

MYCOPLASMA

Mycoplasma gallisepticum
and *Mycoplasma synoviae*
in domestic poultry



**Florida Department of
Agriculture and Consumer Services**



WHAT IS *MYCOPLASMA*?

Like humans, chickens can become sick from bacterial infections. *Mycoplasma* is a very small, slow-growing bacterium. There are multiple types of *Mycoplasma* that affect different animals, humans, and even plants and insects. Several types of *Mycoplasma* affect chickens, turkeys and other birds. Two main types, *Mycoplasma gallisepticum* (MG) and *Mycoplasma synoviae* (MS), can make birds sick, occasionally resulting in death, especially if the birds have other complications or compromised immune systems. *Mycoplasma* can spread easily among birds and noticeable symptoms may take weeks to develop, delaying the diagnosis. Once birds are infected with *Mycoplasma*, they can be treated, but some are likely to remain carriers after recovery. Avian *Mycoplasma* can mutate rapidly and strains can vary widely in virulence.

HOW DO BIRDS GET *MYCOPLASMA*?

From other birds. Hens can spread *Mycoplasma* through their eggs to their chicks. Birds with *Mycoplasma* can spread it even before exhibiting symptoms. Birds do not have to be kept together to become infected with *Mycoplasma*; it can spread from the droppings and feathers of infected birds and through dust in the air. Cages, coops and tools such as shovels used around birds with *Mycoplasma* can spread the bacteria to other birds. *Mycoplasma* can spread even after sick birds are removed. The only way to diagnose the disease is to test the flock. Until a flock is tested, people may inadvertently spread the disease without knowing their birds are infected.

From other animals. Other animals, such as rats, are not made sick by *Mycoplasma*, but can still carry it into areas near birds and infect the flock.

From people. MG or MS will not make people sick, but people can infect flocks without knowing it. By contact with other birds with *Mycoplasma*, infection can be brought back on shoes, clothing, skin and hair, even if there has not been direct contact with any birds. MG can live in a person's nose for up to one day; on straw, rubber, or cotton for two days; and in hair for up to three days. Cross-contamination from infected birds, with humans as the carrier, is one of the most common methods that birds become infected with *Mycoplasma*. **DO NOT** visit a flock without showering and changing clothes after visiting a show, auction, flea market, or a friend or neighbor's house.



HOW CAN YOU TELL IF BIRDS ARE INFECTED?

Remember, because it may take up to three weeks for birds to exhibit any symptoms, otherwise healthy-looking birds may already be infected with *Mycoplasma*. In other cases, they may never appear sick. Birds infected with MG may have similar signs to those people get with a common cold: runny nose, cough or unusual breathing sounds, and swollen or puffy eyelids and face. Birds infected with MS may have problems standing or walking, ruffled feathers, and swollen joints and blisters. In addition to those signs, birds may be quieter than usual, eat and drink less, lose weight, or lay fewer eggs than normal. Just like the cold or flu in humans, *Mycoplasma* will make some birds more sick than others. If you see these signs, a veterinarian can take a blood sample or tracheal (throat) swab to test for *Mycoplasma*.



CAN BIRDS WITH *MYCOPLASMA* MAKE PEOPLE SICK; CAN THE EGGS AND MEAT BE EATEN?

No, neither MS nor MG affects humans, but humans can spread the bacteria. The eggs and meat, when properly prepared, are safe to eat, but for treated birds, follow the specified antibiotic withdrawal times. Poultry *Mycoplasmas* are not known to cause disease in humans.

HOW IS *MYCOPLASMA* TREATED?

Most birds will recover from the infection, but some cases may result in death. There are antibiotics available through a veterinarian or over-the-counter that may decrease the symptoms of the disease and speed up the bird's recovery. If birds test positive for *Mycoplasma*, a veterinarian can decide the best course of action. Remember, if a flock is infected with *Mycoplasma*, the flock will be permanently infected, even if there are no signs of active infection. Chronically infected birds may become more susceptible to other secondary pathogens which can cause severe mortalities and production losses.



HOW CAN *MYCOPLASMA* BE PREVENTED?

Do not let *Mycoplasma* walk in the door! Do not accidentally bring MG or MS home. Keeping flocks *Mycoplasma*-free is the method of prevention. Treating infected birds with antibiotic medication may alleviate signs and production losses, but does not always eliminate the infection and can produce carrier birds that can infect other birds. Preventing introduction of *Mycoplasma* onto the farm by keeping a closed flock and practicing strict biosecurity and disease prevention management are important in controlling the disease. Below are some easy steps to prevent disease:

- Have a designated set of clothes or coveralls to wear when working with your flock, or use disposable coveralls.
- Have a separate pair of rubber boots for each flock and use a footbath (a shallow pan or bucket with disinfectant) and a scrub brush to clean shoes before and after working with birds. Be sure to clean out and replace the footbaths often. Footbaths are ineffective if they sit out too long or fill up with dirt. If using bleach, replace daily and keep the footbath covered when not in use.
- Disposable shoe covers can be used instead of rubber boots and are convenient for visitors to wear.
- Do not share any tools, cages or other equipment with other bird owners without cleaning and scrubbing with disinfectant.
- Shower and change clothes if you have visited a show or auction (even if there was no direct contact with birds) before working with your flock. Make sure that visitors follow the same rules. It is a good idea to post signs outside where birds are kept to keep people from entering the area.



