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# Foreign Animal Disease Report

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## Current Events

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Avian Influenza,  
1986 //

On January 8, 1986, avian influenza (AI) virus (H5N2) was isolated from a chicken flock in Snyder County, Pennsylvania. During the next 12 weeks, 13 additional Pennsylvania flocks were found infected, as were four commercial operations in New Jersey, one in Massachusetts, and one in New York. These infections apparently resulted from either direct or indirect contact with live poultry markets in New York City and New Jersey. On February 1, H5N2 virus was first isolated from a live bird market in New York City. By early March, the virus had been isolated from 26 live bird markets in New York City, 12 in New Jersey, and 3 in New England. These isolations came in the wake of a survey that was initiated by Veterinary Services (VS) in the northeastern States on February 18, and completed on March 5, 1986.

Objectives of the survey were to: (1) Determine the extent of the live bird marketing system in the VS Northern Region, with emphasis on the New York City metropolitan area, (2) determine the value of live bird marketing as an AI surveillance tool, and (3) determine how the live bird industry may be operated to minimize the risk of maintaining and disseminating avian influenza virus.

It was learned that poultry, which includes ducks, turkeys, guinea fowl, chickens, and geese, change ownership 2 to 5 times between the first buyer and the consumer, when these birds are destined for live bird markets in the northeastern States. Components of the live bird marketing system include: producers—commercial integrators, backyard hobbyists, duck farms, etc.; auction markets and concentration points, dealers, wholesalers in New York and New Jersey, and retailers.

Poultry crates, trucks, and other equipment were moving avian influenza virus back and forth between producers and retailers until control procedures were initiated with industry cooperation in early February. The procedures were designed to ensure that

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the cycle of infection that was moving H5N2 virus through the marketing system (i.e., from producer to market and vice versa) was broken. Actions taken included the cleaning and disinfecting of crates, trucks, and other equipment, and the depopulation of infected poultry.

Both sodium hypochlorite solutions and One-Stroke Environ were used as disinfectants. One-Stroke was considered superior to sodium hypochlorite for the situations encountered. (See article on Approved Disinfectants, in this issue.)

New Jersey, Rhode Island, and Connecticut eliminated H5N2 virus from their few contaminated markets by depopulation, followed by cleaning and disinfection.

Initially 26 of 41 New York City markets were found to be contaminated with H5N2 virus. Most market operators were reluctant to remain free of birds for longer than 24 hours at a time. By following a regimen of 24-hour depopulations, followed by cleaning and disinfection, all markets eventually were cleaned up. Then during the week of June 23, all markets were again sampled. Four were again found to be contaminated with H5N2 virus. Evidence suggested that the latest infection reflected new introductions of the virus and that the virus had not persisted within the components of the marketing system beyond the dealers who were delivering poultry to the markets.

A survey of live bird marketing in the VS Southeastern Region was completed April 3, 1986, and extensive live bird marketing was found in Miami, Florida. Sales of live birds in the Miami area are made from "botanicas," rather than traditional live bird markets. Botanicas sell voodoo paraphernalia, including all varieties of birds for sacrificial purposes. They purchase their chickens, guinea fowl, turkeys, quail, pheasants, pigeons, and exotic birds from dealers, as well as from each other. An estimated 50 botanicas maintain birds on their premises. Birds are also held on farms, some of which are operated by botanica owners. Poultry dealers purchase chickens directly from commercial producers or, more often, from other dealers in Georgia and other southeastern States. Poultry sampled at 8 out of a total of 18 dealers and botanicas inspected in the Miami area were found to be contaminated with H5N2 virus.

Similar poultry marketing surveys conducted in the VS Central and Western Regions did not disclose the presence of H5N2 AI virus.

None of the H5N2 viruses isolated during 1986 have met the criteria established for highly pathogenic avian influenza virus (see 12-2). Indeed there have been no isolations of highly pathogenic H5N2 virus in the United States since the spring of 1984. All isolates in the VS Northern Region and Florida this year have been characterized as nonpathogenic or low pathogenic by the National Veterinary Services Laboratories. Veterinary Services' involvement in the 1986 H5N2 incidents has been strictly limited to the provision of diagnostic, epidemiological, and technical assistance to the affected States.

