

Special Poultry Diseases

By Edward T. Mallinson and
Jim A. Stunkard

This chapter provides brief descriptions of diseases that 1) more commonly are found in small, backyard poultry flocks, or 2) are more significant economically or personally when they do occur. Further reading on these and many other diseases is recommended.

All Poultry Types. Two important diseases shared by chickens, turkeys, guinea fowl, partridges, pheasants, quail, and domestic waterfowl (ducks and geese) are pullorum disease and fowl typhoid.

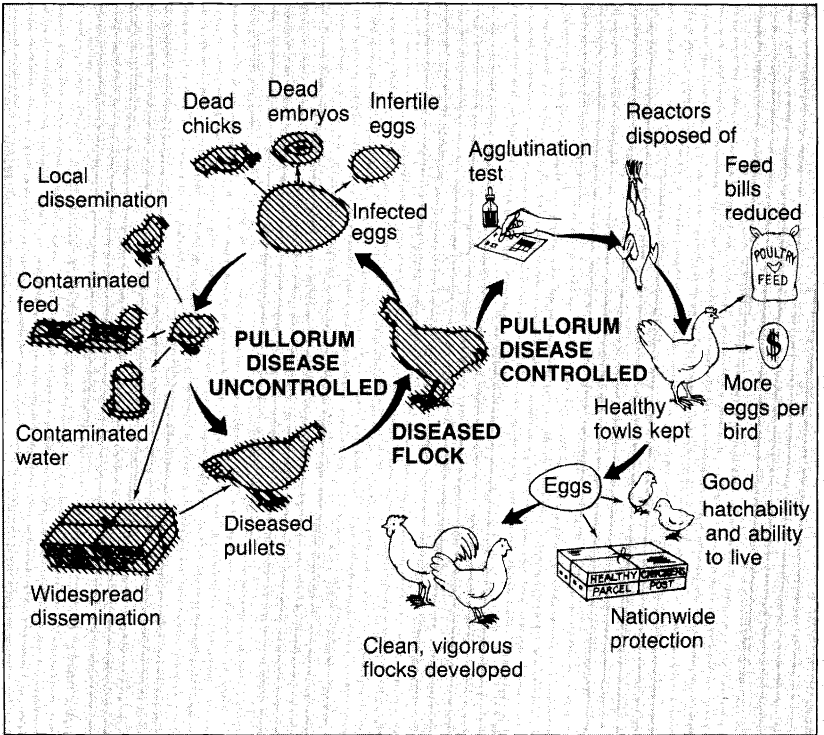
These salmonella infections, transmitted via breeder flocks and hatching eggs, are

capable of producing severe, rapidly spreading disease—especially in young chickens and turkeys. They also can cause havoc in guinea fowl and upland game birds. Infection and losses have been reported as well in waterfowl and occasionally other avian and mammalian species.

In most states, testing of breeder flocks now is mandatory for detecting and controlling pullorum-typhoid. However, some untested flocks do exist. To be sure you avoid the risk of these diseases, always insist on purchasing U.S. (NPIP) Pullorum-Typhoid Clean stock.

Small, local dealers and custom or home-type hatcheries—because of their small size or more remote location—may escape detection and testing by State poultry health agencies. It is to the benefit of all concerned that such operations participate in NPIP programs and become tested.

Edward T. Mallinson is Associate Professor, Virginia-Maryland Regional College of Veterinary Medicine, University of Maryland campus, College Park. Jim A. Stunkard is Director of the Bowie Animal Hospital, Bowie, Md.



A comparison of the serious effects of uncontrolled pullorum disease and the results of detection and disposal of reactors.

Chicken Diseases

Coccidiosis. At least five distinctly different species of intestinal coccidial protozoans infect chickens. All can produce considerable inflammation in different sections of the digestive tract below the gizzard.

Two of these coccidial species, *Eimeria (E.) necatrix* and *E. tenella*, cause massive and often fatal hemorrhages. With *E. necatrix* these hemorrhages

result in severe distention of the middle of the intestine. With *E. tenella*, the two, blind cecal pouches become swollen with dark blood-filled debris. Numerous preventive and therapeutic anticoccidials are available from feed stores and livestock suppliers.

Fowl Coryza. This disease, caused by the bacteria *Hemophilus gallinarum*, often is involved in respiratory diseases of multiple-age flocks

where periodic cleanout and cleanup is not practiced.

