THE FEATHER REPORT

Kansas State University Agricultural Experiment Station & Cooperative Extension Service

Volume 4, Issue 4

October 2005

The Five Biggest Mistakes Made By Small Egg Farms

Part 3: Failure to Cull

In previous issues of this newsletter, we've covered an in depth analysis of some of the biggest mistakes made by smaller egg farms. The first was failure to choose the best breed for egg production. That was followed by another common problem when people try to save feed costs by diluting the nutrients in feeds. In this issue, I will discuss the importance of culling your flock.

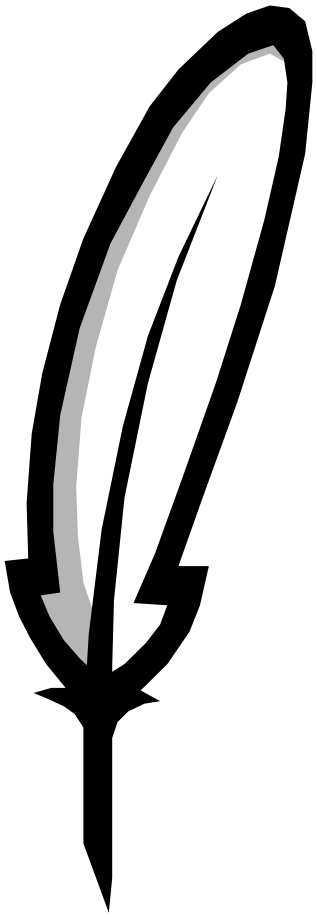
Culling means to select birds that you think are not productive layers and remove them from the flock. Birds that aren't producing eggs are still consuming feed and this is costing you money. If you are serious about making a little money or at least breaking even, then you must take culling seriously.

The overall goal of maintaining a small egg flock is to produce as many eggs as you can, while using as little feed as possible. That means that any hens in your flock that aren't producing need to go.

I have visited many farms with small poultry flocks whose owners complain that their birds were consuming too much feed for the number of eggs they were getting. However, many times I've noticed that they are feeding far more types of poultry than they realize. If your flock includes a few males, some waterfowl, guineas, etc. you should not expect to break even on selling eggs. So if you are keeping some hobby birds around, be prepared to realize that you will not be able to break even by selling your extra eggs.

Let's start with considering which birds are easiest to cull. Obviously, males are the first target. Most people know that males don't lay eggs! However, some people think that the presence of a male increases the number of eggs produced by hens or allows the hen to lay in the first place. It is simply not necessary to have males around for the hens to produce the maximum number of eggs. Commercial operations producing millions of eggs on a daily basis involve no males in the production process. So start your process by eliminating unwanted males.

Many people receive extra males when they order baby chicks. If you purchase strait run, about half the chicks should be male. If you grow all your chicks to adult size without removing the males, you are spending a lot of money on feed to grow your pullets. If you've chosen the right breed, then the males will be inferior sources of chicken meat since they will be too thin. Try to cull the male chicks as soon as you notice them in the flock. Sometimes when you order pullet chicks, you'll get a few males by accident. This is because when they sex chicks at the hatchery, it's not 100% guaranteed that you will only get females. Even if it's just a couple of extra males, remember that they'll be consuming feed that could have



Inside this issue:

(Continued from page 1)

gone to the hen to produce eggs. You should never grow cockerels with your replacement pullets with the intent of using them for Sunday dinner. The cost in feed for growing those types of birds just doesn't pay.

Most breeds of chickens will start producing eggs around 18 weeks of eggs, but some of the larger ones may take a few weeks longer. If your birds are nearing 30 weeks of age, and everything else such as the environment, feed, and day length has been done correctly, then hens not laying by this time should be closely examined. Look for any hens that are abnormally large or small compared to the rest of the flock. Uniformity of egg size will be important if you are selling eggs. If you really want to cull closely, you could use a trap-nesting method. You can purchase nests which will close after the hen enters the nest. After the hen lays the egg, she can not get out unless you open the trap door to let her out. When you collect your eggs you can record the hens that laid and then you can keep a record to determine which hens are laying and which hens are not. Just one note with trap-nesting — you should be diligent and check the nest several times per day to make sure all hens can safely return to the flock so that they don't go without food or water. This method is a lot of work, but it certainly does eliminate the non-layers from the flock.

