

# Chickens Can Get Infected By Viruses From Gulls, Shore Birds

GEORGETOWN, Del. — New research on influenza reveals evidence that influenza viruses in gulls and shore birds constitute a major reservoir of viruses in the world and represent a source of each of the thirteen different HA and nine different neuraminidase subtypes.

The research, sponsored by the Delmarva Poultry Industry, Inc. (DPI) and the National Institutes of Health, was initiated in 1985 and continued through 1989. The work was conducted by Dr. William L. Sladen, Wildlife Trust of North America and Drs. Robert G. Webster, Thomas M. Chambers, and Yoshihiro Kawaoka, St. Jude Children's Research Hospital, Memphis, Tennessee.

The new research covers the years 1988 and 1989. Fecal samples for influenza virus analysis were collected by Sladen at several shoreline locations, in freshly ploughed fields, at a rubbish dump, and roadside picnic areas on the Delmarva peninsula. They were sent to Webster in Memphis where they were analyzed for influenza viruses. Samples were collected monthly during May-September 1988. The highest percentage of influenza viruses were isolated during May (25 percent of the samples contained influenza viruses) while the lowest percentage was in September (1.5 percent). This distribution of virus corresponds with the migration of the ruddy turnstone and red knot.

During 1988, 674 samples were

examined for influenza viruses. The species of birds that had the highest percentages of isolates were ruddy turnstones (40.2 percent), knots (23.2 percent), laughing gulls (12.1 percent), and herring gulls (10.8 percent). According to the researchers, it is apparent that among shorebirds, the ruddy turnstone is the primary purveyor of influenza viruses. It is possible that the ruddy turnstone transmits the virus by fecal contamination of horseshoe crab eggs and cross infects many species of gulls and shore birds. A number of species contained no detectable influenza viruses.

Many combinations of hemagglutinin and neuraminidase subtypes of influenza viruses were isolated from shore birds and gulls. The most prevalent viruses were of the H<sup>4</sup> N<sup>6</sup> subtype.

The incidence of influenza viruses in shore birds and gulls during 1989 was lower than in any of the previous years, only 8.5 percent, and by June, no influenza viruses were isolated from more than 100 samples tested. The lower percentage may have been due to the fact that the majority of ruddy turnstones and knots had already moved north when the samples were collected.

The researchers' previous studies have shown that more than half of the influenza viruses isolated from shore birds and gulls have the potential to replicate in chickens, but none of those tested had the potential to cause disease

signs. To test replication in chickens, an H<sup>7</sup> N<sup>3</sup> influenza virus was selected. It was inoculated orally into SPAFAS white-leghorn chickens at 4 weeks of age. The virus replicated in the trachea and was shed in the feces, but caused no disease sign. When the virus isolated from the trachea of the SPAFAS birds was inoculated intravenously into "spent hens," three of the birds showed disease signs of respiratory infection and two of the eight died. This indicates that the H<sup>7</sup> influenza viruses have the potential to become highly pathogenic in domestic chickens.

The research did not answer a number of questions, such as:

- What is the incidence of influenza viruses in gulls and shore birds in the vicinity of poultry houses or at landfills or dumps that may be visited by poultry farm workers?

- Do passerine birds (starlings and sparrows) play a role in transmission?

- What is the source of the viruses?

- Are there highly efficacious vaccines available for these viruses?

The researchers conclude that the practical consequence of these studies is that shore birds and gulls must be kept completely separated from domestic poultry. Humans must not visit contaminated beaches and track fecal contamination into chicken houses. The

studies also indicate that May is the time of the year when the greatest risk of introduction of the viruses exists.

For more information about this research, contact the Delmarva Poultry Industry, Inc., R.D. 2, Box 47, Georgetown, DE 19947-9622.

## Seeks Land-Grant Solutions

LEBENSBURG (Cambria Co.) — Marvin Haselrig, president of the Cambria County Extension Board recently returned from Washington, D.C., where he participated with 400 other citizen leaders from 35 states at the National Land-Grant University Lay Leaders Seminar.

