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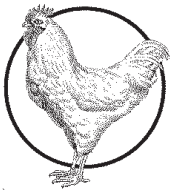
Small Flock Poultry Management Series



Disease
According to Webster, "Disease is a condition of the living animal or plant body or of one of its parts that impairs normal functioning and is typically manifested by distinguishing signs and symptoms."

Disease results when one or more of a variety of direct and indirect causes reduces an organism's resistance to infection. Direct causes of disease can be either infectious or non-infectious. Infectious causes of disease include pathogenic viruses, bacteria, parasites, fungi, and protozoa. Indirect, non-infectious, causes of disease include nutritional imbalance, injury, toxins, and excessive stress. Effective control of disease requires an understanding of how diseases are introduced and spread.

Infectious disease is caused by pathogenic microbes. The majority of microbes found in the environment and in the bodies of poultry are nonpathogenic (they don't cause disease). Beneficial microbes live in and on poultry to aid in many bodily functions, including digestion.

Pathogenic microbes vary in their ability to cause disease and in the severity of the disease they cause. Some microbes known as opportunists will infect only an animal with a suppressed immune system. Differences among strains of the same pathogenic microbes can cause different symptoms and differences in severity of a disease.

Bacteria
Bacteria were first discovered in the 17th century when the microscope was invented. Bacteria reproduce by different means, some by producing spores, others by cell division. Under ideal conditions a single bacterium can become millions in just a few hours.

Pathogenic bacteria enter the body of the chicken in several ways; through the digestive system, the respiratory system, and through cuts and wounds. Depending on where the bacteria settle and the conditions they encounter, the infection they cause can either be chronic (long term), or acute (short term, frequently resulting in death).

Bacteria produce disease by causing mechanical damage to the body, by generating toxins that poison the body, or both. Common characteristics of bacterial diseases include:

- They produce carriers (animals that don't get sick themselves, but that harbor the disease organisms and can spread the disease to other animals).
- They can spread from egg to chick.
- They are spread by rodents and wild birds.
- They can survive in poulty housing for extended periods of time.

A flock-management program involving thorough cleaning and disinfection of the coop will help control the spread of bacterial pathogens.

Viruses

Viruses are much smaller and simpler than bacteria. Like bacteria, they can be pathogenic or nonpathogenic. Viral disease can range from mild to severe and tends to be host-specific. Outside the cells of another living creature, viruses have no ability to grow or reproduce on their own. They survive by invading the cells of a host organism and making copies of themselves.

Viruses are so small that millions can fit on a speck of dust. This makes it very easy to unknowingly transport viruses from one location to another on a shoe, a piece of shared equipment, or on a farm visitor's clothing. Although they don't replicate outside of another's cells, they can survive in the environment for a very long time.

Viral pathogens generally enter a chicken's body through the respiratory or digestive system, but can also gain access through the eye or a wound, including an injection site. They may be present for months or years before the proper conditions are present for the infection to result in disease.

Viruses cause disease in several ways:

- By disrupting and destroying cells.
- By invading and disrupting the immune system, triggering the immune system to produce fever and inflammation, thus triggering antibodies that produce tissue damage.
- By damaging chromosomes, leading to the growth of harmful tumors.

Once a bird is infected with a virus and the immune response is triggered, antibodies are produced against the disease organism; if the bird survives, it should be immune to the disease. These recovered birds may still continue to shed the virus even if they appear healthy and they can infect other birds that do not have immunity.

Viruses can also weaken the immune system, making the bird more vulnerable to opportunistic infection by bacteria and other microbes.

Parasites

A parasite is defined as "an organism living in, with, or on another organism." Parasites can be internal or external. Internal parasites of poultry include: roundworms, flatworms, tapeworms, flukes and protozoa. External parasites include: lice, mites, fleas, mosquitoes, flies and in some areas of the US, ticks.

Generally parasites and poultry co-exist without substantial damage to the host. Poultry can develop resistance to some parasites and a low level of parasitism is normal. Parasites become a problem when the balance between host and parasite is tipped in the parasite's favor resulting in parasitic overload. Parasitic overload manifests as reduced feed efficiency, reduced growth rates, gradual or rapid decline in health , depression, anorexia and in severe cases, death.

Environment

Extremes in the environment; cold, heat, humidity, crowding, access to toxins and rodents can all contribute to diseases and disorders in the flock. Awareness of these problems and good management practices can reduce or eliminate environmental disease in the small flock. Disorders caused by environment include cannibalism, heat stress, predation, frostbite and poisoning.

For more fact sheets in the small flock poultry management series return to:
http://extension.unh.edu/Agric/AGDLEP.htm

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