REPORT

EXECUTIVE COMMITTEE

Istanbul
Republic of Turkey
15 & 16 June
2006

of the European Commission for the Control of Foot-and-Mouth Disease

Seventy-third Session

73rd

SESSION

of the

EXECUTIVE COMMITTEE

of the

European Commission for the Control of Foot-and-Mouth Disease (EUFMD)

Istanbul
Republic of Turkey
15-16 June 2006

TABLE OF CONTENTS

APPENDICES

Executive Summary and Recommendations

The Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease (EUFMD) held its Seventy-Third Session in Istanbul, Republic of Turkey on the 15 and 16th of June 2006.

Members of the **Executive Committee** present were: Dr Peter de Leeuw, the Netherlands (Acting Chairman); Dr Eugen Olaru, Romania, alternate to Dr Predoi; Dr Nihat Pakdil, Turkey; Dr Torben Grubbe, alternate to Dr Preben Willeberg, Denmark; and Dr Basilios Batziliotis CVO Greece. Present among the observers were: Dr Kris De Clercq (Belgium), Chairman of the Research Group, and two members of the Group; Dr Alf-Eckbert Füssel, Head of Sector, DG-SANCO, Brussels; Ms Nermin Kahraman, EC delegation, Ankara; Dr Gideon Bruckner, Head, Scientific Department of the OIE. FAO was represented by Dr Joseph Domenech, Chief of the Animal Health Service.

The Session considered the current risk situation and recent events in FMD epidemiology in the region, and reviewed progress of actions as agreed in the Strategic Plan for 2005-8 and endorsed by the 72nd Session.

The Recommendations reached are as follows:

Considering that:

1. Member countries of EUFMD Commission have been at risk or directly affected by the recent regional invasion of type A viruses into Turkey and Egypt, and other parts of the near- east;
2. Turkey has been very badly affected by the rapid invasion and impact of a new serotype A virus (A Iran 05) in late 2005 which continued to spread in 2006, and which continues to circulate in Turkey and I.R. of Iran, and which has been detected in Pakistan and Saudi Arabia in 2006;
3. That further spread of the A Iran 05 and A Egypt 06 viruses to countries in the near-east is likely in 2006;
4. The Type O remains endemic in the near-east, and Asia-1 in regions farther to the east;
5. The dynamic disease situation requires continuous monitoring, not least because of first detection of new strains in the centre of countries rather than at the borders, and because of rapid animal trade movements;
6. The circulation of other A types in the region is likely to continue in 2006 given the detection of A Iran 96, A Iran 87 and A Iran 99 genetic types circulating in apparently restricted locations in Turkey and/or Iran in 2005;
7. That type A Egypt 06 is not completely matched to vaccine and antigen stocks held by national or international banks;
8. Lack of early warning of the situation in the near east has contributed to the scale of the type A epidemic experienced in the region in 2005-6, and delayed the international response to the situation;
9. The rapid supply of A22 antigen reserves to Turkey by the EU, and its application in Thrace region was instrumental in bringing the epidemic under control;
10. That vaccination around the primary type A outbreaks in Anatolia in 2005 could not be undertaken as an emergency control because of delayed reporting of the identification of the problem of the A Iran 2005 virus;
11. The A Iran 05 FMDV genotype has proven to be highly invasive and has caused severe disease in all ages of cattle, although this appears reduced where high levels of previous type A immunity exists;
12. The epidemiological circumstances that enable virus persistence of the various type A virus are unclear and therefore specific attention should be continuously applied to type A outbreaks;
13. The location and risk from other exotic viruses, including type A Egypt 06 should be kept under review by each country.
14. The Asia-1 situation appears favourable in Iran and the region at present, but the situation in the wider region, including Pakistan, central and south Asia, and in other regions providing source of animals and potential FMDV to the middle east and to Europe;
15. Progress has been made in the validation of NSP tests for the major species, but that many countries lack the experience in design of surveillance after FMD outbreaks and that confidence is needed that technical gaps have been fully identified and resolved;
16. There is a need for European NRLs to exchange reference virus isolates without delay to maintain their sensitivity to detect the newly emerged virus strains;

Recommends that:

1. EUFMD Commission organises further regional meetings together with the OIE to assist in improving risk assessment and the selection of vaccination strategy and other preventive measures, for EUFMD member countries and their neighbours in south-east Europe;
2. Further effort be given to improve harmonisation of standards for virus typing and vaccine matching, and in the monitoring of vaccination programs, particularly in countries at risk or affected by the recent type A epidemics;
3. The exchange of reference strains of FMDV viruses between national reference laboratories of Iran and Turkey, and between NRLs of EUFMD member countries be considered a public good that is essential for improving capacity to diagnose and also develop appropriate vaccines, and that regulatory authorities consider exchange an emergency measure and act to reduce delays accordingly;

Relating to Thrace region of Turkey:

4. Providing that the FMD situation does not deteriorate in the coming months, repeat vaccination with A22/O/Asia-1 should be conducted starting in August, to counter the expected reduction in immunity following primo-vaccination with the A22 component;
5. That the current program for booster vaccination of young animals or high risk populations in Thrace continue;
6. That the epidemiology advisory group of the EUFMD standing committee (Research group) further support the Government of Turkey to analyse the serological results of the sampling program conducted in May 2006, and to design the follow-on monitoring program, and that the proposed revision to the vaccination program, if any, be communicated by Turkey to neighbouring countries and the EC;
7. That the design of the monitoring program for autumn 2006/spring 2007 should take into consideration the requirements of the FMD eradication programme scheduled to begin in 2007;

Relating to FMD risk in the European and Mediterranean region:

8. That the information flow to EUFMD member countries on the change in risk situation be improved, with regular reporting of the surveillance situation in normal situation and on an alert basis with follow ups when major events occur that concern the member countries;
9. That when threatening events are identified, emergency meetings be rapidly convened by the Secretariat to which the Executive, OIE and EC are invited, and others on the decision of the Chairman, to assess risk and international response;
10. That virus type information be added in the European Animal Disease Notification System (ADNS), at least as provisional typing information, and that this information also be communicated to FAO and OIE;
11. That the RG provide a recommendation on the naming of FMDV subtypes and on the feasible methods for providing subtype information at the time of first report to OIE and EC (ADNS);

Relating to recommendations for the national and international vaccine banks in Europe:

12. That the updated recommendations of the WRL are noted by EUFMD member countries, who should be aware of the change in priority, particularly the elevated importance of A Eritrea 98 (to medium priority) and A22 (to high priority);
13. That priority should be given to the study of antigenic diversity among FMDV strains circulating in Africa;
14. That FAO and OIE should convene a Steering Committee meeting for the OIE/FAO FMD Reference Laboratory network, before November 2006, to address issues including the expansion of the network to include national reference laboratories (NRLs);

Relating to upstream surveillance in regions presenting a risk to the European neighbourhood:

15. The feasibility of extending the type of low cost collection of FMDV specimens from informative epidemiological sites (sentinel sites) be explored, working through regional specialised organisations and existing epidemio-surveillance networks wherever possible;
16. That the Chairman of the Executive Committee and Secretary engage in discussion with the FAO and OIE, and other relevant parties, on the establishment of an international surveillance alliance or partnership under GF-TADS to co-ordinate and promote FMDV surveillance, prioritise sample collection efforts, to support the OIE/FAO reference laboratory network and thereby improve global understanding of FMDV risk and early warning of disease threats;
17. The Chairman writes to UK Government on the issue of delays to sample shipment between NRLs of the member states;

18. That the Constitution should be reviewed and a paper produced for the 74th Executive Committee meeting, to discuss the issues and options in extending the mandate of EUFMD Commission to the wider region where FMD surveillance is of importance;

Relating to financial contribution of the EC to the program of the EUFMD Commission:

19. That the new financial contribution of the EC to the activities of the Commission be managed in such a way as to keep in reserve sufficient funds to enable response to disease emergency situations requiring high and sudden expenditure;

Relating to FMD control in the Caucasus:

20. That under the agreed EUFMD/EC program, the project is implemented swiftly to take advantage of the good working relations with each country to carry out actions required under the program for 2006, and to adapt the program in order to better improve capacity to detect and manage the A22 virus threat;
21. That the supply of emergency monovalent vaccine reserves of A22 vaccine be managed between EC and EUFMD Secretariat should need arise for rapid deployment of this reserve;
22. That the priorities on use of the EC supplied trivalent A22/O/Asia-1 vaccine should be first to revaccinate European part of Thrace region, second to vaccinate zones on the Anatolian side of the Sea of Marmara, and third vaccinate in other areas including districts of Ardahan Province which border to Georgia.
23. That the surveillance efforts to be supported under the EUFMD/EC program should continue as a routine to ensure that virus and sera from the control zones be shipped to European laboratories, until that point when national facilities are able to guarantee the performance of tests;

Relating to the Standing Technical Committee of the Research Group:

24. That additional items be placed on the Agenda of the Research Group, including;
    - recommendations for inclusion of virus subtype information in animal disease notification reports (e.g. ADNS or WAHIS); including recommendations for the rapid typing method to be applied to provide (provisional) subtype information;
    - technical limits and constraints to the reduction of the time period of "loss of FMD free status" following outbreaks;
    - type A antigenic variation; the RG were asked to review
        a. the extent of protection of type A vaccines when given at high payloads, and the impact of this on the interpretation of r-values and the selection of vaccines for emergency use;
        b. reviewing the evidence for risk factors for antigenic drift, including the impact of vaccination on antigenic drift;
        c. cross-protection between vaccine containing type A87 (Merial), as used in Iran, and A Iran 05 challenge;
    - Recommended method for detection of virus circulation in the period immediately after outbreaks, applicable to a vaccinated population where NSP positive animals are not removed and maternal derived antibodies could interfere with surveillance in animals born since the last outbreak.

REPORT

INTRODUCTION

The Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease (EUFMD) held its Seventy-Third Session in Istanbul, Republic of Turkey on the 15 and 16th of June 2006.

Members of the Executive Committee present:
Dr P. de Leeuw, the Netherlands, 1st Vice President of the Executive Committee (Acting Chairman);
Dr Nihat Pakdil, Turkey
Dr Basilios Batziliotis Chief Veterinary Officer Greece
Dr Eugen Olaru, Romania, alternate to the Dr Predoi;
Dr Torben Grubbe, alternate to Dr Preben Willeberg, Denmark

Observers:
Chairman of the Research Group:
Dr Kris De Clercq, CODA-CERVA-VAR, Ukkel, Belgium

Members of the Research Group of the EUFMD Standing Technical Committee:
Prof. S. Alexandersen, Danish Veterinary Institute, Lindholm Laboratory
Dr Mark Bronsvoort, University of Edinburgh

EC;
Dr Alf-Eckbert Füssel, Head of Sector, DG-SANCO, Brussels; Ms Nermin Kahraman, EC delegation, Ankara

OIE:
Dr Gideon Bruckner, Head, Scientific Department of the OIE

FAO:
Dr Joseph Domenech, Chief of the Animal Health Service; Dr N. Honhold, FAO Consultant epidemiologist, Ankara Turkey; Ms Melek Cakmak, FAO Assistant Representative for Turkey.

Turkey:
Dr Mustafa Tufan, General Directorate of Protection and Control (GDPC), Ankara;
Dr Sinan Aktas, Deputy Director of the SAP (FMD) Institute, Ankara;
Dr Abdulnaci Bulut, Export, SAP Institute, Ankara

Greece:
Dr Spiros Doudounakis, Head of Unit of Animal Diseases, Athens

Romania:
Dr Claudiu Diaconu, Institute for Diagnosis and Animal Health, Bucharest, Romania

On behalf of the Ministry of Agriculture and Rural Affairs (MARA), Dr Nihat Pakdil, member of the Executive Committee and Deputy Undersecretary at MARA welcomed the participants to the Session. He indicated that the Government of Turkey was honoured to host the 73rd Session, and that the work of the EUFMD Commission and FAO in concert with OIE and EC has been important to improving disease control in the region, and he hoped that recent initiatives to improve information sharing and exchange of viruses within the region, such as the regional workshop on virus circulation held in Teheran, would assist Turkey and other countries in the region to receive early warning of disease threats and thereby to develop the vaccines required for early response. He hoped that co-operation with countries in the region would continue to increase, and that the decisions of the Session would prove of importance in improving preparedness for FMD control in the region.

Dr Peter de Leeuw, Acting Chairman of the EUFMD Commission (hereafter "Chairman") , thanked Dr Pakdil for his welcome and updated the members present on his decision to invite Germany and Greece to provide a member of the Executive Committee, as the previous Chief Veterinary Officers (CVOs) had resigned following their change in office. This invitation was unanimously supported by the members present.

He proposed that before the main agenda that an update be given on the most recent outbreak in Thrace region, which had been confirmed on 14/6. Dr Naci Bulut, SAP Institute explained that on 9th June, in Evrese district of

Cannakale Province in the European part of his province, a private veterinarian notified FMD to the Government service, and samples were collected and submitted to the SAP Institute, which subsequently indicated type A infection. The field investigation on 14/6 found a second infected premise 50m away. The infection appeared to have been brought in with animals transported from Anatolian side of Cannakale Province on the 6th June. The oldest lesion was considered about 3 days, in line the suspicion that transmission occurred on the 6th June. Eighteen animals had been slaughtered on the 13th June for disease control. The team had observed very mild tongue lesions in the remaining sick animal; this animal was subsequently sent for slaughter. In this Province vaccination coverage was reported to be high - 92% overall, and in the affected district of Evrese district 75% for cattle and 80% for sheep. The infection source appears to be animals moved across the Sea of Marmara from the south –east area of Cannakale Province, on the Anatolian side. This area was not previously known to have current outbreaks and follow up investigations were needed. Unvaccinated animals at the Evrese were involved, but the source animals from Anatolia had apparently been vaccinated. In summary, the circumstances indicated a localised infection in isolated holdings with low vaccination coverage, and there appeared a relatively low risk that extension could occur to surrounding areas given the generally high vaccination coverage and the location of the holding. Nevertheless, it indicated that the threat of extension of infection from the Anatolian side is a real one.

1. ITEM 1 ADOPTION OF THE AGENDA

The Agenda was adopted as proposed (**Appendix 1**).

2. ITEM 2 ACTIVITIES OF THE EUFMD COMMISSION SINCE THE 72ND SESSION OF THE EUFMD EXECUTIVE COMMITTEE

The missions undertaken by the Secretariat, members of the research group, experts and consultants for the Commission since the 72nd Session were summarised by Keith Sumption (**Appendix 2**).

3. ITEM 3 RECENT EVENTS AND CURRENT SITUATION WITH FMD IN THE REGION

Report of Turkey

National situation including report on the origin, spread and emergency control of the FMD type A epidemic (A Iran 05)

The national FMD control situation was presented by Dr Sinan Aktas, SAP Institute (**Appendix 3**) Since the previous Executive Committee Session, Turkey had been very badly affected by an epidemic of FMD type A; the first outbreaks identified as being caused by the type A virus were noted in Elazig, central south-east Turkey in late November 2005, suspicions of an incursion of a new type had been raised because there had been no confirmed type A outbreaks in the country in the preceding 6 months (May-November 2006). The virus was subsequently typed at the SAP Institute with sequence analysis at WRL Pirbright, the virus was genetically close to viruses from Iran in 2003-5 and in Turkey was designated as A22-like on the basis of cross-matching tests to the original A22 Mahmatli vaccine. The serious situation of the A Iran 05 virus epidemic was presented; the index case was considered on tracing to have occurred close to Iran/Azerbaijan borders, in Igdir province. Almost all parts of the country (about 70% of Provinces) had been affected in the period November to March. Before the new type A, they considered the situation, mainly type O circulation, to be under control; after introduction of the new A type very severe disease was observed and spread was extremely rapid.

In response to detection of an exotic type A, A22 vaccine was identified as suitable and production of the original A22 Mahmatli initiated, with 8 batches (8.2 million doses) so far produced for distribution in the spring campaign. A homologous vaccine is also being developed. To date 72% coverage has been achieved in Anatolia and >90% in Thrace. In 2006 they recorded 248 outbreaks in 54 Provinces before vaccination began and 49 outbreaks in 26 Provinces afterwards. In May 70 outbreaks were recorded from 28 Provinces, but of note are the increasing reports from central and south-east Turkey which had previously not recorded outbreaks. Intensive animal movement had disseminated the disease, and the response was constrained by having both AI and FMD epidemics concurrently, at a period when winter weather was very harsh. The immunity in some regions may be beginning to wane given the primo-vaccination.

