FOOT-AND-MOUTH DISEASE IN GREECE
SITE VISIT REPORT
APHIS/Veterinary Services
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On July 11, 2000, Greece notified the United States and the Office of International Epizootics (OIE) that foot-and-mouth disease (FMD) type Asia 1 had been identified in cattle in the prefecture of Evros. This prefecture is in northeastern Greece, along the border with Turkey. Prior to this, Greece had not had a case of FMD since September 1996, and had been proposed to be recognized as free of FMD by the U.S. Department of Agriculture, Animal and Plant Health Inspection Service in June 1999.

January 21-24, 2001, a team from APHIS conducted a site visit in Greece to evaluate the outbreak which occurred in July-September 2000. The APHIS team met with officials in Athens and visited the laboratory facilities there, and travelled to the prefecture of Evros to see the area where the outbreak occurred. Detailed information about the control and eradication of the outbreak were obtained. In addition, details about ongoing activities related to the exclusion of FMD and other diseases and ongoing surveillance through the Epidemio-Vigilance Rotational System (EVROS) program were provided. The primary contact person for the visit was Dr. Dionisis Panagiotatos, Head, Department of Infectious Diseases, Animal Health Directorate, Dir. General of Veterinary Services, Ministry of Agriculture. The team was also accompanied by the following European Commission representatives: Alberto Ladomada, DG-SANCO, Brussels, and Luca Farina, FVO, Dublin.

Outbreak history and response:

On July 11, 2000, FMD type Asia 1 was officially confirmed in the prefecture of Evros, Greece. This prefecture is in northeastern Greece, bordering Turkey. FMD had last occurred in Greece in this same prefecture in September 1996, identified as FMD type O1. It was eradicated by applying a stamping out policy, with no use of vaccination.

In July 2000, the disease was initially suspected through clinical examination of a herd of 50 cattle. This clinical examination was performed as part of the Epidemio-Vigilance Rotational System (EVROS) disease surveillance and control program. Under this program, all movements of animals within the prefecture of Evros are subject to a permit issued by the local veterinary service after a clinical examination and serological test of the animals has been carried out with negative results. On July 10, the farmer with the herd in question applied for an animal

movement permit. Upon inspection, 4-5 animals had mild clinical signs of FMD. Diagnostic samples were obtained and the National Crisis Center (NCC) in Athens was immediately notified. A team from NCC arrived later that day, at which time the suspicion was confirmed on clinical grounds and the herd was provisionally designated as FMD outbreak No. 00/01 pending the results of tests. On July 11, the Institute of FMD in Athens reported positive antigen detection against FMD type Asia 1.

From this initial detection on July 11 through September 14 (date of the last outbreak), a total of 14 outbreaks were identified. Of these, 12 outbreaks were in Evros and 2 were in the prefecture of Xanthi. The spread of disease to Xanthi (outbreak no. 00/09) was directly linked to movement of personnel and inanimate objects from an infected area in Ferres, Evros (outbreak no. 00/07). It appears that there were 3 primary incursions of FMD along the Evros river, with secondary spread to the 11 other confirmed outbreaks. The working hypothesis for this transmission was direct or indirect contact of animals across the border with Turkey, although no definitive confirmation of active infection in Turkey immediately across the border was obtained. The strain of virus isolated in Greece was genetically fingerprinted at Pirbright and was found to be identical to the strain isolated in Turkey in 1999 and 2000, thus confirming the source of the disease.

As described elsewhere, the grazing management practices in the Evros delta led to this area being treated as a single epidemiological unit for the most part. Animals in the south and western parts of the delta were generally considered as one unit, and therefore were destroyed either on preventive grounds or as potential contacts. Animals in the north and eastern parts of the delta remained apparently unaffected, however.

Standard control and safeguard measures as laid down in Directive 85/511/EEC were implemented. These included: destruction of all susceptible animals in infected and contact premises; epidemiological trace-outs; establishing protection and surveillance zones around the outbreaks with prohibitions of animals and product movements out of the zones; suspension of animal movements, slaughter, markets, fairs inside the zones; and control of people and vehicles inside the zones. In addition, the Greek authorities undertook additional control measures such as a general ban on the movement of susceptible animals and products from the entire affected prefectures, general standstill orders in the affected prefectures until the situation was well defined, and movement controls established in the unaffected prefecture of Rodopi for preventive reasons.

In total, throughout the outbreak, approximately 5,400 cattle, 2,300 sheep/goats and 300 pigs were destroyed either in affected or contact holdings. No vaccination was used to control the outbreak. Surveillance measures were instituted to confirm control of the outbreak. This surveillance was started after 21 days had elapsed since the last recorded outbreak in the area. Serological surveillance in sheep and goats was conducted according to the following scheme:
Protection zones:

- uniform geographic distribution of samples - 100% of villages
- no among-flock discrimination - 100% of flocks

- random within-flock sampling - 10% of animals present, with a minimum of 15 samples/flock

Surveillance zones:
- uniform geographic distribution of samples - 100% of villages
- random among-flock selection - 20% of flocks in every village
- random within-flock sampling - 10% of animals present, with a minimum of 15 samples/flock

If inconclusive results were obtained, the individual animals were re-sampled after 14 days. If positive results were obtained, all animals present in the flock were to be sampled. All sampled animals were individually identified by ear tags. Based on this scheme, a total of 4,154 samples were projected. From September-October 2000, a total of 4,547 samples were collected, all with negative results. During this same time frame, all cattle herds in the protection and surveillance zones were clinically inspected for lesions of FMD with negative results. On the basis of this surveillance, the control and eradication of the disease was demonstrated. The European Commission supported these claims of freedom, and on November 7, 2000, all restrictions due to FMD were lifted from the entire Greek territory.

