Foreign Animal Disease Report

United States
Department of Agriculture

Animal and Plant
Health Inspection Service

Veterinary Services

Emergency
Program

Number 18-2

SUMMER 1990

This Issue

Emergency Field Investigations

During the first quarter of Fiscal Year (FY) 1990 (October 1, 1989, to December 31, 1989), veterinarians from the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services, conducted 44 investigations of suspected foreign animal diseases to eliminate the possibility that an exotic disease may have been introduced into the United States. All investigation results were negative for exotic disease conditions.

Emergency Programs Activities

Foreign animal disease training courses were presented March 18-31, 1990, and May 6-19, 1990. The courses were scheduled for 1 week in Ames, Iowa, at the National Veterinary Services Laboratories (NVSL), and the second week at Plum Island, New York, at the Foreign Animal Diagnostic Disease Laboratories (FADDL). Parts of the course curriculum formerly presented at Hyattsville, Maryland, have either been discontinued or incorporated in the NVSL or FADDL sessions. Other scheduled courses are: (1) Wildlife Disease Seminar, July 23-27, 1990, Athens, Georgia; (2) Military Support Course for Military Veterinarians, April 9-13, 1990, Hyattsville, Maryland; (3) Foreign Animal Diseases Course for Laboratory Diagnosticians and Teachers of Infectious Diseases, November 1990, Plum Island, New York.

Secretary's Advisory Meeting

The Secretary of Agriculture's Advisory Committee on Foreign Animal and Poultry Diseases met February 27-28, and March 1, 1990, at the National Center for Animal Health Information Systems (NCAHIS), Ft. Collins, Colorado. First day topics of discussion included APHIS objectives for 1990, a report on actions taken on 1989 recommendations, and reports on activities of the Plum Island Animal Disease Center (PIADC), the National Veterinary Services Laboratories (NVSL), International Services (IS), Science and Technology (S&T), and Veterinary Services (VS).

On February 28, 1990, a tour of the NCAHIS facilities was conducted. The Director and Staff briefed the Committee on the NCAHIS mission, plans, support systems, organization for emergency preparedness, and other activities.

reported 9,540 cases of ND during September through November; and Iran reported 122 outbreaks during January, February, March, and August. Tunisia reported 53 outbreaks of ND during June through August; Ethiopia and the Congo reported outbreaks in October; Kenya reported outbreaks in September; the Ivory Coast reported outbreaks during September through November; Botswana reported outbreaks in October and November; and Zambia reported 44 outbreaks involving 13,967 cases during January and June through August. Madagascar reported ND during May through July. Colombia reported outbreaks of ND in September and October; Ecuador reported outbreaks in October; Brazil reported 132 outbreaks involving 41,803 cases during January through June; and Mexico reported 2,556 cases during September through November. Hong Kong reported ND in September and October, and Korea reported outbreaks in September and November. Malaysia reported 13,154 cases of ND in 9 outbreaks in July and August; and the Philippines reported 33,252 cases during April through September.

Ecuador reported outbreaks of **velogenic viscerotropic Newcastle disease** (VVND) during October; Mauritius reported 25 outbreaks during July and August; Pakistan reported outbreaks during October and November; and the USSR reported outbreaks during October.

No cases of **swine vesicular disease** (SVD) or **fowl plague** were reported for October, November, and December 1989.

Bovine spongiform encephalopathy (BSE) in Great Britain increased sharply during the 3-week period ending February 16, 1990 (138, 205, and 300 cases, for the respective weeks). The total number of confirmed cases since June 1988 is 10,298, on 5,823 farms.

Libyan authorities reported 149 cases of **screwworm myiasis** (SM) in October, compared with 82 in September. All of these cases were observed in previously infested municipalities (see 17- 4:7). (Dr. M. J. Gilsdorf, USDA, APHIS, IS, OS, Hyattsville, MD 20782, (301) 436-8892)

Pox in European Zoos

Between 1960 and 1989, a total of 25 outbreaks of pox disease occurred in exotic mammals in European zoological gardens. All but 2 of the outbreaks were within approximately 535 miles of Magdeburg, German Democratic Republic. The other two were at the Moscow Zoological Garden, Union of Soviet Socialist Republics (USSR). Asian elephants (Elephas maximus) were involved in 18 of the outbreaks, African elephants (Loxodonta africana) in 6, okapies (Okapia johnstoni) in 2, rhinoceroses (Ceratotherium simum, Diceros bicornis) in 2, and different species of the family Felidae and order Edentata in 2. The most recent outbreak, during March and April 1989, was the most lethal one. It occurred in a travelling circus at Wuppertal, Federal Republic of Germany, where three of five Asian elephants died.

