



DISEASES OF POULTRY

There are many different ways for categorizing the many diseases of poultry. For the individuals convenience, each disease included here is classified by causative factor or is based upon the type of symptoms produced or can be found in the alphabetized list of diseases.

The diseases included here are only the more commonly encountered diseases of poultry, game birds and waterfowl. The discussion of each disease includes a summary of causative agents, symptoms, lesions and treatments.

- [Diseases Classified by Cause](#)
 - [Diseases Sorted by Symptoms](#)
 - [Disease Names List](#)
 - [Basic Disease Information](#)
 - [Sanitation and Disease Prevention](#)
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POULTRY DISEASES BASED ON CAUSATIVE AGENT

Listed below are diseases based on the types of organisms causing the symptoms. This listing of poultry diseases constitutes the most frequently observed maladies in poultry and game bird flocks. Less frequently observed diseases require consultation with a specialty disease manual. Click on the appropriate disease to see a discussion of the selection.

BACTERIAL CAUSED DISEASES

[Botulism](#)
[E. coli](#)

[Necrotic Enteritis](#)
[Ulcerative Enteritis](#)
[Erysipelas](#)
[Fowl Cholera](#)
[Fowl Typhoid](#)
[Infectious Coryza](#)
[Mycoplasmas](#)
[Omphalitis](#)
[Pullorum](#)

VIRAL CAUSED DISEASES

[Fowl Pox](#)
[Infectious Bronchitis](#)
[Quail Bronchitis](#)
[Infectious Bursal Disease](#)
[Lymphoid Leucosis](#)
[Marek's Disease](#)
[Newcastle Disease](#)

FUNGI/MOLD CAUSED DISEASES

[Aspergillosis](#)
[Moniliasis](#)
[Mycotoxicosis](#)

PROTOZOAN CAUSED DISEASES

[Blackhead](#)
[Coccidiosis](#)
[Heximittiasis](#)

PARASITIC DISEASES OF POULTRY

[Ascarid Worms](#)
[Capillaria](#)
[Cecal Worms](#)

[Chiggers](#)
[Gapeworms](#)
[Lice](#)
[Mites](#)
[Tapeworms](#)
[Ticks](#)

DISEASES FROM MISCELLANEOUS CAUSES

[Cage Layer Fatigue](#)
[Cannibalism](#)
[Fatty Liver Hemorrhagic Syndrome](#)

POULTRY DISEASES BASED ON SYMPTOMS

Listed below are poultry diseases based on the types of symptoms exhibited or dependent upon the systems of the body that are affected. The following list of poultry diseases constitutes those most frequently observed in poultry and game bird flocks. Less frequently observed diseases require consultation with a specialty disease manual. Click on the appropriate disease to see a discussion.

RESPIRATORY DISEASES

[Aspergillosis](#)
[Infectious Bronchitis](#)
[Quail Bronchitis](#)
[E. coli](#)
[Fowl Pox](#)
[Gapeworms](#)
[Infectious Coryza](#)
[Mycoplasmas](#)
[Newcastle Disease](#)
[Pullorum](#)

DIGESTIVE DISEASES

[Ascarid Worms](#)
[Blackhead](#)
[Capillaria](#)
[Cecal Worms](#)
[Coccidiosis](#)
[Necrotic Enteritis](#)
[Ulcerative Enteritis](#)
[E. coli](#)
[Fowl Cholera](#)
[Fowl Typhoid](#)
[Heximtitiasis](#)
[Infectious Bursal Disease](#)
[Moniliasis](#)
[Pullorum](#)
[Tapeworms](#)

SKIN AND FEATHER DISEASES

[Cannibalism](#)
[Chiggers](#)
[Erysipelas](#)
[Fowl Cholera](#)
[Fowl Pox](#)
[Lice](#)
[Marek's Disease](#)
[Mites](#)
[Omphalitis](#)
[Ticks](#)

NERVOUS DISEASES

[Aspergillosis](#)
[Botulism](#)
[Cage Layer Fatigue](#)
[Fowl Cholera](#)
[Heximtitiasis](#)
[Infectious Bursal Disease](#)
[Marek's Disease](#)
[Newcastle Disease](#)

DISEASES WITH NON-CATEGORIZED SYMPTOMS

[Blackhead](#)
[Botulism](#)
[Cage Layer Fatigue](#)
[Erysipelas](#)
[Fatty Liver Hemorrhagic Syndrome](#)
[Fowl Cholera](#)
[Fowl Typhoid](#)
[Heximittiasis](#)
[Infectious Bursal Disease](#)
[Lymphoid Leucosis](#)
[Marek's Disease](#)
[Moniliasis](#)
[Mycotoxycosis](#)
[Omphalitis](#)
[Pullorum](#)

COMMON POULTRY DISEASES

Below are the most commonly encountered poultry diseases listed in alphabetical order. Less frequently observed diseases require consultation with a specialty disease manual. Click on the appropriate disease to see a discussion.