He asked the Committee to note the need of Turkey for improve early warning and response capacity, particularly:

- Improved alerting of international disease events
- Improved and transparent exchange of disease information

- Readiness for emergency vaccination
- Establishment of a regional vaccine/antigen bank
- Exchange of current virus strains circulating in the region, to enable diagnostic laboratories and regional vaccine producers to take necessary measures.

Emergency management of FMD (A Iran 05) in Thrace, 2006

Dr Aktas summarised the disease events in Thrace in period January 2006 to the present (**Appendix 3**). The General Directorate of Protection and Control (GDPC) appreciated the three missions of the EUFMD Secretary and the urgent supply of 2.5 million doses of A22 Iraq /O Manisa/Asia-1 Shamir trivalent vaccine (MERIAL Aftovax) following his first visit.

The situation had been the most severe for many years, with transmission occurring during kurban/bayram festivals and during winter weather, each contributing to spread. Excluding the most recent Cannakale outbreak, there had been 16 outbreaks of type A in European parts of Turkish Thrace (by Province - Edirne 1, Tekirdag 6, Kirlareli 8, Istanbul 1); an associated 153 cattle had been slaughtered. On the 11th Feb GDPC initiated vaccination using SAP A22 vaccine. Insufficient vaccine was available at first because of nationwide demand, and following the very important and rapid supply from the EC, sufficient vaccine was available to commence full program of vaccination on an urgent basis across the entire cattle and small ruminant population.

Report on EC supplied vaccine usage: *circa* 1.4 million doses have been used of the EU (Merial Aftovax) vaccine.

Following this presentation, Keith Sumption presented a summary of the EUFMD missions in February (summarised in the report of the meeting held 28/2/2006 at the OIE, **Appendix 4**) and March to make an immediate assessment of situation and needs for response, and the 2nd and 3rd missions (**Appendix 5**) to advise on strategy and implementation of emergency vaccination in Thrace. As a result of these missions the target agreed with GDPC was full vaccination by the end of March; a weekly vaccination monitoring scheme had been instigated to keep interested parties informed of progress. The collated weekly reports are given in **Appendix 6.** In almost all parts of Thrace, >80% coverage in cattle and small ruminants had been reached by end of March; and no outbreaks reports in since 1st March (until week of 13th June).

He thanked the GDPC for the full and open access given to EUFMD experts in their missions. In particular he thanked Dr Sungur and Dr Arik for making the commitment to complete vaccination in March despite the pressure of the AI situation and difficult situation at field level. He complimented the Directors of Veterinary Services at province level for their commitment.

However, he noted that the lack of a Thrace – wide co-ordinator had hampered efforts; the EUFMD missions with GDPC headquarters staff could only play this role on a temporary basis, but the region required it throughout an emergency response. He re-iterated that this weakness had been identified several times before, and was at the heart of the proposed project to strengthen regional surveillance and prevention actions (project supported by the 72nd Executive and requested to SANCO on 15th February).

Questions raised in discussion:

1. Use of the remaining EU provided vaccine; this is currently stored at the Pendik Institute, and enough remains for the autumn campaign in cattle (>493k cattle doses); could alternatively be used for full booster vaccination of cattle.
2. Sero-survey for post vaccination immunity: sample collection had been completed in May, and test results should be available by the end of June.
3. Type A variation; the RG were asked to consider issues of type A epidemiology and protection using current vaccine antigens. The extent of protection of type A vaccines when given at high payloads is already being studied by RG members.
4. More clarity on the impact of vaccination programs on antigenic drift was requested.
5. Partial protection from A Iran 96 vaccination; SAP Institute consider this occurred after repeated A Iran 96 vaccinations, but it was evident from the field this had almost no impact on the spread of the disease.
6. The potential use in emergency campaigns of a more than one type A antigens to extend coverage; less matched antigens could be used in higher payload or in less high potential challenge

Sero-monitoring of the emergency campaign:
Recommendations on monitoring of immunity to primo-vaccination were contained in the 2nd EUFMD mission report (1st March 2006).
Dr Aktas indicated that 960 samples were collected from animals vaccinated 1-2 months previously with Aftovax (Merial) and SAP institute A22 vaccine; (from 3 villages, in each of 5 Provinces). In addition some 12,992 samples had been collected following the December 2005 recommendations, for NSP testing; because this was planned pre-outbreaks, samples dates were mostly during the period of the epidemic.

Plan for post-outbreak sero-surveillance in Thrace:
Mark Bronsvoort spoke on the discussions held during the meeting on 14th June with GDPC and SAP Institute Epidemiologists (**Appendix 7**). The meeting was held prior to the full circumstances of the latest Thrace outbreak being known, so the group had discussed what were the priorities for investigation – to identify risk from recovered animals, virus circulation, or level of immunity, the last being the main risk management tool.

The first round of sampling, as per study design agreed in December 2005, had been undertaken during the outbreak and emergency vaccination period and therefore only a subset could be usefully tested for SP or NSP antibody responses. The second sampling of 900 samples collected in May should be informative for levels of post vaccination immunity circa 2 months post vaccination but the design would be unlikely to assist in questions of the extent of recovered animals following exposure to FMDV.

Discussion points:

1. Risk management requirements; the importance of maintaining herd immunity and the strong likelihood that a gap in immunity would appear in late summer (4-5 months post primo-vaccination).
2. The timing of booster vaccination and the alternative of an earlier round of autumn vaccination.
3. The inclusion of sheep in sero-surveillance schemes; the December 2005 scheme had decided to focus on cattle.
4. The need for the epidemiology advisory group to come together to analyse the information from the immunity study.
5. Possibility of defining higher risk locations such as where vaccine coverage is suboptimal. The 900 sera would not assist to define lack of coverage as suitably tight spatial level to detect problems.
6. Sampling at the time of vaccination, which is efficient and enables detection of minimal level of herd immunity.
7. The difficulty to apply classical methods of detection of circulating virus, since exposure after the last outbreak would require testing of animals born since the last outbreak and older than the last age for maternal antibody interference in tests (i.e. sampling 6 months after last outbreak).

Recommendations:
Given in the Preamble to report.

Regional situation – Iran

Surveillance report and Report of meeting on FMD virus circulation in the region, Teheran 11-12 June 2006
The FMD situation was summarised by Keith Sumption, who reported on the meeting (**Appendix 8**) held immediately before the 73rd Session to review the FMDV circulation in Iran and neighbouring countries, hosted by the I.R of Iran and organised by EUFMD under the *Central Asia FMD Surveillance Project Phase 1*, supported by EC (SANCO) via MTF/INT/003/EEC.

Participants were FMD laboratory experts and disease combat specialists from the veterinary services of I.R of Iran, Turkey, Iraq and Syria. The region has been very hard hit by rapid invasion and impact of the type A (A Iran 05) virus in 2005-6 which continues to circulate in Turkey and I.R of Iran and which has been detected in Pakistan and Saudi Arabia in 2006. Syria and Iraq have not reported detection of the A Iran 05 virus to date but remain at high risk. Type O remains endemic, but the risk of Asia-1 appears diminished with the last reported occurrence in Iran in August 2005. The dynamic situation requires continuous monitoring, not least because first detection of new strains in the centre of countries rather than border, and because of rapid animal trade movements, and because other antigenic variants type A variants were observed in 2005 and may continue to persist in the region and give rise to later re-emergence. Further, the type A Egypt 06 has the potential for invasion of additional countries in the Middle East.
The meeting considered how future regional epidemics could be prevented, and developed recommendations relating to information exchange, virus isolate exchange to enable vaccine producers to respond, and the optimisation and improved monitoring of vaccination programs.

The meeting can be considered an important development in that discussions on improvements to reporting and surveillance systems were made in a constructive, lively and positive manner, with detailed presentations made by Iranian Veterinary organisation (**Appendix 9**), and on sub typing and vaccine development by the Razi Institute of Iran (**Appendix 10**). However, timely flow (once per month or sooner) from the pilot study areas including regions close to Turkey, under the EC/EUFMD supported program has not yet occurred.

The conclusions of the Teheran meeting on recent FMD control situation and virus circulation in the region of Turkey, I.R of Iran, Syria and Iraq:

- Lack of information exchange between countries and to the international organisations has contributed to the scale of the type A epidemic experienced in the region in 2005-6.
- The lack of immediate vaccine against the A Iran 05 virus contributed to the scale of the outbreaks.
- The available A22 antigen in international vaccine banks, or held by individual countries, could not be mobilised in timely manner because of delayed reporting of the identification of the problem of the A Iran 05 (A22 -like) virus.
- The A Iran 05 FMDV genotype has proven to be highly invasive and has caused severe disease in all ages of cattle, although this appears reduced where high levels of previous type A immunity exists.
- The infection continues to circulate in mid 2006 in Turkey and Iran and further extension of infection to other countries or zones is likely to occur.
- The circulation of other A types in the region is likely to continue in 2006 given the detection of A Iran 96, A Iran 87 and A Iran 99 genetic types circulating in apparently restricted locations in Turkey and/or Iran in 2005.
- The epidemiological circumstances that enable virus persistence of the various type A virus are unclear and therefore specific attention should be continuously applied to type A outbreaks and epidemiology.
- The location and risk from other exotic viruses, including type A Egypt 06 should be kept under review by each country.
- The type Asia-1 situation appears favourable in Iran and the region at present, but the situation in the wider region, including Pakistan, central and south Asia should be kept under review and contingency plans developed before decision to remove Asia-1 from vaccination programs is taken.
- There is a need for regular regional meetings to assist risk assessment and selection of vaccination and other preventive measures based on similar or harmonised standards for virus typing and selection and monitoring of vaccination programs.

Regional situation – type A (East African A type) epidemic in Egypt in 2006

Summary of EUFMD assessment and follow up missions to Egypt

Keith Sumption gave a presentation (**Appendix 11**) on the incursion of a type A virus into Egypt in 2006; the virus represented a topotype which had not previously been recorded outside of east Africa and had entered a completely susceptible population; the first report of Egypt to the OIE on the new event indicated that the infection was already widespread. Three missions had been organised by the EUFMD Commission to Egypt following request from the General Organisation for Veterinary Services (GOVS) for assistance in diagnostic laboratory methods, epidemiology and control, and on improvement to vaccine production. A meeting called by the EUFMD Chairman was held in Paris on 24th May to discuss with EC (SANCO) and further epidemiological information was provided to EUFMD for this meeting by GOVS.

He indicated that from the first report to the OIE to the present, a regular discussion on the risk had taken place between FAO, WRL and EC (SANCO), resulting in the diagnostic mission to identify if more than one virus type was present, and the epidemiology mission to better identify the scale of the problem, and provide immediately assistance to GOVS in strategy (**Appendix 12**) to combat the epidemic. The strategic use of vaccination was constrained by the widespread distribution of cases, lack of precise spatiotemporal information on disease occurrence, lack of bio-security measures and possibilities, and the lack of immediately available type A vaccine. A homologous vaccine had been prepared in Egypt, tested in March and used in the field from April. The monthly reported cases had shown a steep decline after February, before vaccine had been distributed, suggesting that other factors were responsible for the decline, possibly the reduced animal movements and "burn-out" of foci in the most affected areas. Despite this, he considered it likely infection would continue to spread, with continued regional risk. In response to the request from Egypt for assistance to increase local production of homologous vaccine to combat the epidemic, and with the Chairman's support, a vaccine production expert (*Simon Barteling*) had undertaken a mission in June; his report is given in **Appendix 13**.

Lumpy skin disease had also been observed in his missions, and since reported to the OIE; this also had not been reported for many years in North Africa and presents a regional risk.

Lessons learnt from the recent epidemics

The Executive discussed areas where improvement was needed, in early warning, and improved consultative process to identify risk and management options.
It was noted that EC will now ask for FMD virus subtype information to be provided in the Animal Disease Notification System (ADNS) in use in EU and acceding countries. However this proposal may be ahead of the regular diagnostic procedure, which usually only identifies the type at the time of confirmation (by ELISA). At present sub typing either by genetic or antigenic analysis/matching requires additional procedures and can take several days. The need for rapid typing was clearly evident. Given the range of names for the latest A types there is a need to use standardised terminology and possibly, typing procedures, which may include sequencing, CFT, profiling with monoclonal antibodies, comparative neutralisation or capture by ELISA.
It was recommended to refer this to the RG to make a recommendation on subtype naming, and on rapid typing methodology to provide a provisional subtype at the time of first outbreak report.

Recommendation of the World Reference Laboratory (WRL) on vaccine stocks in the European and national banks

This section was presented by Dr Kris de Clercq, on behalf of Dr Paton, FAO World Reference Laboratory Pirbright. The presentation is given in **Appendix 18**.
The recent events had promoted reconsideration of the priorities for the European countries; the WRL proposal was that type A22 antigen stock should be moved from MEDIUM to HIGH priority and that type A Eritrea 98 antigen stock from LOW to MEDIUM priority. The events also strongly re-enforced the recommendations of the earlier EUFMD Sessions that significant virus diversity exits in hot-spots in west Asia and Africa and that more intensive efforts should be made to collect and characterise viruses in these areas. In the case of the type A incursion into Egypt, virus circulation for over 8 years had occurred without a sample being submitted to the WRL or other member of the OIE/FAO laboratory network.
The WRL also presented progress on the OIE/FAO FMD reference Laboratory network; the first annual report of the network had been made in 2005, but not all of the 4 partners had yet signed the memorandum of understanding that would enable improved sharing of reference materials. The WRL proposed that the Pakchong (Thailand) and Lanzhou (PR of China) NRLs as additional partners.

Discussion

Concern was raised that the criteria used to place antigens into high, medium and low categories were unclear. The issue of A Eritrea 98 antigen was a case in point, with opinion divided on whether this should be considered a high priority until results from cross-immunity trials or the risk indicate otherwise. Likewise, the placement of A Iran 96 as high priority was questioned given the apparent low prevalence of this type in the last year compared to A Iran 05; however the consensus was that it is too early to draw conclusions on risk from viruses related to A Iran 96.
The Asia-1 stocks and their appropriateness for Asia-1 types circulating in China and the Russian federation were also discussed; the opinion of ARRIAH Laboratory, presented at the OIE meeting on 28th February was that ARRIAH vaccines did not provide adequate cross-protection, which is contrary to usual advice regarding cross-protection of Asia-1 vaccines. Dr Bruckner agreed to seek details from ARRIAH to confirm or refute this point.

Dr Alexandersen, Danish Veterinary Institute (DVI) questioned the addition of some NRLs to the OIE/FAO FMD Laboratory network; was the network on an invitation only basis, and who is responsible for decisions. The FAO position on this was that it should be for the Network Steering Committee, comprising FAO and OIE and the WRL Co-ordinator, to agree the policy for opening up the network to additional laboratories. This was supported by OIE and it was agreed that the Steering Committee should meet well in advance of the annual network meeting (scheduled in Botswana in November 2006).

Recommendations

These are given in the preamble to the report.

4. ITEM 4 UPSTREAM SURVEILLANCE – ACTIONS TO IMPROVE FMD SURVEILLANCE ACTIVITY IN POTENTIAL SOURCE COUNTRIES

a. Sentinel sites in west Asia - collaboration with Pakistan on virus surveillance

Dr Alexandersen illustrated the work in progress between Pakistan, FAO, WRL and the Danish Veterinary Institute (**Appendix 14**), which is aimed to improve understanding of FMD epidemiology in Pakistan; a program for surveillance has been designed and initial samples collected and sent to WRL and on to DVI for molecular typing. The Landhi cattle colony has been chosen as a sentinel site for virus collection and typing, with a population of circa 200,000 animals and a high animal turnover which results in disease introductions on a regular basis, and therefore a high suitability as a FMD surveillance sentinel site.
Program difficulties have been mainly in delayed onwards transport of the samples from Pirbright to DVI. The value of the approach is seen by detection of the A Iran 05 -like virus among the first 15 positive samples; the remaining were type O (Pan Asia topotype).
The Committee complimented the initiative.

b. FMD surveillance in the western Sahel; mission to Niger, 2005

Dr Sumption provided the report of the mission to Niger in November 2005, supported via the EC-Trust Fund, necessitated by the very low virus submission to reference laboratories rate from this region (**Appendix 15**). The mission had collected FMD samples from outbreaks in dispersed locations and had recommended follow up in the form of project support to maintain a baseline level of sampling from these sites. In addition, they recommended a further mission to identify additional sentinel sites in West African countries and bring these into a more inclusive program for monitoring FMD risk.

