# Common Duck Diseases

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**Abstract:** Ducks are waterfowl and considered relatively resistant to many common diseases of birds. There are many diseases that can affect waterfowl species and have rapid spread in the ducks as Bumble foot (Staph Infection), Duck Virus hepatitis, Duck Plague (Duck Virus Enteritis). Riemerella anatipestifer Infection, Avian Cholera, Colibacillosis, Also toxins causing death in ducks due to Aflatoxin poisoning, Botulism, Castor bean poisoning, Rapeseed meal, Insecticides, rodenticides. The review discusses the most important causes of diseases and toxins which causing deaths in Ducks and leads to economic losses.
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## Introduction

Ducks are fairly disease resistant when good husbandry and management techniques are practiced, however many disease conditions either infectious or non-infectious can affecting ducks causing severe economic losses. Diseases of ducks affecting birds around the world can be conveniently divided based on the causal agent. Nevertheless, the basic rules of biosecurity and disease control apply to the prevention of most diseases, whatever the causal organism. Main duck diseases include: Infectious following diseases:

## 1. Bumblefoot (Staph Infection):

The heavier duck breeds including Pekins and Appleyards can be susceptible to bumblefoot, which is basically a staphylococcus infection caused by a cut, hard landing or splinter after which infection takes place due to contamination of open wound with Staphylococcus spp. It manifests itself as a black scab on the bottom of the foot. Often early diagnosed cases could be treated using antibiotic of choice, otherwise in more advanced cases often require surgery to cut out the kernel of infection with a scalpel and then keeping the foot clean and dry until a new scab forms [1].

## 2. Duck Virus hepatitis

Duck virus hepatitis is a highly fatal contagious disease of young ducklings, 1-28 days of age. Ducklings are most susceptible at the younger ages and gradually become more resistant as they grow older [2]. The disease is rarely seen in ducklings over 4 weeks of age. The onset of the disease is very rapid, it spreads quickly through the flock and may cause up to 90% mortality. Sick ducklings develop spasmodic contractions of their legs and die within an hour in a typical "arched-backward" position. The liver is enlarged and shows hemorrhagic spots [3]. To prevent this disease, keep age groups isolated and vaccinate breeder ducks with an attenuated live virus duck hepatitis vaccine (to produce maternally immune ducklings) [4].

## 3. Duck Plague (Duck Virus Enteritis)

Duck virus enteritis is an acute, contagious, highly fatal disease of waterfowl caused by a herpes virus. This disease is most likely to affect mature ducks, but is also seen in young ducks. Affected birds show sluggishness, ruffled feathers, greenish-yellow diarrhea that is sometime blood-stained [5]. Dead birds often have blood-stained feathers around the vent and blood dripping from the nostrils. Hemorrhages may be found in tissues throughout the body. Eruptive lesions of the mucous lining of the esophagus and intestine together with Necrotic plaques may be observed in the cloaca are characteristic signs of the disease [5]. The disease is a potential threat to commercially reared, domestic and wild waterfowl, the disease diagnosis was made based on the clinical signs, pathology and supported by the laboratory confirmation. Disease prevention fulfilled by regular immunization of breeders ducks with live attenuated duck plague vaccine for disease prevention [6]

## 4. *Riemerella anatipestifer* Infection

This bacterial disease of ducks is also known as *Pasteurella anatipestifer* infection, infectious serositis and Duck septicemia. Anatipestifer infection causes

high mortality, weight loss and condemnation. In the acute form, listlessness, eye discharge and diarrhea are commonly seen. Ducks show in coordination, shaking of the head and twisted neck. Birds are commonly found on their backs, paddling their legs. Typical lesions found in dead birds are infected air sacs, membranes covering the heart and liver, and meningitis [7]. Preventive management and vaccination are effective means of control. Antibiograme is of great value for proper control of the disease otherwise Penicillin, enrofloxacin and sulfadimethoxine-ormetoprim (0.04-0.08% in feed) are effective in reducing mortality [8]