[Ascarid Worms](#)
[Aspergillosis](#)
[Blackhead](#)
[Botulism](#)
[Cage Layer Fatigue](#)
[Cannibalism](#)
[Capillaria](#)
[Cecal Worms](#)
[Chiggers](#)
[Coccidiosis](#)
[Erysipelas](#)
[E. coli](#)

Fatty Liver Hemorrhagic Syndrome

Fowl Cholera

Fowl Pox

Fowl Typhoid

Gapeworms

Heximittiasis

Infectious Bronchitis

Infectious Bursal Disease

Infectious Coryza

Lice

Lymphoid Leucosis

Marek's Disease

Mites

Moniliasis

Mycoplasmas

Mycotoxiosis

Necrotic Enteritis

Newcastle Disease

Omphalitis

Pullorum

Quail Bronchitis

Tapeworms

Ticks

Ulcerative Enteritis

POULTRY HEALTH BASICS

Disease prevention focuses primarily on dedicated planning and sound management practices that keep infectious diseases out in the first place and stop noninfectious diseases before they start. With this approach, you place a higher priority on planning and expenditures for disease prevention than on short-term savings and stop-gap treatments. It is essentially a mental attitude that recognizes the everpresent risk of disease and the fact that disease prevention does not cost; it pays, and many times over.

Failure to concentrate on planned disease prevention often leads to personal disappointment and sometimes disastrous financial loss. A flock receiving good health security management is a delight, and a source of both pride and profit.

A good disease control program emphasizes three primary goals or areas:

- **Reduce exposure to disease organisms by proper sanitation and stress management.**
- **Increase bird resistance to disease by using recommended immunization procedures.**
- **Treat disease outbreaks with specific medications that are effective against the disease being treated.**

Diseases have consistently been a major limiting factor to profitable production. Some diseases result from egg transmission or organisms through the use of infected breeder flocks. Other diseases are brought into the poultry house by vectors like wild birds, rodents, parasites, and even the poultryman.

Disease results when exposure combined with the virulence of an organism is greater than the resistance of the host. Disinfectants reduce the exposure time and number of organisms. Vaccines help build the natural resistance or immunity of the birds. Medications and drugs help battle the disease organisms after they have overwhelmed the birds' natural defenses.

Most diseases can be eradicated from the poultry flock by applying the basic principles of hygiene and excellent sanitation. Other diseases are not easily eliminated, but can be controlled by proper use of disinfectants and sanitizers. If not controlled, the potential for microbial contamination and spread of infectious diseases in the flock is always a threat to the success of any operation.

Sanitation is a rather simple word, commonly used in our daily conversations to refer to the establishment of environmental conditions that are favorable to health. It is those management practices that actually prevent disease or contamination by disease causing organisms. For the most part, they are simple mechanical applications. They are not sophisticated and usually require little in capital expenditures. These management practices do require a positive attitude, a workable program, and proper application.

There is a practical way to clean a poultry house or hatchery. Each time, the process involves time, labor, energy, and money, so the job must be done correctly to achieve the best results. Disinfecting alone will not control disease, but combined with other disease control practices, will do much to reduce the incidence of many diseases.

Vaccination is one of the more effective ways to prevent specific diseases. This is why we vaccinate poultry; so they are protected from explosive disease outbreaks. Viruses stimulate the development of better immunity than other types of microorganisms; so most poultry vaccinations are against viral diseases like Newcastle disease, infectious bronchitis, laryngotracheitis, fowl pox, and infectious bursal disease.

Disease producing microorganisms can be classified smallest to largest as viruses, bacteria, fungi, protozoa, and parasites. All except the viruses are sensitive to drugs or antibiotics, so treatment against them is available when outbreaks occur. Because viruses are resistant to

drugs and antibiotics, their control is fully dependent upon prevention through sanitation, isolation, and vaccination.

Vaccination is basically the introduction of a specific biological substance (antigen) into the bird to stimulate the formation of a resistance or immunity to a particular disease. Usually the biological substance is some of the live disease organisms that you want to protect the bird against. The presence of these organisms in the blood stimulates the body's defense mechanism to produce antibodies that attack the disease causing organisms when the bird is exposed to them. Scientists have developed weakened (attenuated) forms of most disease causing viruses with little danger of causing the severe form of the disease. Even the killed form of some disease causing viruses stimulate the production of antibodies. In these cases, the 100 percent safely killed virus is used. Short-term protection against a particular disease can also be given by vaccination with an antiserum that contains antibodies previously formed by animals that have been exposed to that particular disease.