Discussion
The general consensus of discussion was that low cost support was shown to be efficient. Dr Fuessel indicated that rather than more identification missions, the initiative should go ahead to establish the regular collection and submission from sentinel sites in the Sahel.
The Chairman raised the issue of the mandate of the Commission in relation to actions in countries outside the European region. He accepted that it is in the interest of member countries that such surveillance occurs but considered that some parts of the Constitution may need to be amended given the new needs of Europe.

Recommendations
Given in the preamble to report.

5. ITEM 5 STRENGTHENING OF SURVEILLANCE AND PLANNING OF PREVENTIVE VACCINATION IN TURKEY

a. Co-ordination of interagency inputs to FMD control (Steering Group and Task Force for FMD eradication project under Government of Turkey/EC programme)

Ms Nermin Kahraman, EC delegation Ankara, updated the Executive on the position of the agreement between EC and Turkey on support for FMD eradication; the program is approved by EC, but some of the required conditions for implementation have not yet been fulfilled. The GDPC representatives indicated that the Steering Committee and Task Force for the project have not yet met, but that when this is arranged, FAO, through the FAO office in Ankara or direct o EUFMD Secretariat, would be invited to participate. These meetings are expected at least 4 times a year.
The Chairman explained the decisions of the 72nd Session and the need of the Executive to be kept informed on the progress of the FMD eradication program. He re-iterated the position of the Executive that EUFMD should be invited to the Steering group, which should be of value both to Turkey since the EUFMD experience in the neighbouring region is of importance to FMD eradication in Turkey.

b. Response of SANCO to letter (15/2/06) of request to use MTF/INT/003/EEC Trust Fund to support 24 month capacity building for FMD control

Dr Fuessel spoke on this item; he indicated that SANCO had considered the response to the 72nd Session and events of the past few months, and that given the financial forecast for the EC Trust Fund MTF/INT/003/EEC for the period to 2008, a decision had been adopted to increase the agreement between FAO and EC from 4.5 million to 8 million euro for FMD control activities in the period. He stressed that there would remain a great importance to maintaining the fund as a reserve that would be immediately available if required for crisis

expenditures, such as urgent vaccine procurement. The financial decision had been adopted but not yet published at the time of the session.
Therefore a number of the more major expenditures in the EUFMD request of 15th February could only be answered when the decision is published.
The Chairman recorded the appreciation of the Committee for the actions taken by SANCO, in order that the necessary funds could be secured for the essential activities. He looked forward to receive the SANCO response as soon as possible, to avoid further delays to the implementation of activities agreed for 2006.

6. ITEM 6 FMD CONTROL IN IRAN

Progress report - Phase I of the EUFMD/EC/France supported actions on FMD surveillance and control

The 6 monthly report (**Appendix 16**) was noted, indicating progress of Phase 1 of the project, which is supported by the EC through the Trust Fund. In this period, seven pilot study areas for improved FMD surveillance have been identified and assigned to task managers; some progress has been made through training workshops for those tasked with organisation of FMD outbreak investigations in these pilot areas. The first major international meeting under this project was held 11-12th June on FMD virus circulation, which provided sharing and review of data on the virus situation in Iran.

Discussion

DG-SANCO indicated that they consider that information flow from areas threatening Turkey is still too low, and that regular and detailed reporting level has not yet been achieved under this project.
Keith Sumption agreed with this and indicated that information flow remained an issue, and the National Project Task Force Co-ordinator had not yet provided the requested monthly FMD summaries.

Recommendation

The decision of the 72nd Session that the project progress should be reviewed towards the end of the first year (i.e. late 2006), was upheld.

7. ITEM 7 FMD CONTROL IN THE TRANS-CAUCASUS

a. Purchase of emergency A22 vaccine for the Caucasus

Keith Sumption summarised the situation with FMD control and inputs provided by FAO with EC support. The Secretariat had acted in line with previous Sessions 70, 71st and 72nd Session recommendations; trivalent A/O/Asia-1 vaccine purchased from FGI-ARRIAH had been provided to each country in early February 2006 for use in spring vaccination in the buffer zone, and request for permission to use the Trust Fund (TF) sought from EC for 2006 actions. The delivery had occurred before the new A22 like virus had been reported by Turkey or Iran. Once the new situation was known, the EUFMD Secretary provided written and telephonic information to the CVOs in each country, and of the Russian federation, warning of the new situation. Following discussion with SANCO, permission to use the TF was gained to purchase 300,000 doses of monovalent A22 vaccine as an emergency reserve, and awarded after tender to FGI-ARRIAH (to supply A22 550/Azerbaijan 1964 vaccine). The order was placed with condition to supply 50 ml of bovine vaccinal serum (BVS) to WRL Pirbright to verify suitability by vaccine matching. At time of the 73rd Session the BVS had not been delivered. Under this contract, the 300,000 doses will be held at the supplier until EUFMD requests delivery, thereafter shipment should occur within 5 days, with verification by an independent superintending company. Providing that early detection and confirmation and reporting to FAO of FMD occur, this should enable a rapid response to a situation where type A is detected.
For this reason the recruitment of the international technical officer was expedited, and a short term professional officer (Carsten Pöetszch) recruited for 11 months from 18th June 2006 to co-ordinate the inputs and activities under the 2006 FMD program, with first activities being to participate in the FAO (TCP/RER/3001) funded Workshop in Tbilisi 18-22nd June for the three countries and to visit each country before end of July to establish buffer zone vaccine requirements and timetable of actions.

b. Government of Turkey support to FMD control in the Caucasus

Dr Aktas indicated that following the EUFMD warning to the countries, Turkey had been requested to supply A22 vaccine and would supply 200,000 doses to Azerbaijan, but was not able to spare further vaccine to meet request of Georgia.

Regarding vaccination in Ardahan province, on Turkish side of the Georgia border, 175,000 of 260,000 cattle had been vaccinated with the A22/O/Asia-1 vaccine in spring, but almost no sheep; given that the latter may be involved in cross-border movements in the area, this might be a risk.

Discussion
The FMD status of the three countries was raised; Dr de Clercq could not believe that each country had avoided A22 infection or progressed from endemic to free, especially as the reports from Turkey and Iran that infection had been intense on their side of the border. He considered that it was an excellent development that at long last recruitment of an epidemiologist had occurred. He remained concerned that the relationship with the US funded projects should not lead to loss of independent testing in Europe.
Dr Fuessel supported this and stressed that it would continue to be essential that samples collected for surveillance are also available to EC reference laboratories as reference materials.

8. ITEM 8 PROPOSAL TO EXTEND THE OIE/FAO FMD REFERENCE LABORATORY NETWORK TO A FAO/OIE GLOBAL SURVEILLANCE NETWORK

Keith Sumption introduced the subject. The discussion on the mandate of EUFMD Commission led naturally to the subject of the needs of Europe for global surveillance, and the concept of a forum or alliance of interested parties to drive activities which will support improved surveillance. He indicated that such a group could, for example meet annually and define priorities for action by those agencies with international resources for FMD surveillance; this could help define work of regional organisations, including EUFMD and the OIE/FAO Regional Animal health centres. He considered that the work of the FAO/OIE FMD laboratory network had started well, but needed to be balanced with the needs of the risk managers –at country and regional organisation level.

Dr Domenech, Chief Veterinary Officer of FAO indicated that the need for a global network, involving both risk assessment and management stakeholders and experts, and FMD experts from reference laboratories, remained high. Following the resolution of the 35th general Session of EUFMD Commission in 2005, FAO had offered to OIE to host the Secretariat of the network but no agreement had yet been reached. He indicated that a meeting was needed to define function, the composition and balance between experts, such as a task force for epidemiology/monitoring and for the laboratory components. He considered that in such a EUFMD should be seen as an indispensable partner in a global effort on surveillance.

Dr Bruckner, OIE, agreed that this is a highly important area for co-operation and that establishing such a surveillance partnership could help bring partners under one roof to co-ordinate and prioritise activities; in the discussions between the partners the Chairman of the EUFMD and of the EUFMD Research group would be expected to be involved; and that he would discuss with DG OIE.

9. ITEM 9 REPORT OF THE WORKING GROUP ON DEVELOPMENT OF A FMD TRAINING INITIATIVE

The Secretary indicated that limited progress had been made since 72nd Session on this initiative because of time constraints. More work was required to cost the elements in the proposal.

In discussion, it was agreed that the initiative came because of the interest of the free countries in Europe and that progress was needed since the initiative was first agreed in April 2005. The Committee agreed that the Secretariat should outline their ideas on how to proceed, including where required the identifying additional human resources.

10. ITEM 10 STANDING TECHNICAL COMMITTEE OF THE RESEARCH GROUP

a. Update since Insel Riems, Germany, September 2005

The work plan and progress was presented by Dr de Clercq (**Appendix 17**). The number of tasks was high, progress had been made in most and the associated reports are expected at the Research group Session in Eilat. He had discussed with the Secretary how the work plan might be kept on track and discussed areas where there had been delays. The recent events in FMD control in Turkey and Iran had in addition raised new technical questions, some of which were answered by members immediately; others required more time to review. He

asked that the Commission consider how a more active management of the group to ensure that priorities were addressed and that tasks were not forgotten.
The Chairman thanked Dr de Clercq and acknowledged the valuable efforts of the Research Group.

b. **Programme for Open Session of the EUFMD Research group, Eilat, Israel October 2006**

Dr de Clercq presented the Draft program (**Appendix 19**). The deadline for requests to present papers was the 15th June, and by this date about 40 had been received. This should therefore lead to a strong programme.
Dr Bruckner, OIE indicated that OIE would be reviewing procedures to increase the speed of regaining FMD freedom and it could be useful if the Session considered technical constraints to reducing the duration of loss of freedom.
On this point, the view of the Danish representative was that regionalisation of disease affected areas was being accepted by major players; these reduced the need to reduce export bans by restricting the bans mainly to affected areas.

c. **Simulation exercise - surveillance post-emergency vaccination in FMD free European country**

Kris de Clercq reviewed the progress of the work on application of NSP tests in post-vaccination serology; some difficulties with surveillance design remain, and choice of possible solutions has policy as well as technical dimensions.
The Research Group had identified the need for workshop to test the readiness of veterinary services experts groups to apply post-vaccination surveillance and thereby to identify remaining issues for laboratory, epidemiology or policy makers in application of a vaccinate to live policy.

The WS is a planned exercise with four objectives (**Appendix 18**):
Participants – the WS would expect to involve 2 to 3 persons from each country; an epidemiologist, a laboratory specialist and an expert from the regulatory /disease management side. They would be presented with a situation and be expected to design and evaluate surveillance for virus circulation and freedom from infection, identifying problems and solutions.

Timing: January 2007, which also assists to have the workshop outputs ahead of the OIE Scientific Commission meeting in Feb 2007.

d. **Issues arising: regulatory restrictions on FMDV shipments between National Research Laboratories in Europe**

The Secretary indicated that on at least two occasions, laboratories had requested FAO to assist them to obtain virus isolates from Pirbright but were faced with periods of one month or longer before shipment could occur because of export license procedures. In the case of Israel, the country requested isolates for emergency vaccine production and the delay could have been extremely serious.

The Committee agreed that delays to exchange reference viruses could impact ability to detect new epidemic viruses, and in principal there should be no restriction placed between European NRLS that are permitted to handle live FMDV by their competent authorities, and which are listed in the Annex to the EC Directive.

11. ITEM 11 FINANCIAL STATEMENTS

The financial statements (**Appendix 20**) were read and accepted by the Executive Committee. The Secretary indicated that the indicator of revenues in the travel costs budget line of the MTF/INT/011/MUL was under review and that the correct position would be provided with the Session report.
The commitment and contribution from DG-SANCO to support FMD control activities via Trust Fund MTF/INT/003/EEC in the period 2005-8 was gratefully acknowledged.

12. ITEM 12 ANY OTHER BUSINESS

-Update on the Crisis Management Centre (CMC) for animal health emergencies at FAO
Dr Domenech briefed the Session on the development of the CMC at FAO, which is part of the response to the AI situation. In emergency situations FAO can now utilise greatly streamlined procedures, including animal health emergencies.

Since last October, there has been huge demand with currently 40 countries, very similar to WHO situation during SARS, and therefore it was suggested that FAO propose a international crisis centre together with OIE; today with support from 5 countries, a document of agreement with OIE and also with WHO, according to the scale of the crisis, the CMC can mobilise and demobilise rapidly in response to new events. Circa 90% of effort is on AI.

- Personnel
Changes: the Clerk to the Commission (Egiziana Fragiotta) will take special leave without pay until August 2007, and will relocate to Dublin in this period. Her short term replacement is Nadia Rumich (at least to end of August 2006).
The Chairman, on behalf of the Executive Committee, commended her for her excellent service to the Commission and asked that the good wishes and gratitude of the Executive be conveyed to her.

- Procurement of FMD vaccine – proposed change to FAO procedures
Keith Sumption briefed the Executive on discussions held in FAO on improvement to procurement of FMD vaccines. In line with other FAO procurements, vaccine suppliers may be asked to pass through a pre-qualification procedure that will address both technical specifications and price; those passing would enter into an agreement on price (for one year). Since the price and quality would already be known, the delivery period might be a deciding factor between companies that have met other criteria for pre-qualification.
This system may assist planning and rapid placement of orders in emergency situations. It should also have an important impact on another issue that FAO is often asked for opinions on FMD vaccine producers by Governments; pre-qualification of suppliers would be de facto recognition of quality.
FAO is considering introducing additional safeguards to the pre-qualification process; this may involve a site inspection to producers to inspect the quality management system; and independent testing of final product batches. Both aspects would involve cost and need standardised procedures, and he considered European experts could assist to define what is required.
Dr Fuessel agreed that it would be a good thing if we have such a pre-qualification system, although care must be taken not to narrow the purchasing options too far since that might lead to exposure to risk.

