

Protecting Poultry against Exotic Poultry Diseases

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Exotic Newcastle Disease

Exotic Newcastle disease is considered a foreign animal disease of poultry. The causative agent of END is a virus (Rubulavirus) in the family Paramyxoviridae. The virus can persist in feces for long periods of time and some bird species (parrots and some wild birds) may be carriers of the virus. Outbreaks of the disease can cause severe losses in a short period of time. Birds can contract the disease by direct contact with infected birds, feces or other body secretions, exposure over short distances to aerosols from coughing and sneezing, or contaminated equipment, clothing, etc. The incubation period for the disease varies from 2-15 days with the incubation period in chickens being 2-6 days. Clinical symptoms of the disease can include: a sudden death loss or increase in losses, high rates of death, gasping for air, coughing, sneezing, green watery diarrhea, depression, loss of appetite, droopy wings, twisting of the head and neck, circling, egg production loss, paralysis, and muscle spasms. Mortality varies with the viral strain and species infected; but may be high at the initial onset. Lesions observed with the disease include: a nasal discharge, swelling in the neck tissues around the trachea, swelling around the eyes, thin misshapen eggs, hemorrhages on the tracheal mucosal surface, small pinpoint hemorrhages on the inside lining of the proventriculus, hemorrhage and necrosis of the lymphoid tissue in the intestines, and hemorrhages in the vent. However, since the symptoms and lesions are not exclusive for END the disease must be differentiated from similar diseases such as Avian Influenza and fowl cholera. A definitive diagnosis is currently based upon virus isolation and identification.

Avian Influenza

Avian Influenza is a disease that can cause extremely high mortality in poultry. Outbreaks have cost the industry many millions to eradicate and the 1994-95 outbreak in Mexico that is still a problem in certain areas of that country. Costs can be devastating to producers since entire flocks can die in only a few hours after infection with a highly virulent strain of Avian Influenza. The costs associated with Avian Influenza outbreaks make it extremely important for the producer to be aware of the signs of the disease and take steps to prevent it. The disease was first recognized in Italy in 1878 and was first reported in the United States in 1924 in New York City. An outbreak in Pennsylvania in 1983-84 was the most devastating disease outbreak in the recorded history of the U.S. poultry industry. It cost the industry an estimated \$60 million to eradicate the disease and consumers about \$349 million to replace the table eggs lost in the quarantine region. **Virus Description:** The older literature called Avian Influenza "Fowl Plague." A virus called an *Orthomyxovirus* causes Avian Influenza. The virus has two types of glycoproteins that project from the virus coat which may either protect the particle from destruction or allow it to adhere to a surface. These glycoproteins are called Hemmagglutinin (H) and Neuraminidase (N). There are 15 different types of H glycoproteins and nine different types of N glycoproteins. These H and N glycoproteins are used by poultry health professionals to tell one Avian Influenza virus strain from other types, such as H5N2. The viruses are also designated as low pathogenic and high pathogenic based on their ability to cause death in susceptible chickens. Thus you can have a virus designated H5N2 that causes low mortality and is called a low pathogenic type or you could have an H5N2 that causes high mortality and as such is called a high pathogenic type. However, the virus can change from a low pathogenic type to a high pathogenic type without warning. Avian Influenza has an incubation period of 3-7 days depending on the virus dose, poultry species infected, route of exposure, and several other factors. The symptoms exhibited by an infected bird are variable and depend on the pathogenicity of the virus. Some of the possible symptoms are: depression, diarrhea, dehydration, appetite loss, weight loss, huddling, a drop in egg production and respiratory symptoms (cough, sneeze, sinusitis). The lesions that could be observed include: a bloody nasal discharge, facial swelling, blue discoloration of the face, subcutaneous hemorrhages, tracheal inflammation, nasal inflammation and hemorrhages on the shanks and in the proventriculus. There is no acceptable or practical treatment for poultry infected with high pathogenic Avian Influenza infected poultry. Avian Influenza is diagnosed by blood testing and virus isolation. Blood testing is considerably more rapid and less expensive than virus isolation, but virus isolation is much more accurate than blood testing. Poultry found positive for the Avian Influenza virus are currently quarantined and destroyed to prevent spread to other flocks. Destruction of affected

animals is the only viable method to control the spread of the disease. The disease spreads from infected birds to non-infected birds via respiratory and gastrointestinal secretions. Susceptible birds can be exposed to respiratory or gastrointestinal secretions in numerous ways. Secretions can be spread on contaminated footwear, clothing, egg flats, equipment, cages, etc. In fact, Avian Influenza is most often spread from infected to non-infected flocks by people carrying the virus usually on their clothes or footwear. However, the virus can live for short periods on human skin or in human nasal passages. In addition, the virus can be shed by infected wild birds including migratory waterfowl (e.g. ducks and geese) or game birds, which show no clinical signs of the disease. The Avian Influenza virus has also been frequently isolated from clinically normal exotic birds.

These diseases can cause devastating costly losses in commercial poultry, backyard and hobby flocks, pet bird aviaries, etc. There is no effective cure for the diseases and the only way to eradicate them is by strict quarantine, surveillance, and depopulation. The best way to reduce the risk of introducing these diseases or other diseases into your birds is by following **Biosecurity** practices. Examples of such practices are:

1. Permit only essential visitors, workers, and/or equipment on the farm.
2. Provide all employees with clean sanitized or disposable clothing/ boots for use on the farm.
3. Have a disinfection protocol in place for all employees and visitors.
4. Clean and disinfect vehicles at the entrance to the farm.
5. Do not visit other farms or facilities that have birds.
6. Prevent rodents and wild birds from entering the facilities where birds are kept.
7. Take precautions when entering your property after visiting any place where birds are kept.
8. Report signs of disease immediately and get a veterinary diagnosis on any bird that dies.