Clinical Picture. Predominant signs were the characteristic lesions of the skin and mucosa, in most cases at the head and trunk. These varied from 0.5 to 3.0 cm diameter. All classic stages of pox efflorescences were found: papular, vesicular, and pustular. In at least three outbreaks, a loosening of the horn skin of the elephant's foot was observed, causing severe pain and necessitating the humane destruction of one elephant. In each outbreak, one or two animals either remained healthy or showed a very mild form of the disease. Severe pulmonary pox disease was observed only in exotic cats at the Moscow Zoo.

Diagnosis. Diagnosis was based on the typical clinical picture and the demonstration of pox virus particles by electron microscopy in negatively stained material from skin lesions.

The presence of virus was confirmed by the production of lesions in chorioallantoic membranes 48 or 72 hours after inoculating 12-day-old chicken embryos with a suspension of triturated lesion material.

Virus. All 11 strains of virus that were isolated belong to the genus Orthopoxvirus and are cowpox or cowpox-like. All produce 1-2 mm lesions in chicken embryo allantoic membranes. The lesions are grey, with hemorrhagic centers. The intracytoplasmic inclusions are of type A V+ (inclusion bodies containing embedded virus particles). However, the DNA restriction pattern of each strain is unique, so that each strain can be rather easily distinguished from another. (Pilaski, J. et al. 1986. Arch. Virol. 88: 135-142; Pilaski, J. and A. Roesen-Wolff 1988. In: Darai, G. ed. Virus Diseases in Laboratory and Captive Animals, Martinus Nijhoff Publishers, Boston, 83-100)

Epidemiology and susceptibility. In at least four instances, characteristic skin nodules 1-2 cm diameter were seen in humans having contact with sick elephants. Similar skin lesions were observed in humans after having contact with domestic cats, wild-living rodents, or both. All virus strains isolated from the human cases were cowpox-like viruses. (Roesen, A. et. al. 1987. Med. Microbiol. Immunol. 176:181-188)

Although rodents are considered a likely reservoir for cowpox-like viruses, cowpox-like viruses have only been isolated from wild rodents in the USSR. Asian elephants are highly susceptible to cowpox-like virus strains. Circus elephants are more likely to be exposed than zoo elephants, because they are travelling around and, therefore, have a greater chance of coming into contact with the virus. The route of infection is probably through contaminated hay.

It is desirable to vaccinate all captive elephants within the endemic area of cowpox-like viruses. Dr. J. Pilaski and co-workers at the Medical Institute of Environmental Hygiene, Duesseldorf, used a combined vaccination procedure consisting of a first subcutaneous vaccination with the MVA strain (modified vaccinia virus Ankara), and a second vaccination 4 weeks later by skin scarification with the Elstree strain of vaccinia virus. The MVA vaccine was developed by Dr. A. Mayr, Munich. The use of vaccinia virus was based upon the advice of Dr. J. Foster, Seattle, Washington. The only reaction to vaccination was seen after 5 days as a local reddening and swelling of the skin. Neutralizing antibody titers of 1:8 were found 4 weeks after the second vaccination. In contrast, elephants who survived pox disease had neutralizing antibody titers up to 1:1024. (Dr. J. Pilaski, Medical Institute of Environmental Hygiene, D-4000 Duesseldorf, Auf'm Hennekamp 50, FRG)

FMD in Tunisia

FMD in Tunisia. The following was adapted from a February 1990 report by Dr. Juan Lubroth, Veterinary Medical Officer (VMO), APHIS, International Services, Mexico-United States Commission for the Prevention of Foot-and-Mouth Disease and Other Exotic Diseases of Animals, Mexico City, Mexico.

On December 12, 1989, the Virus Research Institute, Pirbright, England, confirmed foot-and-mouth disease (FMD) type O Mateur Tunisie 89, in Tunisian sheep. FMD had not been diagnosed in Tunisia since 1982, and then primarily in cattle. High mortality was reported in the 1989 lamb crop beginning during early November in the