13. ITEM 13 FUTURE MEETINGS

a. The support to be provided by EUFMD to the FAO/OIE meeting on FMD control in the Near East and North Africa was discussed. A request of 27,000 US$ for supporting participation of countries in the meeting had been requested of EUFMD/FAO; it was agreed the EUFMD should provide support of technical and where required Secretariat nature, but that the budget for other meeting costs should be borne between OIE and FAO; Dr Domenech agreed that FAO would provide co-financing to that from OIE.

b. OIE/FAO FMD laboratory network annual meeting, Botswana; the support to be provided to this meeting by the Steering Committee (FAO and OIE) was discussed. The Chairman proposed this be settled after receiving a request in writing from the WRL.

c. Date and venue of next Session: **74th Executive Committee 14-15th December, Rome – FAO.**

Appendix 1

73rd Session of the Executive Committee
of the European Commission for the Control of Foot-and-Mouth Disease

Istanbul, Republic of Turkey
15-16 June 2006

AGENDA

Timetable - Day 1: Items 1 to 6; Day 2: Items 7 to 13
Items italicised indicate a report on the use of EC (SANCO) support via the EC/FAO Trust Fund will be given

Opening Statements

1. **Adoption of the Agenda**

2. **Activities of the EUFMD Commission since the 72nd Session of the EUFMD Executive Committee**

3. **Recent events and current situation with FMD in the region**
   a. **Report of Turkey**
      i. National situation including report on the origin, spread and emergency control of FMD type A (A22 like)
      ii. Emergency management of FMD (A22 like virus) in Thrace, 2006, including:
         1. *report on use of the 2.5 million trivalent vaccine doses donated by EC*
         2. *sero-monitoring of post-vaccination immunity*
         3. *plan for post-outbreak sero-surveillance in Thrace* (presenter : to be decided at pre-Exec meeting 14th June)

   b. **Regional situation – Iran**
      i. Surveillance report, and Report of Regional Surveillance workshop, Teheran 11-12 June 2006

   c. **Regional situation – type A (East African A type) epidemic in Egypt in 2006**
      i. Summary of EUFMD assessment and follow up missions to Egypt

   d. **Lessons learnt from the recent epidemics**
   e. **Recommendation of the World Reference Laboratory on vaccine stocks in the European national community banks**

4. **Upstream surveillance – actions to improve FMD surveillance activity in potential source countries**
   a. Sentinel sites in west Asia - collaboration with Pakistan on virus surveillance
   b. Surveillance in the western Sahel; mission to Niger, 2005
   c. Surveillance in eastern Sahel/Horn of Africa

5. **Strengthening of surveillance and planning of preventive vaccination in Turkey**
   a. Co-ordination of interagency inputs to FMD control
      i. Steering Group and Task Force (Government of Turkey/EC programme)
      ii. Response of SANCO to letter (15/2/06) of request to use MTF/INT/003/EEC Trust Fund to support 24 month capacity building for FMD control

6. **FMD control in Iran**
    a. *Progress report - Phase I of the EUFMD/EC/France supported actions on FMD surveillance and control*

7. **FMD control in the Trans-Caucasus**
    a. *Purchase of emergency A22 vaccine for the Caucasus*
    b. *Government of Turkey inputs:*
        i. *vaccination programme along Georgian border (including A22)*
        ii. donation/supply of trivalent vaccine (A22/O/Asia-1) to Caucasus countries
    c. *Status/progress of the long term FMD control project - FAO/OIE SubRegional Support Unit under GF-TADS*

8. **Proposal to extend the OIE/FAO FMD Reference Laboratory Network to a FAO/OIE Global Surveillance network**

9. **Report of the working group on development of a FMD training initiative**
    a. Progress report - costed Project Proposal

10. **Standing Technical Committee of the Research Group**
    a. Update since Insel Riems, Germany, September 2005
    b. Programme for Session at Eilat, Israel October 2006
    c. Simulation exercise - surveillance post-emergency vaccination in FMD free European country
    d. Issues arising: regulatory restrictions on FMDV shipments between National Reference Libraries in Europe

11. **Financial statements**

12. **Any other business**
    - Crisis response: development of a Crisis Management Centre for Avian influenza/TADS control (information point: J. Domenech)

13. **Future meetings**
    a. FAO/OIE Regional GF-TADS Meeting on FMD control in Near East and North Africa region – Jordan, September 2006
    b. EUFMD Open Session of the Research Group – International Control of Foot-and-Mouth Disease; TOOLS, TRENDS AND PERSPECTIVES. Eilat, Israel, 16-20 October
    c. OIE/FAO FMD reference laboratory network meeting, Nov 13th, BOTSWANA
    d. FMD surveillance and control – the challenge of regions with limited veterinary services (proposal for meeting in Nairobi in December)
    e. 74th Executive Session (venue and date to be fixed – Nov/December 06)

Appendix 2

DUTY TRAVEL - EUFMD COMMISSION
2006

ACTIVITY	*ACTION BY*	*LOCATION*	*DATES*	*PURPOSE*	*FUNDING**
CAUCASUS	Keith SUMPTION	Tbilisi, Georgia	18-24 June	Final FAO regional workshop organised through TCP/RER/3001, and planning meeting for actions in the buffer zone supported by EC on FMD	TF
TURKEY	Keith SUMPTION	Ankara	15-26 January	Emergency mission on AI	TCEOD (FAO)
	Robert Angus PAUL (UK)	Ankara	16 Jan.-3 Feb.	Urgent mission to evaluate AI situation	TCEOD (FAO)
	Matthias KRAMER (Germany)	Ankara	16-28 January	Urgent mission to evaluate AI situation	TCEOD (FAO)
	Keith SUMPTION	Istanbul	8-11 February	FMD Thrace – emergency mission	TF EC
	Jan BRAAMS-KAMP (Netherlands)	Istanbul + Edirne	16 February – 3 March	Emergency mission to advise Provincial Directors on implementation of emergency vaccination in relation to FMD outbreak in Thrace region	TF EC
	Keith SUMPTION	Istanbul	16-21 February	FMD Thrace – emergency mission	TF
	Koen MINTIENS (Belgium)	Istanbul	20-25 February	Emergency mission to assist with control of FMD outbreak in Thrace region	TF EC
	Keith SUMPTION	Ankara	1 – 4 March	Follow-up FMD surveillance emergency mission	Ticket borne by OSRO/GLO DSA – TF
	Mark BRONSVOORT (UK)	Istanbul, Turkey	13-15 June	Take part in pre-Executive meeting to determine necessity of further sampling for sero-surveillance following recent type A outbreaks and draw up plan of action if necessary	TF
FMD IN EGYPT	Scott REID (WRL-UK)	Cairo	14-17 March	Emergency mission to assist with control of FMD outbreak	TF
	Keith SUMPTION	Cairo	28 March-1 April	Follow-up to FAO expert mission on FMD outbreak	TF
	Simon BARTELING (Netherlands)	Cairo	5-9 June	To provide assistance on FMD vaccine production in Egypt upon request from the Government Authorities	TF

ACTIVITY	*ACTION BY*	*LOCATION*	*DATES*	*PURPOSE*	*FUNDING**
EUFMD MEETINGS	Kris DE CLERCQ (Belgium)	Istanbul, Turkey	14-17 June	73rd Session of the Executive Committee	TF
	Soren ALEXANDER-SEN (Netherlands)	Istanbul, Turkey	14-16 June	73rd Session of the Executive Committee	TF
EUFMD MEETINGS	Keith SUMPTION	Istanbul, Turkey	14-17 June	Pre-Executive meeting and 73rd Session of the Executive Committee	TF
TRIPARTITE MEETINGS	Keith SUMPTION	Paris, France	26-28 February	FAO-EUFMD/EC/OIE Emergency Tripartite meeting for FMD and other exotic diseases	Cost of ticket borne by OSRO/GLO DSA - TF
EFSA MEETINGS				**NONE SO FAR**	
OIE MEETINGS	Keith SUMPTION	Paris, France	21-26 May	74th OIE General Session	TF
	Kris DE CLERCQ (Belgium)	Paris, France	24 May	To take part in extra-ordinary meeting organised on 24 May organised during the 74th OIE General Session	TF
IRAN ***(Central Asia FMD Project)*** ***Funded by EC***	Dónal SAMMIN (Ireland)	Tehran	27 January – 5 February	To undertake mission in the context of implementing a programme of support for FMD surveillance and control in Iran	TF EC
	Francis GEIGER (project staff)	Tashkent, Uzbekistan	27/3 – 3 /4	To attend annual meeting of CVOs of Central Asian countries under project GTFS/INT/907/ITA	TF EC
	Keith SUMPTION	Tehran, Iran	11-16 March	FMD project supervisory visit and ECO/WHO/FAO High-level group meeting on AI epidemic	Funded by OSRO/GLO project
	Francis GEIGER	Paris, France	22-27 May	To discuss implementation of project activities	TF EC
	Ali REZA HONARI Reza Hassan ZADEH (Iran)	Pirbright, UK	13-28 May	Attend training session in WRL, UK	TF EC (Iran project)
	Nick KNOWLES				

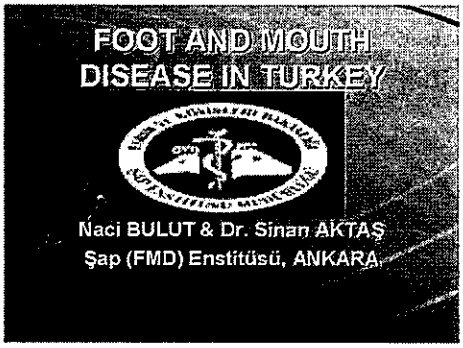
ACTIVITY	*ACTION BY*	*LOCATION*	*DATES*	*PURPOSE*	*FUNDING**
	(UK) Jean-François VALARCHER (Sweden) Abdulnaci BULUT Beytullah OKAY (Turkey) Mothafar D.S. AL-ABADI Abdul Rahem A. WALIE (Iraq) Gergos MAKSOUD (Syria)	Tehran, Iran	10-13 June	Attend 1st scientific meeting on FMDV circulating in the region, 11-12 June	
	Keith SUMPTION	Tehran, Iran	10-14 June	Attend and facilitate 1st scientific meeting on FMDV circulating in the region, 11-12 June	TF
OTHER	Tom MURRAY (APO)	Berne, Switzerland	19-25 February	Attend course on "Evaluation of complex surveillance systems", Berne, 20-24 February	APO funds
	Tom MURRAY (APO)	Ljubljana, Slovenia	5-6 March	Preparatory meeting for FMD simulation exercise to be carried out from 28 to 30 March	TF
	Keith SUMPTION	Beirut, Lebanon	5-8 April	GF-TADS Regional Steering Committee for the Middle East	TF
	Tom MURRAY (APO)	Berne, Switzerland	18-22 June	Course on predictive modelling	APO funds
	Tom MURRAY	Ljubljana, Slovenia	26-30 June	FMD simulation exercise	Organisers

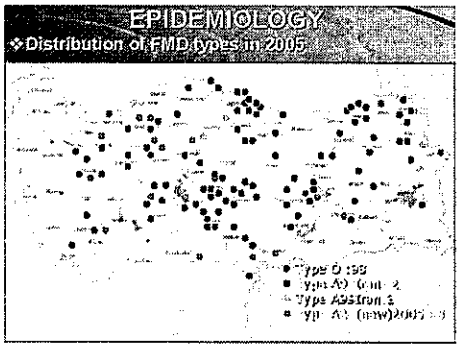
* TF = Trust Fund 904200 (Project MTF/INT/011/MUL)
TF EC = Trust Fund 911100 (Project MTF/INT/003/EEC) – EC funded project
APO funds = Project GCPA/INT/012/IRE – Associate Professional Officer Project (funded by Ireland)
OSRO/GLO/504/MUL = FAO project – multi-donors

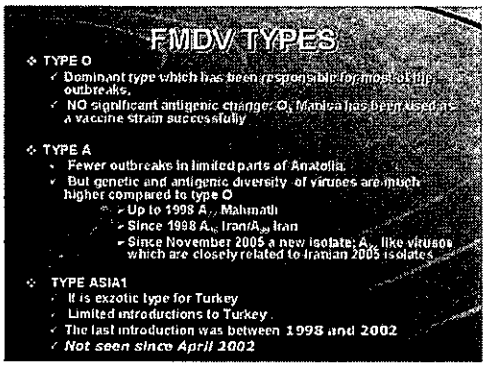
Appendix 3

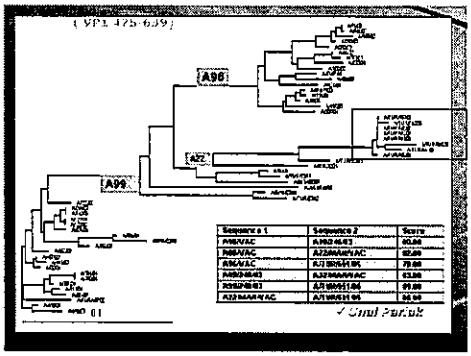
FOOT AND MOUTH DISEASE IN TURKEY

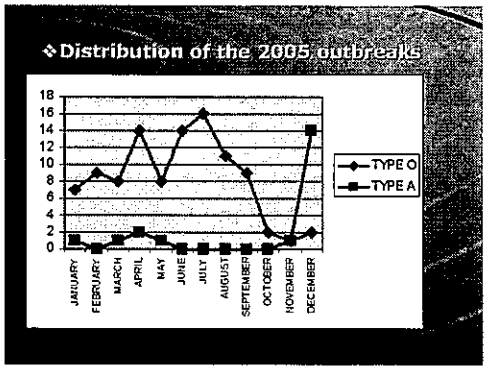
Naci Bulut and Dr Sinan Aktas
SAP Institute, Ankara

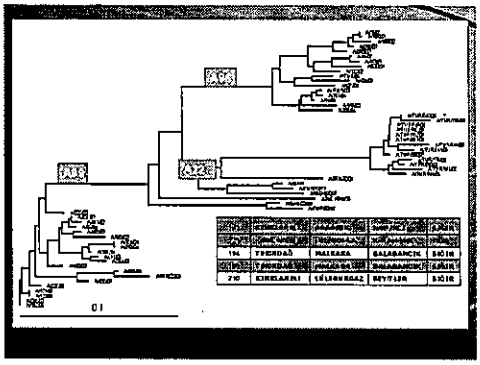


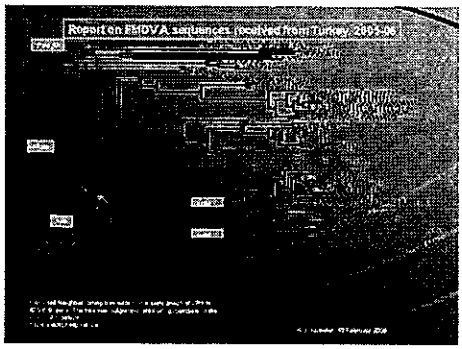


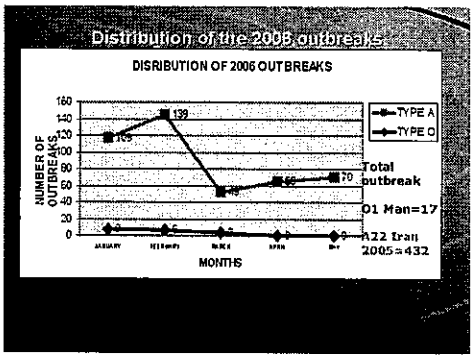


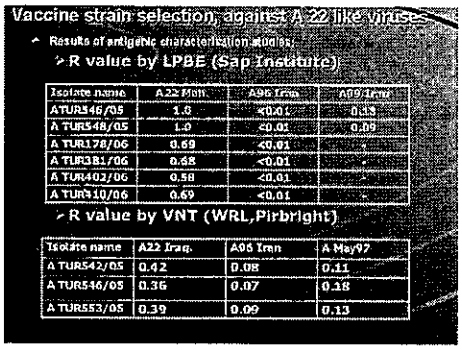






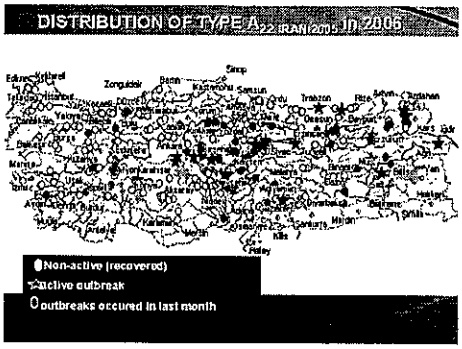






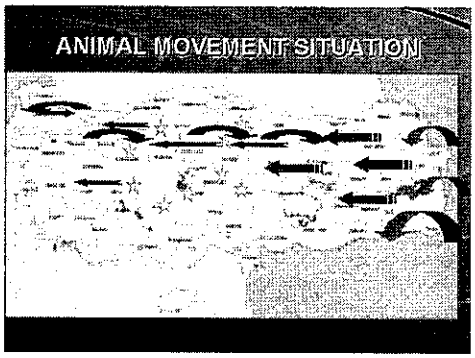
Isolate name	A22 Iran	A96 Iran	A99 Iran
ATUR546/05	1.0	<0.01	0.05
A TUR548/05	1.0	<0.01	0.09
A TUR178/06	0.69	<0.01	-
A TUR381/06	0.68	<0.01	-
A TUR402/06	0.58	<0.01	-
A TUR410/06	0.69	<0.01	-

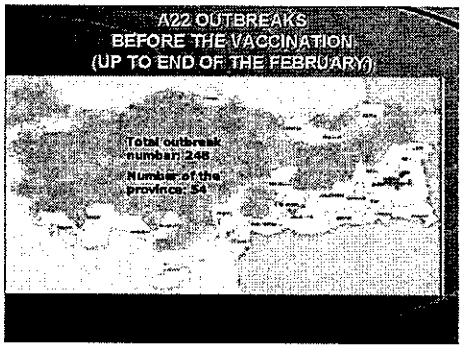
Isolate name	A22 Iraq	A96 Iran	A May97
A TUR542/05	0.42	0.08	0.11
A TUR546/05	0.36	0.07	0.18
A TUR553/05	0.39	0.09	0.13



Vaccine Matching by Neutralisation

Strain	A22 Iraq	A24 Cruz	A Iran96	A May97	A Iran97	A Sau95	A5825	A Iran2005
A Iran 32/01	0.13					0.13	0.51	0.18
A Iran 52/01	0.18	0.03		0.08		0.2	0.44	0.1
A Iran 57/01	>1.00	0.05	0.93	0.10				
A Iran 01/03		0.04	0.06	0.14	0.16			
A Iran 04/05	>1.00	0.06	0.11	0.13	0.16	0.18	>1.00	0.09
A Iran 07/05	>1.00	0.07	0.10	0.07	0.12	0.18	0.44	0.07
A Iran 07/04	0.07	0.03	0.13	0.09	0.12	0.13		
A Iran 32/04	0.18	160% rpe	0.44	160% rpe	0% R.	0.12	0.27	0.1
A Iran 33/04			>1.0		0.12	0.12		
A Iran 01/01	0.13	160% rpe	0.14	0.12				
A Iran 07/01	0.13	0.02	0.09	0.08		0.06	0.12	0.03
A Iran 10/02	0.18	0.07	0.29	0.14		0.04		0.17
A Iran 47/01	0.35	0.03	0.15	0.06				
A Iran 77/03		0.11	0	0.13	0.22			
A Pak 09/03	0.1					0.31	0.60	0.26
A Pak 11/03	0.1					0.36	0.51	0.23
A Iraq 02/03	0.22		0.24			0.47	0.92	0.41
A Bhu 40/03	0.15		0.31			0.40	0.62	0.25
A Iran 01/04	0.13	0.06	0.29	0.35	0.25			
A May 03/04			0.39	0.44	0.22	0.19		
A May 04/04			0.29	0.22	0.17	0.09		
A Tai 05/04		0.07	0.17	0.26	0.25			
A Tai 09/04		0.05	0.15	0.26	0.29			
A Vi 04/04		0.10	0.23	0.22	0.15	0.07		
A Vi 05/04		0.07	0.21	0.29	0.23	0.11		
A Iran 01/03	0.26	0.09	0.09	0.05	0.15			
A Iran 02/03	0.26	0.09	0.09	0.07	0.14			

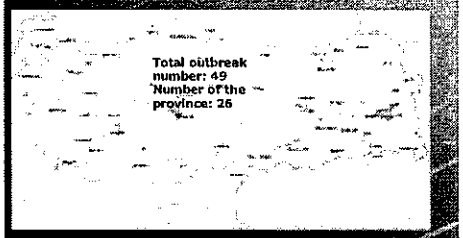




What was the situation before this new A epidemic in Turkey?