So-called vaccination outbreaks do occur periodically. The factors influencing vaccine response in poultry are many, mainly depending on the host and environment. Seldom are all factors considered when vaccination programs are initiated. Ordinarily some protective immunity is produced when poultry are vaccinated, although the vaccine in itself cannot guarantee it. When vaccination failures occur, the total vaccination program should be reviewed.

Although vaccination offers a method of preventing many poultry diseases from establishing themselves, certain drugs and antibiotics are needed to help alleviate the symptoms of a vast number of diseases. The drugs make up an unassociated list of chemicals, and a great many are specific for a certain disease or for a group of similar diseases. New ones come on the market regularly and many others are in the process of experimentation.

Drugs must reach the pathogenic microscopic organisms in the bird to be effective. Most drugs kill on contact, weaken the organism, or upset its life cycle. Drugs may be administered through the feed, in water, or by injection.

Most drugs are chemicals that disrupt the life cycle of the organism involved. As most of the drugs are quantitative, their activity is determined by the amount administered to the bird. Some are effective when given in a large amount over a short period; others are better if given in small daily dosages over a long period. To be effective, the manufacturer's recommended dosage must be used. Any dilution will not produce the results anticipated. Some drugs produce excellent results from a disease prevention standpoint, but can have a harmful effect on the bird. Therefore, do not administer more than the recommended amount of any drug.

When drugs are administered to a bird over a long period of time, particularly at a low level, certain species of bacteria become resistant, and finally the resistance becomes so great that the drug is ineffective. Resistance develops primarily to drugs that are absorbed

from the intestinal (systemic drugs) tract although resistance to non-absorbed drugs like bacitracin has been documented.

Antibiotics are used for disease control. Usually they are specific for those diseases caused by bacteria or related organisms. They are of no value against virus infections except to reduce stress on the birds caused by secondary bacterial/fungal/parasitic infections. The beneficial effects of antibiotics are due to their ability to disrupt various phases of cellular metabolism.

An antibiotic will prevent bacterial multiplication, provided enough is present to attack all the bacteria present. If the amount of antibiotic is small and the number of bacteria large, the antibiotic will not produce its full effect. Antibiotics also act by changing the intestinal flora.

Some drugs used in the poultry industry produce major effects in treating specific diseases; others are less valuable, and some are ineffective. In some instances the birds have become resistant, producing a change in the value of the drug. The diagnostic laboratory uses a technique known as a sensitivity test to determine which drugs are effective in treating a disease. The test actually shows which drugs are effective and those that are ineffective for treating the disease.

Proper administration of medications requires that all precautions be followed as shown on the product label. Be sure that the dosage, route of administration, and required withdrawal period are observed. Use only drugs approved by the Food and Drug Administration for treatment of the specific poultry disease involved.

Regardless of the products used, always keep an accurate record of all vaccines and medications administered to the birds. Record the dates, product lot numbers, and all other pertinent information that can be used to monitor the flock's health status.

Remember that disease can affect all types of birds, and all types of people keep birds. Disease outbreaks never discriminate. By practicing health control in the flock, the producer also helps insure the health status of other producers located near him. Good neighbors are a valuable asset in the prevention and elimination of disease problems.

SANITATION

CLEANING AND DISINFECTANTS

Although the subject of sanitation procedures, as related to disease management, is frequently discussed, it is helpful to review basic principles and review facts for reducing microbe populations.

Diseases and infections have always been a major concern to the poultry industry-- especially in the hatchery. Fortunately, microbial contamination can be prevented and controlled using proper management practices and modern sanitation products.

Microorganisms are everywhere! Some are relatively harmless while others are highly pathogenic. Some pose a lethal threat to one species of animal while remaining harmless to another species. Some organisms are easily destroyed while others are very difficult to eliminate. The moral is: *Treat all microorganisms as if they are a severe threat to the health of the bird.*

Understanding the terms used to describe microbial control is important when selecting the appropriate action for eliminating disease causing organisms. Three terms commonly used but often misunderstood are sterilization, disinfection, and sanitation.

Sterilization --

The destruction of all infective and reproductive forms of all microorganisms (bacteria, fungi, virus, etc.).

Disinfection --

The destruction of all vegetative forms of microorganisms. Spores are not destroyed.

Sanitation --

The reduction of pathogenic organism numbers to a level at which they no longer pose a disease threat to their host.

