

(Excerpted from Poultry Q&A by J. B. Carey, A. L. Cartwright, M. B. Farnell and M. Davis, Extension Poultry Specialists, The Texas A&M University System)

## Biology/Behavior/Anatomy

### **Q: Why do chickens bob their heads back and forth?**

**A:** Chicken's eyes are located on the sides of the head, not facing the front like our eyes. This allows the chicken to see much more of the world at one time than we can see. They can almost see behind themselves. This helps them see predators and alerts them to danger. But their forward vision is incomplete; they have a blind spot in front of them. They also can't see an object with both eyes at once. They have trouble getting a three-dimensional view of objects so they reposition their heads to get the 3-D picture. That is why they bob their heads.

### **Q: At what age do chickens begin to lay eggs?**

**A:** If all necessary conditions (day length, nutrition, etc.) are met, chickens should begin egg production at about 20 weeks of age.

### **Q: What is the average life span of a chicken?**

**A:** Many commercial laying hens are kept for up to 3 years. There are undocumented accounts of "yard chickens" living for more than 10 years.

### **Q: From where do chickens originate?**

**A:** Chickens were domesticated from jungle fowl in Southeast Asia many centuries ago.

### **Q: What is the scientific name for chickens?**

**A:** The scientific name of the domestic chicken is *Gallus domesticus*. The scientific name for its predecessor, the jungle fowl, is *Gallus gallus*.

### **Q: How can you tell the sex of baby chicks?**

**A:** Sexing most chickens is difficult. In some lines there are genetic differences in color between the sexes. In some lines there are differences in feathers, with the primary feathers of the male being shorter than those of the female. But these genetic differences are rare and in most lines of chickens sex cannot be determined in this manner. Most chicks are sexed by examining the complex folding of the vent area (which roughly corresponds to the anal area). This method is extremely difficult and it takes lots of time and practice to acquire this skill.

### **Q: How can baby chicks survive without a mother hen?**

**A:** Newly hatched chicks have certain inborn behaviors. They are curious and they peck and scratch. In this way, newly hatched chicks learn what to eat.

### **Q: Why do hens stop laying eggs?**

**A:** Healthy hens stop laying for either of two reasons:  
1) They have been in production for a while and are entering a molt; or  
2) They are not stimulated appropriately by light. Hens lay when they receive the required hours of light (day length) each day.

### **Q: How do chickens reproduce?**

**A:** The male mounts the hen from behind and stands on her back. The penis transfers semen into the cloaca of the hen. The cloaca is a common receptacle for the intestinal tract, the reproductive system and the urinary system. Spermatozoa are stored in accessory sex organs in the female. There, the spermatozoa are nourished and released over several weeks. So, the rooster does not have to mate with the hen each time she is to lay an egg to produce fertile eggs. Hens remain highly fertile for about 10 days to 2 weeks after mating. Then they need to mate again to increase the fertility of the eggs laid. Hens ovulate about every 24 to 26 hours. The egg yolk has a germ cell on its surface. The spermatozoa fertilize this germ cell. Then the albumen, or white of the egg, is secreted around the yolk by the reproductive tract. Finally, the shell membranes and the shell are secreted and deposited as the egg travels down the reproductive tract. The egg is laid through the cloaca. This is the way fertile eggs are laid by the hen. The hen would still lay eggs if a rooster were not around, but the eggs would not be fertile.

### **Q: In random chicken matings, what percent of eggs produced result in male offspring?**

**A:** The sex ratio in chickens is 50:50.

## Incubation/Embryology

**Q: Which part of the egg develops into a baby chicken, the yolk or the white?**

**A:** Neither. In a fertilized egg there is a group of cells on the surface of the yolk in an area called the germinal disc. By the time the egg is laid by the hen, there are several hundred thousand cells in this disc. These cells develop into the embryo, which eventually surrounds the yolk and uses it for food.

**Q: Should fertile eggs with dirty shells be incubated?**

**A:** Dirt on an egg can restrict oxygen and gas exchange in the egg. A very fine sand paper can be used to remove soiled areas. The main problem is that the soiled area can cause bacterial infection. It is best to incubate only clean eggs.

**Q: Does incubation temperature influence the sex of hatching eggs?**

**A:** Incubation temperature has nothing to do with determining the sex of the bird. Altering the incubation temperature will only reduce the number of eggs that hatch and threaten the health of the birds.

**Q: Will incubation of double-yolked eggs result in “twin chickens”?**

**A:** Double-yolked eggs almost never hatch. Even though a double-yolked egg is larger, it cannot support the development of two chicks.

**Q: What is the purpose of turning eggs during incubation?**

**A:** The yolk is less dense than the white, so the yolk floats to the top of the egg. Turning repositions the yolk and white, keeping the yolk and the embryo from pressing against and possibly sticking to the inside of the eggshell.