- The outbreaks were under control by mass vaccination and other control measures before the introduction of new type A
- The dominant type was O, Manisa
  - type O manisa:98
- Type A outbreaks were very limited:
  - type A96 Iran: 2 and
  - type A99 Iran: 3

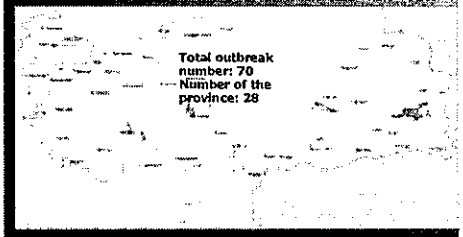
A22 OUTBREAK AFTER THE VACCINATION



CONTROL MEASURES

- **Vaccination**
  - ✓ Mass vaccination policy is the main element of control measures and ring vaccination around the outbreaks
  - Large Ruminants
  - ✓ Twice a year with trivalent (O, A and Asia1) oil adj. vaccine
  - Small Ruminants
  - ✓ Once a year in Thrace and Marmara regions
- **Animal movement control**
- **Quarantine**
- **Slaughter: only in Thrace region**
- **Surveillance and monitoring**
  - Active surveillance and monitoring programme
  - Outbreak investigation
  - Serological surveillance in Thrace region

A22 OUTBREAKS LAST MONTH (MAY 2006)



The new situation: Following introduction of A 22 like viruses

A new A type (A22 Iran 2005):

- Detected first time in Elazig province in Anatolia at the end of November 2005,
- Extent and pattern of infection were investigated
- First entrance date was earlier
- It was assumed that "index case" was in Igdir province (unreported case)

LABORATORY STUDIES

- The laboratory detection was made by Antigen Capture Sandwich ELISA
- Genetic analysis and antigenic characterization were made by Nucleotide Sequencing and LPBE/VNT
- Genetic and antigenic studies indicated that it was different from existing types, namely A 96 and A99 Iran
- A new isolate, antigenically related to A_{22} and genetically close to Iranian 2005 isolates
- Information was exchanged with Pirbright
- Studies wetre initiated for the production of vaccine using A 22 Mahmatlı

Vaccination figures

	Large Ruminants			Small Ruminants		
	Programme	Vacc.	%	Programme	Vacc.	%
ANATOLIA	9.611.857	6.943.394	72	1.767.934	1.721.479	98
THRACE	527.153	464.630	92	900.180	737.123	82
TOTAL	10.139.010	7.408.024	73	2.668.114	2.458.402	92

Vaccine production

- The first batch of vaccine including A 22 Mahmatlı was produced in the beginning of February 2006 and distributed to the field.
- Vaccine was produced as trivalent double oil adjuvant.
- Vaccine antigen was concentrated and purified by PEG (Batch 5, 7 and 8).

Vaccine monitoring

- In addition to the tests carried out in Bap Institute sera collected from the field were tested to determine the herd immunity levels. The results were as follows:

Batch Num.	Num. Of Sera	Protection Level %		
		Type O	Type A22	Asia-1
01/06	337	91.6	90.6	80.6
02/06	269	91	88	78
03/06	280	86	89.4	78.8
04/06	304	97	97	94
05/06	198	92.3	93	82
06/06	nd	-	-	-
07/06	nd	-	-	-
08/06	nd	-	-	-

Vaccine production(2)

- A total of 8 batch of vaccine (8.200.000 doses as trivalent) were produced and distributed for the spring vaccination campaign
- Studies to prepare vaccine from the original field strain are still in progress.

ASSESMENT

General Consideration

- The spread of the disease was very rapid and especially unvaccinated and primovaccinated young animals were severely affected.
- The infection was milder in regularly vaccinated older animals due to partial protection.
- The disease was controlled quite rapidly as a result of application of efficient control measures (rapid and intensive vaccination, quarantine and slaughter of infected animals) in Thrace, Marmara and Eagean Regions.

ASSESMENT(2)

The problem continues in some regions due to:

- Two major epidemics concurrently (AI and FMD)
- Intensive animal movements
- Insufficient control measures
  - Insufficient manpower
  - Insufficient vehicles
- Severe winter conditions
- Seasonal changing
- Poor notification
- Lack of disease awareness
- Insufficient vaccination coverage
- Short immunity following primovaccination and difficulties for the application of booster vaccination

DIFFICULTIES

- Concurrent AI outbreaks
- Severe winter conditions
- Insufficient human and vehicle resources
- Non-availability of vaccine

ASSESMENT(3)

The needs for emergency preparedness:

- Establisment of an international disease alert/network system,
- Exchange of disease information transparently,
- Readiness for emergency vaccination. Establishment of a regional vaccine/antigen bank
- Exchange of current virus strains circulating in the region (this can be done through WRL and/or EUFMD).

Sero-monitoring of post-vaccination immunity

UNIT NO	PROVINCE	DISTRICT	VILLAGE	VACCINE
31	ÇANAKKALE	Gelibolu	Güzelyalı	AFTOVAX
32	ÇANAKKALE	Gelibolu	KAVAK	AFTOVAX
33	ÇANAKKALE	Gelibolu	BAŞÇINAR	AFTOVAX
41	EDİRNE	Merkez	ÇUKUR	SAP
72	EDİRNE	Keşan	ÇATALTEPE	AFTOVAX
97	EDİRNE	Merkez	DEMİRKÖY	Serovax
8	İSTANBUL	ÇATALCA	BELGRAT	AFTOVAX
29	İSTANBUL	SİLİVRİ	KADIKÖY	AFTOVAX
46	İSTANBUL	SİLİVRİ	KADIKÖY	SAP
104	KIRKLARELİ	MERKEZ	DOLHAN	SAP
129	KIRKLARELİ	BABAESKİ	BEYLİK	SAP
135	KIRKLARELİ	LÜLEBURGAZ	YAYKILÖY	Not vaccined
84	TEKİRDAĞ	ŞARAY	ERDEMİR	AFTOVAX
174	TEKİRDAĞ	MALKARA	KARACAÖRE	AFTOVAX
181	TEKİRDAĞ	MERKEZ	KAŞIKÇI	SAP

Thrace 2006

- 16 outbreaks
- 153 cattle slaughtered
- Vaccination started with the vaccine produced by Sap Institute on 11th of February

Thrace Serosurveillance-2006

PROVINCE	AIM	NUMBER OF VILLAGES	NUMBER OF SERA	RECEIVED
İSTANBUL	RSP	30	3072	3072
ÇANAKKALE EDİRNE KIRKLARELİ TEKİRDAĞ	RSP	145	9280	9280
5 PROVINCES 3 VILLAGES EACH	POST VACCINATION	15	960	960
TOTAL			13312	13312

Distribution of EU vaccine

PROVINCES	EU	KAT	TOTAL
BALIKESİR	152.000	18.000	170.000
BİLECİK	40.000	10.000	50.000
BURSA	99.500	44.000	143.500
ÇANAKKALE	177.000	38.500	215.500
EDİRNE	228.000	43.000	271.000
İSTANBUL	75.000	10.500	85.500
KIRKLARELİ	104.500	70.500	175.000
KOCAELİ	55.000	10.500	65.500
SAKARYA	80.000	5.000	85.000
TEKİRDAĞ	114.000	49.500	163.500
YALOVA	10.000		10.000
TOTAL	1.431.500	366.000	1.797.500

Appendix 4

FAO/OIE/EC Tripartite Group Special meeting
Prevention and control of Foot-and-Mouth Disease (A22 and other types) in the southern Balkans

Held 28th February in Paris, France.

Introduction

A special meeting of the Tripartite Group, held in response to the request of Turkey and Bulgaria to FAO was convened on the 28th February at the OIE. Given the new emergency situation with FMD in Turkey and other parts of the eastern Mediterranean that developed in 2006, it was decided by FAO and OIE that the special meeting should focus on FMD prevention and control, with the regional avian influenza situation discussed under the immediately preceding FAO/OIE meeting. The meeting was attended by delegates of south eastern Balkan countries of Greece, Bulgaria, Turkey , Romania, Former Yugoslav Republic of Macedonia, by members of the EUFMD Executive Committee, and observers from neighbouring regions (Russian Federation, Iraq, Kuwait). The meeting was Chaired by Dr de Leeuw, Chairman of the EUFMD Executive Committee.

Item 1. The Agenda was adopted without change.

Item 2 FMD control – current situation and control measures for type A22 outbreaks in Thrace and other regions of Turkey.

Report of Turkey

Dr Haluk Askaroglu provided the report on behalf of the Turkish Government, General Directorate of Protection and Control. A serious situation had developed since the end of November 2005, involving a strain of FMD type A that was closely related to viruses from Iran to which the routine trivalent vaccination in Turkey (containing antigen related to A Iran 96) provided almost no cross-protection. In the period June to October 2005 type A outbreaks had not been observed in Turkey and therefore on detection of type A from outbreaks in Elazig province, central south-east Anatolia, followed by additional outbreaks to the west in involving a wide age range of affected cattle and small ruminants, led to additional investigations which detected an exotic type A virus with VP1 sequences closely matched to A type viruses from Iran. Infection quickly spread to many Provinces of western Anatolia in December 2005 and January 2006. The spread in January may have been assisted by animal movement ahead of and following the kurban festival in the second week of January. On 7th February 2006 Turkey notified the OIE of the occurrence of FMD in Thrace region, with the index case in Kirklareli province. By the 28/2, 10 further outbreaks had been confirmed, involving Kirkalerli and Tekirdag provinces[1].
Antigenic matching in Turkey conducted immediately after detection of the new virus indicated that the A22 vaccine should provide cross-protection and therefore the FMD (SAP) Institute had immediately begun production of the new component, with some 3 million cattle doses being produced by 9th February for immediate use in ring vaccination to contain outbreaks. Given the widespread distribution, this vaccine was not enough to enable all Provinces to receive their required doses for the population at risk. Vaccine had been provided to Thrace region on 10th February, according to their requests, and Kirklareli Provinces had begun vaccination on the 11th. He indicated that Turkey was grateful to the EC for provision of 2.5 million doses of Trivalent A22 Iraq/O Manisa/Asia-1 vaccine which had arrived 27/2, following rapid decision of the EC as a result of the mission of the EUFMD Secretary to Thrace on 8-10th February.
Regarding special measures in Thrace region, he indicated that all markets were closed since 4th February but movements to slaughterhouses allowed. For the first time slaughter was applied with compensation. However because of financial constraint this is mainly limited to clinically sick animals in the early stages of infection.

Report of the EUFMD Technical Missions to Thrace region, 8-11th February and 17-20th February

Dr Sumption, EUFMD Secretary, reported on the two missions (**Annex 2**) conducted on behalf of EUFMD Commission immediately following the report of Turkey to the OIE on 7th February. During first mission, situation reports to the EC had assisted decisions to be made on provision of emergency vaccine, and the mission

[1] On 1/3 a further 4 outbreaks were reported to the OIE, including one in Edirne Province.

report was made available to neighbouring countries and provided for the Standing Veterinary Committee in week beginning 12th February. A second mission was considered necessary to assess the application of the vaccination program and provide guidance on the program of vaccination in light of the new outbreaks detected after the first mission.
He thanked the General Directorate for their willingness to share all information. He had been impressed by the dedication of the field veterinary services, which had the difficult position of responding to both AI and FMD outbreaks in exceptionally difficult winter conditions. He indicated that the period of March 06 would remain a high risk period, and that all should be aware that until sufficient vaccination had been applied, new infections must be expected within affected villages and to new locations. Further, he considered that a virus contamination within some or most affected villages would be heavy as a result of delayed and limited slaughter, and therefore under cool winter and spring conditions, new infections may occur up to several months after the outbreaks if cleansing and disinfection was not rigorously effected. Since the previous autumn vaccinations were to protective to the new virus, the epidemic behaved as if it were an unvaccinated population, and therefore biosecurity measures are of the highest importance. He indicated these measures would be needed for some period after vaccination in affected villages because of the contamination on affected holdings.

In addition, he drew attention to the fact that the slaughter of sick animals into the food chain, without deboning or processing, presented a risk that virus would be present in meat, bone marrow which could act as a source of infection, mainly for pigs. This may be of limited concern to Turkey but the additional of several hundred tonnes of such material into the food chain could increase risk for other countries, if there were to be illegal import of such material.

Discussion

Report of Greece

The representative of Greece indicated that following the alert message to the OIE, actions had been taken to increase awareness in the VS of the Prefectures bordering to Turkish Thrace. The position of Greece was to request the Turkish authorities to complete vaccination as soon as possible in Edirne Province, with priority to districts along the border with Greece, and in the whole of Thrace region. The Greek Government was highly appreciative of the role played by the EUFMD Commission in this crisis, which had ensured a better understanding of the risk situation.

Report of Bulgaria

Dr Boiko Likov presented the report of Bulgaria. The Bulgarian authorities had responded to the OIE alert and to additional information supplied via the EUFMD Commission as a result of the first mission, with a number of measures taken to prevent possible entry of infection across the common border with affected provinces of Turkish Thrace and to increase surveillance for infection in villages and districts considered to be under the highest risk.
However, given that the outbreaks occurred so close to Bulgarian border, such as the outbreak in Demirkoy District, he considered the information on each outbreak given in the OIE reports was not sufficient and requested more detail to be provided to assist the risk assessment.

Report of Romania

Dr Olaru provided a report indicating the measures being taken in Romania.

Discussion on FMD control in the region

The representative of the EC asked why Greece had not applied the set of surveillance actions ("Evros" programme) in the at risk region that had been put in place after the Asia-1 outbreaks of FMD in Thrace in 2000. He urged Greece to ensure that a similar program was applied in the current circumstances, to be continued until it was clear that the risk had returned to the normal situation.
The answer indicated that the program had not been revived because of finance.

Several delegates questioned the use of slaughter rather than culling for disease control, indicating their unease that virus infected material could enter the food chain and present a risk of new outbreaks, particularly in countries with pigs. Dr Sungur indicated that available budget for compensation as limited, and therefore the slaughter for consumption was used to reduce the financial impact.

The question of measures to prevent illegal meat export from the region into neighbouring countries was also raised.

The representative of the Russian Federation raised the issue of the risk to the Caucasus countries and Russia. He also indicated the concern of Russia that the Asia-1 infection in the east Siberian region was an antigenic variant that is not well matched by the current Russian vaccine. He expected westwards spread, as a result of infection in the neighbouring countries.

