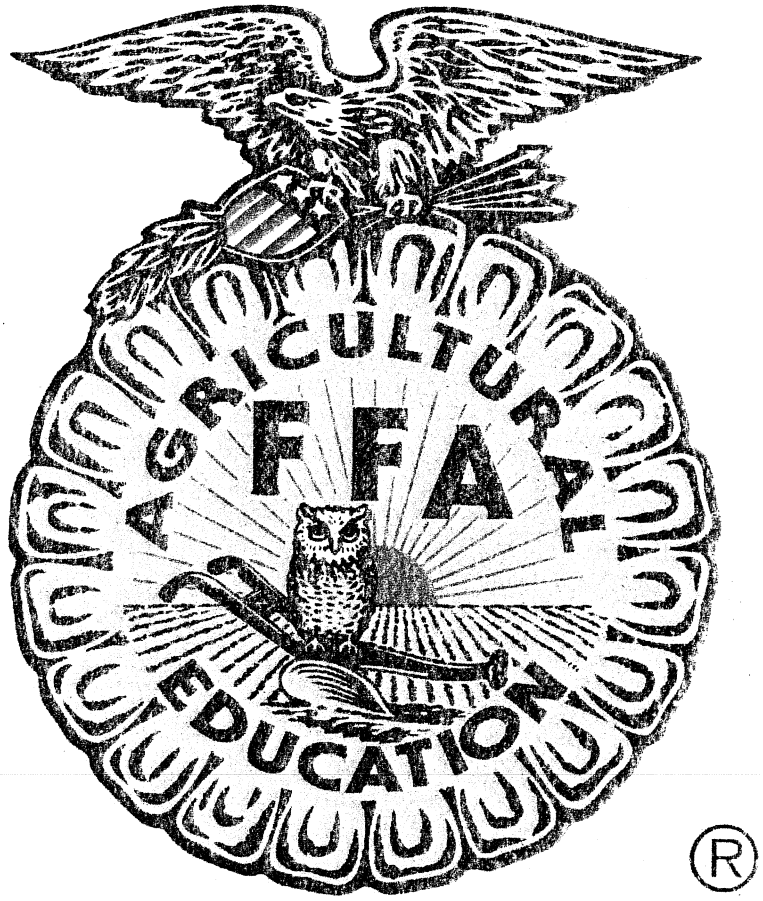
The Golden Egg



8th Grade Agriculture Exploration

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Once upon a time there was a farmer and his wife who owned a very special hen. Every day, when they went to gather the eggs, their special hen would lay for them, one golden egg. Day after day, the hen continued to lay golden eggs, making the couple incredibly rich. Assuming the hen must contain a great amount of gold on the inside, the foolish couple killed the hen and cut her open. Much to their surprise, her insides were no different than any of their other hens.

In a foolish rush to become rich, all at once, the couple found out the hard way, that all hens are the same on the inside. But if all hens are made the same, then why are some eggs good, and some eggs bad? Maybe a more appropriate question would be; why do some eggs contain salmonella while others do not?

This very question was the topic of massive media scrutiny just this past year. In August 2010, two Iowa based egg producers issued nationwide recalls for more than 550 million eggs. According to the Centers for Disease Control and Prevention, these two farms were likely the source of the salmonella outbreak which caused more than 1,800 illnesses. Scientists and government officials immediately began working to better understand salmonella and prevent outbreaks from occurring in the future.

The first step in controlling salmonella is to understand the ways in which eggs become infected. The bacteria, scientifically known as *Salmonella enteritidis*, most commonly contaminate eggs through fecal material coming in contact with the egg shell. The second form of contamination actually begins inside the chicken. Hens ingest small doses of salmonella from their environment, which can easily be contaminated by rodents, birds and flies. Regardless of how the chickens are raised, conventionally, organically, or free-range, all chickens become exposed to salmonella. Once the bacteria are in the chicken, they thrive in 102-degree temperature. Infected ovaries then produce yolks that contain salmonella. If these eggs are undercooked, consumers are at risk of becoming ill due to salmonella.

But if salmonella occurs in nature, what are poultry producers doing to prevent it from ending up on your breakfast plate? Many believe that a vaccine may be the solution to the problem.

When faced with a similar salmonella crisis over a decade ago, British farmers began vaccinating their hens against the bacteria. The number of human illnesses due to salmonella in Britain has decreased almost every year since then. In 1997, there were over 14,000 cases reported in England and Wales. Last year, there were just 581, a drop of 96 percent.

There are two types of vaccines available to producers, a live vaccine and a killed vaccine. Dr. Darrell Trampel, with the Iowa State University College of Veterinary Medicine, recommends that all egg producers use both live and killed vaccines. Prior to the August 2010 outbreak, about 60 percent of U.S. egg producers were vaccinating their flocks against salmonella. Since that time, an estimated 79 percent of producers are vaccinating.

In addition to improved vaccines, poultry producers have now been provided with a new test for salmonella that will produce faster and more accurate results. While current testing methods for salmonella can take up to five days to produce results, researchers at the University of Missouri have developed a test that can provide results in as little as 5 to 12 hours. Using a process known as polymerase chain reaction, the short test would enable companies to have accurate test results before the eggs are shipped, rather than when they are already in the store.

While the farmer and his wife may have learned, all-to-late, that all hens are made the same; U.S. poultry producers have been provided with a variety of methods to safeguard their industry. Through a combination of scientific research, improved vaccines and accurate testing methods, egg producers have been given the tools needed to make their eggs truly golden.

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