- Keep the area clean and do not let extra feed pile up that might attract rats or wild birds which could bring *Mycoplasma* into your flock.
- One bird is all it takes. Buying birds from the Internet, auctions, neighbors or flea markets always carries the danger of getting a bird infected with *Mycoplasma*. Many sellers may be unaware their birds are infected with the bacteria. Remember, a bird exposed to *Mycoplasma* may not show signs for more than three weeks, if at all. If a seller states that they are certified by NPIP (National Poultry Improvement Plan), their birds may have been tested for some diseases (Avian Influenza and Pullorum), but not necessarily *Mycoplasma*.
- The best way to protect your own birds when new ones come onto the premises is to house the new birds in a completely separate area, allowing zero contact with the original flock for 30 days. Also, remember to use different clothes, shoes, and tools with the new birds and always visit and feed the new birds last. Test the new birds for *Mycoplasma* by contacting your local veterinarian.
- The general health status of the flock, including nutrition and immunity, will affect the severity of the disease.

While these steps may seem like a lot of work, remember that *Mycoplasma* is forever; once it is in your flock, it is there to stay. The best treatment is prevention.

MYCOPLASMA POSITIVE: WHAT ARE THE OPTIONS?

If you decide to have birds tested for *Mycoplasma*, a local veterinarian or a Florida Department of Agriculture and Consumer Services (FDACS) authorized testing agent may collect samples from your birds (blood or oropharyngeal swabs) and submit them to the laboratory. These samples will then undergo tests for *Mycoplasma* and determine which type of *Mycoplasma* is present. If birds have tested positive for either MG or MS, there are options for managing the disease. The laboratory that provided the testing and a veterinarian will work with you to answer questions to help you decide what the best option is for the flock.

HOW IS MYCOPLASMA TREATED AND MANAGED?

If depopulation is not an option, there are several antibiotics that may be used to treat *Mycoplasma* infections, although none of them will eliminate the organism completely from the flock. Treatment may decrease the birds' symptoms, reduce recovery time and help decrease transmission to new birds. Treatment may need to be repeated monthly to keep *Mycoplasma* at low levels since positive birds will carry it for



life. Most strains of *Mycoplasma* are sensitive to antibiotics, including erythromycin and tylosin, and tetracyclines such as oxytetracycline and doxycycline. Most are available in either oral or injectable solution. It is important to follow all labeled instructions and withdrawal times listed. A local veterinarian is the best resource for providing treatment options. In addition to treating the birds with antibiotics, the disease needs to be managed for the lifetime of the flock, keeping in mind that any new birds may become infected. Strict biosecurity measures (separate clothing, shoes and equipment; footbaths; restricting access) will help prevent spread of *Mycoplasma* from one flock to another. Birds from a positive flock should not be taken to shows, auctions, flea markets or exchanged with friends and neighbors. It is important to remember that even if only a few individual birds test positive, any other birds in the flock may be carrying the disease and should be considered positive also. If the flock is not depopulated, the disease may reappear at any time and spread to other flocks, including commercial poultry farms.

NEED MORE HELP; QUESTIONS?

For more questions about *Mycoplasma*, how to protect a flock or how to have birds tested, please contact your local veterinarian.

FDACS can provide assistance with biosecurity practices and disease management as well as diagnostic laboratory services. The Bronson Animal Disease Diagnostic Laboratory (BADDL) offers a variety of tests for *Mycoplasma* detection in poultry. PCR is the preferred method of laboratory diagnosis of *Mycoplasma* in poultry, as, serological testing may not give conclusive results in flocks with less than 25 birds. The BADDL Molecular Biology Section can perform *Mycoplasma* PCR on tracheal swabs. Additionally, poultry necropsies performed at BADDL include *Mycoplasma* PCR testing. For more information, contact the FDACS, Division of Animal Industry, at (850) 410-0900 or contact the BADDL at (321) 697-1400 for laboratory services.

USDA Biosecurity for Birds offers a website with tips to keep poultry healthy, videos and games for children:

<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian-influenza-disease/birdbiosecurity>.

