

Recognizing and Preventing Marek's Disease in Small Flocks

Marek's disease is one of the most widespread poultry diseases in the world. It is a highly contagious viral disease caused by a herpes virus called *Alphaherpesvirinae*.

Marek's disease occurs in chickens 3–4 weeks of age or older but is most common between 12 and 30 weeks of age. It can also infect quail and, rarely, turkeys. Female birds are infected more often than males. Once the virus is introduced into a chicken flock, infection spreads quickly from bird to bird and infected chickens continue to shed the virus, thus perpetuating a vicious cycle of infection. There is no effective treatment for the disease and infected birds never recover.

There are four different forms of the disease and infected birds can exhibit more than one form:

1. Skin (Cutaneous)
2. Nerve (Neural)
3. Internal organ (Visceral)
4. Eye (Ocular)

Four Forms of Marek's Disease Have Different Symptoms

1. Birds infected with the **Cutaneous form** of Marek's disease have enlarged feather follicles that

redden and can sometimes lead to brown crusty scabs (figure 1).

Figure 1. Bird infected with the Cutaneous form of Marek's disease have enlarged feather follicles



2. The **Neural form** of Marek's disease is characterized by enlarged nerves, resulting in paralysis, usually in one leg or wing (figures 2 and 5). An infected bird also may have labored breathing.

This is by far the most common form of Marek's, often referred to more commonly as Range Paralysis.

Figure 2. Birds infected with the Neural form of Marek's disease are often partially paralyzed



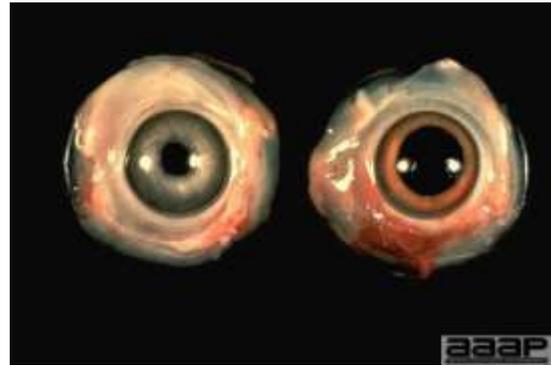
3. Lymphoid tumors in various organs occur in poultry with the **Visceral form** of Marek's (figure 3). The tumors typically occur in the liver, spleen, gonads, heart, lung, kidney, muscle, and proventriculus (glandular portion of the stomach).

Figure 3. Bird infected with the Visceral form Marek's disease will have tumors in various organs



4. The **Ocular form** causes a graying of the eye and/or a change in the shape of the iris. It can result in blindness.

Figure 4. The left eye is from a bird infected with the Ocular form of Marek's disease; right eye is normal



Morbidity (how many are affected) is 10-50% and mortality (how many sick birds die), up to 100%.

Typically, birds with the neural form (in the legs, wing, or neck) don't live very long. They commonly die from trauma such as predation, being killed by their flock mates or from dehydration/starvation. Therefore, it is a good idea for small flock owners to have an end-of-life plan in place when they discover that a bird is sick and has deteriorating quality of life. However, birds with the ocular form have been known to survive for several years.

Marek's Disease is Spread when Infected Birds Shed Dander

Dander (the epithelial cells from the feather follicles) containing fully infectious virus is a source of contamination in the environment and is easily spread by wind and animals. Shedding the dander occurs approximately two to four weeks after birds are infected but prior to clinical signs that indicate that the bird is sick. Contaminated poultry housing can remain infectious for many months after the

birds are removed. While inhaling the infectious dander is the most common way birds are infected, darkling beetles and their larvae also can spread the disease.

Vaccinating to Prevent Marek's Disease is the Only Method to Control It

Vaccination should be administered when the birds hatch or in ovo prior to hatching. It can take about two weeks for the birds to build up immunity from the vaccine. During that time, it is important to prevent young birds from being heavily exposed to the virus. While vaccines are available for purchase by small flock owners, they come in large doses (1,000 birds), and must be shipped and stored properly (at 35F-45F) or the vaccine will not be effective. The vaccine is administered subcutaneously (under the skin) on the back of the neck and should be administered as close to hatch as possible (if you don't like needles then you should have someone else vaccinate your birds). While older birds can be vaccinated, it is usually not effective as they will have received a natural challenge by then (Marek's disease is one of the most ubiquitous diseases in the world). Again, it is best to purchase birds from a hatchery that can vaccinate the chicks prior to shipping, but if you do choose to vaccinate, check with your veterinarian and make sure to follow the vaccine label to insure good results. For more information on vaccines for your birds see

<http://www.extension.org/pages/70026/poultry-vaccines-for-use-on-organic-farms#.VUixYMt0w5s>.

Good biosecurity practices, keeping young birds separated from older ones and selecting a disease-resistant breed also can help prevent Marek's disease in a flock.

<http://extension.umd.edu/poultry/small-flock-production/biosecurity-protects-your-birds> or

<http://www.extension.org/pages/67296/biosecurity-for-small-poultry-flocks#.VUixJ8t0w5s>)

Marek's Disease is not a Risk to Humans or Other Mammals

The eggs and meat of infected chickens are not affected and are safe to eat. However, if a chicken was infected with the cutaneous form then they may have skin and/or internal tumors which can be unsightly.

Figure 5. Birds with the neural form of Marek's disease such as this flock, don't live very long



If you think your flock has Marek's disease, call the Maryland Department of Agriculture (MDA) at [410-841-5810](tel:410-841-5810) for assistance, risk assessment or possible testing. If you have an unusually high level of mortality on your farm and the birds show the same symptoms, you can submit the deceased birds for necropsy to a regional MDA Animal Health Diagnostic Laboratory. Call ahead for submission requirements and further instructions at the numbers provided below:

MDA Regional Animal Health Office/Diagnostic Laboratories

| Region | Facility | Phone |
|---------------|-----------------|--------------|
| Western Shore | Frederick Lab | 301-600-1548 |
| Eastern Shore | Salisbury Lab | 410-543-6610 |

Photos provided by Jonathan Moyle, Dr. F. Dustan Clark, and the American Association of Avian Pathologists.

Jonathan Moyle (jmoyle@umd.edu) and Nathaniel Tablante (nit@umd.edu), University of Maryland Extension; Daniel Bautista (bautista@udel.umd), University of Delaware; and Dustin F. Clark (fdclarck@uark.edu), University of Arkansas Extension

This publication, Recognizing and Preventing Marek's Disease in Small Flocks (FS-1007), is a series of publications of the University of Maryland Extension and Program/department name. The information presented has met UME peer review standards, including internal and external technical review. For more information on related publications and programs, visit: <http://extension.umd.edu/poultry>. Please visit <http://extension.umd.edu/> to find out more about Extension programs in Maryland.

The University of Maryland, College of Agriculture and Natural Resources programs are open to all and will not discriminate against anyone because of race, age, sex, color, sexual orientation, physical or mental disability, religion, ancestry, or national origin, marital status, genetic information, or political affiliation, or gender identity and expression. is a series of publications