Most poultry producers have the impression that they are approaching a sterile condition because they use disinfectants, when they may only achieve a sanitized condition at the very best. The most important consideration to remember when striving for disease management is that "cleanliness is essential".

Proper cleaning removes the vast majority of all microbial organisms and is absolutely necessary before applying disinfectants. This applies to all areas of poultry production including hatchery, brooding facilities, poultry house, storage facilities or processing plants. The success of a sanitation program is limited only by its weakest link.

It is extremely important to remove as much organic matter as practicable from surfaces to be disinfected. All debris, manure, broken eggs, etc. must be removed from the facility. This is followed by thorough cleaning using warm water and appropriate cleaning aides. Focus attention on selecting the proper detergent and thus producing the cleanest environment possible. Pay special attention to compensating for variations in water hardness, salinity and pH. A thorough rinsing with abundant quantities of potable water completes the cleaning process and removes most lingering residues of detergents, organic matter or microbial organisms. Only after the facilities have been thoroughly cleaned, will the surfaces be suitable for treatment with an appropriate disinfectant solution.

Not all disinfectants are suited for every situation. When selecting the disinfectant, carefully consider:

1. The type of surface being treated.
2. The cleanliness of the surface.
3. The type of organisms being treated.
4. The durability of the equipment/surface material.
5. Time limitations on treatment duration.
6. Residual activity requirements.

If the surface is free of organic matter and residual activity is not necessary, quaternary ammonium and halogen compounds may be used effectively. However, if surfaces are difficult to clean, residual activity is required, or the contaminating organisms are difficult to destroy, then multiple phenolics or coal tar distillates may be necessary.

Careful attention can assure that the disinfectant (if used as directed) meets requirements of the user. Be reasonable and don't expect the product to produce unattainable performance. Instead, select the proper product and/or modify disease control practices.

In general, disinfectants can be divided into seven major categories. The various classes of disinfectants are:

- [Alcohols](#)
- [Halogens](#)
- [Quaternary Ammonium Compounds](#)
- [Phenolics](#)
- [Coal Tar Distillates](#)
- [Aldehydes](#)
- [Oxidizing Agents](#)

Although many disinfectants are available, those most suited for hatcheries include quaternary ammonium compounds, phenolics and aldehydes are more suitable for use in poultry houses, and halogens are very effective if used in watering systems and on non-metallic equipment. Each disinfectant is best used only in appropriate locations, to meet the purposes for which it is designed.

Several considerations must be remembered when using any disinfectant to maximize its effectiveness. Some of these general considerations are:

1. Few disinfectants are effective instantaneously. Each requires a certain amount of time to bond with the microbe and exert a destructive influence. Allow adequate contact time (usually 30 minutes is sufficient) or select a different disinfectant.
2. When selecting disinfectants, consider their effectiveness on organisms that are of greatest concern. If a hatchery is experiencing problems with a certain viral disease, the disinfectant selected must be effective for destroying the specific organism causing the problem. Not all disinfectants are effective on all types or species of organisms.
3. In most situations it is advisable to clean and disinfect in different operations that are separated with thorough water rinsing. Many cleaning/ disinfecting producers

promote their product based on ease and economy of use because they clean and disinfect in one operation. If these products are used, make sure that they satisfy all efficacy requirements demanded of other disinfectants.

- 4. The efficacy of disinfectant solutions is usually enhanced when applied in warm solutions rather than cold solutions. "Hot" solutions, however, may reduce disinfectant efficacy or promote a "cooked-on" condition for unremoved protein-rich residues.**
- 5. When possible, allow all surfaces to dry thoroughly prior to reuse. Dryness helps prevent the reproduction, spread and transport of disease organisms. Although a surface is clean, it is more easily recontaminated with organisms if water remains on the surface.**

It is important when selecting the best disinfectant to consider its effect upon the developing embryo and the hatchery environment. Embryos are in a very sensitive stage of development when the eggs enter the hatchery. They can be severely affected if subjected to chemical vapors, even if a sterile environment is provided.

It must be remembered that an egg is not produced in a sterile environment. Before it is laid, the egg is subjected to a series of microbial attacks that can reduce the embryo's potential to develop into a healthy, robust chick. The vent is probably the most contaminated area that an egg passes through. Poorly maintained nests can also distribute organisms to noninfected eggs. Fortunately, nature has provided several protective barriers for the embryo. Hatchery personnel must not conduct any procedure that interferes with the egg's natural defense. Producers must make every effort to collect and store eggs so that natural protections are not compromised.

Keeping egg shell surfaces dry is very important to prevent excessive microbial contamination and shell penetration. Without benefit of aqueous water the potentially dangerous microorganisms have little opportunity to invade the egg shell and infect the embryo. Sweating of eggs as they are moved from warm to cool environments must be prevented if sanitation programs are to be successful.

