

FOWL CHOLERA IN NORTH DAKOTA

By

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Fowl cholera or pasteurellosis is one of the more serious disease of chickens and turkeys in the northwestern states. While we consider fowl cholera a specific infectious disease there are many things besides the microorganism to consider in determining ways of control.

The organism which we find in the birds in cases of fowl cholera is called *Pasteurella multocida*.

Early in the history of bacteriology this organism was isolated and identified. At this time Pasteur made a vaccine for the protection of chickens against the disease. This was one of the first demonstrations of the effectiveness of vaccines in preventing disease.

Since that time there have been many vaccines, bacterins and aggressins made for immunizing animals and birds against pasteurellosis which is the technical name for the disease whether it occurs in birds or mammals. Some of the common names for pasteurellosis in species other than birds are: hemorrhagic septicemia, shipping fever, and swine plague.

In general, tests in which experimental animals and birds were vaccinated and later infected have shown that the experimental subjects were not made immune by the vaccine. We have numerous reports of the use of bacterins in attempting to control field outbreaks of fowl cholera. Some indicate that the use of bacterins prevented the spread of cholera within the flocks, others indicate that vaccination did not decrease the losses or stop the spread of the disease within the flock.

A study of a large number of case histories has shown that an error or change in management or a prolonged feeding of a deficient ration usually preceded outbreaks of fowl cholera. Once the disease has started in a flock it frequently follows the same general pattern as other infectious diseases.

A few case histories can be used to illustrate some of the factors to be considered in the epidemiology of fowl cholera.

Case I—The owner started experiencing losses from his flock during the late fall. An investigation was made because of the high death rate. The only fault in management appeared to be a high humidity in the laying house. Losses continued to be so great that the entire flock was sold. The house was disinfected. After a year new birds were put into the house and soon began dying of fowl cholera. This is an exceptional case because the cholera organism is rather easily killed by the commonly used disinfectants. Depopulation of houses and yards has usually been sufficient to eliminate the disease.

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Case II—This owner experienced a continual loss of relatively few birds from chronic fowl cholera. Upon studying the case history it was found that his birds were fed a ration of wheat only. This type of ration is low in vitamin A, riboflavin, protein and minerals.

One of the more common types of cholera outbreaks follows a sudden change in the ration.

Case III—A sudden change from old grain to freshly threshed millet appeared to be the excitant to a fowl cholera outbreak in a 400-bird flock. Thirty died before death losses were stopped by decreasing the amount of millet in the ration.

Case IV—Five hundred 9-week-old chicks were changed from a growing mash to a whole grain-protein concentrate ration. Only a few died but laboratory diagnosis showed that they died of fowl cholera. This case is unusual because birds of this age usually do not die from fowl cholera.

Case V—This outbreak occurred during the recent war years when protein supplements were rather scarce. A flock of 12,000 turkeys was fed a protein concentrate which had been so hastily prepared that the ingredients were not adequately dried and as a result molds had developed in the feed. Losses were heavy until the concentrate was changed. The cholera organism was isolated from turkeys submitted to the laboratory. Experimental chicks were fed the concentrate but no losses occurred.

Case VI—Another common type of cholera outbreak is illustrated in this case. The owner suddenly changed the ration from a mixture of grains plus a protein-mineral concentrate to a ration composed of recently shelled corn and the same concentrate. Within a week he had lost a fourth of his flock. The cholera organism was isolated from the birds submitted for examination.

Case VII—This is an illustration of the dangers of overcrowding. While in this instance fowl cholera is involved, the same general situation would prevail with the introduction of any infectious disease into the house.

The owner had a flock of 150 White Leghorn hens housed in a room 12' x 14', an allowance of only slightly more than one square foot per bird. Besides the overcrowding, the ration, consisting of corn and oats, was deficient. His losses from cholera were heavy.

The prevention of fowl cholera is, of course, more desirable than treatment. The results of field and laboratory trials do not indicate that prophylactic immunization for fowl cholera is of much value. Some of the apparent excitant causes of fowl cholera have been pointed out. Every effort should be made to keep the birds healthy.

At times there are outbreaks of fowl cholera for which there can be found no apparent cause. It is in these cases that chemotherapy is indicated. Results obtained here and in other labora-

tories show that sulfaquinoxaline, sulfamerazine and sulfamethazine are three effective drugs. If these drugs are used according to the manufacturers' recommendations they will definitely decrease losses due to fowl cholera. It must be realized, however, that the initial losses following management errors are not likely to be decreased by medication.

Summary

An error of management acts as a predisposing factor in many outbreaks of fowl cholera.

Medicinal treatment of fowl cholera with effective drugs such as those noted above is advisable in an outbreak of the disease.

Readers of the Bimonthly Bulletin seeking further information about the geology and natural resources of North Dakota will find an extensive list of references in two publications of the North Dakota Research Foundation, Bismarck, North Dakota. These are

Bulletin No. 1—"Bibliography of the Geology and Natural Resources of North Dakota 1814-1944" by Chrissie E. Budge, 1946

Bulletin No. 4—"First Supplement 1948—Bibliography of the Geology and Natural Resources of North Dakota, 1948" by Chrissie E. Budge

Copies of these bulletins may be obtained from the North Dakota Research Foundation, Bismarck, North Dakota.