Further definition of Federal, State, and industry participation in avian influenza control and eradication is expected following the International Symposium on Avian Influenza, to be held in Athens, Georgia, September 3-5, 1986. (Dr. Robert R. Ormiston, 301 436-8065) <sup>100</sup>

World Animal  
Disease  
Roundup

**Foot-and-Mouth Disease (FMD).** A resurgence of outbreaks caused by type A<sub>5</sub> and one outbreak of type O FMD have been recently reported in Italy. Type A<sub>5</sub> had been responsible for many outbreaks dating from late November 1984 through the summer of 1985. Since November 1985, type C has been found responsible for the majority of outbreaks affecting swine. With three types of FMD virus to contend with, the situation is quite serious.

Foot-and-mouth disease in cattle was reported in Spain on June 16, 1986. Of 42 cattle on the affected farm, three had clinical signs of FMD. Proper sanitary measures were applied. No evidence of spread has been found. The source of the outbreak is unknown. The virus has been identified as A<sub>5</sub>. Ten outbreaks of type A<sub>5</sub> FMD were reported in cattle and goats during the period January-August 1983.

**African swine fever (ASF).** Since the initial outbreak of ASF in the Netherlands on March 30, 1986, and another on April 1, 1986, no further outbreaks have been reported. Clinical signs and postmortem lesions were consistent with the subacute form of the disease. The mortality rate was reported to be approximately 19 percent. A total of 6,641 swine has been destroyed, of which 196 originated from the two positive premises. Illegal feeding of uncooked garbage appears to have been responsible for the introduction of the virus.

Four outbreaks of ASF have been confirmed in Namibia, involving more than 1,300 swine. All swine either died or were destroyed. The disease was previously reported in Namibia in October 1982. During March 1986, an outbreak of ASF was reported along the Zambia-Malawi border.

African swine fever continues to be reported in Italy (Sardinia), Spain, and Portugal.

ASF appeared last year for the first time in the Netherlands and Belgium. This points out the importance of constant surveillance for all countries in preventing the introduction and spread of ASF.

**Hog cholera (HC).** Since the outbreak of HC in Great Britain on April 10, 1986, nine other occurrences have been reported. Most of these were traced to a livestock market in the Midlands of England that received infected animals from a primary source outbreak. The latest diagnosis was confirmed on June 25, 1986, in an area distinct from the previous locations and not traceable to livestock markets. A total of 7,675 swine has been slaughtered in efforts to eliminate the disease. Great Britain had been free of HC for 15 years prior to the current epizootic. Feeding swine contaminated household scraps appears to be the cause of the outbreaks.

**Rinderpest (RP).** Cases of RP were reported in Saudi Arabia among cattle imported from Turkey via Iraq. The animals reportedly were vaccinated in Turkey approximately 4 months earlier and revaccinated upon arrival in Saudi Arabia.

Three outbreaks of RP were reported in Uganda and one in Burkina Faso (formerly Upper Volta).

**Contagious bovine pleuropneumonia (CBP)** was recently reported responsible for the deaths of several hundred cattle in Nigeria. Reports of the disease continue to come from Portugal and Namibia. Based upon serological surveys and regular abattoir inspections of carcasses, it now appears that CBP is no longer being encountered in France and Spain. (Dr. James T. Cavanaugh, 301 436-8285)

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Caliciviral Disease  
Update //

This report updates information in the September 1983 Foreign Animal Disease Report (see 11-3). The 1983 information is still current, and although outbreaks of vesicular disease in domestic livestock due to calicivirus have not been recognized or reported, new and pertinent information needs to be added to the 1983 document.

