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Subject:	Update on Foot-and-mouth disease (FMD) in Greece		

Message:

Please find enclosed for your information the second following report from Greece concerning the FMD situation as 11 August, 2000.

This confirms that, due to the outbreaks in the Prefectures of Xanthi the Greek authorities have declared to apply by National legislation restrictions on Ropodi and Xanthi similar to those adopted by Annex I of Commission Decision 2000/486/EC.


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2nd FOLLOW - UP REPORT
ON THE EVOLUTION OF FOOT-AND-MOUTH DISEASE IN GREECE
(Situation as at 11th August 2000)

BACKGROUND

On 10 July 2000 Foot-and-Mouth disease (FMD) – serotype Asia 1 – was reported in the Prefecture of Evros, Northern Greece and since that date two reports have been released by the National Crisis Centre, namely:

- ✓ An **Updated & Consolidated Report** describing the circumstances surrounding primary incursion and initial evolution of FMD in Evros from 10th to 17th July 2000.
- ✓ A **1st Follow-up Report** describing the evolution of disease in Evros during the period from 18th to 27th July 2000 and making a link with previous events where new information has become available.

This, then, is the **2nd Follow-up Report** describing the evolution of FMD in Evros during the period from 28th July to 11th August and providing, for the first time, an account of the spread and evolution of FMD in **Xanthi, Northern Greece**

The main documentation referring to FMD in Greece is published, in English, in the web site of the National Crisis Centre at :

www.mlnagric.gr.2.3.1.9

1. EVOLUTION OF FMD IN EVROS, GREECE

1.1 Description of outbreaks

A recapitulative list of outbreaks, broken down by *geographical and epidemiological clusters*, is given in Table 1 below and the locations of outbreaks are indicated in the Map attached to this report.

Outbreak No. & Type	Location	Animals Present			Suspicion		Confirmation	
		Species	Number	Sick	Date	Reason	Date	Reason
00/01-Primary	Evrös	Bovines	138	12	11.07	clinical	11.07	VD
00/02-Second.	Delta	Bovines	55	6	10.07	clinical	11.07	VD
00/03-Second.		Bovines	305	6	18.07	clinical	18.07	clinical
00/06-Second.		Bovines	129	5	27.07	clinical	31.07	VD
00/04-Second.	Ferres	Bovines	160	0	17.07	contact	20.07	serology
00/07-Second.		Sheep	642	15	27.07	clinical	01.08	serol/VD
00/08-Second		Bovines	111	10	01.08	clinical	03.08	serol/VD
00/05-Primary	Peplos	Bovines	89	10	19.07	clinical	24.07	serology

Table 1: Recapitulative table of FMD outbreaks.

* NOTE : Serial Numbers of outbreaks indicate chronological order of detection and reporting

1.2 Current epidemiological considerations

- Outbreaks 00/01 (primary), and 00/02, 00/03, 00/06 (secondary) belong to the same geographical and epidemiological cluster due to contiguity and direct contacts in common grazing pastures and watering troughs. Specifically :
 - a) From a *geographical* point of view, outbreaks 00/01 and 00/02 were located inside the "infected zone" right on the border, where primary incursion took place, while outbreaks 00/03 and 00/06 were located inside the protection and surveillance zones respectively. All four outbreaks were located at the south-western part of Evros Delta.
 - b) From an *epidemiological* point of view, considering the animal husbandry conditions and the total absence of housing and isolating facilities inside the Delta, it is quite possible that the latter two herds were infected by a chain-contact along the inner limits of their respective zone.

The time-sequence of events supports this hypothesis and the time interval between outbreaks corresponds to a mean incubation period plus 2-3 days of clinical symptoms (all four outbreaks were clinically detected).

Considerations explained above have led to a large scale killing and destruction of animals, either on preventive grounds or as potential contacts, in the south and western part of Evros Delta.

On the contrary, no preventive killings have taken place in the north and eastern part of Evros Delta where approximately 1000 bovines still remain unaffected.
- Outbreak 00/04 was identified as a probable contact by forwards tracing from the "infected zone", where the herd was initially reared and had re-located near the village of Ferres on 09.07, just before initial suspicion was raised.

