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Respiratory Infections In Domestic Poultry Flocks

This NebGuide discusses the most common respiratory infections in poultry, and includes steps to diagnose, prevent, and treat each.

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Small poultry flocks are susceptible to a number of respiratory infections. Some of these produce extremely mild illness while others may result in a high number of deaths.

Regardless of whether birds are raised for meat, eggs, breeding or show purposes, respiratory infections result in decreased performance. They may also disqualify a bird for show, and pose disease hazards for other poultry on the same premises.

Respiratory infections in poultry have several causes, but outward signs may appear similar to the flock owner.

Since successful treatment and prevention of respiratory disease requires correct diagnosis, this NebGuide provides information on common infections to help producers understand the complex nature of these illnesses, and the need to seek qualified help in obtaining a diagnosis.

Bacterial Diseases

Fowl Cholera (Pasteurellosis)

Causative Agent: *Pasteurella multocida*

Thousands of migrating waterfowl succumb to this disease annually, perhaps because of overcrowding in shrinking wetland habitats, coupled with the stress of the long migration.

In addition to wild birds, chickens and domestic turkeys, ducks, geese and gamebirds also are susceptible.

Method of Spread

Recovered birds may carry the organism for a long time and serve as a source of infection.

Signs

Sudden death, without signs of illness, is often seen in turkeys and waterfowl. In addition to unexpected deaths, chickens also may develop swollen sinuses and wattles. Fowl cholera, if untreated, can kill a substantial portion of the flock.

Treatment and Prevention

This disease is treated with appropriate antibiotics following isolation and identification of the organism. Prevention may include vaccination on farms where repeated outbreaks are common. Isolation of domestic poultry from wild flocks is important.

Chicken and Turkey Coryza

Causative Agents: *Haemophilus paragallinarum* and *Bordetella avium*

Although the names of these diseases are similar, the organism that causes the disease in chickens (*Haemophilus paragallinarum*) is different from the organism that affects turkeys (*Bordetella avium*).

Method of Spread

These are common organisms in poultry flocks. The diseases are passed from age group to age group as replacement stock is introduced to the farm. A percentage of birds become asymptomatic carriers.

Signs

Both these bacterial infections produce foamy, watery eyes, discharge from the nostrils, and sometimes swollen sinuses. Unlike fowl cholera, deaths rarely occur. Affected chicks and poults do not grow well, and the flock appears uneven in size.

Treatment and Prevention

Appropriately administered antibiotics may be effective in alleviating signs of disease, but do not affect carrier status. Vaccines are available.

Avian Mycoplasmosis (chronic respiratory disease of chickens, infectious sinusitis of turkeys)

Causative Agent: *Mycoplasma gallisepticum*

Method of Spread

Transmission of these diseases is primarily through bird-to-bird contact. Mycoplasmas also are transmitted by the egg to hatchlings from infected breeders. It is very important to know if your hatchery tests for mycoplasmosis in their breeding stock.

The majority of commercial poultry breeding and hatchery operations are involved with regular testing of their breeding stock for egg-transmitted diseases. This is a component of the National Poultry Improvement Plan (NPIP), a voluntary industry organization.

Signs

Mycoplasma bacteria produce respiratory illnesses indistinguishable in most cases from chicken or turkey coryza.

Uncomplicated mycoplasmosis rarely kills affected birds, but serious secondary bacterial infections are common. These may result in death loss and, in the case of meat producing birds, condemnation of the carcass.

Treatment and Prevention

Antibiotics alleviate signs of mycoplasmosis but cannot cure the infection.

The best way to prevent these diseases is to purchase hatching eggs or replacement stock from NPIP participants.

Aspergillosis (Brooder Pneumonia)

Causative Agent: *Aspergillus* spp. (usually *A. Fumigatus*)

Method of Spread

Aspergilli are common fungal organisms that grow readily in many types of organic material. Although widespread, they can pose a threat to birds if present in large numbers in the poultry house.

Birds are uniquely susceptible to aspergillosis because of the unique features of the respiratory tract. Birds have a complex system of air sacs that aid air movement through the lungs and help birds achieve light weight necessary for flight.

If large numbers of these fungi or their spores are inhaled, they may begin to multiply in the bird's air sacs and spread to other areas of the respiratory tract.

Signs

Affected birds usually do not cough, but exhibit a characteristic silent gasp. If stressed, their skin can become quite blue because of lack of oxygen. Severe weight loss is often seen.

Treatment and Prevention

Aspergillosis can be prevented by carefully managing the bird's environment.

Manure should not be allowed to accumulate, but should be regularly removed. Moldy bedding or feed must not be used for birds. Coarse bedding is preferable to fine as it produces less dust. Most importantly, feed or bedding that becomes wet should be removed immediately.

Good ventilation, cleanliness, and stress prevention are helpful to prevent this and many other bird diseases. Antifungal drugs are occasionally used on very valuable animals. These medications must be

given individually, and treatment is often prolonged and expensive.

Parasites

Gapeworm Infection

Causative Agent: *Syngamus trachea*

Gapeworms are long, bright red worms that attach themselves to the inside lining of the trachea.

