

# *Mycoplasma gallisepticum* in Backyard Flocks



*Mycoplasma gallisepticum* (MG) is considered to be the **most economically significant mycoplasmal pathogen** in poultry. MG is a slow-spreading infection that often goes undetected, and infected birds remain healthy without showing symptoms of disease until a stressful event occurs. Complicating factors that may have a detrimental effect on the bird's immune system—such as environmental stressors (heat stress, cold stress, dust, ammonia, etc.), nutritional deficiencies, or other disease challenges (infectious bronchitis, laryngotracheitis, etc.)—can lower immunity level of the flock, causing the MG infection to present itself.

MG can adversely affect fertility, hatchability, and chick survival. It can easily spread from flock to flock on the farm, to neighboring flocks, to birds of different species, and to wild birds. The disease primarily affects chickens and turkeys but can also infect ducks, geese, peafowl, pigeons, gamebirds (pheasants, chukar partridges, and bobwhite quail), Japanese quail, and wild birds. MG infection in chickens is also known as chronic respiratory disease (CRD). Similar to avian influenza, infectious laryngotracheitis, and several other serious poultry diseases, **MG is a reportable disease in Mississippi.**

## Respiratory Infection

The *Mycoplasma gallisepticum* organism is a very small and delicate, bacteria-like organism that has no cell wall. There are numerous species of mycoplasma, and many of them infect only certain animals. Some appear to cause no health-related problems. However, some are associated with mastitis in cattle, some result in respiratory disease in pigs, and others cause respiratory infections in birds. Some are quite host specific; for example, *Mycoplasma bovis* infects cattle but not pigs. In contrast, MG can infect a variety of different avian species.

MG is found worldwide. In the United States, the organism has been eradicated from most commercial chicken and turkey breeding flocks, but it is still present in other poultry operations. MG is a respiratory disease that **affects the entire respiratory tract, especially the air sacs**, where it tends to localize. Both upper and lower air

sacs may be involved and may initially appear cloudy and later fill with mucus. In the latter stages, this mucus develops a yellow color with a cheesy consistency. The heart sac may display similar symptoms. An infection with MG resembles many other respiratory diseases that affect chickens, such as infectious bronchitis, *Escherichia coli*, or Newcastle disease.

Often, chickens infected with MG may also be infected with other pathogens, such as *M. synoviae*, *M. meleagridis*, *E. coli*, *Ornithobacterium rhinotracheale* (ORT), Newcastle disease, and/or infectious bursal disease. The severity of symptoms and the difficulty of making an accurate diagnosis increases when chickens are infected with multiple organisms at the same time. **Younger chickens (4 to 8 months of age) and male birds appear to be more susceptible** to severe infections. The disease is worse in winter months when environmental conditions are often cold and damp.

## Common Signs

MG alone is often not deadly and may only cause mild clinical signs or lesions in chickens. However, an outbreak is quickly followed by many secondary infections, which may include Newcastle disease, infectious bronchitis, and *E. coli*, especially if accompanied by high levels of dust or ammonia in the chicken house; **it is these secondary infections that do most of the damage.** The most common signs in chickens are coughing, sneezing, rales, difficulty breathing, nasal discharge, swollen sinuses, and watery eyes. Unfortunately, these are the same signs as with many other respiratory diseases, making it difficult to determine the exact cause of the infection. Diagnosis can be done by necropsy and culture of sick or dead birds or a blood test to see if the flock has antibodies to MG. Presence of

antibodies means birds have been infected, and, even though you may not have a current problem with MG, infected birds are carriers and may be able to infect other birds, even though they may not appear sick.

There is **no cure for MG, and infected birds remain infected for life**. Some antibiotics such as Tylosin or tetracyclines can reduce symptoms but will not cure or eliminate MG. In addition, some antibiotics cannot be used on birds raised for eggs or meat. Even though you may treat birds with antibiotics, they can still spread MG to other birds. You should carefully consider the costs and benefits of maintaining a flock infected with MG (which may require continuous use of antibiotics and is usually quite expensive). **Depopulating infected flocks** followed by thoroughly cleaning and disinfecting the facilities and equipment and starting fresh with a certified MG-clean flock may be a better option. **Maintain a strict biosecurity program** to keep your flock free of MG.

## Transmission

MG is **vertically transmitted** from breeding birds to the chick through the egg, and it is also **horizontally transmitted** from bird to bird via respiratory secretions. In addition, contaminated dust, feed, water sources, or feathers are methods of indirect transmission. Rodents and wild birds also serve as carriers of MG and can transmit the organism into the flock's environment.

Poultry auctions, exhibitions, shows, swap meets, and other events where poultry of questionable disease status are together also have been associated with MG outbreaks. Equipment such as egg flats, coops, cages, and tools that are contaminated with fecal material or respiratory secretions from MG-infected birds can also spread disease to clean flocks. Humans are able to transport MG to their flocks on their person, clothing, footwear, and equipment. MG organisms are able to **live in the environment for days to weeks**, depending on the temperature and the material the organisms are living in.

## Biosecurity

Start your flock with birds you know are MG-clean, and then practice good biosecurity to keep MG off your premises. The **National Poultry Improvement Plan (NPIP) is one of your best resources to protect your flock**. Purchase birds only from known NPIP-certified MG-clean flocks or hatcheries producing NPIP-certified MG-clean chicks. Minimize contact with other flocks. If you must be around other birds, shower and change clothing and footwear before getting close to your own birds. Realize that the more birds of different ages, breeds, species, and types that you have on the farm, the greater the risk of infection. Practice good sanitation by keeping drinking water, drinkers, feed, and feeders clean. Keep birds on well-drained soil and eliminate standing water. Be sure you are not attracting rodents, and maintain a sound rodent-control program. **Quarantine any new birds or any birds that have been off the farm to a show or fair for at least 30 days** before adding them to your flock.

## Public Health

MG does not appear to be zoonotic (able to infect people). It does not make people sick, and it is safe to eat eggs from infected flocks.

## Sources of Help

Here are some sources of help if you are concerned about *Mycoplasma gallisepticum* in your backyard flock or need assistance with disease diagnosis:

- Your local county Extension agent
- Your local veterinarian
- Mississippi Board of Animal Health (601-359-1170)
- Mississippi State University Poultry Science Department (662-325-3416; ask for a poultry Extension specialist)
- Mississippi Veterinary Research and Diagnostic Laboratory (601-420-4700)

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