

# Madison County Fair Broiler Showmanship Study Questions

## Broilers

### 1. What breed are the birds you showed in the fair?

My show broilers were Cornish Rock crosses. The commercial broiler meat industry primarily uses this cross breed that is derived from Cornish males and White Plymouth Rock females. These Cornish Rock crosses are white-feathered and are known for fast growth and good muscling.

### 2. What are the most expensive cuts of meat on a broiler?

The Breast is the most valuable, followed by the leg. The leg consists of the thigh and the drumstick. Although edible, the less valuable, less meaty parts are the back and wings.

### 3. At what age/weight are broilers processed?

Commercial broilers are usually grown to 3.5 to 4.5 pounds in 6 weeks. These broilers should require two or fewer pounds of feed per pound of weight gain. Since show broilers receive special care however, it is not unusual to see show broilers achieve weights of 5 to 6 pounds in a six week growing period.

### 4. How much meat does a broiler yield?

The dressed carcass without the neck and giblets should be about 65% of the live weight. Breast meat should account for 34% of the carcass weight and 25% of the live weight.

### 5. Which internal parts of a broiler are edible?

The edible internal parts are collectively called the giblets. Giblets include the gizzard, heart, and liver.

### 6. When selecting breeding stock for broilers what factors should be considered?

First one must determine if the bird has defects or deformities that could be passed on to offspring. Examples of genetic defects include weak feet and legs, a crooked toe with an angle of more than 90°, a crooked keel (breast) bone or back, green shanks, major black feathers, a crossed beak, or inherited blindness. Any bird with any of these problems should be culled (not used) as a breeder.

The second consideration is the conformation and muscle capacity of the bird. Ideally a broiler's back should be 1.5 times longer than the width across the shoulders. The depth of body should equal or exceed the width across the shoulders and the keel should be parallel to the back. Breast meat should extend the full distance along the keel and should not narrow or taper excessively at the rear.

### 7. What are some common cuts yielded by a poultry carcass?

While carcasses can be sold whole, most consumers now prefer further processing. Only 10% of chickens in the U.S. are sold as whole birds. Some common products include: Breast (whole, split, or quartered / with or without skin), Tenderloins (muscle underlying the breast), leg quarters (thigh, drumstick, and a portion of the back), Legs (thigh and back), Thighs, Drumsticks, Wings, Drumettes (the joint of the wing closest to the body), and Wing portions (middle joint of the wing)

### 8. What percentage of broiler production occurs under a contract system?

99% of production is on a contract. The grower is paid based on the number of pounds of birds produced for the processor. The processor provides the feed and the broilers. The grower provides the facilities and the labor.

**9. How much money does the poultry industry generate for the U.S. economy?**

\$20 billion a year

**10. What percent of all meats that was consumed in the United States is poultry?**

35%. Per capita consumption of poultry is 103 pounds per person per year.

**11. What percent of the U.S. poultry production is exported?**

16%. Russia and China are our largest export markets.

**12. What is the proper temperature for brooding baby chicks?**

The house should be pre-warmed so that chicks are started around 85 degrees at chick level. The temperature should be dropped 5 degrees per week until 65 to 70 is reached. Determining the correct temperature can be done by watching the chicks. When they are comfortable they will bed down evenly spread across the brooder area.

**13. What type of housing is necessary for show broilers?**

Housing does not have to be expensive but should be clean, dry, and well-ventilated. It should provide for 2 square feet per bird. The floor should be at least six inches above ground level to prevent flooding.

**14. What steps should be taken before broiler show chicks arrive?**

The house should be thoroughly disinfected two weeks before the birds arrive. At least two days before the birds arrive, you should put at least 4 inches of clean litter on the floor. You should prepare a brooder ring to keep the chicks from getting too far from the brooder (heat source). Prepare all waters and feeders and make sure you have the right starter feed on hand. 24 hours before the birds arrive, start the brooder to heat the house to 85 degrees at chick level and double check the house for any hazards.

**15. What are some materials that can be used for bedding or litter for show broilers?**

Wood shavings, peanut hulls, and rice hulls all make good litter. The litter should provide cushioning for the birds and readily absorb waste. A minimum of four inches should be used and it should be kept clean throughout the growing period.

**16. What type of feed should be used in growing show broilers?**

There are many options when purchasing feed. It is absolutely essential however, that broilers receive a high quality feed containing at least 20% protein. Some exhibitors choose to start chicks on a higher protein (26 to 30%) and then switch them down after 2 weeks. Broilers should never run out of feed during the growing period. Stirring the birds several times daily will increase feed consumption and growth.

