VM130

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Mycoplasma Gallisepticum - A Continuing Problem in Commercial Poultry[1]

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Mycoplasma gallisepticum (MG) infection in the commercial poultry industry is common in many parts of the world. Despite success in eliminating the disease in grand parent (GP) stock and turkeys, it persists in broiler breeders and broilers in many areas. There also continues to be a high incidence of the disease in commercial layers worldwide. The continued presence of MG in commercial poultry suggests that efforts at eradication were not highly successful. MG infection in the commercial poultry industry will likely continue and limiting losses will be the primary objective.

M. gallisepticum infection is caused by an organism classified as a mycoplasma. This organism is similar to bacteria, but lacks a cell wall. This characteristic makes MG extremely fragile. They are easily killed by disinfectants, heat, sunlight, and other factors. They only remain viable in the environment, outside the chicken, for typically up to 3 days. For this reason, MG is fairly easy to eliminate on single-age, all-in all-out poultry farms. If a laying flock is infected, complete depopulation of the farm at the end of the laying cycle and providing down-time prior to reintroducing chickens will be successful in eliminating MG. However, *complete* depopulation must be performed to break the cycle and prevent re-infection in subsequent flocks on the premises.

When a chicken is infected with MG, the infection is of long duration. In the period after infection, the organism is present in the respiratory tissues in high levels and is shed into the environment and eggs. After several weeks, the level of infection and shed of the organism decreases. However, the infection persists in the flock indefinitely and the chickens may shed the organism intermittently, especially following a period of stress. This characteristic makes elimination of MG extremely difficult in multi-age breeder and laying complexes. As MG-clean pullets, raised in single-age farms and in isolation, are brought onto the complex, they are often exposed to the organism at probably the worst possible time-- at the onset of production. This cycle of spread continues in a complex with new flock introductions.

Efforts to reduce the adverse affects of the disease on breeders and egg-type layers in complexes have included use of antibiotics, killed vaccines, and

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live vaccines. These efforts have been successful in reducing drops in egg production following infection, maintaining levels of egg production throughout the cycle, reducing severity of concurrent respiratory diseases, controlling excess vaccine reactions, reducing sensitivity to air quality, limiting shed level and duration into the poultry house environment, and reducing egg transmission to broiler progeny. These efforts have not been successful, however, in eliminating infection and shed. More recently, live vaccines have become commercially available that do not spread from bird to bird, do not cause disease in turkeys, and cause a very mild and predictable reaction in pullets. These offer many advantages over the live vaccines used in the past. Most MG-positive breeder and egg-type layer complex managers administer these products to pullets prior to moving the MG-clean pullets onto infected complexes. Use of killed vaccines is common in some farms, especially broiler breeder complexes. While live vaccines are more commonly used in egg-type commercial layers. However, combinations of live and killed vaccines and antibiotics are used depending on local conditions. Use of antibiotics is most practical in broilers for controlling respiratory reaction.

M. gallisepticum is spread only *short* distances by the air-borne route. Where excellent biosecurity is practiced, there have been many instances where infection has not spread to adjacent houses within a complex. The disease is spread from farm to farm predominantly by movement of contaminated people, equipment and vehicles. Thus, basic biosecurity is the best means of preventing introduction of MG into layer and breeder complexes. Egg transmission to broiler progeny occurs at a low level from infected breeders, however, horizontal infection then readily occurs in broiler houses. Another potential means of transmission of MG that has not often been given much attention is the spread by wild birds and pet birds. Data have demonstrated that wild birds may become infected and shed MG. Likewise, the author in 1990 conducted a series of experiments and was able to infect, produce clinical disease, and isolate a classical MG field strain from budgerigars (parakeets). These findings further demonstrate the need to wild-bird-proof poultry houses when possible and to discourage company employees from ownership and/or contact with pet birds.

The decision to vaccinate or simply accept performance losses in commercial layers will depend on several factors. The strain of MG in a farm must be considered as some strains of MG are mild while others are highly virulent. House construction is a major factor in determining the severity of clinical disease. Open-sided houses and closed houses with excellent ventilation do not experience recognizable losses in performance, while the same layers in a closed-type house with poor ventilation will experience considerable performance losses. Thus, vaccination programs for MG must take into account the air quality where layers will be housed. Concurrent diseases such as coryza and infectious laryngotracheitis and the intensity of the live virus vaccination program, especially against IBV, NDV, ILT, are also variables to take into consideration.

MG infection in heavy breeders, almost without exception, requires intervention with vaccines and antibiotics. These breeders suffer significant loses and shed the organism to the progeny.

M. gallisepticum vaccination has been shown to reduce shed level and duration. Thus, if efforts are being made to eradicate MG on a commercial layer or breeder farm or reduce potential spread to neighboring non-infected farms, vaccination is suggested.

Affected broiler breeder flocks should be vaccinated prior to onset of infection and broilers managed and treated to reduce adverse of affects of MG.

It is unlikely MG will be eradicated from the commercial poultry industry in the coming years. However, through biosecurity programs and effective use of vaccines, losses can be reduced.