Age should be a factor when culling. Most of the Mediterranean breeds of fowl will produce nice eggs for the first two years of production. In years three and four they will produce larger but fewer eggs. Beyond that it's very likely that the number of eggs produced by those hens just won't pay for the feed cost to maintain them. Just because some of the older hens you have now laid well two years ago, doesn't mean they are producing enough eggs to earn their keep years later.

Be sure to take a critical look at the overall health of the individual hens of your flock. For example, birds with leg problems may not able to consume enough feed and are thus not laying. Other hens that need to be eliminated from the flock are egg eaters. For various reasons, some hens will seem to consume eggs in a nest. A lot of times this starts because the egg quality has decreased and the shells are weaker and thinner which leads to more broken eggs. It seems like once a hen gets started eating eggs, it's difficult to stop. A lot of times you can identify the offending hen because she has egg on her face!

It's easy to cull Mediterranean breeds of chickens with yellow pigment in their skin. This yellow pigment comes from the diet of hens. For example, corn has a lot of yellow pigment and birds that consume a lot of corn will have more yellow in their skin and will lay eggs with a darker yolk. If the hen is laying a large number of eggs, their skin bleaches, which is a term used to describe when the yellow pigment begins to disappear as the hen gets older. If the hen is laying a lot of eggs, she becomes well bleached. Hens that laid fewer amounts of eggs will retain more pigment and thus their legs will appear to be a darker yellow. In this type of flock, a hen with a very dark set of legs should be suspected as being a non-layer. For other breeds it's more difficult to use this technique because they will not express this yellow color so easily.

Finally, another way to cull laying hens is to determine the distance between the set of pelvic bones and the breast bone. You can pick up the bird, turn her upside down and press your fingers on the soft abdomen just below the vent. When birds are laying eggs there is a wider gap between the end of the sternum or breastbone and the pubic bones. There is also a wider gap between the pubic bones. Studies have shown that the wider the gap the more eggs and the larger the eggs that hen will be laying. If you have access to a 4-H manual, that's about the best source of describing how to use this technique that I've seen published anywhere. You may want to ask your county extension agent or the poultry leader in your county to find out if someone has a copy.

One thing that makes some people fail at culling is they don't know what to do with the culls. Unfortunately, culling nonproductive laying hens is one of those tough things you have to do in order to maintain a pro-

(Continued on page 3)

(Continued from page 2)

ductive, healthy flock. Of course, some people will tell you that the best thing to do with a cull is to make a Sunday dinner! Or perhaps you have a local bird sale or swap to which you could bring your birds to sell for a little cash. There is usually another farm around you that probably needs an extra rooster in their hobby flock. In some cases you may be lucky enough to have another farmer or small processing plant that would be glad to process them for a fee.

In any small layer flock, you can measure success by the number of eggs you get balanced against the amount of feed cost. Once your feed costs exceed your egg output, then you are loosing money. Unproductive hens, non-laying hobby birds or anything else that is consuming feed from your feed trough that is not producing an egg is costing you money. If you want to maintain a small egg flock for extra egg sales, be prepared to cull your flock often. In the next issue, Part Four, Failure to Molt.

Questions for the Editor

Could my chickens die from West Nile Virus?

In a word, no. Although some types of wild birds have shown a susceptibility to the West Nile Virus, chickens don't seem to be susceptible. There has been no mortality in chickens due to West Nile Virus. Furthermore, they will not infect each other with the virus, nor will they infect handlers or owners. In fact they don't even seem to infect mosquitoes that feed off them. This is because they develop antibodies very quickly when challenged with a mosquito carrying West Nile Virus.

Some people have misunderstood when they've read that chickens were used as sentinel devices to determine where the West Nile Virus is located. A sentinel in this case, for example, would be when a pen of chickens is set outside and exposed to the local mosquito population. Blood samples are then taken from these chickens and if they test positive to the antibodies to the West Nile Virus, then we know the mosquitoes in the local area are carrying the West Nile Virus. However, this does not mean that the chickens are actually carrying the virus.

Can I hatch eggs that I have purchased from someone if they have been shipped through the U.S. mail?