This herd was killed and destroyed on 17.07 on purely epidemiological grounds and in the absence of clinical symptoms. Confirmation of infection was obtained on 20.07 by positive serology.

This assessment was contested by a joint EC/FAO mission visiting Greece from 24 to 27 July who were doubtful as to whether 00/04 was a true FMD outbreak.

To clarify this issue, the following arguments may be of relevance :

- a) Antibodies to FMDV reach detectable levels 10-14 days following infection. This period normally exceeds the average incubation period observed in the field, but not the maximum one published in literature (2-14 days, OIC). It is, therefore, conceivable that due to a long incubation period, possibly in conjunction with some individual factors particular to the animal(s), antibodies to FMDV may actually precede or appear simultaneously with the onset of clinical symptoms.
- b) On the other hand, it is equally possible that mild or inconclusive symptoms may elude detection or lead to wrong assessment during clinical inspection. On this point, it is reminded that, although results of clinical inspection for FMD were reported negative, targeted serology was performed on animals demonstrating a vague "loss of condition" and it was precisely the results of tests on samples thus collected that led to confirmation of infection in 00/04.
- c) Subsequent outbreaks 00/07 and 00/08, which were directly related to 00/04 due to contiguity - but not to any other outbreak - and were fully documented by VD (virus detection) dissolve any doubt as to the presence of FMDV in the vicinity and led support to the "silent" infection of outbreak 00/04 itself.

- a) Outbreak 00/05 was identified in the framework of general disease awareness and active clinical surveillance in the entire Prefecture of Evros. The herd was a dairy cattle herd permanently housed in premises 500 m from Evros river with no epidemiological link with known outbreaks or contacts (25 km to the south at the time of detection).

Clinical symptoms were observed on 19.07 and the animals were destroyed on the same day, along with 4 more in-contact bovine herds.

Laboratory confirmation was obtained on 24.07 by positive serology.

In the absence of any link with previous outbreaks, 00/05 is designated as a primary one. In the light of current epidemiological understanding, however, the most likely scenario of incursion is that the index case in Peplos was actually another bovine beef herd, contiguous but different to 00/05, which was reared right on the Evros river bank and had access by land to Turkey.

For unspecified reasons this intermediary herd passed on the infection to 00/05, without displaying acute clinical symptoms of FMD, and was itself killed as a contact. The fact that 00/05 was a permanently housed dairy herd may perhaps explain both the acute clinical course and the earlier detection (higher sensitivity of improved dairy cattle, daily close inspection and handling, drop in milk yield).

Outbreak 00/05 was disputed as a true FMD outbreak by a joint EC/FAO/WRL mission visiting Greece from 24 to 27 July 2000.

On this point, it is interesting to note that 19 days have elapsed without any further reports of suspect cases in Peplos and, in addition, 150 samples have been randomly collected from small ruminants inside the protection zone and tested for antibodies to FMDV with negative results.

This was a preliminary small-scale screening to test a working hypothesis, which remains outstanding to this point in time, but in no way does it affect or diminish the large-scale serological surveillance planned to demonstrate eradication of FMD in Greece.

1.3 Fundamental changes in disease control policy

Unlike what was the practice in the past, during the current FMD epizootic the Greek Authorities have applied a large scale killing and destruction of animals, either on a preventive basis or as potential epidemiological contacts.

This constitutes a major change in disease control and eradication policy justified by the following considerations :

- The animal husbandry conditions and practices inside the Evros Delta and along the banks of Evros river, where large numbers of susceptible animals share common grazing grounds and watering troughs, especially after harvesting of the corpses.
- The firm determination to eradicate the disease as soon, as possible and as close to the border as possible, by shortening the incidence propagation rate and the overall duration of virus circulation and, therefore, reducing the probability of virus fanning away from the border area.

The example of Xanthi (see paragraph 2) illustrates the importance of this policy.

The toll of animals killed and destroyed inside and around outbreaks of FMD in the Prefecture of Evros, as at 11th August, is given in Table 2 below.