Affected chickens generally develop very watery eyes, and severe reddening and swelling of the sinuses surrounding one or both eyes. Discharges coming from the eyes and nostrils of affected birds typically have a very offensive odor—much more so than in other respiratory infections of chickens.

Several antibiotics and other chemotherapeutic agents are effective in suppressing the infection. Dramatic improvements have been reported with the use of erythromycin preparations via the drinking water.

Laryngotracheitis, a respiratory virus infection of chickens and occasionally other species of fowl, often results from failure to maintain tight flock security and isolation.

The disease typically produces marked hemorrhage of the windpipe (trachea) of chickens, and flock death losses of 5 to 20 percent. It is readily introduced through purchase of recovered virus carriers at auctions, fairs, or poultry shows.

Poultry catching crates and hauling trucks that are not cleaned and disinfected between hauls have fre-

quently been associated with outbreaks in new flocks or new distant locations.

The movement of people and animals between farms also is involved. Clothing and fur easily can be contaminated with virus-laden dust particles.

If you own a flock of show chickens, are located in an area where this disease is prevalent, or make replacement purchases at live poultry auctions, you should seriously consider vaccination against laryngotracheitis. Excellent, easily administered products are available at very modest cost.

Liver Ailments

Lymphoid Leukosis, a virus-caused disease, also is called "big liver disease." It causes large tumors in many internal organs, especially the liver, and needs to be distinguished from avian tuberculosis and Marek's disease. Unlike Marek's disease, which also produces liver and other internal tumors, lymphoid leukosis is breeder flock transmitted, whereas Marek's is not.

Infected females usually transmit the infection through the egg to some or all of their offspring. There is no preventive medication or vaccination.

As an aid in preventing lymphoid leukosis, which can kill 25 percent or more of a flock of mature chickens in 12 months' time, you should obtain all chicks at one time from the same parent stock and place them in fully-depopulated clean and disinfected quarters. Avoid further additions until the next cleanout.

Marek's Disease is a very common liver tumor and paralysis-producing virus disease of chickens, now fortunately under reasonable control through vaccination. Novice poultrymen failing to obtain chicks vaccinated at one day of age with one of several types of Marek's vaccine will often be severely disappointed when high Marek's death losses begin at about 8 to 10 weeks of age and persist to 20 to 25 weeks of age or longer.

Day-old vaccination almost is a must for preventing this disease. Excellent protection is obtained from vaccination, especially if vaccinated chicks are placed in dust-free clean and disinfected pens.

Small hatcheries usually can get veterinary assistance locally or from vaccine suppliers on a good day-old Marek's disease vaccination program for their customers. Marek's disease and vaccina-

tion for this disease are not considered hazardous to human health.

Mites and Ticks

Scaly leg mites, caused by the mite *Knemidocoptes mutans*, produce slow-spreading but eventually very severe thickening of the skin of the shank, and raising and discoloration of the shank scales. It usually is encountered on old poultry premises and on aged chickens.

Direct miticide treatment of affected shanks and eventual flock depopulation and cleanup generally eliminates scaly leg mite problems.

Fowl ticks, *Argas persicus*, are sometimes called blue-bugs. Besides causing anemia, they may cause tick paralysis in growing or adult hens. They also transmit spirochetosis, a serious bacterial disease not only of chickens but also of turkeys, game birds, waterfowl, and other birds.

Tick control requires removal of breeding and hiding areas in and around the chicken house as already discussed and application of sprays specifically labeled effective against ticks.

Turkey Problems

Aortic Rupture. When pushed for rapid weight gain, 8- to 20-week-old turkeys—often the nicest toms—may succumb rapidly to massive internal hemorrhage. This occurs when a weakening and then a tear develops in either the heart wall or the aorta, the largest blood vessel exiting from the heart.

Limiting feed intake during the most critical period, 16 to 20 weeks, helps prevent this condition.

Blackhead. More correctly termed histomoniasis after the name of the causative protozoan, *Histomonas meleagridis*, this disease is troublesome particularly to turkeys. Outbreaks also occur in chickens and captive game birds. Affected turkeys are found to have large cheesy laminated cores in the cecal pouches and large and small irregularly-round, slightly sunken yellowish-gray, greenish or red areas of degeneration on the surface of the liver.

