

Introduction

Exotic Newcastle disease (END) is a contagious and fatal viral disease affecting all species of birds. Previously known as velogenic viscerotropic Newcastle disease (VVND), END is probably one of the most infectious diseases of poultry in the world. END is so virulent that many birds die without showing any clinical signs. A death rate of almost 100 percent can occur in unvaccinated poultry flocks. END can infect and cause death even in vaccinated poultry.

In 1971, a major outbreak occurred in commercial poultry flocks in southern California. The disease threatened not only the California poultry industry but the entire U.S. poultry and egg supply. In all, 1,341 infected flocks were identified, and almost 12 million birds were destroyed. Eradication efforts cost taxpayers \$56 million (\$228 million in 2002 dollars), severely disrupted the operations of many producers, and increased the prices of poultry and poultry products to consumers.



Figure 1—An outbreak of END today would severely impact the U.S. poultry industry.

What Are the Clinical Signs?

END affects the respiratory, nervous, and digestive systems. The incubation period for the disease ranges from 2 to 15 days. An infected bird may exhibit the following signs:

- Respiratory: sneezing, gasping for air, nasal discharge, coughing
- Digestive: greenish, watery diarrhea
- Nervous: depression, muscular tremors, drooping wings, twisting of head and neck, circling, complete paralysis
- Partial to complete drop in egg production
- Production of thin-shelled eggs
- Swelling of the tissues around the eyes and in the neck
- Sudden death

The death rate in END-infected flocks goes up drastically.



Figure 2—Chickens with END exhibit signs of depression and respiratory distress.



Figure 3—Twisting of the neck is one of the signs birds may show when END has affected their nervous system.



Figure 4—Another symptom of END is the inability to perch or fly, as shown in this picture of an affected parakeet.



Figure 5—Hemorrhages in the postmortem lesions of the trachea, intestine, and gizzard (stomach) of a chicken (from left to right) verify the presence of END.

How Does END Spread?

END is spread primarily through direct contact between healthy birds and the bodily discharges of infected birds. The disease is transmitted through infected birds' droppings and secretions from the nose, mouth, and eyes. The disease spreads rapidly among birds kept in confinement, such as commercially raised chickens.

High concentrations of the exotic Newcastle virus are in birds' bodily discharges; therefore, the disease can be spread easily by mechanical means. Virus-bearing material can be picked up on shoes and clothing and carried from an infected flock to a healthy one. The disease is often spread by vaccination and debeaking crews, manure haulers, rendering-truck drivers, feed-delivery personnel, poultry buyers, egg service people, and poultry farm owners and employees.

The virus that causes END can survive for several weeks in a warm and humid environment on birds' feathers, manure, and other materials. It can survive for extremely long periods in frozen material. However, the virus is destroyed rapidly by dehydration and by the ultraviolet rays in sunlight.

Smuggled pet birds, especially Amazon parrots from Latin America, pose a great risk of introducing END into U.S. poultry flocks. Amazon parrots that are carriers of the disease but do not show symptoms are capable of shedding exotic Newcastle virus for at least 400 days.



Figure 6—A biosecure broiler house protects poultry flocks from coming into contact with wild or migratory birds.

How Can Poultry Producers Help Control and Prevent END?

The only way to eradicate END from commercial poultry is by rapidly destroying all infected flocks and imposing strict quarantine and verifying controls with indepth surveillance programs. Poultry producers should strengthen biosecurity practices to prevent the introduction of the disease to their flocks. Biosecurity is also important to protect backyard and hobby flocks. The following are tips on proper biosecurity practices:

- Permit only essential workers and vehicles on the premises.
- Provide clean clothing and disinfection facilities for employees.
- Clean and disinfect vehicles (including tires and undercarriages) entering and leaving the premises.
- Avoid visiting other poultry operations.
- Maintain an "all-in, all-out" philosophy of flock management with a single-age flock.
 - Control the movement of all poultry and poultry products from farm to farm.
 - Do not "skim" mature birds from a flock for sale to a live-poultry market.
 - Clean and disinfect poultry houses between each lot of birds.
- Do not keep pet birds on the farm. Employing workers who own pet birds exposes your poultry to increased disease risk.
- Exclude vaccination crews, catching crews, and other service personnel who may have been in contact with other poultry operations within 24 hours.
- Protect flocks from wild birds that may try to nest in poultry houses or feed with domesticated birds.
- Control movements associated with the disposal and handling of bird carcasses, litter, and manure.
- Take diseased birds to a diagnostic laboratory for examination.

How Can Pet-Bird and Backyard-Poultry Enthusiasts Help Control and Prevent END?

END is also a threat to the caged-bird industry and poultry hobbyists. Birds illegally smuggled into the United States are not quarantined and tested by the U.S. Department of Agriculture (USDA) and therefore may carry the exotic Newcastle virus.

- Owners of pet birds should
- Request certification from suppliers that birds are legally imported or are of U.S. stock, are healthy prior to shipment, and will be transported in new or thoroughly disinfected containers.
- Maintain records of all sales and shipments of flocks.
- Isolate all newly purchased birds for at least 30 days.
- Restrict movement of personnel between new and old birds.