Cluster of Outbreak(s)	Bovines		Sheep	Goats	Pigs
	Adult	Calves			
Evros Delta	2.303	1.015	250	15	38
Parres	339	139	1.512	1.849	59
Peplos	278	190	0	3	0
TOTAL	2,920	1,344	1,762	1,867	97

Table 2 : Number of animals killed and destroyed inside and around FMD outbreaks

The need for prompt implementation of stamping out policy, especially during the peak of the epizootic when a large number of contact herds was identified, sometimes led to oversights in respect of extensive sampling of killed animals for epidemiological purposes.

This shortcoming has been pointed out - correctly - by a joint EC/FAO mission visiting Greece.

2. SPREADING AND EVOLUTION OF FMD IN XANTHI, GREECE

2.1 Background

The last outbreak of FMD - serotype O₁ - in Xanthi was reported on 14.08.1994.

Since 1999 dispatch of live susceptible animals has been banned from the Prefecture

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of Xanthi due to the occurrence of blue tongue in the adjacent Prefectures of Kavala and Rodopi.

An active epidemiological surveillance programme for BT, established by Commission Decision 2000/350/EC, has been in place in Xanthi since early 2000 and the Infected bovine herd (i.e outbreak 00/09) was providing one of the sentinel groups regularly monitored for sero-conversion. The date of last sampling for BT was 13th July 2000.

2.2 Events leading to suspicion & confirmation

Events leading to suspicion and eventual confirmation of FMD in Xanthi are, in rational and chronological order, as follows :

- ✓ On Monday, 31.07, the farmer noticed lameness in two cows and, in the light of his previous experience, applied local treatment by a sulfur solution without seeking medical advise.
- ✓ On Thursday, 03.08, when lameness persisted, the farmer contacted the local vet who recommended over the telephone treatment for ketosis by administering drugs *im* and *peros*. Until that point in time no significant drop in milk yield was recorded.
- ✓ On Monday, 07.08, on the occasion of administering drugs *peros*, the farmer noted bleeding ulcers and erosions in the dental pad of 1 cow and duly called for urgent medical advise.
Retrospectively, the farmer stated that 1-2 days ago he had observed "scratches" on the tongue of the same cow but had not made the connection with FMD because he attributed those lesions to injury caused by feeding with course straw.
By Monday, 07.08, there was a 40% drop in milk yield in the farm.
- ✓ On Monday, 07.08, after having examined the affected animal the local vet raised a suspicion of FMD on clinical grounds and sought a second opinion by the Regional Headquarters.
At the time of clinical inspection typical symptoms of FMD were observed in a high percentage of animals (salivation, lameness, ruptured vesicles on the tongue and dental pad, but no fever).
The provisional clinical diagnosis was seconded and samples (epithelium / blood) were collected and dispatched to FMD Institute, Athens, for laboratory confirmation. The National Crisis Centre in Athens was notified of a "qualified suspicion".
- ✓ At 17:30 H on Tuesday, 08.08, the FMD Institute reported positive serological results on blood samples.
In the same evening a senior officer from the National Crisis Centre flew to Xanthi to assess the situation on the spot and conduct an epidemiological inquiry.
- ✓ Throughout the morning and afternoon of Wednesday, 09.08, disease control and safeguard measures were implemented.
At 18:30 on Wednesday, 09.08, the European Commission was advised by mobile telephone from the field of the occurrence of FMD in Xanthi.
At 21:30 on Wednesday, 09.08, the FMD Institute reported isolation and sero-typing of FMDV type Asia 1 in samples collected on 07.09.
- ✓ On Thursday, 10.08, the outbreak was logged on the ADNS under serial no. 00/09 and preliminary notice was dispatched, in writing, to the European Commission, the

EUFMD and OIE.

- NOTE : Notification to all recipients was made by e-mail and, to the EC, also by fax. For unknown technical reasons communications by e-mail failed.

2.3 Description of outbreak

The infected holding was a dairy bovine herd comprising 57 milking cows and 67 calves and heifers aged between 2 weeks and 8 months.

