FOREIGN ANIMAL
DISEASE REPORT

AUGUST -
SEPTEMBER 1979

EXOTIC NEWCASTLE DISEASE OUTBREAK

On February 20, 1979, exotic Newcastle disease was confirmed at the National Veterinary Services Laboratories (NVSL), Ames, Iowa, from specimens submitted from a citron-crested cockatoo at Stanton, Orange County, California. The virus was originally isolated at the California Department of Agriculture's Veterinary Laboratory Services, San Gabriel, California, and was subsequently submitted to NVSL for characterization. The disease was traced to a bird-holding facility of a privately owned import quarantine station.

Evaluation of compliances with import standards included collection of cloacal swabs and any bird that died during a 30-day holding period, followed by testing at the National Veterinary Services Laboratories.

After exotic Newcastle disease was found, sales and shipments of birds from the holding facility were traced and evaluated. These and other birds on the receiving premises were sampled by swabbing twice or by both swabbing and sampling during necropsy. Specimens were submitted to an approved diagnostic laboratory for testing. As a result, birds on 10 commercial and 7 privately owned premises in Los Angeles, Orange, San Bernardino, and Riverside Counties, California, were diagnosed positive for exotic Newcastle disease.

Federal and State quarantines were placed on each of the premises and, in some instances, on the surrounding area. Epidemiological tracing and sampling led to positive birds on one commercial and one privately owned premise in Las Vegas, Nevada. Birds on five premises in California and one in Arizona were destroyed as exposed. All positive and exposed groups of birds were appraised and euthanized and the premises were cleaned and disinfected.

In addition to California, movements of birds from infected premises were traced to Arizona, Illinois, Minnesota, Nevada, Oregon, Texas, Utah, and Washington. Except as already indicated, birds evaluated on the receiving premises were negative.

On March 24, 1979, another case of exotic Newcastle disease was confirmed in the holding facility of a USDA-approved privately owned import quarantine station at Miami, Florida. Birds shipped from this holding facility between January 1, 1979, the date the facility was epidemiologically determined to have become infected, and March 20, 1979, the date the State of Florida quarantine was imposed, were traced and evaluated. A total of 109 shipments were made from this infected facility to 29 States and the Commonwealth of Puerto Rico. As a result of these tracings and evaluations, positive cases were disclosed in Illinois, Michigan, North Carolina, Ohio, and Texas. Two hundred and sixty-five shipments were made from the infected facility in North Carolina to 14 States. All birds in these shipments were traced, evaluated, and found negative for exotic Newcastle disease.

No commercial poultry were involved in either the California or Florida outbreaks. Since there is no known treatment for this disease, the infected caged birds involved were appraised and humanely destroyed and the premises cleaned and disinfected.

Except for an outbreak in Texas, which occurred in a small flock of game birds, the disease initially involved holding facilities associated with privately owned bird import quarantine stations. The disease spread from these facilities to caged bird wholesalers, jobbers, pet shops, aviaries, and private homes.

The Regional Emergency Animal Disease Eradication Organizations of the Western and Southeast Regions were activated to combat the outbreak. The total cost to eliminate these outbreaks was approximately $1.8 million.

During the last week of June 1979, a small unrelated outbreak of exotic Newcastle disease occurred in pet birds on two premises in Los Angeles County. Epidemiological and other investigations were conducted and no additional cases were disclosed.

During fiscal year 1978, domestic surveillance of poultry did not reveal any cases of exotic Newcastle disease in poultry in the continental United States. Increased effectiveness in border and port enforcement and alert surveillance by field personnel aided in the effort. Two infections were detected in caged pet birds recently introduced into the United States. One of these infections was in birds entering the United States illegally, and the other infection was introduced through imported birds undergoing a 30-day quarantine period at the premises of destination. Prompt detection by Veterinary Services personnel and identification by the NVSL prevented the spread of these outbreaks to poultry and other avian species.