Delegates to the National Land-Grant Lay Leaders Seminar represent community leadership from throughout the nation. They bring knowledge about problems facing citizens which the Land-Grant system must address. During the 1990 Seminar, delegates participated in 16 town meetings so they could contribute their own perspectives on concerns they would like to see become part of Land-

Grant priorities for the '90s.

Several issues were addressed at the annual leadership development event including food safety, water quality, youth and families at risk, community vitality, sustainable agriculture, environmental preservation, competitiveness in the international marketplace, biotechnology in agriculture and developing scientific talent for the 21st century.

Several major speakers addressed the group of leaders including: Assistant Secretary of Agriculture Charles E. Hess; President and chief Executive Officer, Dr. Richard J. Sauer, National 4-H Council; and Vice President for Agriculture, Dr. Kenneth Farrell, University of California.

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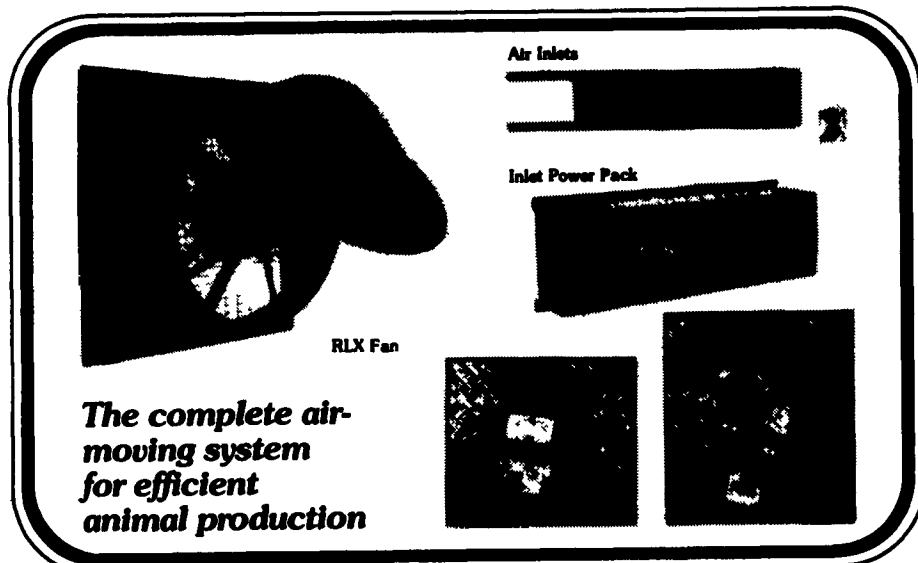
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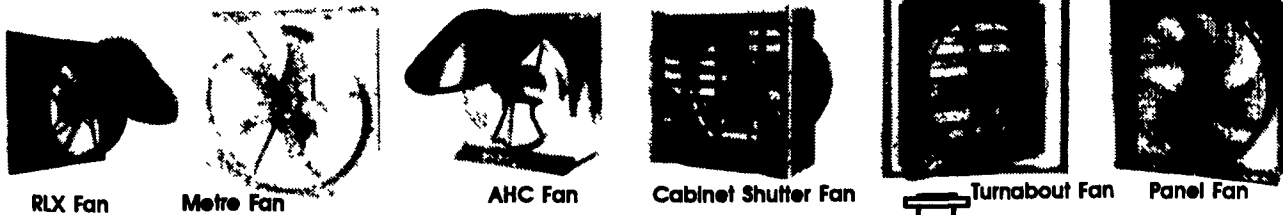
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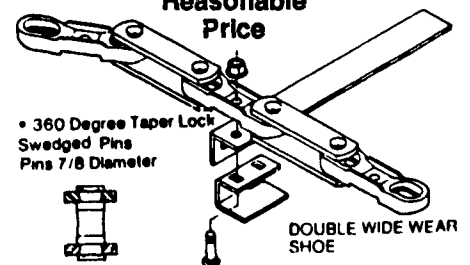
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