Eggs can be shipped by mail and still be hatched easily. Of course, a lot of things will affect the hatchability of eggs you purchase from someone through mail order or an auction. First, the eggs might not have been fertile in the first place. Second, how well they were packaged will certainly affect the hatchability rate. Even if the eggs arrived intact, this does not mean that the packaging was sufficient enough to dampen the shock from handling.

Can you hatch an egg that's cracked?

Of course, severely cracked eggs will be almost impossible to hatch. However, if the membrane is intact you have more of a chance of hatching this egg. If you have lots of fertile eggs to choose from, then it may be easier to discard that egg rather than attempt to hatch it. Eggs with broken shells could contaminate the incubator or allow bacteria to grow and thus reduce the hatchability in the rest of your eggs.

However, if you have some expensive eggs or your birds are not producing very many, then it might be tempting to try to hatch eggs which have very slight cracks with the membranes still intact. I've seen people

do this a couple of ways. First, they will use a small piece of tape on the shell to keep the egg from cracking any further. Don't cover the entire egg with tape as this will only prevent the embryo from hatching. I have also used the new liquid stitches that you can purchase in drug stores. It's a lot like glue and you can simply seal the crack in the egg by covering it with the liquid stitch. The nice thing about this product is that it seems to be a little more forgiving when the chick tries to break out of the egg.

How long do chickens live?

That's a tough question! It probably depends on more on the care of your birds than anything. For example, good nutrition will allow the birds to live a long productive life, and of course, protection from predators and disease are also important. Commercial laying hens are seldom kept beyond two years of age. But even these hens would live longer; they just won't produce eggs economically. And finally, heavier breeds won't live as long as some of the thinner Mediterranean type birds. But somewhere around 3 to 8 years is probably a good range for the expected life span of your typical farm chicken.

Chickens in Malaysia

You might recall from a previous issue, I described a recent trip I made to China. Since then, I was invited by the US Grains Council and the American Soybean Association to travel to Kota Kinabolu, Malaysia. The purpose of this trip was to share some of the research we do at Kansas State University. This three day seminar was attended by scientists from all over the region including Indonesia, Thailand, Taiwan, China and Australia among others. This region purchases a lot of US grown corn and soybeans.

The people there were very friendly and of course this island country was one of the most beautiful countries to which I've ever traveled. Most of the poultry producers in those areas are much smaller than the United States, but they produce some high quality products. Like China, it seems there were KFC's everywhere. Although the economy doesn't seem to be growing as much as China, the Malaysians are doing very well. The airport at Kula Lumpur was probably one of the nicest international airports I've ever flown through.

When you get to travel to some of these countries, you find out quickly that Kansas has an international reputation in feed science, grain science, milling and animal husbandry. In fact, it always makes me feel good that we seem to be providing food for so much of the world.

What is the threat of Avian Influenza?

Avian Influenza or Bird Flu is a respiratory disease of birds that is caused by a virus. There has been a lot of news lately about an outbreak of avian influenza in Southeast Asia. In the past, there have been periodic outbreaks of avian influenza in parts of the United States; however, the strain of influenza that is currently infecting birds in Asia is a more severe form of the virus. The US currently does not have this virus.

Like all viruses, avian influenza viruses have proteins on their surface which an infected animal may recognize as foreign and respond by synthesizing antibodies to neutralize the virus. However, this virus can be sneaky because it changes or rearranges the proteins on the surface to hide from an animal's immune system.

Avian Influenza viruses are classified by their H and N proteins. They have one of 16 different H proteins designated H1 through H16. They also have one of 9 N proteins designated N1 through N9. Each virus will have a certain arrangement of H proteins combined with N proteins. Although most of the combinations of

these two proteins result in a virus that is less serious, those with an H5 or H7 designation are more deadly for birds. The virus infecting poultry in Southeast Asia is an H5:N1 virus that is highly pathogenic or infective. This virus can rapidly spread through poultry flocks primarily through droplets of moisture. Many of the birds grown in Southeast Asia come from flocks on small farms and are sold live in the markets. Because there is so much mixing of birds, it is feared that the virus could spread rapidly because a larger number of birds are being exposed to the virus through live markets.