Dr Sumption indicated EUFMD Commission had provided a warning to the 3 south Caucasus countries, and following this Azerbaijan had negotiated with Turkey for the supply of 200,000 doses of A22 vaccine for use in the border region. He indicated that the countries would need to increase their vigilance to prevent entry of infection, and that the EUFMD Commission had launched a tender for 300,000 doses of A22 vaccine to provide a reserve for emergency vaccination for the region, to be made available if the type was detected. Further, preventive measures within Turkey could assist to prevent spread to the Caucasus and he appealed to Turkey to undertake a thorough program of preventive vaccination against A22 in the north-east.

Recommendations

1. In addition to fulfilling the reporting requirements to the OIE, where outbreaks occur close to the border with a neighbouring country, additional information should be provided to assist risk management. The information of value will depend on the circumstances but in most cases will include further information on the circumstances of the outbreak and of the timing and nature of measures taken. These should be followed by a later follow-up report to provide supportive evidence that the outbreak has been contained.
2. Heightened clinical surveillance and a programme for serological surveillance should be conducted in the border regions of Greece and Bulgaria with Turkish Thrace, for FMD, and should include also PPR, BT and SGP because of the increased possibility that the events that lead to FMD in Thrace may have increased risk of other infections.
3. The risk from the eastern Mediterranean region must be kept constantly under review, given the risk of extension of the new A type virus in Turkey and of the different type A infection in Egypt to other countries in the region
4. Member states should take into consideration that risk may have increased to distant parts of the region , since illegally imported animal products may carry a higher risk as a result of the change in number of viraemic animals being slaughtered.

Relating to the control of FMD in Turkish Thrace:

5. Completion of the vaccination against the new A type virus in Edirne, Kirklareli, and Tekirdag provinces of Turkish Thrace should be considered of the highest priority and the Government of Turkey is strongly encouraged to provide the resources required to complete this task within the shortest time period, and certainly by the end of March 2006.
6. The emergency vaccination campaign should take into considerations the findings and recommendations of the EUFMD missions, in particular to avoid gaps in the population immunity by the inclusion of small ruminants and of young animals,
7. Increased effort should be made to contain infection within the affected districts, with particular attention to apply and enforce measures to reduce risk that infection can exit from infected locations by vehicles and other physical means, from locations where the weight of infection or virus contamination is considered highest.
8. Every effort should be made to ensure that the population immunity in Thrace region remains sufficient before and after release of animals to summer grazing, to counter the risk from continued outbreaks in Anatolia.
9. The policy of allowing bone-in meat from animals have clinical signs of FMD , or have been in contact with these animals, to enter the food chain without processing to reduce the risk, is strongly discouraged.
10. The authorities are encouraged to set establish a specific crisis centre to supervise and monitor the control campaign in Thrace region, in particular to oversee the vaccination campaign and of the other control measures being applied.

11. The need for follow up vaccination should be identified by a study in vaccinated animals. The study design should be agreed with the EUFMD Commission and implemented in March-May 2006.
12. Post-outbreak surveillance should be undertaken to determine the locations and risk of undetected infection, with a modified design to that developed in December 2005, to take into consideration the new situation.
13. The authorities are encouraged to review measures taken on suspicion or confirmation of FMD, with a view to early adoption of the principles and measures indicated under the Council Directive 2003/85/EC.
14. Surveillance actions, to assess the level of implementation and success of disease control measures, and to improve early detection of FMD infection and risk assessment, should be conducted in 2006 in areas of Anatolia, including western Anatolia. The EUFMD Commission should assist Turkey to develop and undertake these actions.

LIST OF PARTICIPANTS

Bulgaria

Dr Boiko LIKOV
Head, "Eurointegration"Department of
Exotic Diseases
National Veterinary Services
1606 Sofia
Tel: 359-2-915 9836
e-mail: boyko.likov@nvms.government.bg

Greece
Dr Spiros Doudounakis
Head of Unit of Animal Diseases
Ministry of Agriculture
2,Acharon Str.
10176, Athens

Turkey
Dr Huseyin SUNGUR
Dr Haluk Askaroglu

Romania
Dr Eugen Lucian Olaru

OIE
Prof Nikola BELEV

EC
Dr Alf-Eckbert Füssel
DG SANCO/E2, Animal Health, Welfare and
Zootechnics
Rue Froissart, 101, 3/64
B-1049 Brussels, Belgium
Tel: 32-2-2950870 / Fax: 32-2-2953144
e-mail: alf-eckbert.fuessel@cec.eu.int

EUFMD Executive Committee
Dr P de Leeuw
Chairman of the EUFMD Commission, FAO
CVO The Netherlands

Dr S Covrevski,
CVO FYR of Macedonia

Dr P Willeberg,
CVO Denmark

FAO – EUFMD Secretariat

Dr Keith Sumption
Secretary, EUFMD
Animal Health Service
Food and Agriculture Organization of the United
Nations
Viale delle Terme di Caracalla
00100 Rome, **Italy**
Tel: 39-065705-5528 / Fax: 39-065705-5749
e-mail: keith.sumption@fao.org

FAO

Dr J Domenech,
CVO
FAO of the United Nations
Rome

Observers

Dr Dawood M Sharif,
Director General
Iraqi Veterinary Services
Bagdad

Dr al-Muhanna
Deputy DG for Animal Resources
Kuwait

Dr N Vlasov
Deputy Head of the National Veterinary Service
Moscow
Russian Federation

LIST OF ANNEXES

Annex 1

REPORT OF TURKEY

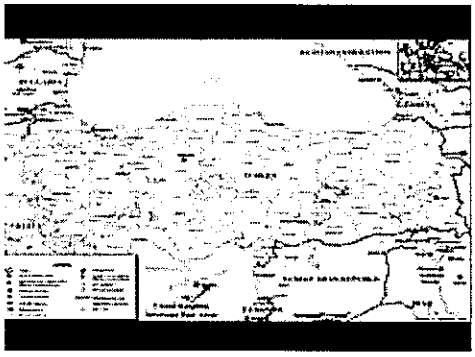
REPUBLIC OF TURKEY
MINISTRY OF AGRICULTURE AND RURAL AFFAIRS
GENERAL DIRECTORATE PROTECTION AND CONTROL

COUNTRY REPORT
By
H.Halit AŞKAROĞLU

PAO-EUFMD FMD-OIE Tripartite Group-special Meeting
28 February 2006, Paris/FRANCE

General Directorate of Protection and Control (GDPC)

- Animal Health Services Department,
- Animal Movement and Quarantine Services Department,
- Public Health Services Department,
- Veterinary medicine, products of animal origin, feeding stuffs and fisheries are carried out under the responsibility of other head departments.



LIVESTOCK INDUSTRY

Cattle	11.031.000	9.004.000
Buffalo	170.000	131.000
Sheep	27.435.000	18.394.000
Goats	8.057.000	6.750.000
Horse	330.000	245.000
Mule	133.900	95.000
Donkey	601.000	417.000
Camel	1.400	890
Pig	5.000	5.600
Chicken	236.997.651	245.776.000
Duck	1.339.468	332.000
Goose	1.771.327	1.400.000
Turkey	3.938.345	3.097.000
Total (Avian Population)	243.913.791	251.100.000

Organization of Veterinary Services in Turkey

Veterinary services are rendered by the GDPC under MARA through :

Provincial and District Directorates,

8 Veterinary Control and Research Institutes,

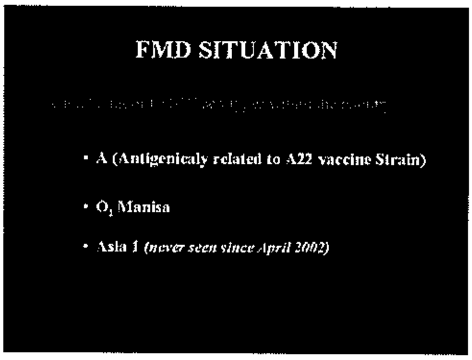
1 Provincial Food and Health Institutes

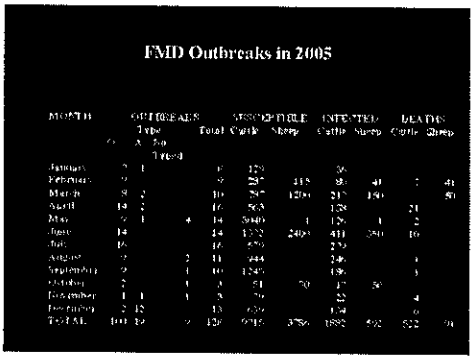
5 Quarantine Stations,

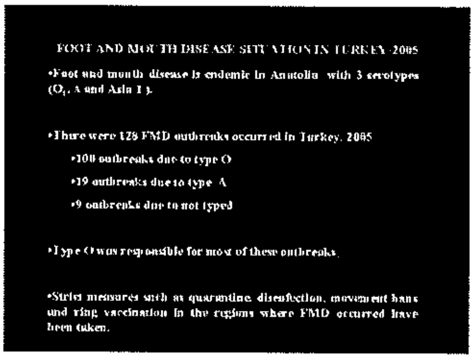
Provincial Control Laboratory Directorates.

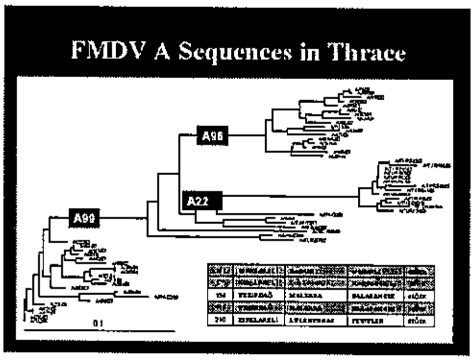
Notifiable Diseases

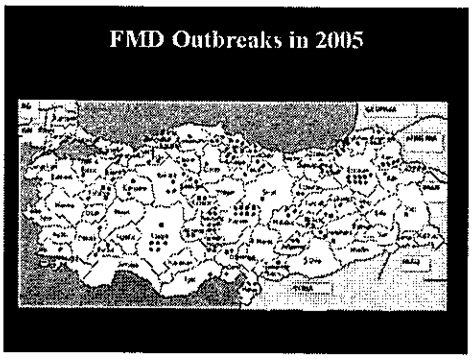
1	Rinderpest	18	Fowl Plague
2		19	Newcastle
3	Bovine Tuberculosis	20	Salmonella pullorum
4	Bovine Brucellosis	21	Salmonella gallinarum
5	BSE	22	American Foul Brood (Bee Disease)
6	Anthrax	23	Varroatiza Disease)
7	Rabies	24	Infectious Haematopoietic Necrosis (I)
8	Sheep and Goat Pox	25	Scrapie
9	Caprine and Ovine Brucellosis	26	ESK
10	PPR	27	Besnoitiosis
11	Blue Tongue	28	Marteilliosis
12	African Horse Sickness	29	Spring Viraemia of Carp (SVC)
13	Glanders	30	Viral Haemorrhagic Septicaemia (VHS)
14	Dourine	31	Infectious Pancreatic Necrosis (IPN)
15	Equine Infectious Anemia	32	Bacterial Kidney Disease (BKD)
16	Vesicular Stomatitis	33	Crayfish Plague
17	Equine Encephalomyelitis		

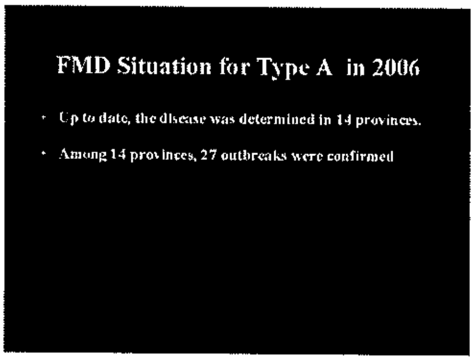

FMD SITUATION
• A (Antigenicaly related to A22 vaccine Strain)
• O1 Manisa
• Asia 1 (never seen since April 2002)

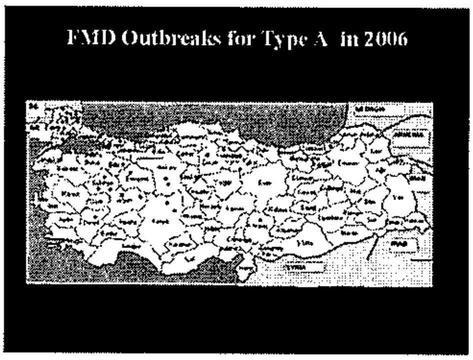

FMD Outbreaks in 2005

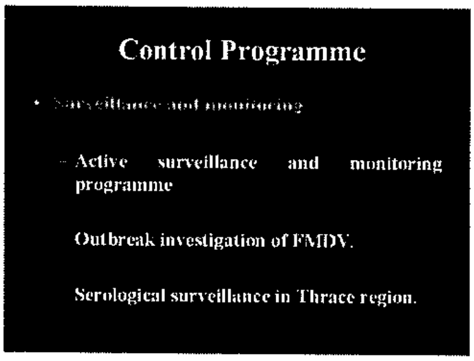

FOOT AND MOUTH DISEASE SITUATION IN TURKEY 2005
•Foot and mouth disease is endemic in Anatolia with 3 serotypes (O1, A and Asia 1).
•There were 128 FMD outbreaks occurred in Turkey, 2005
•100 outbreaks due to type O
•19 outbreaks due to type A
•9 outbreaks due to not typed
•Type O was responsible for most of these outbreaks.
•Strict measures such as quarantine, disinfection, movement bans and ring vaccination in the regions where FMD occurred have been taken.


FMDV A Sequences in Thrace
A98
A22
A99

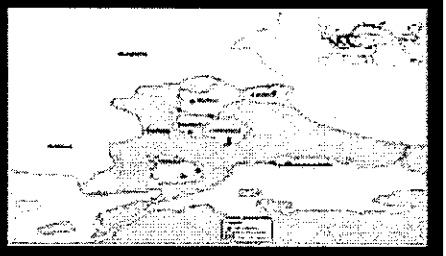

FMD Outbreaks in 2005


FMD Situation for Type A in 2006
• Up to date, the disease was determined in 14 provinces.
• Among 14 provinces, 27 outbreaks were confirmed


FMD Outbreaks for Type A in 2006


Control Programme
– Active surveillance and monitoring programme
Outbreak investigation of FMDV.
Serological surveillance in Thrace region.

FMD Situation In Thrace



Control Programme

- Vaccination

  Mass vaccination policy is main element of control program

  Ring vaccination around the outbreaks

  Large Ruminants:

  - Application of routine mass vaccination twice a year at least 80% of all large ruminants in the country.
  - Application of strategic vaccination to large ruminants in the selected region at the Black Sea Region

  Small Ruminants:

  Application of routine mass vaccination once a year at least 80% of all small ruminants in the Thrace and Marmara regions.

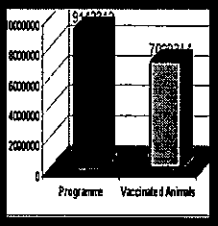
Control Programme

- Surveillance and monitoring
- Vaccination
- Animal movements control
- Strict measures and quarantine
- Compensation (Thrace Region)
- Other measures

Control Programme

- [illegible]
  - Spring vaccination campaign with using trivalent vaccine in selected east and eastern anatolia and with using bivalent vaccine in other regions in March and April
    - *Thrace and Marmara Region.* Vaccination of all ruminants
    - *In the other regions in Turkey.* Vaccination of all large ruminants
  - Autumn vaccination campaign with using trivalent vaccine in all country in September and October
    - *Thrace and Marmara Region.* Vaccination of all large ruminants
    - *In the other regions in Turkey.* Vaccination of all large ruminants

Spring vaccination campaign in Turkey in 2005



- All Country %77
- Thrace %87
- Marmara Region %88

Control Programme

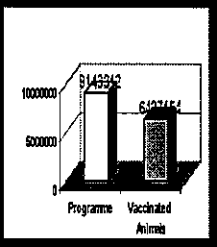
- Animal Movements Control

  Strict control measures are preformed at the borders working with the coordination of the relevant authority. (Ministry of Agriculture and Rural Affairs, Ministry of Internal Affairs, Army, Custom etc.)

  Some of the articles of the *Law of the Animal Health and Control has been chanced* in order to provide adequate penalties for illegal traders and carriers (Driver, Vehicle).