Three of the most important preventive considerations are 1) routine use of antihistomonal drugs in feed, 2) separating turkeys from chickens, and 3) pen designs that keep turkeys from finding and eating earthworms. Routine worming for cecal worms also

is advisable in the total control of the blackhead.

Types of Enteritis

Coronaviral Enteritis. Death losses in young poults can reach levels of 50 percent or more when they are stricken with this persistent intestinal virus disease. Good nursing care (supplemental heat, antibiotics, vitamins, and hygiene) can help cut losses.

Prevention is accomplished best by all in, all-out management systems and thorough cleaning and disinfection after complete depopulation. There are no vaccines for turkey coronaviral enteritis.

Due to a distinct group of avian adenoviruses, *hemorrhagic enteritis* can produce fatal bloody diarrhea in 15 percent or more of a flock of young turkeys. Typically occurring around 10 to 12 weeks of age, the main symptoms are sudden onset, depression, bloody droppings and a concurrent drop in feed and water consumption.

The intestine is filled with bloody material. The spleen, as in marble spleen disease of pheasants, may be swollen and mottled.

There is no particularly satisfactory treatment; in fact, avoid sudden changes in feed

or management during an outbreak. Antibiotics reportedly may increase severity of this disease.

Preventive vaccines and emergency antisera preparations are available in some States. Contact your nearest State diagnostic laboratory for guidance.

Other turkey problems include erysipelas, fowl cholera, roundworms, ticks, avian influenza, hexamitiasis, paratyphoid infection, arizonosis, colibacillosis, and aspergillosis.

Game Bird Ills

Cecal Worms. Although the causative nematode, *Heterakis gallinae*, is known to live in the ceca of chickens, turkeys, guinea fowl, quail, and waterfowl, it is particularly damaging to the ceca of pheasants. To prevent cecal worms, game birds should be managed to keep them from eating earthworms or eating off the floor. When this is not possible through rearing on wire, new ground or on an impervious surface, the flock should be treated periodically with a commercially available wormer.

Keep in mind that the cecal worm egg often carries along in its interior the histomonal protozoan that causes blackhead in peafowl, grouse,

quail, wild turkeys, and possibly other types and game birds.

Gapeworms. This unique Y-shaped reddish parasite, *Syngamus trachea*, lives in the windpipes of pheasants, peafowl, guinea fowl, partridges, quail, waterfowl, turkeys, chickens, and other fowl. Affected birds show open-mouth breathing, head shaking, grunting or other signs of labored breathing. Severe infestations can cause suffocation, particularly in the young whose windpipes are narrower.

Pen-raised pheasants may soon be able to benefit from preventive levels of thiabendazole in their feed.

As with numerous other parasitic worms, it is important to give attention to management details that prevent or at least minimize a flock's exposure to fecal droppings, and such intermediate hosts as earthworms, slugs and snails.

Marble Spleen Disease. The adenovirus causing this disease of pheasants is closely related, but not identical, to that causing hemorrhagic enteritis of turkeys.

Severe lung congestion with bloody watery fluid is a prominent finding in pheasants found dead with this

disease. Fatally afflicted pheasants usually die very suddenly. Mortality is highest as a rule from 10 weeks of age to maturity, and ranges from 5 to 15 percent.

There are no treatments. Outbreaks generally run their course and subside within a month. Marble spleen vaccine may be available in some States on an experimental basis. Contact your nearest diagnostic laboratory or State veterinarian for guidance.

Quail Disorders

Quail Bronchitis. This highly acute, frequently fatal respiratory disease of quail is believed to be caused by an adenovirus. The first outbreak in a flock can be very severe with sneezing, coughing, and loss of appetite spreading to all members. It is very damaging to young quail. Mortality may approach 40 percent. Some survivors develop twisting or bending of the neck.

The disease is produced by a completely different virus than that causing infectious bronchitis in chickens. Consequently, bronchitis vaccines for chickens are of no value in preventing quail bronchitis.

Isolation from other quail flocks and the use of two-year-old breeders have helped prevent serious outbreaks.

Ulcerative Enteritis. This acute infection of the intestinal tract is caused by the spore-forming bacteria, *Clostridium colinum*. Although originally called quail disease because of its devastating effect on quail, ulcerative enteritis is being recognized with increasing frequency in other species of young captive upland game birds and on some occasions in turkeys and chickens.