Puerto Rico currently is under Federal quarantine for exotic Newcastle disease. All passenger baggage is inspected on all air flights from Puerto Rico to the United States to remove live poultry and poultry products. In addition, all baggage is inspected at the San Juan airport on flights originating in the Virgin Islands and destined for the United States.

On June 4, 1979, a surveillance program to determine the status of Puerto Rico in regard to exotic Newcastle disease began. After this intensive surveillance

program has been completed, with negative findings, Puerto Rico will be declared free of exotic Newcastle disease.

CONTAGIOUS EQUINE METRITIS

Contagious equine metritis (CEM) is a highly transmissible, bacterial, venereal disease of horses and other equidae, confirmed in Thoroughbred horses as a new entity in June 1977. In the stallion, clinical signs are not seen. Severity may vary from acute to chronic. This disease has spread internationally since 1975 with the transportation primarily of Thoroughbreds. It has been reported in Australia, Belgium, Federal Republic of Germany, France, Ireland, the United Kingdom, and the United States.

OUTBREAKS in the UNITED STATES

In April 1979, CEM was diagnosed in a small Trakehner breeding herd in Missouri. State and Federal quarantines were imposed to prevent spread. Members of the Trakehner breed recently imported into this country from West Germany have been incriminated as introducing the infection into that State. Therefore, equidae from West Germany are being traced, owners contacted, and the breeding performance evaluated, including bacteriologic culturing. Equidae imported from other infected countries between the date the countries became infected and the date that the U. S. Department of Agriculture (USDA) imposed a ban against the importation of equidae from those countries are still being evaluated.

Although CEM first entered the United States (Kentucky) with two unapparent disease-carrier Thoroughbred stallions in late August and early September 1977, the disease was not identified in these stallions or the mares they covered until March 9, 1978. Methods for diagnosing CEM--that is bacteriologic culturing systems--had failed by giving false-negative results from November 1977 until March 9, 1978.

When the disease was confirmed on March 9, 1978, the Kentucky Department of Argiculture initiated immediate action. The following measures were taken: (1) CEM was classified as a reportable disease and must be reported to regulatory officials; (2) Thoroughbred breeding animals were prohibited from leaving Kentucky; (3) A 2-week moratorium was placed on farm-to-farm Thoroughbred breeding activities; (4) Laboratory diagnostic procedures were improved and developed; and (5) Quarantines were placed on affected animals. These actions, coupled with the support of Kentucky Thoroughbred breeders and veterinarians, were instrumental in stopping the spread of CEM in Kentucky and preventing its spread to other States.

On April 3, 1978, the USDA placed a quarantine on Thoroughbred breeding animals in Kentucky to prevent the spread of CEM. This quarantine replaced the State prohibition on the shipment of horses affected by and exposed to CEM. Prior to the September 9 and 16, 1977, bans on France, Ireland, the United Kingdom, and Australia, Thoroughbred horses had entered the United States from those

countries. In addition, before the November 30, 1978, ban on Belgium and Federal Republic of Germany, horses had also entered the United States from these countries. The USDA and State animal health agencies have enlisted the cooperation of the owners and veterinarians attending these animals and are in the process of completing a diagnostic survey to determine if CEM is present.

Etiologic Agent

The agent of CEM is a bacterium--a microaerophillic, gram negative, nonmotile coccobacillus that has not been classified. This bacterium is similar, but not identical, to certain Haemophilus species. In Kentucky, two strains have been identified: (1) streptomycin sensitive, and (2) streptomycin resistant.

Clinical Signs

Available evidence to date indicates that stallions are contaminated, but not truly infected, by the CEM organism. Positive cultures have been obtained from the penis and/or prepuce. However, upon return of the subject stallion to service on numerous mares following treatments (washing and packing with antibacterial agents), there was no evidence of CEM. Clinical signs in mares are a mucopurulent discharge 2 to 10 days after breeding and an abbreviated diestrus period after which they usually return to estrus. Some mares have been reported pregnant 35 days after breeding, but are not pregnant on examination at 60 days. Some infected mares may have no clinical signs (inapparent disease carriers) and may carry a fetus to term.