Authorities in those countries have begun to eradicate the influenza virus by disposing of birds and disinfecting the infected farms. Other outbreaks around the world have been thwarted by this method of eliminating the virus.

Although most forms of this influenza virus are infective in poultry but not humans, the H5N1 strain has infected humans. It is feared that the virus could change in such a way that it becomes more infective to humans. If the virus changes again, it could become infective and start transferring from human to human. At that point it could become a very serious worldwide threat or what healthcare workers refer to as a pandemic.

The flu shot that many people take each year contains some related influenza viruses. These would be the H1N1, H1N2, and H3N2 combination of viruses. These viruses may have jumped from animals many years ago and probably resulted in many serious infections around the world. However, because most people have been exposed to these forms of the virus, we carry antibodies that can eliminate the virus if we are exposed to it. The fear of the current virus from Southeast Asia is that most of the world's population has not been exposed to the H5N1 form. Thus, when infected with the virus, it will be much more difficult for the body to fight it off because there are no antibodies circulating in the blood stream that will recognize this foreign virus.

At this time, the virus appears to be isolated in the Southeast Asia area of the world although a small outbreak in Romania and Turkey indicates that it could be spreading. Some scientists fear that transmission through wild birds or people who are transporting poultry could bring the virus to other parts of the world. However, the chances of this occurring in the United States remain small. Anyone who has visited contaminated areas of the world is not allowed to return to poultry farms in the US.

Migratory fowl that could carry the virus have been tested and are routinely screened for the virus. Thus far, none of the virus has been located in wild birds in North America. And because the United States is a net exporter of poultry around the world, not much if any poultry from overseas is imported for consumption in the United States. So the odds of this virus reaching the United States are small, although not completely zero.

Most of the larger commercial flocks of egg producing hens, turkeys and broilers are held in confinement buildings. These buildings protect the birds from exposure to the environment including wild birds which could infect the flocks. These birds are processed and marketed through individual processing plants and never enter the market place as a live animal. For these reasons, even if the virus were to come to the United States, it is probable that it would spread at a slower rate through commercial flocks.

This does not mean that avian influenza is not a serious threat. Authorities already have plans in place to deal with an outbreak of avian influenza. The policy of the poultry industry in the United States is to strictly eradicate disease as quickly as possible by destroying flocks which test positive for the H5 or H7 types of virus. This reduces the chances of the virus changing into or evolving into a more pathogenic form that could be infective to other birds and humans.

Around the world about 116 people have been diagnosed with avian influenza H5N1. These have been people who have handled highly infective flocks. Scientists say that the virus has not acquired the ability to move easily from human to human.

Many people have asked if they can get avian influenza from their live poultry. Because there are not currently any H5 or H7 viruses located in the United States, the chances of being infected with this type of virus is very small. There is also no danger of becoming infected with avian influenza from properly cooked food because the virus is destroyed by the heat of normal cooking.

Even through the chances of acquiring the virus are small, people who have live poultry should make good decisions about biosecurity. Because the virus can be transmitted in manure or on clothing, traffic between farms should be reduced or eliminated. Exposure to other birds at bird swaps, trades and shows is also a major threat. When visiting these shows, it is wise to stay away from your birds until you and your clothing has been cleaned. Any new birds that are brought to the farm should be quarantined before exposing them to the rest of your flock. The best way to be sure new birds don't carry influenza, is to have them tested for avian influenza prior to purchasing them. With smaller hobby flocks, it's more difficult to practice good biosecurity because of exposure at shows and trades, however, this is no excuse not to do the best you can to prevent the spread of any disease in poultry flocks.

It is known that wild birds, particularly waterfowl, can carry avian influenza. Because many of these birds move about the country in migratory patterns, it is possible that the virus can be spread over long distances. Owners of small flocks should do the best they can to eliminate the exposure of their poultry to wild birds. Eliminating feed wastage and over feeding will reduce the number of wild birds visiting the feeders to steal feed. Netting to prevent wild birds from entering the pens would help reduce the threat of wild birds.