Geographic area, adjacent regions and border controls:

As stated previously, the outbreak occurred in the Evros river delta, immediately adjacent to the border with Turkey. The Evros delta lies entirely within Greek territory. The entire delta area is a wildlife sanctuary protected by the Ramsar Convention and thus is not inhabited. Arable land within the delta is cultivated with various crops - corn, alfalfa, cotton and tobacco. The marshland along the river and the crop fields after harvest provide year-round pasture for cattle, sheep and goats. The delta can sustain more than 5,000 cattle and approximately 2000 sheep and goats. The majority of the cattle are free grazing beef cattle which move freely throughout the area. All cattle and most sheep and goats inside the delta are individually identified by ear tags. As outlined in the EVROS program (description in the following section), all animal movements in the prefecture of Evros, including the delta area, are controlled through permits.

The movement of animals and animal products from non-EU countries is regulated according to Community legislation. This prohibits the entry of live susceptible animals and risky products from regions of higher risk, such as Turkey. In general, these movements are well-controlled through established border posts. The border between Greece and Turkey is very well-protected through military and other control posts. As an example, during the site visit the team travelled to the Evros delta region to visit the sites where the outbreak occurred. We had to pass through a military check-point to get to these sites, as many of these are in a military controlled area. We also had a military vehicle accompanying us the entire team. There are military watch-towers stationed at various points along the river border, from which vantage point illegal movements could be observed. Therefore, cross-border traffic is routinely controlled. However, as demonstrated in the recent outbreak, limited animal movements across the Evros delta area can occur, primarily when the river is at a low level such that animals may cross.

Details on the exact disease status of Turkey are largely unknown. As mentioned previously, FMD virus Asia 1 was identified in Turkey in 1999 and 2000. Ongoing efforts to work with Turkish authorities in disease control and identification exist through the European Commission for the Control of FMD, with specific tripartite efforts between Greece, Bulgaria and Turkey. Additional work is done through the European Commission in Turkish Thrace, the area immediately adjacent to Greece.

Ongoing surveillance and control activities:

Routine surveillance for targeted diseases is carried out in certain areas of Greece under the Epidemio-Vigilance Rotational System (EVROS). This program, launched in 2000 with the support of the European Commission, is an integrated system of active surveillance in areas at risk for incursions of targeted diseases. These diseases include FMD, peste de petit ruminants, sheep and goat pox, bluetongue, and rinderpest. It is designed to provide early warning and effective control of these targeted diseases. The program is established in the border areas which are primarily at risk for incursions of exotic diseases: Evros, Rodopi, Chios Islands, Samos Islands, Lesvos Islands, and Dodekanisa Islands. Field operations in each area perform the following functions: active surveillance, holding registration, animal identification, animal movement control, and inspection of establishments.

Routine surveillance in the EVROS program is carried out in 4 month 'waves'. Additional surveillance is carried out in all cases of animal movements out of the defined geographic areas or in slaughter establishments in the areas. Two zones are defined - Zone A and Zone B. Zone A is a 20-km deep zone along the Greece-Turkey border in the prefecture of Evros. All other areas are defined as Zone B. Surveillance consists of both clinical and serological monitoring. In each surveillance wave, clinical examinations are performed on the following: 60 sheep/village, 100% of bovines/village. In addition, all animals leaving Zone A must be clinically examined, and 10% of animals in all consignments leaving Zone B must be clinically examined. Serological monitoring is similar: 60 sheep/village, all animals leaving Zone A, 10% of animals in all consignments leaving Zone B, and 10 % of all slaughtered animals. In addition, there is seasonal monitoring for bluetongue, which consists of 30-50 sentinel bovines tested in each prefecture every 15 days from July through December. Results of the surveillance performed through this program can be found at the web site of the Greek Veterinary Administration: www.minagric.gr/greek/2.3.1.html.

Summary:

An outbreak of FMD occurred in Greece in the fall of 2000. This outbreak was rapidly controlled. FMD is a compulsorily notifiable disease in Greece, and a stamping out policy is enforced in the event of an outbreak of FMD. Control measures as laid down in Community legislation - specifically Directive 85/511/EEC as amended - are the basis of emergency measures, with additional surveillance and controls as necessary. While the border with Turkey

presents a risk, Greece maintains strict control over the movement of animals and animal products over this border. Established surveillance programs - the EVROS program - are ongoing to detect and control any future incursions of FMD or other diseases. In addition, Greece continues to work with both Turkey and Bulgaria to address risk factors presented by these countries.