

## **Poultry Disease Surveillance in Nebraska**

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In response to the elevated risk of a foreign animal disease outbreak posed by backyard flocks and live-bird markets, many States have implemented disease surveillance programs for small poultry flocks. One such program exists at the University of Nebraska-Lincoln as a joint initiative between the office of the Nebraska State Veterinarian and the University of Nebraska's Cooperative Extension Service. Financial support for the program is provided by the USDA, the Nebraska Poultry Industry, and the University of Nebraska's Cooperative Extension Service. The program's primary goal is to reduce the risk of transmitting a poultry disease from backyard poultry and game-bird flocks to commercial flocks. State animal health officials successfully use a combination of public awareness, education, and disease surveillance to meet program goals.

The Small Flock Poultry Disease Surveillance Program provides Nebraska's backyard flock owners with educational opportunities relating to basic poultry husbandry and management principles, as well as free testing of biological samples collected from selected flocks for avian influenza, exotic Newcastle disease, and other, more common, avian diseases. Disease testing and management advice is offered to the producer free of charge. In addition to providing small-flock owners with a valuable management tool, the surveillance program gives the commercial industry a clearer picture of the health threats within the general population of backyard poultry as well as an early warning system in the case that a foreign animal disease is detected.

With any new program, there is an initial lack of public awareness regarding its availability and existence. At the University of Nebraska, existing forums were used to advertise the surveillance program including: bird auctions, swap meets, radio and television news stations, and mass mailings of avian disease brochures to veterinarians, poultry retail outlets, and small-flock owners across the State.

Education serves a vital role in a successful disease prevention program. The Animal Science and Communication Departments at the University of Nebraska worked together to produce a video demonstrating how to successfully raise a brood of chicks from hatch to adulthood. The video covered subjects ranging from proper nutrition to the importance of maintaining biosecurity and was designed to be displayed in sales venues alongside newly hatched chicks at Nebraska's poultry outlets. In addition to the video production, educational outreach was provided to second- and third-grade students as they participated in the Lincoln Public School's embryology program, where they hatched eggs in an incubator to observe the development of life. The Lincoln Public School's outreach educational program was well received and later expanded to include the Omaha and Winnebago Indian Reservations, located in northeast Nebraska, where additional projects to improve poultry husbandry were undertaken. A portable chicken coop was constructed for use by the tribe to raise the chicks into adulthood so that they could produce eggs and meat which will ultimately be used in an attempt to improve tribal nutrition, as well as provide their children with a level of responsibility in the form of taking care of the birds.

Disease surveillance began in 2002. To date, 65 premises—each containing anywhere from 10 to 2,000 birds—have been visited and sampled, resulting in the detection of many common

poultry diseases and confirming the absence of any foreign animal disease. The most common pathogen detected was the infectious bronchitis virus, prevalent in approximately 20 percent of all birds tested. A close second was lentogenic (low pathogenicity) Newcastle disease, which was present in 14 percent of tested birds. Newcastle disease virus may vary widely in the type and severity of the disease it produces. To simplify matters, five forms of Newcastle disease have been described based on clinical signs and pathologic lesions in chickens. Asymptomatic (infections that do not cause birds to act sick) and mild forms (some signs of respiratory disease) are relatively common in backyard poultry. Most commercial chickens are vaccinated against Newcastle disease, and lentogenic strains of the virus are typically used in vaccines. In addition to common poultry diseases, infectious coryza was diagnosed in a flock of broiler chickens that belonged to a cooperative which markets organically raised chickens in the Lincoln area. “All-in/all-out” management practices have nearly eliminated infectious coryza from the commercial poultry industry, but infections are sometimes found in backyard flocks. All disease testing is conducted on-site at the University of Nebraska Veterinary Diagnostic Laboratory.

When a disease is detected, a copy of the results are kept on file at the office of the extension assistant coordinating the program and then sent to the State Veterinarian’s Office. Disease incidents are reported to the Nebraska Poultry Industry at various meetings throughout the year. In addition to working with the State Veterinarian on disease matters, the program coordinator also provides the director of the Nebraska Poultry Industry board with a detailed report, outlining the program’s recent activities. Overall, the Small Flock Disease Surveillance Program has been well received by all, including small flock owners, commercial producers, and area veterinarians.

Through its efforts in poultry disease surveillance and education, the University of Nebraska provides a valuable tool for flock owners. Backyard flock owners benefit directly from the program, and commercial poultry industries located inside and outside of Nebraska benefit indirectly. The discovery of a foreign animal disease can be economically devastating to the poultry industry due to international trade restrictions and the tremendous loss from the depopulation of a commercial flock. A proactive approach by each State should not be the exception, but rather the rule, in combating infectious diseases in all livestock. By educating owners identified as high risk for introducing a disease into an animal population, the risk of an epidemic is effectively reduced. Operating a disease surveillance program, such as the one at the University of Nebraska, is more cost effective when compared to the number of animals that would be destroyed during a foreign animal disease outbreak. Disease surveillance should therefore become central to the overall strategy used to fight foreign and emerging infectious diseases.

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