

PENN STATE

## POULTRY POINTERS

POULTRY SCIENCE • CAPITAL REGION • VETERINARY SCIENCE  
FOOD SCIENCE • AGRICULTURAL ECONOMICS • AGRICULTURAL  
& BIOLOGICAL ENGINEERING • ENTOMOLOGYGENERAL STRATEGIES  
TO TREAT, PREVENT  
AND CONTROL  
POULTRY DISEASESPatty Dunn, DVM  
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Anyone who has raised or tended poultry on any scale, from a small hobby flock to a large commercial enterprise, has encountered disease problems in individual birds or throughout the flock from time to time. Birds, like other animals and people, are susceptible to their own sets of diseases. Fortunately, very few of them are transmissible to man.

Infectious avian diseases (those that are contagious or transmissible from bird to bird) are caused by viruses, bacteria, fungi (mold), and parasites. Due to vast increases in medical/scientific knowledge regarding the relationships of these disease-causing agents with their hosts over the last several decades, several effective control strategies have been developed to decrease infectious disease outbreaks in flocks. Employment of these strategies is crucial to the successful raising of healthy groups of birds, especially as numbers of birds and flock densities increase as poultry producers strive for efficiency of production and maximum use of facilities.

To follow are five general methods of disease control that are widely used to control infectious diseases in poultry. The ideal goal of all the strategies is to prevent outbreaks of clinical disease which should result in optimizing productivity.

1. **REDUCE THE LEVEL OF EXPOSURE.** A critical part of the control method is biosecurity. Biosecurity is the buzz word for the total health plan designed to reduce (or in some cases, eliminate) the number of disease agents that come in contact with a flock. There is much published information on the components of a complete biosecurity plan. They include wearing clean protective clothing and foot wear into your poultry houses, keeping out unnecessary vehicles and visitors, etc. Sanitation, especially cleaning and disinfecting (C&D) of the house and equipment between flocks, is extremely important to decrease the numbers of viable infectious agents left from the last flock to levels that won't overwhelm the incoming birds. This is particularly true if there has been a clinical disease problem in the previous flock. C&D involves both physical removal and chemical deactivation of agents. Unfortunately, some microbial agents are extremely hardy, and a few may remain in the environment regardless of the stringency of the C&D procedures.

Rodent and insect control is important at all times, but particularly between flocks. Mice and rats are effective carriers of many types of bacteria. Beetles and flies can mechanically transfer various types of infectious agents.

If these pests are not removed between flocks, they will serve as reservoirs of the agents to infect the next birds housed.

"Down Time" is the period of time between flocks when the house (or premise) is empty of all birds. The longer the down time before restocking, the less chance of carryover of large amounts of disease agents, especially the more fragile viruses. Even if complete C&D and pest control are not practiced during the down time, some viruses and bacteria become inactivated with time because no suitable hosts (birds) are present to allow them to live and maintain their population. On the other hand, some hardy organisms can remain viable in the environment for years, and can re-infect any birds put back on the premise during that time.

It is important to remember that disease control is a "numbers game" in many respects: X number of organisms may not be able to establish an infection in a healthy bird, but 10 X or 100 X organisms can overwhelm the host's immune defenses and cause serious disease. Once disease is established in the bird, the agent usually multiplies rapidly and numbers of organisms build up exponentially and are shed into the environment, thus perpetrating the cycling of disease in the flock.

2. **REDUCE STRESS.** "Stress" is a very general word that is sometimes hard to define. It implies that a condition or conditions exist that cause discomfort on a physical or mental level. A low level of stress may actually help the immune system operate at peak efficiency. However, moderate or high stress levels cause the body to release certain "stress hormones" that suppress the activity of certain key components of the immune system thereby rendering the bird more susceptible to disease.

High stress is both a cause and an effect of disease. Proper management is the cornerstone of reducing stress. Birds should not be overcrowded. Do not exceed bird density recommendations for your housing situation. Control dam-

age from picking or other vices by trimming beaks, toes, or snoods (depending on the species and production type) and by controlling light intensity. These procedures are to some extent stressful in themselves, but when accomplished at the appropriate age and level, should decrease total additive stress in the long run. Birds should always be handled and moved carefully, especially at the hatchery and during catching, loading, transport and vaccination procedures. Working calmly around the birds is also important. On-time routines of caretaking and feeding are ideal. Changes in feed schedules or running out of feed, even for a relatively short period of time, can be extremely stressful. Supplemental vitamins or other nutrients may be given to combat nutritional stress.

3. **VACCINATE.** Vaccination is a planned and controlled exposure to a specific disease agent or agents in order to stimulate the bird to build protective immunity specific to the agent(s) contained in the vaccine preparation. In most cases, it is used to prevent a disease break before it occurs. In some special situations, vaccine may be applied to a flock currently experiencing a particular disease to limit the disease's progress and effects. Some poultry vaccines are used very extensively. For example, virtually every chick from commercial hatcheries in the U.S. is vaccinated for Marek's Disease at day of age. Other vaccines have a much more limited application. In the U.S., infectious coryza vaccine is used in only a few areas (California, extreme Southeast) where the disease can be a commercial problem.

Types of vaccines used on a farm should be chosen based on what is known about the particular disease challenges in the geographic area. A vaccine should *not* be used if there is no known problem or direct potential problem with the disease. Not only is it economically unsound to do so, it is also potentially dangerous. There have been instances in which live vaccine strains, introduced into an area with good intentions, have caused more disease problems than they prevented. Fortunately, this has been the exception rather than the rule.

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## FFA Officer T

ALEXANDRIA, Va. — Six agricultural youth leaders from the United States will continue with their plans to visit agribusiness and government leaders in Japan as part of the 1995 National FFA Officer International Experience Program January 27-February 10.

"The hosts in Japan have been most helpful in this time of crisis to reorganize travel plans so that the tour could continue. Their nation is an important customer of American agriculture," said Dr. Larry Case, national FFA advisor and coordinator of agricultural and rural education, U.S. Department of Education. "This is an excellent opportunity for our future agricultural leaders to learn about the changing opportunities which face the agricultural industry."

This international tour is an important part of the national officers' preparation to serve the National FFA Organization. During their time in Japan, they will receive a briefing by U.S. Embassy officials on agricultural trade, tour one of Tokyo's largest fish, vegetable and floral market facilities and visit several agricultural high schools.

In addition, the group will tour

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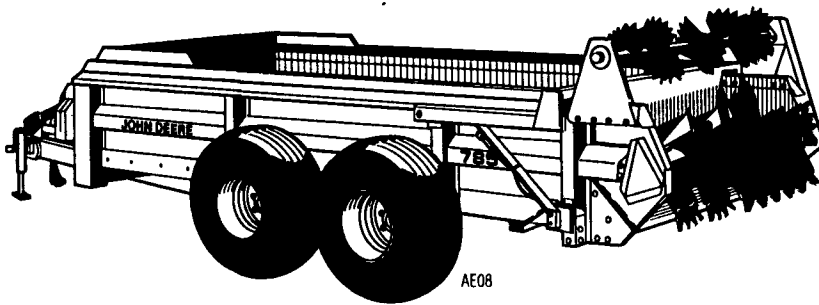
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