All animals present were individually identified by double ear tags.

The herd was permanently housed in purpose-built facilities surrounded by corn fields and had no access to outdoor premises.

It was located at the outskirts of the village Potamia in South-Eastern Xanthi, 100 m from the national highway and 9 km from the neighboring Prefecture of Rodopi. The location of the outbreak is indicated in the Map attached hereto and the exact coordinates are : 40° 07' 30" N and 25° 05' 30" E.

A summary description of outbreak 00/09 is given in Table 3 below.

Outbreak No & Type	Location	Animals Present			Suspicion		Confirmation	
		Species	Number	Sick	Date	Reason	Date	Reason
00/09 Secondary	Potamia, Xanthi	Dairy Bovines	122	>60 % (09.08)	07.08	Clinical	08.08 09.08	Serology VD

Table 3 : Summary description of FMD outbreak 00/09

2.4 Protection & Surveillance Zones

Protection and Surveillance zones, of a 3- and 10-km radius respectively, have been established around the outbreak.

The eastern limit of the surveillance zone extends by approx. 1 km in straight line into the neighboring Prefecture of Rodopi.

The susceptible livestock population inside the protection and surveillance zones is given in Table 4 below.

Protection Zone	Bovines		Sheep & Goats		Pigs	
	Herds	Animals	Flocks	Animals	Holdings	Animals
3 km	4	76	21	3.394	2	207
10 km	95	2.846	137	18.520	13	3.886

Table 4 : Livestock population inside protection and surveillance zones of 00/09

2.5 Preliminary epidemiological considerations

a) Backwards tracing - Origin of infection

Outbreak 00/09 is directly linked with active FMD outbreaks in Ferres, Evros, through movement of personnel and inanimate objects.

Specifically, on 25.07 a relative of the owner visited the holding for the purpose of storing some objects (wood panels) in a storehouse adjacent to the milking facility and just meters from where the animals are reared.

This date coincides with the estimated date of infection.

The person who is assumed to be the vehicle of transmission is well known and connected in Ferres, Evros, where he used to live permanently for 7 years.

Even up until now he visits Ferres, Evros, regularly twice a week on business and he continued this pattern during the peak period of the epizootic in Ferres (late July).

The possibility of FMDV being transported from Evros to Xanthi on the wheels of the vehicle is ruled out because the distance is approx. 100 km and between Ferres and Xanthi there are at least three (3) disinfection sites along the highway.

That leaves carrying FMDV on his person as the only plausible explanation of the spread of disease. What is not fully clarified is whether spreading was due to negligence or a premeditated act. In any event, criminal charges have been pressed against both the owner of the infected farm and his relative and a criminal investigation is in progress, for setting an example to the local farming community if not for any other purpose.

b) Forwards tracing - Spread of infection

In the same village as the infected holding there are 2 sheep/goat flocks comprising a total of 1.000 animals, but no other bovine holdings.

Since May these sheep flocks are led to pasture at a distance of 1-2 km from the infected herd and to the opposite side of the village. Until 11.08 there were no signs of disease or reports of problems in the sheep flocks.

A serological screening (15-20%) is being planned for next week.

However, due to the geographical isolation and the lack of direct contacts of the infected herd, no preventive stamping out is planned in the vicinity.

According to epidemiological information available to date, during the 10 days prior to suspicion of disease 2 farmers from the village Polissitos, Xanthi, visited the infected holding and the owner of the latter visited 1 holding in the village Pigadia, Xanthi.

These are known contacts and have been placed under close surveillance.

2.6 Disease control and safeguard measures

Standard measures for the control of FMD, as described in our previous reports, have been initiated in Xanthi since 08.08.

In addition, the Greek Authorities have unilaterally expanded the safeguard measures laid down in Annex I to Commission Decision 2000/486/EC to include the Prefectures of Xanthi and Rodopi, between Xanthi and Evros, subjecting them to the same disease

status as Evros until the situation is clarified.

This concludes the 2nd follow-up report on the evolution of FMD in Greece.

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