The disease, which can be mistaken for coccidiosis, mainly produces marked droopiness and severe diarrhea. Small, deep ulcers are scattered along the intestine, while the liver often is found to be covered with large bright yellow- or buff-colored patches.

Up to 100 percent of a young quail flock may be killed by this disease within a few days. Lower, but costly, losses may occur in other game birds.

Having a supply of antibiotics for water administration on hand ahead of time may be the only way to save a flock. One day's delay in proper treatment can be disastrous, but timely administration of bacitracin via the drinking water can produce pronounced improvement.

Water or feed use of strep-

tomycin or tetracyclines also are effective. Water medication may, however, be preferable when as often occurs the flock may be so ill that feed consumption has ceased, and the only way to assure that antibiotics are consumed would be medication via the drinking water.

Flock isolation, segregation, and regular cleanout and cleanup are essential steps in preventing ulcerative enteritis. Always separate old birds from young birds. Keep them on separate premises if you can.

Other game bird diseases are arthropod-borne encephalitis, staphylococcosis, botulism, tuberculosis, coccidiosis, hexamitiasis, erysipelas and fowl cholera.

Waterfowl Diseases

One of the major diseases of the duck-raising industry in the United States, *duck virus hepatitis* must be a primary health consideration for those keeping ducks, especially Pekins.

The disease occurs almost exclusively in ducklings less than 4 weeks of age. It is an extremely acute, rapidly spreading infection with 50 to 95 percent mortality rates.

Affected ducklings soon lose their ability to stand. In a short time they fall on their

sides, with death occurring within an hour of the onset of symptoms. The head and neck often are drawn backwards (opisthotonus). Internally, livers are swollen and spotted with hemorrhages.

Antibiotic treatments are of no value. Immediate administration of duck viral hepatitis antiserum preparations, if potent, can significantly alter the disease's course when used in time.

In most instances, the disease is controlled by vaccinating ducklings, or vaccinating their breeder parents who transmit temporary immunity to their offspring—thus protecting them during their early critical weeks of life.

Federally licensed vaccines and antisera are produced at the Duck Research Laboratory, P.O. Box 217, Eastport, N.Y. 11941.

Duck Virus Enteritis, also known as duck plague, is caused by an avian herpes virus capable of producing diarrhea, dehydration and high mortality in all ages of wild or domestic ducks, geese or swans. In many outbreaks Muscovy ducks suffer far heavier mortality rates than other waterfowl on the same premises.

Typical of plague-like maladies, the internal organs of

waterfowl with duck virus enteritis are found to contain numerous hemorrhages. The reddened areas of hemorrhage are especially prominent on the liver, the interior and exterior of the intestine and other areas of the digestive tract, throughout the heart and in the ovary. State authorities should be notified of suspected outbreaks.

Vaccine May Help

There is no effective treatment other than possibly vaccinating unaffected waterfowl as soon as possible. Although such vaccination may not prevent all the losses, some vaccinated waterfowl will survive.

State authorities may be able to help you obtain the approvals you will need to use a federally licensed duck virus enteritis vaccine. Contact the aforementioned Duck Research Laboratory in New York where this vaccine is produced.

Vaccine may be authorized also for use in preventing future outbreaks on those farms and locales where duck virus enteritis has been confirmed previously.

The main point in preventing this disease is to keep your waterfowl from mingling or mixing with wild waterfowl because the causative virus is

not uncommon in these birds. Their presence in or near your operation should be prevented, and doubly so if you happen to keep Muscovies.

Infectious Serositis. The bacteria, *Pasteurella anatipetifer*, generally is regarded as the cause of infectious serositis in both ducks and geese. In ducks, it may be known also as new duck disease or duck septicemia, and in geese as "goose influenza". It is not to be confused with the viral disease, avian influenza.

Affected ducks or geese often have a mucous discharge from the eyes or nostrils, coughing and sneezing. Diarrhea, incoordination, and emaciation also may accompany this disease. The hearts and livers of infected ducks or geese often are covered with a thin grayish-white slightly adherent film. This or similar changes also may be seen in waterfowl infected with other bacterial infections such as fowl cholera or colibacillosis.

Antibiotics and sulfonamides have been reported as useful in treatment. A federally licensed vaccine also is available.

Other waterfowl diseases are botulism, fowl cholera, colibacillosis, paratyphoid infection, coccidiosis, and aspergillosis.