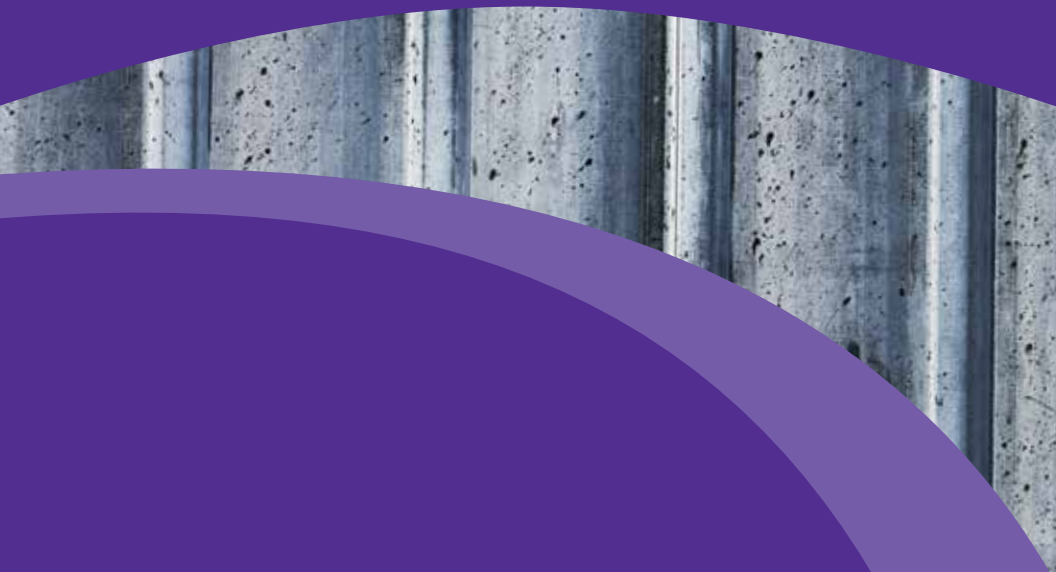
MYCOPLASMA FAQs

- **Approximately what percent of poultry flocks in the US are MG/MS carriers?**
At present, an exact percentage is unknown, but one could expect that 50-60% of backyard flocks have *Mycoplasma*.
- **Do most backyard chicken keepers who have MG/MS carriers know their birds have been exposed?**
They may not know about it because, in many cases, carrier birds look normal without any clinical symptoms.
- **In what settings are these diseases most dangerous? (Large-scale corporate meat/egg producers? Backyard enthusiasts? Small breeders? Large hatcheries?)**
Most commercial producers can't live with disease because of severe economic losses and US and international trade implications; therefore, they participate in NPIP *Mycoplasma*-free programs. In the event of an outbreak, the commercial industry chooses depopulation of the flock.
- **Are there any laws in the US about the sale of fertile hatching eggs from exposed flocks, or of birds that are known MG/MS carriers, and if so, what are they?**
The NPIP is a voluntary program. Some states may have local regulations where there are concentrated poultry operations in place. In Florida, Avian Mycoplasmosis is a reportable disease and in an effort to protect Florida's poultry industry and backyard flocks, birds testing positive for Mycoplasmosis cannot be sold or leave the premises.
- **If I take birds to poultry shows, what is the chance they will be exposed to MG/MS?**
Most shows do not require *Mycoplasma* testing. There's a chance of exposure if they come into contact with carrier birds.

- **If I take birds to a chicken swap at a local farm store, what are chances of my birds becoming exposed?**
Swapping/buying birds from unknown/untested sources is an essential problem. There are typically more clinical cases with a history of swapping/buying from untested sources than any other.
- **If I buy fertile hatching eggs or chicks from another backyard poultry enthusiast, what are the chances these birds will be carriers of MG/MS?**
Mycoplasma can be transmitted vertically via egg. If the breeders are not tested, we don't know their health status, and the eggs could carry MG or MS.
- **Should small-scale poultry breeders have their flocks tested? Why or why not?**
While testing is up to the individual flock owner, it is encouraged so that the flock status is known and proper management decisions can be made.
- **Should backyard chicken keepers or breeders depopulate if their flock tests positive for MG/MS?**
If they choose not to depopulate the birds, they should learn how to live with the disease and consequences of having *Mycoplasma* in the flock. If a flock is infected with *Mycoplasma*, that is a permanent infection. Chronically infected birds may attract other pathogens like Newcastle disease, infectious bronchitis and secondary bacterial infections, which can cause severe mortalities and production losses.
- **What is the best prevention?**
Education and discussion of one's situation with a poultry professional. Keeping flocks *Mycoplasma*-free is the best method of prevention. Treating infected birds with antibiotic medication may alleviate signs and lesions, but does not always eliminate the infection and can produce carrier birds. Preventing introduction onto the farm by keeping a closed flock, practicing strict biosecurity and disease prevention management are important in controlling the disease.

REFERENCE

Swayne, David E., et al. *Diseases of Poultry*. 13th ed., Wiley-Blackwell, 2013



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