The most immediate action that producers should take at this time is to eliminate visiting waterfowl. Remove any incentives like food sources to prevent the birds from visiting. If you have a pond or other waterway that attracts waterfowl, even for a short period of time, you should eliminate the visiting birds, move your flocks as far away as possible, or eliminate the pond. Wild waterfowl represent the biggest potential threat on many farms since they could have flown in from hundreds of miles away. It may be a difficult job to stop waterfowl from visiting your property, but it must be done.

Interestingly, there is another virus that has made news reports of late. This virus has been referred to as 'dog flu' and is similar to the other viruses mentioned here. This one is designated as H3:N8 and has been known to exist in horses in the US for many years. Even with a lot of contact, this virus has not infected any humans. However, a large number of greyhound dogs at several racetracks have contracted the virus and many have died. In fact, stored blood samples indicate that it might have been in the dog population since 1999. Although the virus has made the jump from horses to dogs, there have been no verified cases of this influenza in humans.

If the virus continues to spread among the dog population it could be of some concern because most dogs have not been exposed to this combination of the virus much like humans have not been exposed to the combination of the H5N1 bird flu. Even though the dog flu virus does not appear to be infective to humans, it is probably still wise to take the same type of biosecurity precautions if you own dogs that perform at racetracks, shows or other places where a lot of dogs could congregate.

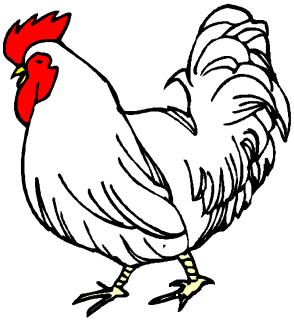
R. Scott Beyer, PhD
Extension Poultry Specialist
Kansas State University

Pictures From the Kansas State Fair 2005

Dr. Beyer with Grand Champion Market Broiler winner Miles Pearson (L) and Reserve Champion Market Broiler winner Cole Pearson (R).

Waiting for the Contest to begin!

The judge moved the pens back and forth after looking at them several times.



The judge is comparing the 3 birds from each pen for uniformity.

Poultry Results from the 2005 Kansas State Fair

Market Broilers
Grand: Miles Pearson, Scott
Reserve: Cole Pearson, Scott

Pigeons
Grand: James Heitschmidt, Finney
Reserve: Brooke Sobba, Franklin

Exhibition Poultry
Grand: Tyler Dick, Butler
Reserve: LaReine Schock, Butler

Int. Poultry Judging Individual Results
1st Keri Heston, Jefferson County
2nd Dorothy Mennfee, Miami County
3rd Jacob Schrick, Jefferson County

Int. Poultry Judging Team Results
1st Jefferson County
2nd Miami County
3rd Lyon County

Sr. Poultry Judging Individual Results
1st Cody Heston, Jefferson County
2nd Sarah Anderes, Central District
3rd Felicia Pruett, Barton County

Sr. Poultry Judging Team Results
1st Jefferson County
2nd Central District
3rd Miami County

Governor Sebelius Tours the New Poultry Barn at the Kansas State Fair.

This year was the first year that the newly remodeled facilities for the poultry show were used at the Kansas State Fair. On the first day of the Fair, it was my great privilege to give Governor Kathleen Sebelius a personal tour of all the exhibition poultry in the building. Governor Sebelius was impressed that the poultry show is one of the most visited parts of the State Fair Grounds. She was also introducing the new Kansas Quarter by passing out quarter to all the kids she came across. As you can image, as she walked through the poultry show, lots of kids came running to get their quarter and meet the governor! R. Scot Beyer

If you would like to receive an electronic copy of the Feather Report, please send your email address to poultry@ksu.edu

The Feather Report is published for the purpose of communicating with people in the poultry industry, gamebird industry, small flock owners, ratite producers, & anyone with an interest in feathered creatures. It is distributed at no charge and Kansas citizens can be place on the mailing list by contacting

R. Scott Beyer
Extension Specialist, Poutlry
Animal Sciences and Industry
130 Call Hall
Manhattan, KS 66506-1600
Phone: 785-532-1201
Fax: 785-532-5681
Email: sbeyer@ksu.ed

Kansas State University

R. Scott Beyer

K-STATE
Kansas State University
Research and Extension

We're on the Web
www.asi.k-state.edu

This publication is paid for by Kansas State University.