Amazon parrots are difficult to raise domestically. Anyone who is offering to sell a large number of young parrots should be suspected of smuggling or purchasing smuggled birds.

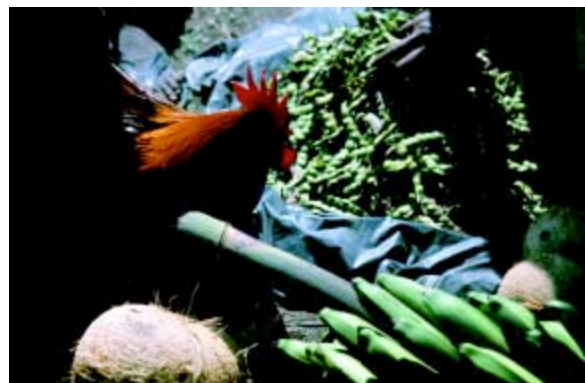


Figure 7—Birds illegally smuggled into the United States are not quarantined and tested by the USDA and therefore may carry the exotic Newcastle virus.

What Is the Animal and Plant Health Inspection Service's (APHIS) Role?

To prevent END from being introduced into U.S. poultry flocks, USDA-APHIS requires that all imported birds (poultry, pet birds, birds exhibited at zoos, and ratites) be tested and quarantined for diseases before entering the country.

In addition to international import restrictions, APHIS has increased surveillance efforts to detect END if it is accidentally introduced into the United States. APHIS and State veterinarians trained to diagnose foreign animal diseases regularly conduct field investigations of suspicious disease conditions. This surveillance is enhanced by efforts from university personnel, State animal health officials, USDA-accredited veterinarians, and industry representatives.

If END is detected in domestic poultry or pet birds, APHIS works quickly with its State and industry counterparts to implement aggressive measures, including quarantine, control, and cleanup, to prevent opportunities for the disease to spread.



Figure 8—If END were detected in U.S. poultry, measures such as quarantine, control, and cleanup would be implemented to prevent opportunities for the virus to spread.

How Can Suspicious Cases Be Reported?

Any poultry or pet-bird owners or veterinarians who suspect a bird may have END should immediately contact State or Federal animal health authorities.

For more information, contact:
USDA, APHIS, Veterinary Services
Emergency Programs
4700 River Road, Unit 41
Riverdale, MD 20737-1231
Telephone (301) 734-8073
Fax (301) 734-7817
E-mail: emoc@usda.gov
or visit the APHIS Web site at
<http://www.aphis.usda.gov>.

Photo credits:
Photographs come from the APHIS image collection.



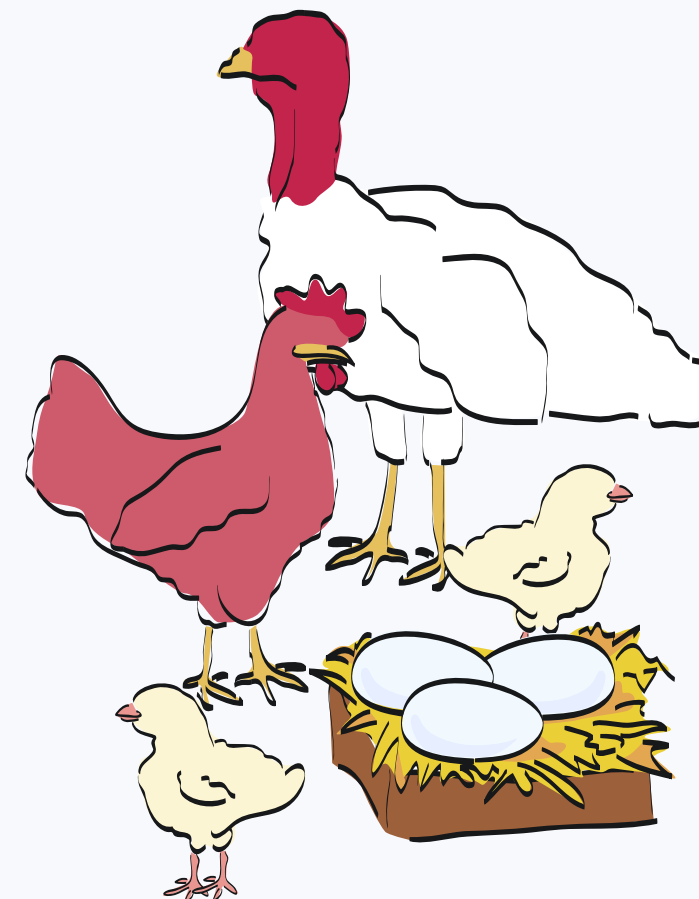
United States Department of Agriculture

Animal and Plant Health Inspection Service

Program Aid No. 1739

Exotic Newcastle Disease

A Deadly Disease That Affects Poultry and Pet Birds



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Issued March 2003

This publication supersedes Program Aid 1414, Exotic Newcastle Disease: A Deadly Form of a Familiar Poultry Disease, which was published January 1992.