**5-Avian Cholera**

Avian cholera, also called fowl cholera, caused by the bacterium *Pasteurella multocida* is an important disease of domestic ducks, and is an especially troublesome disease of ducks in some parts of Asia. This disease is associated with poor sanitation, and standing water in duck pens. Symptoms include loss of appetite, mucous discharge from the mouth, diarrhea, and in breeder ducks, labored breathing. Lesions found in dead birds include hemorrhages on heart muscle, mesentery and abdominal fat. The liver is enlarged, copper colored and friable (easily crumbled). Pinpoint whitish spots may be seen on the liver [9]. Good sanitation practices together with vaccination of breeder ducks go a long way toward preventing this disease [10]. Many of avian cholera spp. Owning plasmid resistant gene for one or more antibiotics that's why sensitivity test become of great value for disease control [11], Sulfadimethoxine-ormetoprim (0.02-0.04%) and Chlortetracycline (0.044%). given in feed are effective treatments, a combination of amoxicillin and the β-lactamase inhibitor clavulanic acid (Augmentin), doxycycline plus metronidazole or clindamycin plus a fluoroquinolone (ciprofloxacin, or trimethoprim-sulfamethoxazole combination found to be effective [12].

**6-Colibacillosis**

This is by far the most common bacterial infection of all ages of commercial ducks and can certainly have the largest economic effect. In common with other classes of poultry, *Escherichia coli* infections can affect chicks, growing birds and parent stock. Being an environmental organism, it can act as a primary causal organism or secondary to other infections such as viruses or management problems which may affect the flock. This common infection of poultry caused by Escherichia coli, causes reduced hatchability, infection of the yolk sac (omphalitis), a septicemia (bacterial invasion of bloodstream) in ducks 2-8 weeks of age and salpingitis and peritonitis in breeder ducks. In market ducks, E. coli. Infection produces lesions very similar to those seen in *Riemerella anatipestifer* infection [13]. Good sanitation and management are important preventive measures together with antibiotic of choice based on sensitivity test as it was found that *E. coli* displayed a high resistance against penicillin (100%), followed by cefepime (95.8%) and a low resistance to norfloxacin (36.9%), and chloramphenicol (30%). Depending on the results of PCR, *sul*1 gene was the most predominant antibiotic resistant gene (87%) followed by $bla_{TEM}$ (78%), *tetA* genes (60%), and *aadA* (54%). However, $bla_{SHV}$ had the lowest prevalence (23%) [14].

**7-Aspergillosis**

This condition occurs when ducks inhale spores produced by the mold (fungi) Aspergillus (*Aspergillus fumigatus* is the common species) that grows on damp straw or feed. These inhaled spores cause multiple nodules or plaques in the lungs and air sacs. Common signs include gasping, listlessness and dehydration [15]. This disease is not to be confused with aflatoxin poisoning described below together with infectious bronchitis (dyspnea), Newcastle disease (watery greenish diarrhea), infectious larngeo tracheaties (gasping, cough and extension of the neck during inspiration), and nutritional encephalomalacia [16]. Aspergillosis has no effective treatment and prevention by vaccination is not commercially practicable. Therefore, control depends on reducing exposure to the fungus and associated risk factors. Aspergillus fumigatus in young duckling has been somewhat controlled by hatchery sanitation. Moldy litter or feed should be avoided to prevent outbreak of aspergillosis. It is advisable to treat poultry house and litter with antifungal compounds [17], Any moldy feed should be removed, bulk feed container should be cleaned, old litter should be removed from house and replaced with new. Hatching equipment and air ducts should be cleaned, disinfected and well monitored. Contaminated hatchery should be fumigated with formaldehyde or thiabendazole 120-360 $g/m^3$ [18].

**Toxins**

Ducks are particularly susceptible to certain toxins and in some cases strikingly more than chickens or turkeys. Therefore, duck caretakers must be especially diligent in preventing ducks from consuming or being exposed to these toxins. The most important toxins that affecting ducks includes aflatoxin, botulism, castor bean poisoning, rapeseed meal, Insecticides and rodenticides.

