

## CHICKEN FACTS AND FABLES

Those of you who enjoy raising chickens as a hobby do not need me to tell you how interesting these animals are. You have the pleasure of observing them in action every day. It is difficult for me to understand why chickens never seem to get the credit they are due. To quote the Reverend Edmund Saul Dixon, nineteenth century author of one of the first published books (1849) on the management of poultry, "poultry has been too much undervalued as a means of study and a field of observation. Insignificant, and, to us, valueless wild animals brought from a distance, about whose history and habits we can learn little or nothing, are received with respectful attention by men of education and ability, are embalmed in spirits, treasured in museums, and portrayed by artists; but a class of creatures inferior to few on the face of the earth in beauty – useful, companionable, of great value in an economical point of view – are disregarded and disdained."

This installment of the "Backyard Poultry Tip" is a compilation of several facts and fables about chickens that might be of interest to you.

1. The domestic chicken is believed to have descended from one or more species of Jungle Fowl (Red, Grey, Java and Ceylon Jungle Fowl) native to southeast Asia. The chicken is thought to have been first domesticated in India, Burma (Thailand) and/or Malaysia around 3000 BC.
2. When the Persians conquered India in the fourth century BC, they were impressed with the domestic chickens they observed there and developed an interest in poultry for food and sport. Subsequently, the Persians introduced the chicken to Greece and Egypt. Romans became acquainted with the chicken through their relationship with Greece.
3. The Roman Empire was completely enamored with the chicken. Every Roman army had its own flock that accompanied it wherever it marched. These flocks, oddly enough, were used to help commanders decide whether to attack their foes. Supposedly, grain was thrown out to the flock early in the morning before the battle was to begin. If the chickens ate the grain hungrily, that was taken as a sign that the battle would have a favorable outcome for the Romans. If the chickens were unenthusiastic about consuming the grain, the Romans took that as a sign that the outcome of the battle would not go their way. Considering the Romans' legendary success in battle, the chickens must have been hungry more times than not. As the Romans conquered Europe, chickens were taken along for the ride and deposited from one end of the continent to the other.
4. The 1800's were the century of the chicken. In 1834, the port of Canton in China was opened, beginning an era of trade between China and Great Britain. Young Queen Victoria, still a teenager, took interest in a trio of Cochin chickens that she had received as a gift from China. When the young Queen's birds were put on exhibition, tens of thousands of spectators came to see these magnificent birds that were hyped to be "as big as ostriches, roared like lions, were gentle as lambs, and enjoyed petting like cats." Suddenly, ornamental chickens became a mania, spreading to the U.S. soon after. The phenomenal interest in chickens became known as "hen fever" and thousands upon thousands of ordinary people began breeding and raising "fancy chickens."
5. Edmund Saul Dixon's statement regarding the scientific study of poultry in the 1800's could not be farther from the truth today. The chicken has made great contributions to science and medicine. The nutritional importance of a number of vitamins and minerals was first discovered in experiments with chickens. In fact, more is known about the nutritional requirements of chickens than any other animal including humans. The basis of Louis Pasteur's discovery of the vaccine for small pox came from his previous experiments attempting to find a cure for fowl cholera. The chicken has been a great model for scientific research in genetics, embryology, immunology, nutrition and endocrinology.

So next time you are out admiring your flock, remember what significant contributions chickens have made to mankind in the field of science, as a food source, and in providing an enjoyable hobby. Certainly the chicken is "a class of creatures inferior to few ... in beauty - useful, companionable, of great value."

Source: *The Chicken Book* by P. Smith and C. Daniel. North Point Press, San Francisco, 1982.  
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## EGG POSITION AND TURNING DURING INCUBATION

Frequent turning and egg orientation are important during the first 14 days of incubation. Eggs incubated artificially should be held with their large ends up. It is natural for the head of the chick to develop in the large end of the egg near the air cell. The developing embryo will then orient itself so that the head is uppermost. This rotation occurs during the second week of incubation. When eggs are incubated with the small end up, about 60% of the embryos develop with the head near the small end. Thus, when the chick is ready to hatch, its beak cannot break into the air cell to initiate pulmonary respiration. Nearly half of the eggs set with the small end up fail to hatch and the quality of the chicks that do hatch is reduced. The cause of eggs set small end up is generally carelessness or inability to distinguish the large and small ends due to symmetry of the eggs. Older hens lay a larger percentage of eggs that are relatively symmetrical between ends. Although most commercial incubators don't allow for this, eggs positioned horizontally will incubate and hatch normally as long as they are turned frequently.

### Turning Eggs During Incubation

In nature, the hen turns the eggs many times each day. For nearly all commercial incubators, the eggs are set large end up and rotated back and forth along their long axes for turning. Eggs should not be turned continuously in a circle; this ruptures the yolk sac resulting in embryonic mortality. Most eggs are turned to a position of 45° from vertical, then reversed in the opposite direction to 45° from vertical. One incubator turns them to a position of 90° from vertical, then reverses them to the opposite position. Less rotation than 45° is not adequate for high hatchability as Table 1 shows.

Interval of turning. During the first 14 days the eggs must be turned regularly and often. Table 2 shows the percent hatchability of eggs turned from two to ten times a day.

Although other experiments have shown that turning eggs as often as every 15 minutes is not detrimental to hatchability, nothing is to be gained by turning them more than six times a day when eggs are rotated back and forth along their long axes. Most commercial incubators provide for turning the egg automatically every 1 to 3 hours.

TABLE 1 Effect of angle of turning eggs during incubation.	
Angle Turned to Each Side of Vertical	Hatch of Fertile Eggs (%)
20°	69.3
30°	78.9
40°	84.6

TABLE 2. Effect of turning eggs on hatchability.	
Times Turned Daily	Hatch of Fertile Eggs (%)
2	78.1
4	85.3
6	92.0
8	92.2
10	92.1

Period of turning. Table 3 shows the effect of various periods of turning hatching eggs during incubation. The results indicate that turning the first week is the most important, and the second week next. Turning the last week seems to be of questionable value. In some models of multistage incubators, eggs of various ages are intermingled and all have to be turned together.

Important: The turning process should be completed quickly, allowing the eggs to remain stationary until the next turning. Hatchability is lowered when eggs are kept in a constant back-and-forth motion.

TABLE 3. Effect of turning hatching eggs at various periods.	
Period Turned During Incubation (days)	Hatch of Fertile Eggs (%)
no turning	28
1-7	78
1-14	95
1-18	92

Tables 1, 2, and 3 taken from: Mauldin, J. M., 1999. Chapter 8: Factors affecting hatchability. In Commercial Chicken Production Manual (to be published in 2000).

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