Embryos have the same requirements prior to pipping that the chicks have following hatching. They have the need for heat, moisture, and a high-quality source of air. They can be severely affected by harmful fumes originating from many chemicals often found in or near the hatchery. Although hatchability may not be affected, the quality of the chicks can be reduced. Whenever unusual odors are detected in the hatchery to come from detrimental chemicals, the product must be removed. This applies to all chemicals within the hatchery, including disinfectants. As an example, vapors produced by improper use of phenolic disinfectants can cause changes in egg proteins and impair hatchability and chick quality.

Improper selection or use of some disinfectants can damage or hinder the function of hatchery equipment. Many disinfectants are corrosive and damaging to equipment parts. Some disinfectants can clog and gum-up spray nozzles if added to the water used in

humidifiers. It is possible that electronic control devices can also be severely damaged or destroyed after prolonged exposure to some disinfectants.

Select disinfectants wisely and always follow label directions for their safe use. Not only does management have the responsibility to maximize hatchability and chick quality, but also to provide a safe working environment for the hatchery personnel. Safety of the people working in the hatchery must never be sacrificed for cost or productive efficiency.

Assuming that a proper state of sanitation is achieved, it must be remembered that the status of disease-free surfaces can be compromised if facilities are not maintained properly. Hatchery personnel must be made aware that they can be a major source of reinfection by transporting of microorganisms on clothes, hands and attire. Since people are direct carriers of microbes, provisions must be made available at appropriate locations in the hatchery for the washing of hands and footwear. Laboratory coats and caps can significantly reduce the spread of microbial organisms. Restricting movement of hatchery personnel by assigning duties within specific areas can reduce the distribution of organisms throughout the hatchery.

The risk posed by disease causing organisms is a constant challenge to hatchery personnel. Always use control measures that have been proved effective rather than trusting visual cleanliness as an indicator of sanitation. A clean surface does not always indicate a disease-free state. Assuming so may be fatal to the chicks and the management program.

GENERAL CHARACTERISTICS OF DISINFECTANT TYPES

ALCOHOLS (Isopropyl or Ethyl Alcohol)

1. Wide germicidal activity, non corrosive, but poses a fire hazard.
2. Limited residual activity due to evaporation.
3. Alcohols provide limited activity in the presence of organic matter.
4. Not considered effective against bacterial or fungal spores.
5. Excellent for disinfecting instruments or other small objects.
6. Too expensive for general use.
7. Must use as a 70-95% concentration for effectiveness.

HALOGENS (Iodines or hypochlorites)

1. Provide wide germicidal activity but are corrosive.
2. Limited activity when in the presence of organic matter.
3. Poor residual activity, low toxicity, but may stain surfaces.
4. Not recommended as sporocidal agents.
5. Effective at low concentrations for disinfecting clean, small objects.
6. Low cost but requires frequent applications.

QUATERNARY AMMONIUM COMPOUNDS

1. Limited germicidal range.
2. Not sporocidal, effective against vegetative bacteria, fungi and viruses.
3. Reduced efficiency in the presence of organic matter.
4. Limited effectiveness in soaps, detergents and hard water salts.
5. Non-irritating, non-corrosive and low toxicity.
6. Residual activity is limited by the amount of recontamination.
7. Good disinfectant for use on cleaned surfaces.
8. Low cost.

PHENOLICS (Single or Multiple)

1. Wide germicidal range, not sporocidal.
2. Low toxicity and low corrosiveness.
3. Very effective in the presence of organic matter.
4. Good residual activity and deodorizer.
5. Low to moderate cost.

COAL TAR DISTILLATES (Cresol and Cresylic Acid)

1. Wide germicidal activity, not sporocidal.
2. Corrosive and toxic at high concentrations.
3. Excellent residual activity with heavy odor.
4. Highly efficient in presence of organic matter.
5. Not well suited for use near eggs or chicks due to noxious gases.
6. Moderately expensive.

ALDEHYDES (Glutaraldehyde)

1. Wide germicidal activity, sporocidal and fungicidal.
2. Slight to moderate efficiency in presence of organic matter.
3. Slight residual activity.
4. Moderately toxic.
5. Moderate cost.

OXIDIZING AGENTS (Hydrogen peroxide, Potassium Permanganate)

1. Moderate to wide germicidal activity, not sporocidal.
2. Rendered ineffective in the presence of organic matter.
3. Moderately corrosive, limited toxicity.
4. Poor to limited residual activity.
5. More valuable as a cleansing and deodorizing agent.
6. Moderate cost.

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