Diagnosis

Clinical signs in an individual mare or in many mares bred sequentially by a contaminated stallion (about 70 percent of such mares have commonly been observed to show clinical signs) are usually the first diagnostic clues. Confirmation of CEM is made by bacteriologic culturing. The cervix (or uterus) is the ideal location from which to obtain specimens in active cases of CEM; the causative agent is present in large numbers and there are fewer contaminating bacteria at this site. In mares not showing clinical signs, cultures should be made from specimens collected from the cervix (or uterus), clitoral fossa, and clitoral sinuses. Such specimens should be collected while the mares are in estrus. The CEM organism appears to increase at this time, while the contaminating bacteria seem to decrease. In stallions, the urethra, urethral fossa, urethral sinuses, and sheath should be examined by bacteriologic culturing. Contaminating organisms are frequently a problem in stallions, making isolation of the CEM bacterium difficult or, in most cases, impossible when antibiotics are not used in the preferred chocolate agar plates. It is best to breed suspect stallions to test mares and culture specimens from the test mares for the CEM bacterium.

Swabs should be placed immediately in transport media. Stuart's and Amie's transport media have both been used successfully, but the latter appears to be

superior in that the CEM bacterium lives longer. The transport medium should be held at 4°C or kept on ice and transported to the laboratory as soon as possible. It may be frozen and transported cold (with dry ice) to the laboratory if samples cannot be delivered immediately to the laboratory. It is important not to add any inhibitors or antibiotics to the transport medium.

In Kentucky, the complement-fixation (CF) test has been used as a screening method to aid in diagnosis of CEM. CF antibodies are at measurable levels in acute and early convalescent phases (15-40 days after introduction of infection) of CEM. A CF antibody profile in a group of mares bred by one stallion can lead diagnosticians to infected mares (to be confirmed by a positive culture) and/or contaminated stallions. Thus, CF testing is a screening procedure and should not be used to replace bacterologic culturing as a confirmation of CEM since it has limited value on any one individual animal.

Epidemiologic Considerations

CEM is usually introduced into a farm by an unapparent disease-carrier mare or stallion (all "infected" stallions are considered inapparent CEM carriers).

The primary method of transmission occurs during copulation. However, the infective agent can also be spread mechanically as a result of poor hygienic practices in breeding sheds or by using contaminated equipment among animals during genital examinations.

The disease is usually first recognized when mares bred to an infected stallion show clinical signs of CEM (profuse vaginal discharge 2-10 days after breeding and a shortened diestrus period).

CEM is spread among States, territories, and nations in a fashion similar to farm-to-farm spread.

Epidemiologic evidence indicates that this transmissible venereal disease first entered the United States from France with the shipment of two Thoroughbred stallions (ages 9 to 10). Both animals were being prepared to stand at stud in central Kentucky at two of the Nation's largest Thoroughbred stallion farms. One of the stallions entered the United States on August 30 and the other on September 9, 1977. Due to the threat of CEM to U. S. horses, on September 9, 1977, an import ban was placed on equidae (except geldings, weanlings, or yearlings) from France, Ireland, and the United Kingdom by USDA's Veterinary Services. A similar ban was placed on Australia on September 16, 1977, and on Belgium and Federal Republic of Germany on November 30, 1978.

Control

The knowledge regarding this new disease is limited.

Since currently available CEM diagnostic tools lack precision, emphasis must be placed on preventing the spread of this disease. Breeding moratoriums and

quarantine are considered by many to be severe measures to use on a mobile and seasonal breeding population such as Thoroughbreds. However, experience indicates that these measures are worthwhile in assisting horse owners, veterinarians, farm managers, and animal health regulatory officials in stopping the spread of this disease.