Method of Spread

Gapeworms produce eggs that are coughed up, swallowed, and passed out of the host through the feces. These eggs or the resulting larvae are then picked up by other birds during feeding. Earthworms may also ingest the parasite, and birds can become infected by eating infected earthworms.

Signs

Gapeworms can be present in such numbers that they may completely fill the airway, resulting in extreme respiratory difficulty. Game birds and waterfowl are particularly susceptible to this infection. Infected birds typically gasp for air and breath with extended necks.

Treatment and Prevention

Flock owners often mistakenly treat affected flocks with antibiotics, which are ineffective against these worms. If gapeworm infections are treated incorrectly, many birds will die.

Effective wormers are available through your veterinarian. Most over-the-counter wormers (nonprescription) are ineffective. Diagnosis is made by demonstrating worms in the airway or by observing their eggs in the feces under a microscope.

Raising game birds on wire above the ground can greatly reduce the incidence of this disease.

Viral Infections

Infectious Laryngotracheitis (ILT)

Causative Agent: Herpes Virus

This viral infection of poultry typically affects chickens only, although occasional reports suggest pheasants also may be susceptible.

Method of Spread

The virus usually is spread through bird-to-bird contact, or contact with contaminated droppings or respiratory tract secretions. Recovered birds may be carriers and shedders of the virus, and may spread ILT to other poultry for many months.

Signs

Sudden death of an individual bird is often the first sign. Blood-stained feathers around the head and

neck may be observed. The disease spreads slowly through a flock, and mortality is high.

Treatment and Prevention

Once the disease is diagnosed, there is no treatment for affected birds. Fortunately, an effective vaccine can be administered. Vaccination can prevent infection in uninfected birds during an outbreak, and can be given to prevent the disease in new stock.

Diagnosis usually is made by microscopic examination of the trachea by a veterinary pathologist.

Newcastle Disease

Causative Agent: *Newcastle Disease Virus (NDV)*

Newcastle virus is a virus that can infect most species of birds.

Method of Spread

Sick birds shed the virus in respiratory secretions and fecal matter.

Signs

In most instances the respiratory infection is quite mild in all but very young birds. However, egg layers usually show a moderate to severe egg production drop. It may take two to four weeks for egg production to come back to near normal levels.

Treatment and Prevention

The commercial poultry industry practices widespread vaccination for this disease as a preventative tool. There is no effective treatment for this viral infection.

Infectious Bronchitis (IB)

Causative Agent: *Corona Virus*

Method of Spread

Infected birds shed the virus through respiratory secretions and feces. (This viral disease affects chickens only.)

Signs

As with Newcastle disease, little or no death loss is common, except in very young chicks.

However, if sexually immature birds become infected, they may experience permanent damage to their reproductive tract and never lay eggs.

Mature layers infected with Infectious Bronchitis will lay eggs with misshapen, soft, wrinkled shells for several weeks. Broiler chickens will show poor weight gain and may develop secondary bacterial infections.

Infected birds usually cough, because of excessive mucus in their trachea. This disease spreads rapidly

through the entire flock. In uncomplicated cases, the flock recovers quickly.

Treatment and Prevention

There is no effective treatment. Prevention is by vaccination.

General Recommendations Concerning Poultry Respiratory Diseases

In any case of respiratory illness, it is important to know if you're dealing with a viral, bacterial, fungal or parasitic disease. The treatment for one disease may be ineffective or even harmful for others.

To make a diagnosis, your veterinarian will perform several tests including bacterial cultures of the airways, blood tests, and necropsies (post-mortem examinations) of dead birds if they are available. Microscopic evaluation of affected tissues is helpful and can be performed at a diagnostic laboratory. A fecal test for parasites also should be done. Attempts to isolate virus may be required.

Several general measures can be taken to reduce the incidence of respiratory illness in small flocks.

1. Always purchase replacement stock from a reputable dealer, preferably one who is a member of the National Poultry Improvement Plan.
2. Keep all new birds isolated from the rest of the flock for at least three weeks. During this time the birds should have their blood tested for antibodies, and a fecal parasite check performed.
3. Keep birds isolated for two to three weeks after returning from a show. Respiratory outbreaks commonly occur after large groups of birds are mingled in these situations.
4. Screen all visitors to your farm. People can carry infectious agents from one farm to another on their shoes, hands, clothing, even on their hair. If a visitor requests to see your birds, ask that they not go near other birds the day of their visit. Request that they wear freshly laundered clothes and clean footwear.
5. Try to keep age groups separate. Young poultry need time to develop immunity to diseases. Isolate any suspicious sick looking birds from the rest of the flock. Get a diagnosis as soon as possible. Dead birds should be immediately refrigerated (not frozen) until a necropsy can be performed by your veterinarian. The necropsy ideally should be done within several hours after death.
6. Do not rely on "home remedies" which often do not work, but tend to mask disease and make diagnosis more difficult.
7. Your veterinarian may suggest a vaccination program if appropriate for your needs. Do not hesitate to call your poultry extension veterinarian and/or the Nebraska Veterinary Diagnostic Laboratory System if you have questions.

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