

## Marek's Disease in Backyard Chickens

Barry Whitworth, DVM

Area Food/Animal Quality and Health

Specialist for Eastern Oklahoma

Raising chickens in the backyard has become very popular in Oklahoma. Some people desire a better understanding of how their food is produced. Others like the rewarding experience of going out in the backyard and gathering eggs. However, many backyard producers may not be aware of a disease that might threaten their chickens. According to Dr. Keith Bailey, director of the Oklahoma Animal Disease Diagnostic Laboratory (OADDL), Marek's disease (MD) was the most common disease diagnosed in chickens submitted to the lab for necropsy in 2015-2016.

The first report of the disease was in 1907 by József Marek hence the name Marek's disease. Since that initial discovery, the disease has been found worldwide and is a major problem with chicken production. Marek's disease is caused by a highly contagious herpes virus called alphaherpesverinae. The virus has the ability to invade the body and survive without being destroyed by the immune system. The virus infects certain white blood cells causing a few of the cells to become cancerous. These cells can infiltrate internal organs (kidneys, liver, gonads, and proventriculus), peripheral nerves, skin, and muscles.

Transmission of the virus occurs by direct and indirect contact between chickens. The virus replicates in the feather follicles and is shed into the environment in the dander from the chickens. This dander contaminates the facilities and remains infectious for several months. Chickens become infected by inhaling the virus. Once the virus is in the flock, it spreads rapidly from bird to bird even if the chickens are vaccinated. The virus may also be spread by people or equipment that has been contaminated with chicken litter. Darkling beetles and mealworms may carry the virus, too. Transmission of the virus from hen to chick through eggs is highly unlikely since the virus should not be able to survive the temperature and humidity levels required to incubate eggs.

Once the virus enters the flock, the number of birds that actually show signs of being sick will vary depending on the vaccination status of the flock. Nonvaccinated flocks may have up to 60% of the chickens become sick. Sickness in vaccinated flocks will usually be less than 5%. The number of sick birds that die may reach 100%. It should be noted that no treatment exist and infected birds should be culled.

Marek's disease can be categorized into four clinical syndromes: neural form, visceral form, cutaneous form, and ocular form. A chicken may have more than one form of the disease.

1. Neural form: These chickens experience paralysis, incoordination, and breathing difficulties. The paralysis usually involves only one leg or wing. They usually die from starvation or are trampled to death if not removed from the flock.
2. Visceral form: These chickens show nonspecific signs such as weight loss, paleness, anorexia, and diarrhea. When necropsied, these birds will have tumors in the internal organs.
3. Ocular form: These chickens experience blindness. The iris may turn gray and is referred to as "gray eye". Their pupils do not respond to light properly.

4. Cutaneous (Skin) form: These chickens experience enlarged feather follicles. The follicles turn brownish in color and may scab over.

Prevention of the disease should start with a good biosecurity plan. Producers wanting more information about a biosecurity plan should visit <http://healthybirds.aphis.usda.gov>. Vaccination will not prevent birds from becoming infected, but it will prevent the birds from getting sick. Chicks should be vaccinated at one day of age or in ovum prior to hatching. New chicks should be kept isolated from older birds. The area where the chicks are to be housed should be clean and sanitized. Producers may want to look for certain lines of chickens more resistant to the disease. It is well known that some lines are more resistant than others. Incorporating all of these strategies should help reduce the chance of having problems with Marek's disease.

Raising backyard chickens can be very rewarding. However, it can be very disheartening to have an illness such as Marek's disease wiped out a flock. A producer should do all they can to prevent this and any other disease. Producer that would like more information about Marek's disease should visit with their local veterinarian or local county extension educator.