  - *Establishing an identification and registration system* for bovine animals in Turkey.
  - Instruction from GDPC to provincial directorates for animal movement control

Autumn vaccination campaign in Turkey in 2005



- All Country %70
- Thrace %90
- Marmara Region %88

Control Programme

- Other Measures
- Restriction of animal and animal product movements and quarantine measures are carry out as applied in the past
- Infected animals will be slaughtered and, compensation will be paid in Thrace Region
- A surveillance zone will be established and a monitoring program will be introduced in the south eastern border regions

Annex 2

OVERVIEW OF THE 1ST AND 2ND EUFMD MISSIONS TO THRACE REGION FEBRUARY 2006

Overview of missions to Thrace region –February 2006

Actions since reporting of the index case in Thrace

- 2 missions –
  - 9-11th February
  - 16th Feb -3rd March (ongoing)
- Support to sample delivery to WRL Pirbright
- Close consultation with EC-SANCO and OIE and neighbouring countries
- EC decision on supply of emergency vaccine taken very rapidly during first mission
- Excellent co-operation and support from GDPC and Provincial staff
- WRL Pirbright –sequencing and vaccine matching (results obtained 27/2)

Regional situation –type A spread

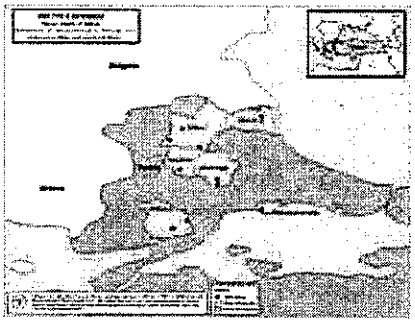
- Iran 2005-
- Turkey late 2005-
- Saudi Arabia 2006
- Egypt – different type A involved
- At risk – Caucasus, Balkans, other neighbouring regions
- Not only type A – factors involved may have introduced other FMD and other ruminant pathogens

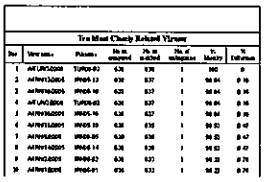
New A type virus in Turkey
Suitability of A type vaccines
Report of FAO WRL Pirbright to Turkey:
27/2/06

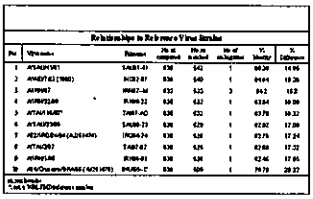
	r_1 Values by neutralisation test against vaccine strains below			
WRL Ref Number	A22	A TUR 96	A MAY 99	6/05
A TUR 1/06	0.42	0.88	0.11	0.41
A TUR 2/06	0.34	0.37	0.19	0.41
A TUR 3/06	0.28	0.29	0.15	0.41

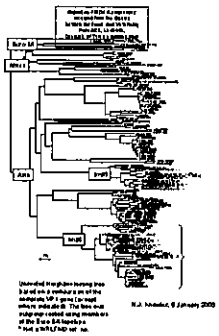
Interpretation of r_1 values

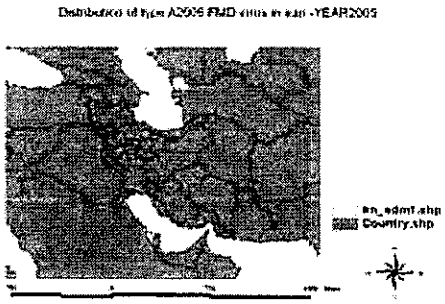
In the case of neutralisation:
$r_1 < 0.3$ Suggests that there is a close relationship between field isolate and vaccine strain. A potent vaccine containing the vaccine strain is likely to confer protection
$r_1 > 0.3$ Suggests that the field isolate is so different from the vaccine strain that the vaccine is unlikely to protect









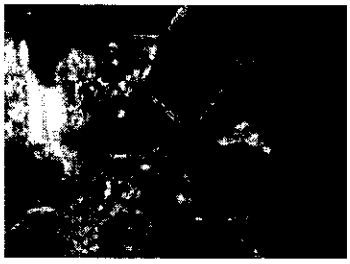


Thrace region – observations and findings of field visits undertaken 9-10th February

- **Epidemiologic observations**
- One rogue animal trader and one market (Havsa) involved in all outbreaks investigated;
- Entry, either as infected vehicle/animal estimated in period 8-20th Jan
- Infection travelled through Havsa market on at least two occasions (21/1 and 4/2)
- Market on 21/2 resulted in index case in Kirklareli Province and in Tekirdag
- Market on 4/2 spread infection to most of the 11 outbreak villages across two Province

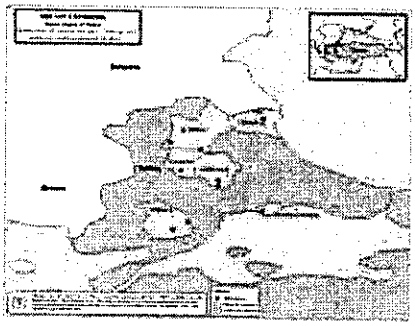
Epidemiologic features

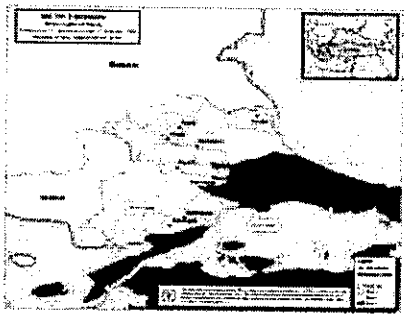
- *Inter village Spread involves contaminated vehicles; within village spread occurred even though animals are housed*
- *Transmissability indicates high animal susceptibility (as usual for non-vaccinated population)*
- *Winter conditions favour virus survival – favours transmission via vehicles and by people/fomites within villages- biosecurity must be high to be effective*
- *Movement controls and housing of cattle/sheep and goats - probably reduces risk and speed of spread to neighbouring villages compared to a summer epidemic*
- No new cases after 11/2 may indicate that after infection was seeded to villages on 4/2, secondary spread was limited by control measures and housing of animals.
- Early days yet - Caution required



Mission 2; first phase of emergency vaccination

- Meeting with Provincial Directorates, Edirne 19th Feb
- On the use of SAP Insitute vaccine delivered for EV
- Apply EV in Phases, with first Phase being to
  - complete a north-south zone that inckudes
  - all 1) affected villages and districts,
  - 2) those immediately neighbouring on the west side
  - 3) those in Tekirdag in proximity to affected locations in Kirlareli.
  - This Phase to be completed within one week (by 26th Feb)





Risk remaining

- **The high level of environmental contamination likely to be present as a result of allowing affected animals to remain within the villages (slaughter has been applied late or not all at all) poses a high risk for spread to new locations until the period when population immunity is achieved through emergency vaccination.**
- **This contamination also poses a risk that re-infection can occur of animals introduced into contaminated barns (especially non-vaccinated small ruminants and calves)**
- **the critical period for disease control will be the period until population immunity is achieved in the most at risk population–some 7-14 days after vaccination**
- **First vaccinations in period 13-17th Feb, and expect new cases because of incubation period /insufficient immunity 3-4 week period after this.**
- **Therefore consider period to 10-17th March remains high risk**
- **Immunisation of all large and small stock must be achieved as a priority**

Second phase emergency vaccination

- **The second Phase would involve EV supplied by EC;**
- **Priorities:**
  - Complete Phase 1
  - to vaccinate the remaining parts of Edirne, Kirklareli and Tekirdag Provinces as a priority, within one month,
  - Vaccination in Istnabul and European parts of Canakkale should also proceed but may be seen as less high priority
- **Species: vaccinate small ruminants also**
- **Ages: Vaccination of young animals could reduce the gaps in vaccination and protect vulnerable ages, since maternal immunity to A22 should not feature.**
  - The vaccination could be given to calves from a day of age (to reduce deaths in very young animals from FMD) , although MERIAL have suggested 2 months of age for the first vaccination on the basis of their own data

Capacity to undertake mass emergency vaccination

- *Capacity to undertake mass emergency vaccination is limited, at least short term since*
- - conditions affect mobility of teams
- - there are limited numbers of Government veterinarians in the Provincial Directorates (e.g. 4 for 50,000 cattle in Malkara district in Thrace)
- - it takes time to hire in additional staff such as private veterinarians to undertake emergency vaccinations
- - impact of avian flu surveillance and control measures on manpower availability

There is a therefore a major question on the rate/location/impact of emergency vaccination

- Tactical use of vaccine and veterinary services in surveillance will be essential, in addition to other measures
- The spring turn-out of animals to pasture can be expected in March-May according to location/altitude. This can be expected to assist disease movement/flare-up in affected locations
- There is thus a considerable risk that adequate vaccination will not have been achieved when turn out occurs.

Third phase

- **Booster immunisations needed**
  - Since the A22 is a primo-vaccination
  - Since high immunity required to provide protection against the new strain
  - Infection will remain in contaminated holdings
  - To reduce risk at turn out of animals in May
  - Priorities could be made - districts with confirmed infection

Other controls:

- Continue policy of slaughter without delay of clinical cases (risk also of in contact)
- Movements under strict control
- Markets to remain closed (duration should be considered according to situation in whole region)
- Post-outbreak surveillance important to prove level of immunity (and provide assurance that infected locations are known).

Supporting emergency vaccination

- Recognising that AI control is also a priority for Government staff
- and that vaccination needs to be controlled to ensure all relevant animals are vaccinated in correct manner
- 2nd mission has identified need to support GDPC to rapidly implement vaccination in priority areas
- Discussion on how: vaccinators and transport main constraints

Appendix 5

Mission Report –v 1

Second EUFMD/EC Mission to assess the FMD control situation in Thrace region 16 February- 3 March 2006

Persons involved in the mission

Keith Sumption, FAO, Rome, 16/2 –21/2, 1/3-3/3; Jan Braamskamp, Animal Health Service, The Netherlands, 16/2 – 3/3; Koen Mintiens, Veterinary and Agrochemical Research Centre, Belgium, 21/2 – 25/2. Adil Adiguzel, Animal Disease Combat section, GDPC Ankara, 17/2-25/2 and 2/3.

Summary

Thrace region has been affected a very serious FMD epidemic, resulting in seeding of infection into at least three Provinces of Thrace. The GDPC and the Provincial Directorates have demonstrated a high commitment to contain the epidemic, which occurred in difficult situation (concurrent AI outbreaks), in severe weather conditions, and involved introduction of new disease control practises (particularly the use of slaughter).

- A number of recommendations from the first mission of the EUFMD Secretary had been acted upon at GDPC and Province level.

At the Edirne meeting on 19th February, regarding the use of the first available (SAP Institute) A22 vaccine:

- Vaccination plans of three Provinces (Kirklareli, Tekirdag and Edirne) were reviewed and the team proposed priorities for vaccine use in period 20-28th February until EC vaccine became available;
- The issue of human and vehicle resources was raised by two provinces, and the team agreed to look in detail at how implementation of vaccination might be achieved

The main conclusions of the 2nd mission were presented to the GDPC on 28/2 in Paris (FAO/EC/OIE tripartite meeting), with follow up by the mission team (Sumption/Braamskamp) on 2/3/06 in Ankara.

At the final meeting the team re-iterated their view that the diseases situation required

- either a true stamping-out policy to be applied,
- or a much more rapid emergency vaccination campaign with associated control measures, including the killing of animals on infected holdings.

At the final (2nd March) meeting, and confirmed by discussions with Dr Arik on the 3/3, the GDPC indicated the gratitude of the Government of Turkey for the provision of vaccine by the EC and in relation to its use agreed to:

- Increase rate of vaccination to deal with the emergency situation
- complete first round vaccination of all cattle and small ruminants by 31st March in Thrace region
- document the rate of progress of vaccination, with weekly update collated each Monday with transmission to EUFMD/EC/OIE each Tuesday; data to be provided for each District of Thrace region;
- ensure that human and vehicle resources would be made available at the Province level to ensure the required rate of vaccination is achieved
- consider and respond to the other recommendations of the mission report, including on the age of vaccination and requirement for booster doses.

Main recommendations –immediate actions

Further details are given in the recommendations section.

1. Develop and rigidly enforce a vaccination timetable for completion of the FIRST round emergency vaccination in Thrace area
    a. Target: aim at completion of vaccination in one month or less:
        i. proposed finishing date : March 31st 2006
        ii. all cattle and small ruminants to be included, including young and pregnant animals

2. Central monitoring of the vaccination progress; PDs to send a daily update on the progress by District/village to GDPC
3. Plan for a SECOND round of vaccination to boost primary immunity;
4. Re-enforcement of bio-security in affected villages:
5. Improve information given to farmers and the other people involved
6. Transport of animals is only allowed direct to the slaughterhouse, under strict control
7. Monitor for the response and duration of A22 protection

Findings of EUFMD/EC mission 2

1. FMD control situation in Thrace at 2nd March 2006

- In Thrace 15 confirmed FMD-A22 outbreaks in 2006, in period 22/1 to 11/2;
- 11 of these outbreaks had notification dates in period 22/1 to 11/2 ;
- 4 new outbreaks notified in Thrace in the period 20/2 to 28/2, and reported to OIE on 1/3;
- The latest 4 outbreaks are significant:
    - Each occurred in areas where first round vaccination with SAP Institute vaccine had not been completed;
    - Edirne Province was affected for the first time (26th February)
    - These outbreaks are consistent with secondary spread from villages affected in period 4-11th February (full epidemiological inquiry needed)
    -
- outbreaks information for the first 11 outbreaks in Thrace was assembled by the mission team.

2. Current implementation of FMD control –aspects of concern

- significant difference in the implementation of control measures between Kirklareli, Tekirdag and Edirne Provinces;
- of these 3 Provinces, the risk of further outbreaks was considered highest in Tekirdag, Edirne and Kirklareli, in that order;
- application of sanitary controls on infected villages/holdings:
    - slaughter of infected animals; the practise of slaughter of sick (probably viraemic) animals into the food chain presents significant risks since it could lead to infections during the transport of animals to the abattoir, by contamination of the vehicles and lairages, and not least will add significant tonnes of infected meat into the food chain where it may lead to infection in free countries (if illegally exported);
    - Application of slaughter as a control method; current application does relatively little to reduce the risk; few animals are killed before they have contaminated the holding, and it does not involve the in contact animals that will almost all develop FMD;
    - The number slaughtered is low (circa 115 by the 26/2) in total, and as a proportion of animals at risk in affected villages (0.5% of the circa 25,000 cattle and small ruminants);
    - Only a few of these (Kirklareli) had been destroyed (and buried). The meat of the other slaughtered animals has been sold without heat processing or other virus inactivation, for human consumption. This brings a significant risk of spread to FMD free countries, since the practise results in highly contaminated meat that would be infectious to pigs (not a problem for Turkey but it could be if there were illegal meat imports to EU or other countries);
    - Sheep and goats on infected holdings are not slaughtered, which may become them acting to continue the epidemic;
    - enforcement of bio-security to prevent exit of FMD virus (on vehicles, feed, or animals or persons) at the entrances and exits to villages with confirmed cases remained poor, and this may be the reason for any secondary spread from these villages;

- Animal movement controls;
    - Although animal bazaars (markets) were closed, animals continued to be moved within Provinces with insufficient enforcement of the movement process;
    - insufficient monitoring (control) of the steps involved in the animal movements from farm to slaughterhouse (best practise in Kirklareli, least in Edirne where the animal bourse was open with some >100 animals passing through);
    - a low proportion (circa 30%) of the 350 cattle marketed at Havsa on the 4th Feb. had sales registered electronically, limiting tracing (long term action required). The market information was stored at the municipality level and in paper form, and sheep sales information could not be seen (separate book, not available).
- early warning and surveillance
    - following discovery of the outbreaks linked to Havsa market on 4th Feb, the tracing of animal movements from this market had not been undertaken or warnings issued to districts/provinces that had received animal consignments;
    - GDPC staff should have undertaken a serious investigation of the Havsa market data soon after discovery of the market as presumed point of infection on the two occasions, to identify at risk locations in Thrace and elsewhere;
    - some of the Thrace outbreaks had been detected during the visits of the vaccination teams, highlighting that not all outbreaks are rapidly reported;
    - no specific actions were taken for a enhanced surveillance of FMD in sheep and goat. The course of FMD in these animals may be sub-clinical and this may cause a hidden dispersion of the infection since sheep will only be vaccinated in a second stage. Sheep and goat may rapidly go on the prairie, before the vaccinated is completed;
    - In the forest area at the border between Turkey and Bulgaria, wild boar and deer are present and may spread FMD. Surveillance of these animals was not implemented.