Treatment

Early clinical experience with CEM indicates that about 20 percent of infected mares remain carriers of the disease regardless of any medication they may receive. However, thorough scrubbing of the erect penis and sheath of stallions every day for 5 days with chlorhexidine, followed by coating with nitrofurazone ointment, has eliminated the CEM organism. Five previously infected stallions in Kentucky were "cleansed" using this technic, and we have been advised of a number of stallions in Europe that were similarly cleared of this disease agent. It should be recognized that the treatment of stallions and mares has not been conducted under controlled conditions; hence, the above-mentioned observations are strictly field experiences and need to be duplicated through research.

Other Breeds

Recently CEM was reported in Europe among horses other than Thoroughbreds. Additionally, experimental infection of ponies has been carried out. Therefore, it is reasonable to assume that all breeds of horses are susceptible to CEM.

Summarizing Statements

1. CEM is a new, highly transmissible venereal disease of horses.
2. Since 1976, CEM has been reported in Thoroughbreds in Australia, Belgium, France, Federal Republic of Germany, Ireland, the United Kingdom, and the United States.
3. Apparently control measures can stop CEM outbreaks.
4. CEM was recently reported in Beligum and Germany in breeds other than Thoroughbreds.
5. Research work on CEM is needed internationally to provide better diagnostic procedures, therapeutic agents, a better understanding of the pathogenesis, and to explore the possibility of prevention by vaccination.
6. CEM definitely presents a challenge to everyone concerned with the horse industry.
7. The disease in the United States has been confined to the States of Kentucky and Missouri.

AVIAN INFLUENZA TURKEY LOSSES IN MINNESOTA

Avian influenza viruses, classified as orthomyxoviruses, demonstrate a wide range of pathogenicity, depending on the virus, host species infected, and the condition of the host. While infection with most influenza viruses does not

produce illness or death, other infections are acute and highly contagious and manifest themselves with high morbidity and mortality. From late September through December 1978, Minnesota experienced such an outbreak in many turkey flocks and one chicken flock. Since the morbidity and mortality of the flocks involved were relatively high, influenza, including fowl plague, was considered as a diagnosis. This influenza outbreak occurred in the center of a high-density, poultry-raising area in central Minnesota where at least 6 million turkeys and several million broiler chickens are raised annually. Multiplier breeder turkey flocks and broiler breeder flocks are also located in the area. Several hundred swabs and sera were sent to National Veterinary Services Laboratories (NVSL) and two different avian influenza viruses were isolated and typed. One of these viruses was identified as Hav_6N_1 and the other Hav_4Neq_2. From the same area in Minnesota at the same time, the University of Minnesota isolated an Hav_9N_2 virus. The viruses isolated were inoculated in specific pathogen-free chickens at NVSL. No morbidity was observed in the inoculated chickens.

The Minnestoa turkey industry had experienced influenza in previous years, but the problem was not as severe or as widespread. Turkeys of all ages were affected, from 8-day-old poults to 19-month-old breeder hens. The onset was acute, with severe depression and inappetence, followed by respiratory signs. Breeder hens experienced acute cessation of egg production. Early in the infection, lesions developed rapidly. Many birds sent to slaughter in the first few days of infection were condemned for air sacculitis. Turkeys had to be held for 3 to 4 weeks before air sacculitis resolved sufficiently to preclude heavy condemnation. In one lot of 26,000 birds sent to slaughter, 80 percent of the first truckload was condemned. The remaining truckloads were sent back to the farm and the processing plant was idle for 2 days for lack of turkeys.

In addition, most flocks which had evidence of influenza infection by virus isolation and/or serology also had evidence of infection with lentogenic Newcastle disease virus. This area of Minnesota has had frequent experience with Newcastle disease virus. The turkey industry has not vaccinated for Newcastle disease because it has not felt that Newcastle infection caused clinical disease problems in turkeys. Also, attempts to vaccinate turkeys against Newcastle disease have thus far not been practical on a mass application basis.