Tillamook calicivirus (TCV) was first isolated from three dairy calves in Tillamook County, Oregon, in the fall of 1981. This proved to be a new serotype of calicivirus that persistently infected calves and caused vesicular lesions in inoculated swine under experimental conditions. These lesions were similar to the vesicular lesions of foot-and-mouth disease, vesicular stomatitis, swine vesicular disease, and vesicular exanthema. Neutralizing antibodies to TCV were found in California sea lion sera collected in 1983 and 1984, and in Stellar sea lion sera collected in 1976 and 1985. The antibody prevalence for these two species was 10/228, or 4.4 percent. Antibody titers using a serum neutralization test (positive at 100 percent endpoint with 100 tissue culture infective doses of virus and a lowest serum dilution of 1:20) ranged from 1:20 to 1:80. Seropositive seals were widely dispersed along the Pacific Coast from Southern California to the Bering Sea. Northern fur seals, walrus, phocid seals, and cetaceans tested negative from these same general geographic locations.

Serum samples randomly collected from cattle in the Pacific northwest were tested for antibodies against a number of caliciviruses of known ocean origin. Approximately 2 percent of the total serums tested reacted to two of these viruses. Sera were screened at 1:20 final dilution using 100 percent endpoints (4 wells in a microtiter system) and 100 TCID<sub>50</sub> (100 tissue culture 50 percent infectivity endpoint dose) of virus. These findings suggest that the cattle had exposure to ocean sources of calicivirus.

Experiments were then designed to examine the effect of two virus types in 4-month-old calves. The first, San Miguel sea lion virus type 5 (SMSV-5), did not produce overt disease. However the second, SMSV-13, caused vesicles at sites of intradermal inoculation on the nose and tongue. Secondary vesicular lesions

appeared within 96 hours on the feet (interdigital). A single uninoculated pen contact calf also developed vesicular lesions on the feet. The virus was isolated from the clear fluid aspirated from these lesions. Three pen contact swine remained clinically normal.

These studies were repeated by researchers at the U.S. Department of Agriculture Plum Island Animal Disease Center using cattle about 18 months of age. Pen contact cattle remained normal. Pen contact swine developed clinical vesicular lesions.

A total of 31 calicivirus serotypes have been identified, excluding the feline and canine serotypes: 13 vesicular exanthema of swine virus (VESV) types, 12 SMSV types, and 6 other serotypes including the Tillamook virus. In 1984 the newest of the serotypes was isolated from large vesicles on California sea lions. This agent is the SMSV-13 reported above. Under experimental conditions, it is far more virulent in swine than most of the 13 serotypes of VESV originally isolated from swine.

Serological surveys of marine mammals show that SMSV-13 has been present for at least 11 years. During the 14 years that sea lions have been intensively studied, SMSV-13 was not seen to cause severe vesicular disease until 1984. Our observation is that SMSV-13 carries a virulence factor for mammals that was first expressed in 1984.

For several years, Stellar sea lions have been known to carry antibodies against certain calicivirus types. Calicivirus SMSV-6 was recently isolated from a Stellar sea lion pup on the Oregon coast by scientists at the Oregon State University College of Veterinary Medicine. Stellar sea lions range from southern California north into the Bering Sea. The virus was first isolated from a California sea lion in 1976 and from fish in 1977.

The 1983 report on caliciviral disease presented five reasons for believing that the caliciviruses of ocean origin have a potential to cause disease in man, even though no such disease had been confirmed. Then in December of 1985, a researcher at Oregon State University developed over 30 blisters on the palms of his hands and the soles of his feet. These lesions appeared concurrently with flu-like symptoms at a time when flu was quite active in the community. Direct electron microscopy of vesicular fluid aspirated from the lesions disclosed the presence of particles identical to calicivirus. The virus was isolated from the fluids and typed as SMSV-5. This serotype was originally isolated from a Northern fur seal taken in the Bering Sea in 1973. The infected researcher seroconverted to SMSV-5; however, secondary contacts (family) and others did not. There had been no known exposure to the virus, although it had been used in the laboratory. The blisters, which ranged in size from 2 to 5 mm, were quite deep and painful but were completely healed within 14 days. No additional health problems have been attributed to this virus up to the time this report was prepared, 6 months after infection. (Dr. A. W. Smith, Oregon State University, College of Veterinary Medicine, 503 754-2318)



Avian Imports  
Studied

According to a recent APHIS study, the risk of an introduction of exotic Newcastle disease into the U.S. poultry industry by commercially imported exotic birds has been reduced to an acceptable level by Animal and Plant Health Inspection Service (APHIS) quarantine procedures. The study also showed that while dropping current quarantine procedures for individually imported pet birds would increase risk only slightly, some regulation is necessary to keep the risk of infected birds from entering the country at an acceptable level. The risk is particularly acute with small volume importers and smugglers. The study concluded that smuggled birds constitute the biggest risk of introducing exotic Newcastle disease into the U.S. poultry industry.

