycle. Subsequent laying cycles will be less productive than the cycle between 30 and 80 weeks. However, sudden drops in egg production in the flock can cause alarm for the grower. These sudden decreases can be attributed to one of many differing causes. The following list outlines the major causes of drops in egg production from an otherwise normal flock.

Aging Hens or Molt—Hens will naturally decrease production over time. They will resume egg production after a molt, but will never reach peak production numbers. Molting in a flock (see page 4) will cause a sudden drop in egg production.

Improper Nutrition—Laying hens require a completely balanced ration for maximum egg production. Imbalancing the ration with scratch, table scraps, or other items may cause drops in production. Incorrect levels of salt, calcium, vitamin D, protein, or fat in the diet can cause issues with laying efficiency.

Toxicosis—A toxicosis refers to a toxic level of some molecule within the animal. There are many ingredients in a bird's diet that can cause a toxicosis if they are fed in excessive levels. Feeding a balanced ration should eliminate this issue. Other toxins that

can cause issues with egg production include: mycotoxins (toxins from molds), botulism, and plant toxins from croton, nightshade, and ornamentals.

Management Issues—Birds that run out of feed or water for more than a few hours will most likely see a drop in production. In warmer months, this is even more critical. Adequate water and ventilation are essential during these times.

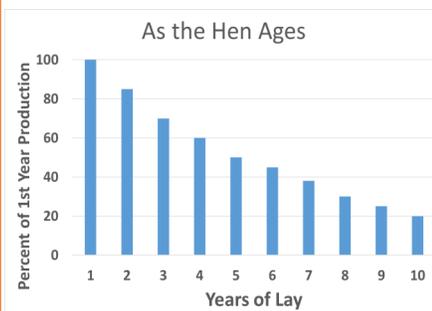
Short Day Length—Most hens will need around 14 hours of light each day to sustain maximum production. Many birds will decrease or even stop production during months with short day length.

External Parasites—A large infestation of external parasites will cause a drop in production. Common external parasites include: Northern Fowl Mite, lice, and fleas (sticktight or orher).

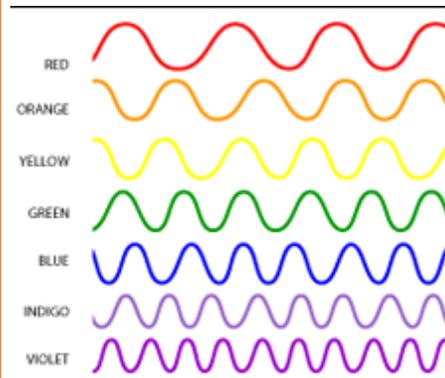
Internal Parasites—Like external parasites, internal parasites can also cause a sharp drop in production. Roundworms (nematodes) and tapeworms are two of the most common internal parasites in flocks.

Disease—Most diseases, even those that are not severe, will cause a decrease in production from your laying flock. Make sure to keep an eye on your flock for signs and symptoms of disease and consult with your veterinarian or poultry professional if you suspect disease. Also keep in mind that there are currently only 3 FDA antibiotics approved for use in laying hens.

Others—Additional problems that may cause an apparent drop in egg production by the flock include: 1) predation of eggs by snakes and other animals, 2) egg eating by hens in the flock, and 3) hiding of eggs by hens.



Production of eggs decrease over time as the hens ages. The first year of production (from week 30 to week 80) is the peak production year. The production rate will decrease as the hen ages and may be impacted by additional issues. Molting of the hen will help to 'reset' her system allowing for increased longevity in production.



Representation of the differences in wavelength of visible light. Wavelength decreases from red to violet. Please note that wavelengths depicted are not to scale. Additional information about light and its properties can be found [here](#).

Molting in Chickens

Have you noticed that some of your chickens are losing their feathers? Have your hens decreased their egg production or stopped laying entirely? If so, the most likely cause is that your hens are going through a molt.

Molting in chickens is defined as the shedding or loss of old feathers to make way for new growth. Molting is normal in chickens and other birds and can occur in both males and females. Wild birds will typically shed older feathers before the cold weather season or before migration. This seasonal molting in wild birds is not associated with reproduction or egg laying.

The domesticated chickens that we have today have been bred over time to produce more eggs than their wild counterparts. Because of this, there is a link between egg production and molting in the domesticated chicken. Hens that are kept on natural day length (no additional light beyond natural sunlight) will typically molt after they have been in production for 9 to 12 months. It can take up to 4 months for the molting cycle to be complete and you may notice a decrease in egg production during this time.

Molting is controlled by the reproductive organs (ovaries or testes) and the thyroid gland. In hens, a decrease in estrogen will be the main cause of a molt. It is because this decrease in estrogen also affects the reproductive system as a whole that we see a decrease in egg production during the molt. Even though the molt is controlled by gonadal and thyroid hormone production, it is usually an external factor that initiates the decrease in estrogen, thus resulting in the molt. This external factor is most often decreasing day length, although there are other inducers such as stress, feed and water shortages, disease, and cold temperatures.

Molting is frequently used in commercial egg production. As hens age, egg quality and production rate naturally decrease. Molting is used as a “reset” for these hens allowing the reproductive system to rest and recuperate from high production levels. Hens that have experienced a molt will not lay at the peak production level, but they will produce at 85% to 90% of their previous production rate.

Remember that molting is a natural process that is usually brought on by decreasing day length. Not all hens will respond in the same manner to decreasing day length, including a full or partial molt. However, many will. If you have additional questions about the molting process, please consult a poultry professional or visit [here](#).

Incandescent Bulb Wattage	Equivalent Lumens
40	450
60	800
75	1,100
100	1,600
150	2,600

The brightness, or intensity of an object that emits light is measured in lumens. Older, incandescent bulbs typically used wattage for this measurement. The table above gives the equivalent lumens for comparison to wattage. For additional information about this subject, click [here](#).

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