One flock of 180,000 laying chickens was involved in the outbreak. Mortality in the affected houses was 5 percent or less. A severe drop in egg production occurred in two of the three houses. Egg production did not return to an economical level and all birds were slaughtered. These birds were infected with Hav_6N_1 virus. It is presumed that the infection spread to this flock from infected turkeys by contaminated people and vehicles.

The area of infection in central Minnesota measured 100 by 50 miles. A University of Minnesota survey of all Minnesota turkey growers revealed that 130 flocks of market turkeys and 11 breeding flocks were affected. There 2.17 million birds in these flocks and 359,264 died, giving 16.59 percent total mortality. The loss to the Minnesota turkey industry in excess mortality, medication costs, condemnation, and similar items was estimated at $4,182,442.

The mode of transimission was apparently due to the movement of people and equipment. It is believed that airborne transmission probably did not occur between buildings on the same farm, since a few flocks on infected farms were kept uninfected by rigorous sanitation and isolation measures.

Two other separate outbreaks of influenza in turkeys occurred at the same time as the major outbreak. An outbreak in western Minnesota and eastern South Dakota was due to Hsw_1N_1 virus. The other, on the western border of Wisconsin, was due to Hav_6N_2 virus. Serological evidence indicates that several flocks experienced infection with more than one type of the influenza virus. At least two flocks in central Minnesota had antibodies to Hsw_1N_1 virus, which was not known to have been present in turkeys in that area. Another flock in the central Minnesota area had antibodies to all three influenza virus types isolated in that area. This indicates that the problem is more complex than might have been supposed. Five different influenza viruses and Newcastle disease virus, together with other avian pathogens, were involved in this outbreak. Flocks with the most severe mortality experienced infection with more than one virus. In late July of 1979, a turkey flock in south central Minnesota of approximately 200,000 turkey experienced high morbidity and low mortality. Based on serology, a Hav_2Neg_1 influenza virus may be involved. Virus isolation attempts are in progress.

In summary, conditions involving primarily turkeys in a large area of Minnesota were observed in the fall of 1978 and summer of 1979. The origin of the viruses involved in the outbreaks has not been completely established. These viruses which were isolated did not produce morbidity or mortality when inoculated in susceptibile chickens. The severity of the outbreaks was probably induced by the interaction of a multiplicity of conditions, such as the influenza viruses, lentogenic Newcastle disease virus, and other avian pathogens.

ADENOVIRUS 127 - SURVEY

Early in 1978, officials of Ireland notified the U. S. Department of Agriculture (USDA) that researchers at Belfast have isolated an adenovirus (adeno 127) associated with drops in egg production in laying flocks of chickens. The disease occurred in flocks hatched from eggs imported from continental Europe. Since 1973, the United States has permitted under certain conditions the importation of hatching eggs from countries not known to be free of viscerotropic velogenic Newcastle disease to enhance bloodlines.

In 1978, a program to survey and test U. S. flocks containing birds hatched from imported eggs was established. The same year, the import requirements of the United States were adjusted to require testing of the parent flock. Twenty-five percent of the birds in the flock over 30 weeks of age must be tested/and found free of adenovirus (adeno 127) antibodies before the eggs are allowed entry into the United States. At about the same time, a program was established to survey and test U. S. flocks hatched from imported eggs. On May 4, 1978, during the survey, a breeding flock hatched from imported eggs was serologically sampled. Two of the 220 sera had hemagglutination inhibition (HI) antibodies to adenovirus 127. The birds from the houses with positive titers were resampled

on June 15, 1978. Again, some of the birds had some antibodies to adenovirus 127. Twenty-six birds were sent to Plum Island Animal Disease Center (PIADC). Four birds were bled, necropsied, and tissues submitted to the National Veterinary Services Laboratories (NVSL). No antibody or virus was detected from sera and tissue submitted to NVSL. PIADC reported to Veterinary Services on August 18 that a virus had been isolated from one of the birds having an antibody titer of 1:8. As a result, the following occurred:

1. The flock owner and the State officials were notified of the virus isolation.
2. Subsequently, PIADC reported that a virus similar to adenovirus 127 was isolated and reisolated from two different birds.
3. All birds from the flock in question were slaughtered. Samples were collected at the processing plant and sent to National Veterinary Services Laboratories (120 sera, 120 sets of tracheal and cloacal swabs, and 55 sets of tissue). No antibody or virus was detected. Flock records were reviewed. No evidence of production problems was identified.
4. Progeny of the breeding flock in question has been sampled, with 82 sera from 4,000 progeny showing no evidence of adenovirus 127 HI antibodies when screened at 1:10.
5. The two commercial egg flocks which had reported egg production problems were investigated and resampled. No evidence of adenovirus 127 was noted.
6. Sera from migratory waterfowl were collected.
7. A virus isolated from ducks in Missouri was sent to PIADC for further characterization. Chickens have been inoculated to produce antisera to the duck isolate. The duck isolate has been evaluated by inoculating it into layers at the Southeastern Poultry Research Laboratory in Athens, Georgia. The layers were not affected and egg production and quality remained normal.
8. National Veterinary Services Laboratories are producing inactivated adenovirus 127 antigen and reference serum and will provide them to diagnostic laboratories on request.
9. Some large commercial duck flocks were found to have antibody to adenovirus 127.
10. The sera from migratory waterfowl have a very low frequency of antibody to adenovirus 127.
11. Two additional isolations of a virus similar to adenovirus 127 have been made from commercial duck flocks from California and New York.

Summary

A survey was carried out on flocks in the United States hatched from imported eggs. A low level of antibody was determined in a breeding flock during this survey. Positive-titered birds were sent to PIADC and NVSL. A virus similar to adenovirus 127 was isolated and reisolated from two different birds at PIADC. There is no agreement among scientists as to the significance of low HI titers in chickens and flocks in the United States, since most of the infected flocks in Europe were associated with much higher titers.

Since no clinical signs were noted in the flock, no virus or antibody was detected in the rest of the flock or in progeny of the flock, and no drop in egg production was noted; the virus isolate is considered avirulent and not a significant risk to the U. S. poultry industry .

WORLD DISEASE REPORTS

Country	Date 1978	New Outbreaks	Country	Date 1978	New Outbreaks
		African Horse Sickness			
South Africa	Feb-June	32	Swaziland	April	1
		African Swine Fever			
Angola	Jan-Feb	7	South Africa	Jan-Oct	3
Italy	March-July	14	Spain	Nov 77-Dec 78	1413
Portugal	Nov 77-Oct 78	2487			
		Bovine Contagious Pleuropneumonia			
Angola	Jan-May	89	Mali	Oct 77-June 78	13
Cameroon	February	1	Niger	Jan-Nov	8
Ghana	Dec 77-Oct 78	28		February	3*
Guinea	Oct 77-Dec 78	3	Nigeria	Oct 77-Dec 78	17
India	March	1	Sierra Leone	April	1
Ivory Coast	Aug 77-Oct 78	14	South Africa	May	1
Kuwait	May-June	80	Upper Volta	Aug 77-Dec 78	3
	Jan-Nov	171**			
		Foot-and-Mouth Disease			
Argentina	June-Nov	437	Israel	May	1
	February	10**	Italy	Dec 77-May 78	31
Bolivia	Feb-March	7**	Ivory Coast	Nov 77	2
Botswana	May-Dec	13	Jordan	Jan-Sept	13
Brazil	Nov 77-Sept 78	3148	Kenya	Nov 77-Sept 78	36
Cameroon	Feb-April	11	Kuwait	May	2
Chile	Oct	1		March-Nov	1443**
Colombia	Jan-Sept	133	Niger	June	1
	Nov 77-June 78	74**	Nigeria	Sept	1
Ecuador	Nov 77	8	Paraguay	Sept-Nov 77	7
	Feb-March	2**	Peru	Nov 77	7
Egypt	March-Oct	45		Feb-March	4**
Fed. Republic Of Germany	Dec 77-April 78	4	Rhodesia	March-Sept	24
			South Africa	March	2
France	April	1	Tanzania	Nov 77-Aug 78	16
			Thailand	Jan-Dec	16
Hong Kong	Dec 77-Nov 78	76		July-Oct	18**
India	Jan-Dec	945	Tunisia	Dec	1
Indonesia	March	1	Turkey	Dec 77-Oct 78	635
	June-Aug	15**	Uruguay	Dec 77-Aug 78	30
Iran	Nov 77-Oct 78	48	U.S.S.R.	Jan-Dec	30
Iraq	Jan-Oct	117	Venezuela	Sept-Nov	22
	June-July	13**		July-Nov	13**
			Yugoslavia	Aug	2