**a. Aflatoxin poisoning**

Molds (fungi) that grow on cereal grains and oilseeds before and after harvest produce a number of

toxins that are particularly harmful to ducks. By far the most toxic of this substance is a group of toxins called aflatoxin. Aflatoxins are produced by the molds *Aspergillus* flavus and *Aspergillus parasiticus* [19]. It has been shown that ducks, especially ducklings, are very sensitive to AFL. Aflatoxins had detrimental effects, which increased with level, on phagocytotic ability [19] and tumor necrosis factor-like substance secretion [20] and caused liver damage [21] in ducks. Contamination of duck feeds with AFL is, therefore, a major concern of duck producers. Studies of the effects of AFL on ducks have been mainly focused on in vitro [20] and [22] or long-term chronic [23]. Extensive research has been conducted to counter mycotoxicosis by physical, chemical, nutritional, or biological approaches. The use of binding agents, which can adsorb the mycotoxin molecule and thereby preclude their absorption from the gut, has gained considerable attention in recent times. Certain clays, whose main components are hydrated sodium calcium aluminosilicates (**HSCAS**), have been used as mycotoxin adsorbents in experimental animals [24], and HSCAS have shown considerable promise in countering AFL [25].

**b. Botulism**

Is poisoning that results from a neurotoxin produced by the bacterium *Clostridium botulinum*, which exists in stagnant ponds or other areas where decaying organic matter (animal carcasses, in particular) or feed on rations contains decayed animal origin. This happens when temperature and other conditions are right for the growth of this anaerobic spore-forming bacterium [26]. Botulism causes a progressive flaccid (limp) paralysis of the neck (limberneck), legs and wings, Paralysis is the most common clinical sign, and it can appear within a few hours after poisoned food is eaten. A bird's legs and wings become paralyzed, and then the neck becomes limp. Neck feathers become loose in the follicle and can be easily plucked. If a bird consumes a lethal amount of toxin, prostration and death can follow in 12 to 24 hours [27]. Another aspect to study about avian botulism ecology is the potential of birds as carriers or reservoirs. It is still unknown how long a bird may maintain spores/cells in its gastrointestinal tract or whether the disease is a toxicoinfection, when the toxin is produced in the digestive tract because of the lack of competition of a robust microbiota, or is an intoxication, when the toxin is ingested from the environment [28]

**c. Castor bean poisoning**

Incidents of high death losses in wild ducks, due to consuming castor beans (Ricinus communis) have been reported in Texas. Castor beans contain ricin, a toxalbumin known to cause toxicity in humans and domestic animals [29].

**d. Rapeseed meal**

Some older varieties of rapeseed meal contain erucic acid and goitrogens at levels high enough to be harmful to poultry. Ducks are much more sensitive to erucic acid than are chickens and turkeys. Genetically improved varieties of rapeseed (Canola) contain much lower levels of these toxins. However even Canola meals should first be tested in ducks before their use in duck feeds on a large scale [30].

**e. Insecticides, rodenticides**

Duck keepers should take care not to use insect sprays or rodent poisons, that are known to be harmful to ducks, in areas accessible to ducks. Some insect sprays are highly toxic to ducks, such as parathion and diazinon [31]. Always read the directions on the insecticide container carefully before using around ducks. On the other hand rodents poisons that contain Warfarin, an anticoagulant, if consumed by ducks, can cause them to bleed to death [32].

## Conclusions

Duck diseases less than chickens. Although they are not free from disease. For some duck breeds diseases are main obstacle for successful duck farming. Ducks of any age can get infected by disease anytime. Some disease has high mortality rate. Generally germ of duck diseases spreads form one duck to another through the contiguity of infected duck, polluted water or feed and by using the used equipment by infected ducks. So, proper duck diseases prevention methods are must to keep the duck productive and healthy which will ensure the best production.

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