**Q: What is the recommended environmental temperature for newly hatched, or brooding, chicks?**

**A:** The brooding box should contain a range of temperatures at all times. The area close to heat lamps should be 95 degrees F, but other areas away from the light should be cooler so the chicks can cool themselves if they get too hot. If the chicks huddle together by the light, they are too cold. If they huddle around the edges of the brooder away from the light, they are too hot. The temperature in the brooding box can be decreased 5 degrees each week as the chicks get older.

## Products/Food Safety

**Q: Why are some of the processed chickens purchased in stores yellow?**

**A:** The yellow color of chicken skin is the result of natural pigments found in corn or other feed ingredients in the diet of chickens.

**Q: What are “free range” chickens?**

**A:** Free range refers to chickens that have access to an environment outside a chicken house or sheltered area.

**Q: Why do chickens and turkeys have white and dark meat?**

**A:** Different muscles do different jobs for the bird. Muscles that are used almost constantly, such as leg and thigh muscles, are dark. Muscles that are used to move quickly for short periods of time, such as the wing muscles, are white. Because they work differently, white and dark muscles have different fuel demands and oxygen usage. The ability to store and use oxygen for energy metabolism determines whether a muscle will appear white or dark.

**Q: Do eggs from Araucana chickens really have no cholesterol?**

**A:** No, they have cholesterol just like all other eggs.

**Q: Is it safe to eat raw eggs?**

**A:** The risk of food poisoning from bacterial contamination is highest with raw eggs. To reduce the risk of food poisoning, people should not consume raw or lightly cooked eggs.

**Q: How long will table eggs stay fresh?**

**A:** Fresh eggs can be stored in a refrigerator (at 40 to 45 degrees F) for 4 to 5 weeks after the packaging date on the carton. Hard-boiled (cooked) eggs should be kept in the refrigerator for no more than 1 week.

**Q: What are blood spots?**

**A:** Although rare in packaged eggs, blood spots can sometimes be found when an egg is cracked. These spots are caused by the rupture of a blood vessel during the formation of the egg. Blood spots are most often found on the outer surface of the yolk. They do not indicate that an egg is fertile. After a period of time a blood spot will dissipate, so if you see a blood spot it means the egg is fresh. Eggs with blood spots are fine to consume. The blood spot can be removed with the tine of a fork or the tip of a knife. Another imperfection that can be found in an egg is a meat spot. Meat spots are usually found in the albumen (white) of the egg. Meat spots are pieces of the oviduct of the chicken that have become dislodged during the formation of the egg and have been deposited in the albumen. Eggs with meat spots are also safe to consume. The meat spots can be removed with the tine of a fork or the tip of a knife.

**Q: Is there a difference in the nutritional quality of brown-shelled and white-shelled eggs?**

**A:** No, there is no difference. The color of the eggshell is determined by the breed of hen that lays the egg. White egg layers have white feathers and ear lobes, while brown egg layers usually have darker feathers and always have red ear lobes. Hens that lay brown-shelled eggs are usually larger than hens that lay white-shelled eggs, and thus require more food. This is why brown eggs are typically more expensive than white eggs.

**Q: Are fertile eggs more nutritious than nonfertile eggs?**

**A:** No. Most table eggs that are bought at the grocery have no chance to be fertile anyway, because the hens are not housed with roosters.

**Q: How should I store my eggs at home?**

**A:** Even though most refrigerators have a place to store eggs, eggs should be stored in the carton in which they are purchased. This is because eggshells have thousands of tiny pores to allow gases to move in and out of the egg. Eggs not stored in the carton can pick up odors from other items in the refrigerator.

**Q: Why is there a greenish ring around the yolk of hard-boiled eggs?**

**A:** The greenish ring is caused by a combination of iron and sulfur when the egg is cooked too long or not cooled quickly after cooking. Such eggs are safe to eat.

**Q: What are the stringy pieces of white around the yolk?**

**A:** These strands are called chalazae. They are thickened pieces of the albumen (white) that help keep the yolk centered in the egg. They do not indicate fertility and are a natural part of the egg.

**Q: Why is the albumen (white) sometimes cloudy or greenish or yellowish in color?**

**A:** Cloudiness is caused by carbon dioxide in the albumen that has not had time to escape through the pores in the eggshell. There is nothing wrong with these eggs, and the cloudiness indicates that the egg is very fresh. A slight green or yellow color to the albumen of fresh eggs indicates the presence of riboflavin (Vitamin B2). These eggs are safe to consume.

**Q: Can avian influenza be transmitted to humans by eating properly cooked poultry?**

**A:** No, avian influenza is caused by a heat sensitive virus that is easily killed by proper cooking (heating to an internal temperature of 180 degrees F). Commercially reared poultry are constantly monitored for avian influenza and infected birds would never enter the food supply.

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