Country	Date 1978	New Outbreaks	Country	Date 1978	New Outbreaks
			Dourine		
Italy	Dec 77-Oct 78	23	Poland	February	2
Morocco	June	1	South Africa	Dec 77-Oct 78	31
			Glanders		
Turkey	Feb-Sept	9			
			Lumpy Skin Disease		
Botswana	Oct 77-Dec 78	29	Nigeria	August	4
Ivory Coast	Jan-Aug 77	2	South Africa	Dec 77-Oct 78	364
Kenya	August	1	Swaziland	Nov 77-Aug 78	85
Madagascar	June 77-Dec 78	31			
			Rinderpest		
India	Sept 77-Dec 78	107	Nigeria	Feb-March	4
Mali	Oct 77-Dec 78	7			
			Sheep Pox		
Egypt	April	2	Libya	Jan-Dec	221
	Jan-Feb	53**	Mali	March-April	2
Iran	Oct 77-Dec 78	97	Morocco	June-July	20
Iraq	April-June	48	Senegal	November	1
	Jan-Oct	78**	Syrian	Aug-Dec	105**
Israel	Jan-April	3	Tunisia	Nov 77-Dec 78	25
Jordan	Nov 77-Dec 78	29	Turkey	Feb-Sept	456
Kenya	Nov 77-Dec 78	4			
Kuwait	April-Sept	27			
	Jan-Nov	545**			
			Swine Fever		
Brazil	Nov 77-Dec 78	189	Italy	Dec 77-June 78	33
Chile	March-Oct	2	Korea	Dec 77-Oct 78	216**
China	Aug-Oct	64	Madagascar	July	1
	Dec 77-May 78	92**	Paraguay	July-Sept	25
Colombia	Jan-Sept	23	Poland	Nov 77-Dec 78	6
Fed. Republic Of Germany	Nov 77-Dec 78	349	Portugal	Aug 77-Dec 78	72
			Spain	Oct 77-Dec 78	23
France	Dec 77-Nov 78	31	Thailand	Nov 77-Dec 78	13
				March-May	4**
Greece	March-May	11	U.S.S.R.	Sept 77-Aug 78	5
Holland	May	3	Venezuela	Sept-Oct	17
Hong Kong	Jan-Nov	22	Yugoslavia	August	28
Korea	Dec 77-Oct 78	216**			

Country	Date 1978	New Outbreaks	Country	Date 1978	New Outbreaks
			Swine Vesicular Disease		
Italy	Dec 77-May 78	20			
			Teschen Disease		
Madagascar	Oct 77-Dec 78	54	USSR	Jan-Aug	2

(Extracted from International Office of Epizootics, Monthly Circular, numbers 373,373,375,376,377,378,379,380,382,383,384).
* Positive samples
**Cases

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