**17. Since we live in Texas, sometimes the heat can impact broiler grow out operations. What can be done when the temperature is hot outside?**

After four weeks of age the broilers should be maintained as close to 65 to 70 as possible. This may require careful attention to ventilation on a hot day. Fans and humidifiers can be used to maintain broiler comfort. Generally, broilers will eat 1% less for every 2 degree rise above 75 degrees.

**18. Discuss the importance of uniformity among the three birds in a show broiler pen.**

The three broilers should be as near a carbon copy of each other as possible. This is important to remember when selecting a pen as a uniform pen of meaty broilers will generally place higher than a non-uniform pen.

**19. What are some important things to remember when transporting broilers to the show?**

By show time the broilers are usually large and somewhat fragile. Great care should be taken in handling them so that they are not bruised and so that no bones are broken. They should be placed in soft sided containers with litter in the bottom to provide protection and maintain cleanliness. The containers should be ventilated. Cardboard boxes make excellent carriers.

**20. What is the judge looking for during the initial check or sift of the show broilers?**

Show broilers are to be classified as USDA Grade A birds. Therefore the judge is looking for any factors that make the bird less than a grade A. This could include bruises, broken or disjunct bones, or cuts or tears in the skin. Birds with these defects will not be allowed to show.

**21. What is the average body temperature for poultry?**

105 F to 107 F

**22. What is the average pulse rate for poultry?**

300 beats per minute

**23. What is the average respiration rate for poultry?**

14 to 22 exchanges per minute while at rest

**24. Feathers are appendages of \_\_\_\_\_. They are modified \_\_\_\_\_.**

the skin, scales

**25. Why do the comb and wattles have a red appearance?**

The visibility of blood through the skin. The comb and wattles function as a part of the bird's cooling mechanism.

**26. The uropygial gland is located where on a chicken's body and serves what purpose?**

The uropygial gland is at the rear of the bird's back. It is also called the preen gland because it secretes oil that the bird uses to clean and groom the feathers.

**27. Why do deformed breastbones reduce the market value?**

Deformed breastbones detract from the appearance of the dressed carcass

**28. What is a major difference between the avian and mammalian muscle systems?**

Birds have more extensive development of pectoral muscles. The breast consists of the pectoralis major and covers the tenderloin – the pectoralis minor. These two pectoral muscles weigh nearly as much as all the other muscles combined and account for 15 to 25% of the bird's total weight.

**29. What causes white meat and dark meat?**

Muscle or meat color is largely a function of the activity (intensity and duration) of that muscle. Low muscle activity causes a low level of myoglobin pigment and lighter, white meat. In chickens and turkeys, the breast is usually white meat. High activity means high levels of myoglobin and dark meat, which would be found on the wing, thigh, and drumstick. In the United States, the majority of consumers prefer white meat.

**30. Name a unique feature of a bird's respiratory system.**

Their body contains 9 air sacs which aid in circulating air and are used to provide a reserve supply of air for flying birds.

**31. How is the prehension of a bird different from a mammal?**

Prehension, or grasping of food is different than from mammals in that birds don't have teeth, lips, or cheeks. A pointed tongue and a horny papillae on the roof of the mouth force food toward the throat.

**32. What are the major organs of the digestive system of a chicken?**

The crop is used to store and softens the food. The stomach or proventriculus secretes gastric juices, which contain hydrochloric acid and the enzyme pepsin. The ventriculus or gizzard serves to grind food. The small intestine secretes enzymes and absorbs nutrients. The cecum at the junction of the small and large intestine helps with the breakdown of resistant material by bacterial digestion. The large intestine serves to absorb water and store waste.

**33. What are the sections of the small intestine?**

The duodenum, jejunum, and the ileum.

**34. How does the liver and gall bladder contribute to digestion?**

The liver secretes bile which is necessary for fat absorption. The liver also filters the blood and stores carbohydrates. Bile is stored in the gall bladder.

**35. Describe the five senses in a chicken.**

Chickens have keen senses of sight, hearing, and taste. They have a poorly developed sense of smell and touch.

**36. Name some "stress factors" that could contribute to disease in poultry flocks.**

Chilling or excessive heat, poor ventilation, overcrowding, inadequate or low quality feed or water, and ammonia build up all cause stress and make birds more vulnerable to disease.

**37. Name some practices that reduce the chances of diseases spreading among poultry flocks**

Isolate new arrival birds, sanitize equipment, wear clean footwear, reduce potential for pests (rats / wild birds / insects), properly maintain shavings and efficiently manage waste

**38. Name two diseases poultry can be vaccinated for.**

Newcastle, infectious bronchitis, fowl pox, gumboro, and fowl cholera

**39. What are the feed and water withdrawal suggestions before processing.**

Taking chickens off of feed and water before slaughter can contribute to cleanliness and lessen the potential for contamination during processing. Feed is generally removed 6 to 12 hours before processing and water is removed about 4 hours before processing.