The study established an analytical framework for assessing the risk posed by imported exotic birds potentially infected with velogenic viscerotropic Newcastle disease virus. Effects of the current quarantine system on this risk were then quantified, and the change in risk that would result if the system were terminated was estimated.

Details of the study may be obtained by writing to the Policy Analysis and Program Evaluation Staff, APHIS, USDA, Room 234, 6505 Belcrest Road, Hyattsville, MD 20782.

Approved  
Disinfectants

Veterinary Services maintains the following list of disinfectants that have been approved by the U.S. Department of Agriculture (USDA) for use in its animal disease control and eradication programs. New disinfectants are tested and approved from time to time and are then added to the list by the Emergency Field Operations Staff, Hyattsville, Maryland.

Approved disinfectants are announced in the Federal Register.

Sodium carbonate with sodium silicate is the only disinfectant approved for use on aircraft.

Additional information on approved disinfectants may be obtained from the Emergency Field Operations Staff, Domestic Programs, Veterinary Services, 6505 Belcrest Road, Hyattsville, MD 20782, telephone area code (301) 436-8087.

Name of Disinfectant	Percent $\sqrt{1}$	Directions for Metric Measurement	Directions for English Measurement	Disease
Cresylic disinfectant with USDA approved mark on container	4	160 mL in 4 L of water	5.1 oz in 1 gal of water	Brucellosis Hog cholera (HC) Shipping fever Swine erysipelas Tuberculosis (TB)
Sodium Carbonate (soda ash)	-	450 g in 11 L of water	1 lb in 3 gal of water	Foot-and-mouth disease (FMD) Vesicular exanthema (VE)
Sodium Hydroxide (Lye: NaOH)	2	383 g in 19 L of water	13 1/2 oz in 5 gal of water	FMD VE
Sodium Hydroxide (Lye: NaOH)	5	1 kg in 38 L of water	5 (13 1/2 oz) cans in 10 gal of water	Anthrax $\sqrt{2}$ Blackleg $\sqrt{2}$
Sodium ortho-phenylphenate	1	450 g in 45.4 L of water	1 lb in 12 gal of water, 60°F (15.6°C) or over	TB Infectious laryngotracheitis
One Stroke Environ $\sqrt{3}$	0.4	1:256	1:256	HC Velogenic viscerotropic Newcastle disease (VVND) $\sqrt{4}$ African swine fever (ASF) $\sqrt{4}$
	1	1:100	1:100	

Name of Disinfectant	Percent	Directions for Metric Measurement	Directions for English Measurement	Disease
Sodium Carbonate <sup>15</sup>	4	450 g in 11 L of water with 0.1% sodium silicate added	1 lb in 3 gal of water with 0.1% sodium silicate added	FMD
Bioguard Control <sup>3</sup>	1	1:100	1:100	VVND
Vanodin FAM <sup>3</sup>	1	1:100	1:100	ASF and VVND
	0.5	1:200	1:200	FMD and swine vesicular disease

- <sup>1</sup> Percent active ingredient in water solution
- <sup>2</sup> Let solution remain on vehicle 8 hours and then wash away
- <sup>3</sup> Solutions are prepared as directed on container label
- <sup>4</sup> 60 minutes required to inactivate ASF virus
- <sup>5</sup> Aircraft disinfectant

FAD Report  
Editorial  
Committee

Editorial Committee membership has been changed. The current members are: Dr. E. I. Pilchard, Chairman; Dr. M. P. Dulin, Dr. R. R. Ormiston, Dr. L. J. King, Dr. M. J. Gilsdorf, Dr. J. T. Cavanaugh, Ms. Anita McGrady, and Ms. Betsy Moriarty.

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Questions about the FAD Report may be sent to:

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