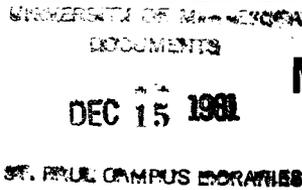


VETERINARY SCIENCE
FACT SHEET No. 29-1981
DAVID HALVORSON



Mycoplasma Gallisepticum Control in Chickens

Mycoplasma gallisepticum (Mg) is a respiratory disease that may have manifestations ranging from mild to severe. The most serious effects in chickens are seen when the infection occurs in growing broilers or pullets, either by egg transmission from infected parent flocks or by lateral transmission during hatching or brooding. This results in chronic respiratory disease (CRD), which has caused high condemnations of broilers at slaughter and reduced egg production in pullets.

The broiler industry and the turkey industry have largely eliminated the disease, and the layer industry is making significant progress. Many commercial layer type hatcheries are now certified "U.S. *Mycoplasma gallisepticum* Clean." This has given egg producers the opportunity to embark on an Mg control program knowing that the chick they are buying is truly free of Mg according to an unbiased authority.

The availability of chicks certified free of Mg offers the producer the chance to grow Mg-free, 20-week-old pullets. The U.S. Mg clean status of breeders and baby chicks could logically be extended to 20-week-old pullets so that egg producers will know the status of the pullets they house. With this foundation it would be possible to have an orderly, well-conceived plan for Mg control on each individual layer farm.

In the past, attempts by producers to eliminate or control *Mycoplasma gallisepticum* have sometimes failed due to inapparent egg, hatchery, or pullet house transmission. **When this inapparent transmission became manifest after the onset of production, it caused producers to conclude that they could not control the infection.** This mistaken conclusion (made by more than one producer) has resulted in a lack of significant progress in *Mycoplasma* control on many egg layer farms.

Mg is not a significant threat on single age layer farms since carrier chickens are the most likely source of the disease. Even on farms with only two or three ages of hens, the disease could be eradicated with relative ease.

It is the farm with 6, 8, 10 or more ages of layers that currently is most likely to suffer from the effects of Mg infection. These effects are primarily economic in nature: a reduction of egg production, increased mortality, and reduced eggshell quality. Producers have observed a loss of 10 to 20 eggs per hen and 4 to 6 percent greater annual mortality.

The reason for these losses is the introduction of Mg negative pullets onto a farm with a continuous presence of Mg positive layers. The positive layers are the source of infection for the negative pullets. The rest of the egg layer industry, as well as the broiler and turkey industry, has been easily able to achieve and maintain Mg negative status. Aggressive and committed egg producers have been able to achieve and maintain Mg negative status on multiple age farms.

Control Measures

Three measures are being used to control Mg in multiple age layer complexes: eradication, medication, and vaccination.

Eradication programs have been used successfully to eliminate Mg from multi-age farms. These attempts have been successful with and without total depopulation. Four multi-age farms in Minnesota are currently Mg negative.

Some attempts at eradication have ended in failure. Reasons for these failures have been a lack of commitment by management and the inadvertent use of Mg infected pullets. The following are needed to successfully eradicate Mg from a large farm.

1. National Poultry Improvement Plan Mg clean chicks.
2. Chicks should be grown in isolation and kept clean.
3. Move chicks in clean vehicles, not spent hen trucks.
4. Practice maximum commitment and traffic control.

Medication programs have been used to reduce the economic loss of Mg infection during the laying period. These programs do not prevent the infection, but do reduce the effects of the disease. Tylosin (50 grams per ton) erythromycin (100 grams per ton) or a combination of penicillin and streptomycin (100 grams per ton) have been used by producers to successfully reduce the impact of Mg infection in layers.

Vaccination with the live "F Strain" of *Mycoplasma gallisepticum* has also been shown to reduce the disease effects of Mg infection. Research has shown a gain of seven eggs per hen housed to 45 weeks of lay from the use of this vaccine compared to flocks going through an Mg break. The increased egg production equals about half the loss that would occur from an Mg break which indicates that the F Strain is pathogenic. Reports indicated that the "F Strain" should be administered prior to 19 weeks of age and that water administration is more satisfactory than spray. Medication combined with vaccination has also been shown to have more benefits than vaccination alone.

Vaccination with live vaccine has been used as a tool for the eradication of Mg from positive farms. Such attempts have not always been successful. It is likely that with large farms and several ages of hens, eradication is more difficult to achieve than on farms with two to three ages of hens.

Killed Vaccine

The most exciting new research in the *Mycoplasma gallisepticum* area is the development of an experimental killed vaccine. Field observations indicate that the product may protect hens against a drop in egg production associated with an Mg break. The product causes the hens to test positive on the

plate agglutination test and the hemagglutination test. Research work on this type of product has been performed in both Georgia and Texas.

Reports indicate that the bacterin protects against the respiratory effects of Mg and, perhaps most significant, that two injections of the bacterin seem to prevent a rise in titer when the birds are challenged with virulent Mg. This may indicate that two doses prevent infection, which would be a significant aid in eradication.

This work is of great interest to owners of multiple age laying farms as well as to others in the industry and Mycoplasma researchers. Evidence now indicates that chickens can be vac-

inated for Mg and will be protected against the risk of production drop while a producer is eradicating the infection from his farm.

Field trials are planned for farms in the Midwest.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Norman A. Brown, Director of Agricultural Extension Service, University of Minnesota, St. Paul, Minnesota 55108. The University of Minnesota, including the Agricultural Extension Service, is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap. 5 cents

UNIVERSITY OF MINNESOTA



3 1951 D03 075 515 3