**40. What is the major bacterial contaminant of most concern in poultry products?**

Salmonella

**41. Who is responsible for inspection of poultry carcasses?**

The USDA inspects every bird processed at commercial facilities in the United States.

# Eggs

## **42. What breed of chicken is most commonly used for the production of table eggs?**

Leghorn or leghorn cross. These birds produce approximately 265 eggs per year. They are white in color and produce white eggs.

## **43. What breeds are used to produce brown eggs?**

While most U.S. consumers prefer white shelled eggs, there is a market for brown shelled eggs. These are usually produced by Rhode Island Red or Barred Plymouth Rock hens. There are no nutritional differences between white and brown shelled eggs but brown eggs are usually more expensive since the hens that produce them lay fewer eggs in a year and require more feed than the hens that produce white eggs due to their larger body size.

## **44. What are two reliable visual signs that a hen is laying eggs?**

The yellow pigment (xanthophylls) in the skin, shanks, and feet will begin to fade or bleach. Fully bleached or pale skin and feet indicate high egg production.

A second option is to examine the abdomen of bird. A bird in production will have expanded, thin, and flexible pubic bones and a large moist vent.

## **45. How many weeks (approximately) does it take for pigmentation to fade completely?**

20 to 30 weeks or 180 eggs. The top of the toe is usually the last place to fade. If the hen stops producing the pigmentation will return about 3 times faster and in the same order that it faded.

## **46. Is there a way to tell the color of eggs a hen will lay just by looking at a hen?**

Yes. The best place to look is at the flap of skin encircling the back of the chicken's ear. If the skin is white, she will lay white eggs. If it is red or dark colored, she will lay brown or colored eggs.

## **47. On average, how many pounds of feed to produce a dozen eggs?**

3.5 pounds of feed

## **48. What percentage of eggs comes from commercial farms?**

90% of all eggs come from commercial, caged hen operations.

## **49. What factors influence egg production?**

Most breeds of chickens will reach full egg production at 20 weeks of age. The one environmental factor that has the greatest impact on production is light. Producers often utilize artificial lights to maximize egg production.

Roosters are not required for the production of table eggs but are used when fertile eggs for chick production are desired.

## **50. Explain the major parts of an egg.**

The yolk or ovum serves as a food source for a developing embryo. The egg white or albumen provides cushioning and material exchange and consists of an outer thin, firm, and inner thin layer. Chalazas are two string-like membranes that hold the yolk in the proper position in the center of the egg. All of this is enclosed by an inner and outer shell membranes and then a rigid calcium shell.

**51. What changes occur as an egg ages?**

Cooling of the egg and then loss of water causes the liquids in the egg to contract. This results in a separation of the inner shell and outer shell membrane, forming an air cell at the large end of the egg. The larger the air cell, the older the egg. The yolk absorbs liquid from the albumen and the yolk membrane weakens, making the yolk become larger and flattened.

**52. How are eggs evaluated? What are the grades and size categories for eggs?**

Eggs are washed and then sorted by weight/size. Size classifications include Jumbo, Extra-large, Large, Medium, Small, and Pee Wee. Eggs are also inspected using a bright light (candled) for internal quality. They are graded according to the size of the air cell and the condition of the shell, yolk and white.

AA- Up to 1/8 inch air cell

A -1/8 to 3/16 inch air cell

B - Greater than 3/16 inch air cell

Eggs with blood spots or meat spots, bloody whites, stuck yolks, or a partially developed embryo are not graded and considered a loss.

**53. What are some possible external defects that can occur with eggs?**

Stains, decidedly misshapen, extra calcium deposits, ridges, thin spots, body checks (shell was cracked inside the chicken and then repaired), checks or cracks, and adhering dirt or foreign material.

**54. How often does a hen lay an egg?**

Assuming that a laying hen is of the proper age and maturity and that all health and environmental factors are in place she should lay an egg every 24 to 27 hours. Hens will stop laying eggs when molting (growing new feathers), when setting on a nest (brooding), or when she is not receiving proper nutrition or an adequate amount of light stimulation.

**55. Describe some important considerations when incubating eggs.**

Chicken eggs normally take 21 days of incubation before hatching. During these 21 days the yolk serves as the food source for the developing chick. Incubating temperature should be maintained at 99.5 degrees with a relative humidity of 50%. If the temperature drops below 85 degrees, chick development stops. The embryo's head should be tucked under the right wing and pointed toward the large (round) end of the egg.

## **TURKEYS**

**56. What is the most common breed of commercial turkeys?**

Broad Breasted Whites. They are ready for market at 14 weeks for hens and 20 weeks for toms.

**57. What percent of turkey production occurs under a contract system?**

95%

**58. How many days does it take to hatch a turkey egg?**

It takes 28 days of proper incubation to hatch a fertile turkey egg.