- co-ordination of control between provinces;
    - poor co-ordination, lack of a system or person to ensure information exchange between Provinces to enable surveillance or control measures to be placed in relation to suspected or confirmed outbreaks.

- Vaccination -Phase 1
    - Following availability of the new trivalent A22,A1,O vaccine produced by the FMD (SAP) Institute on the 11/2, vaccination commenced rapidly (from 11th) but with insufficient vaccine and not in a coordinated manner across the Thrace region;
    - Kirklareli organised an impressive campaign, beginning in the most affected locations/districts within first week; they claimed that the application of the 70,000 doses available would be rapidly completed, leading a 80% coverage by early March (but see notes below);
        - Several districts where cases had occurred commenced vaccination at same time, within these vaccination commenced in infected villages (may be considered ""suppressive vaccination"" as this occurred within infected villages)
        - In affected districts of Luleburgaz and Babaeski (where index and associated 2nd cases occurred) 34,000 doses were applied in period 11-19th Feb;
        - In Demirkoy, next to Bulgaria, vaccination began on 21/2 but was not scheduled to finish until 10/3;
        - Data for Merkez (where 3 outbreaks occurred) was not available).

    - Tekirdag had insufficient vaccine (why? Not clear reason provided)
        - Because of lack of vaccine they elected to undertake ring vaccination in most affected location (Balabancik, Malkara), both cattle and small ruminants
        - Very limited vaccination within other affected villages
        - However during visit it was not clear why the total available vaccine had not been applied (only 22,000 of 30,000 doses used)
        - Dangerous level of under vaccination therefore existed at 26/2, as only 15% of cattle in Tekirdag had been vaccinated by this date;

    - Edirne Province had not commenced vaccination on 19th Feb, but following the meeting on that day with the mission team agreed to do so from 21/2; there was reluctance to begin

vaccination because they preferred to spend another week collecting blood samples for FMD sero-surveillance;

- The delayed vaccination in Edirne and Tekirdag by 1st March is a major concern and increases the risk associated with the most recent outbreaks in these areas which occurred in non-vaccinated populations;

- Vaccination-Phase 2 (from 1st March)
  - Major concern that vaccination will not proceed fast enough to prevent new outbreaks, leading to outbreaks over the next month or more;
  - Tekirdag and Edirne provinces indicated that they could not vaccinate their cattle and sheep populations before beginning of May 2006 without additional manpower and transport;
  - in Kirklereli Province, vaccination is scheduled to be finished about 15 March 2006 , through use of a wider range of technical staff and a higher commitment of resources and effort to achieve rapid control);
- vaccination gaps of concern are:
  - young animals (which could die or be stunted, or lead to transmission at grass or when marketed);
  - animals excluded from vaccination –hidden or where owners refuse;
  - if together the non-vaccinated population is over 15% this might be a significant gap leading to continuation of FMD transmission;
  - non-vaccinated animals entering contaminated barns may become infected several months after the area is contaminated.

- short lived immunity:
  - the A22 is a primo-vaccination and therefore immunity may not be long lived even in animals previously vaccinated with A Iran96 etc;
  - the vaccination in march may lead to decline to less than protective during the grazing season;
  - traded animals - calves, heifers, lambs are especially important as these may pass through markets;

  - booster vaccination is therefore important , and certainly in villages where FMD has occurred;
- concern over lack of post-vaccination biosecurity in affected villages:
  - infected villages that are vaccinated remain a risk mainly in period of 21 days post vaccination (see note);
  - most new cases can be expected within 7-10 days post vaccination of village was recently affected:
  - therefore controls MUST remain on these affected villages; vaccination should NOT lead to less controls at entrance and exits.

Recommendations (short term)

1. **Develop and rigidly enforce a vaccination timetable for completion of the FIRST round emergency vaccination in Thrace area**
   - Target: aim at completion of vaccination in one month or less:
     - proposed finishing date: March 31st 2006
     - all cattle and small ruminants to be included, ensuring gaps are not present by inclusion of young (from a few days of age) and pregnant animals in the program
   - Organisation
     - Human resource indications: guidelines on vaccination effort were developed after discussions in Edirne, Tekirdag and Kirklareli Provinces:
       Number of teams (2 persons) to do the job:
       1. Prov. Kirklereli may manage within their resources;

2. Prov. Edirne may need at least 30 teams[2] ,
3. Prov. Tekirdag may need at least 20 teams;

- To increase vaccination rate per day, we recommend to reduce lost time, for example to arrange that vaccinators do not lose time by driving to and from the central vaccine store (drivers could collect vaccine 4-6 am to be ready for vaccination teams to begin at 7 am);
- Create incentives for the vaccination teams to undertake the extra work required (extra payment for reaching a target of vaccinated animals per day, overtime payments etc);
- **Transport of teams to the villages;**
  1. need for vehicles was indicated in Edirne (15 were requested) ;

2. **Central monitoring of the vaccination progress; PDs to send a daily update on the progress by District/village to GDPC;**
   - We recommend that GDPC appoint a coordinator to supervise progress of the vaccination campaign in Thrace;
   - **We ask that GDPC report weekly progress (giving numbers and proportion (% total) vaccinated by district and Province to EC/FAO/OIE**

3. **Plan for a SECOND round of vaccination to boost primary immunity;**
   - We consider this is ESSENTIAL for villages where confirmed FMDV infection (including serological positives), because infection will be present in contaminated holdings;
   - To occur 4-8 weeks after first vaccination;
   - Consider to include other villages on risk basis.

4. **Re-enforcement of bio-security in affected villages** :
   a. We strongly recommend that vaccination is not followed by relaxation; bio-security measures MUST remain in place **on villages where cases had occurred,** after vaccination for at least a further 21 days[3];
   b. In particular, controls at entrance and exits must remain in place as there will be high risk that contamination of vehicles, people, feedstuff etc can take infection out of an affected holding into other locations/villages.

5. **Improve information given to farmers and the other people involved**
   - to explain why A22 virus situation is different from usual years;
   - to increase their acceptance of control measures;
   - to reduce time taken by teams to explain the measures;
   - to reduce vaccination gaps such as pregnant animals;
   - to improve biosecurity on each holding after vaccination (since cases may still occur for another 2 weeks , because animals may be infected before or up to 7-14 days post-vaccination)

6. **Other control measures** :
   1. **Slaughter of sick animals**:
      - To be effective in controlling risk, ruminants on the entire affected holding should be destroyed without delay;
      - If this recommendation is not followed, then other measures must be applied more effectively –faster ring vaccination, much more enforcement of entry and exit disinfections etc;
      - If GDPC do not ban the slaughter of FMD affected animals, then extra biosecurity measures must be taken and strictly enforced to reduce the risk from highly infected vehicles, lairages, slaughterhouse contamination and workers at the slaughter plant[4].

---

[2] After discussion with Tekirdag and Kirklareli offices, the average vaccination rate/day for a TEAM of two persons was estimated at 350 animals per day.

[3] **Assumes** FMD cases will occur in period up to circa 21 days after vaccination (animals may be infected up to 7 days post vaccination, with an incubation of 14 days).

[4] The current practice of movement of sick animals to slaughter houses carries significant risks to spread infection; the slaughter of sick animals is NOT in compliance with EC Directive and indirectly, increases risk to other countries (where pigs can be infected via waste meat)

2. Strict control (preferably no movement) of animals between holdings during the period until emergency vaccination period has been completed [5].
3. No movements off holdings except DIRECT to slaughter until population fully vaccinated [6].
4. closing of the animal bourses at least during the vaccination period until first round of cattle/sheep vaccination is complete, even if there was no outbreak during a month.

7. **Transport of animals is only allowed direct to the slaughterhouse**, under strict control
   1. reducing all opportunities for animals to be mixed with animals that are not slaughtered/ returned to farms;
   2. movement permissions to be strictly time limited, e.g 48-72 hrs;
   3. immediate confirmation of the slaughtering, with in each Province a responsible officer tasked with each day confirming that all animals sent for slaughter are accounted for;
   4. control and Improve the disinfection of cars in the slaughterhouse.

8. **Monitor for the response and duration of A22 protection:**

   To better identify the duration of expected protection over next 3-8 months, which should inform when booster vaccination is necessary, we recommend:
   1. In addition to the routine sero-monitoring program designed by SAP Institute with EUFMD assistance, that a sampling study is conducted in field vaccinated animals;
   2. we suggest as a basis for discussion this is conducted in each of four villages,
      - located > 10 km from a confirmed outbreak of FMD;
      - two villages should be selected that received SAP Institute vaccine ;
      - two villages selected that received EC vaccine;
      - in each, 20 ear-tagged animals (10 young animals, 10 > 1 year) are bled at 30, 60 and 90 days post vaccination.
   3. In total about 240 blood samples tested for antibody titre to type A22 antigens (by SAP Institute and/an EC reference laboratory).

Recommendations (long term)

- ensure that there is a readily available budget (emergency fund for FMD) to immediately bring adequate human and other resources to affected regions of the country to apply emergency vaccination (and other measures). At present, at least such a fund should exist for Thrace region because of the intention that this region becomes recognised as FMD free.
- Contingency plans should address the need for additional manpower to vaccinate in emergency situations.
  - Options to achieve this need to be evaluated for feasibility and cost
  - Options include
    - establishing a roster of private veterinarians/technicians (e.g. AI inseminators) to act as vaccinators (pre-agreed terms and conditions and payments scale).

- Improvement of the I&R system in Turkey. All animal movements should be registered in the central system within 3-5 days, also animals that move within a province.
- Control of livestock traders/hustlers – we support the recommendations made to us by Provincial Directors in Thrace that special measures be made to control their activities. They suggested these include licensing /compulsory registration, associated with receiving training course.
- Review risk management for the future (2007-) kurban/bayram festivals:
  - Feasibility of options must be evaluated
  - Critical control points to be identified
  - May need to include:
    - Feasible length of movement bans over the Bosporus bridges before, during and after the festivals;

[5] We recommend the principles and periods set in the EC Directive are applied; based on the occurrence of the last case and the application of surveillance measures.
[6] As 2.

- Feasibility of direct to slaughter movement controls;
- Importance of reviewing national disease control situation 1-4 weeks; before the festival (with view to taking increased control measures) ;
- Timing of vaccination campaigns in relation to the festival.

Notes

MAPS -Annex A
FMD disease data: Annex B

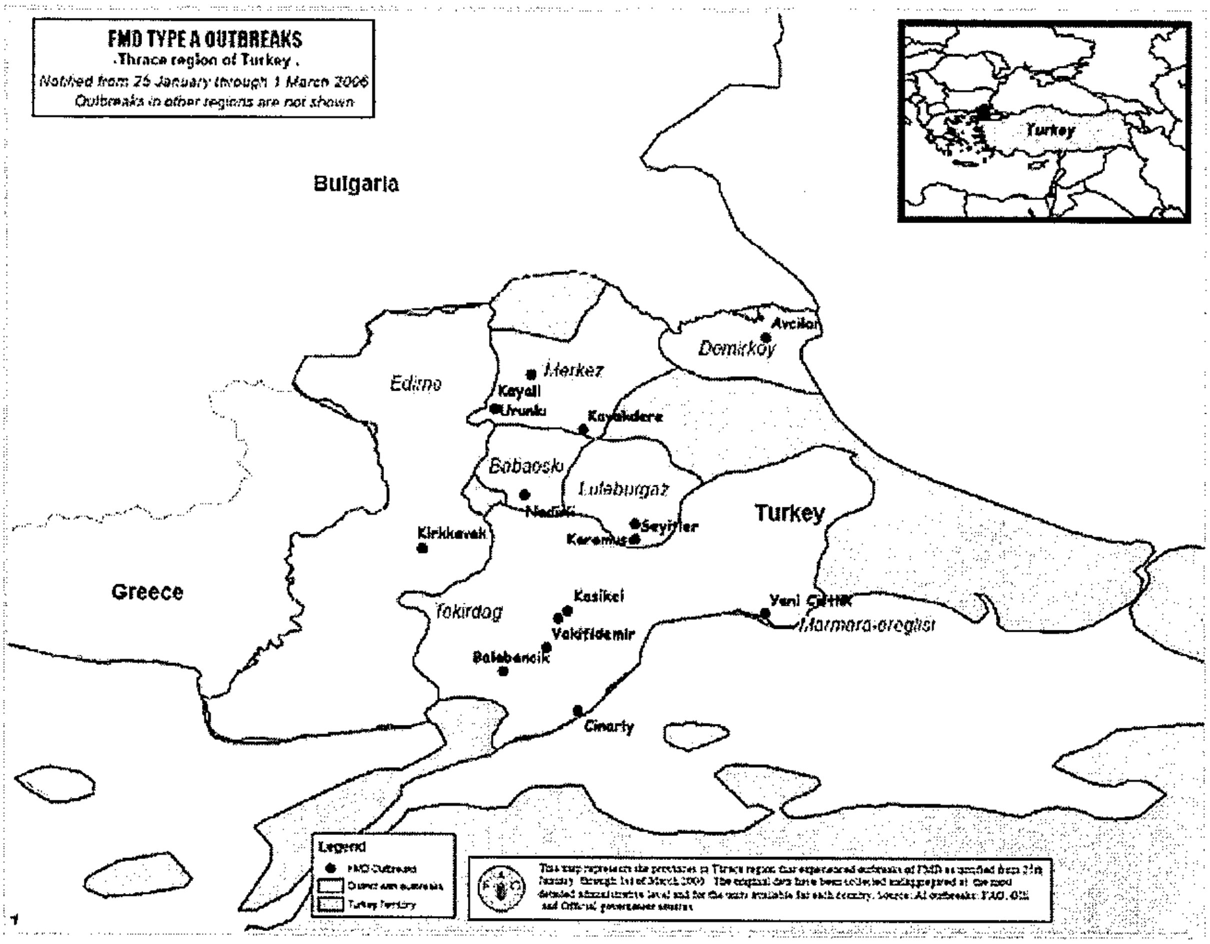
Vaccination rates

After discussion with Tekirdag and Kirklareli officers, the average vaccination rate/day for a TEAM of two persons was estimated at 350 animals per day.

Mission itinerary

16th Febr	Arrival in Ankara
17th Febr	Ministry in Ankara
18th Febr	Travalling to Edirne, visit Provincial Vet. Office
19th Febr	Inspection of the Greece Border, meeting with 3 prov.vet.managers
20th Febr	Borsa in Edirne, Havsa Market, back to Istanbul
21st Febr	Havsa Market, Provincial Vet. Office in Edirne
22th Febr	to Kirklereli, Provincial Vet. Office, visit to 2 outbreaks in Karamusul and Nadirli.
23th Febr	visit to the Demirkoy district
24th Febr	Prov.Vet. Office Tekirdag, visit to Malkara district, Balabancik and Vakifedemir
25th Febr	Prov. Vet. Office Tekirdag, to Istanbul
26th-28th Febr	No special program
1ste March	To Ankara, report
2nd March	Ankara, report to Ministry
3rd March	Departure

<u>**Annex A**</u>



FMD TYPE A OUTBREAKS
.Thrace region of Turkey .
Notified from 25 January through 1 March 2006
Outbreaks in other regions are not shown
Bulgaria
Turkey
Greece
Avcilar
Demirkoy
Merkez
Edirne
Kayali
Urunlu
Babaeski
Luleburgaz
Seyitler
Karamusul
Kirkkavak
Kasikci
Tekirdag
Valifidemir
Balabancik
Cinarly
Yeni Ciftlik
Marmara-ereglisi
Legend

Annex B

ID	province	district	municipality	species	farmers	# anim affected	age affected animals	# anim @risk	died	destroyed	slaughtered	infection date	clinical symptoms date	clinical symptoms	notification date	sampling date	samples send to SAP
K1	Kirklareli	Babaeski	Nadirli	Cattle	S. Aksoy	4	14-15m	0	0	4	0	21/01/2006	25/01/2006	salivation; high fever; no appetite	25/01/2006	25/01/2006	25/01/2006
					others	0		752	0	0	0						
					TOTAL	4		752	0	4	0						
				sheep+goats		0		550	0	0	0						
K2	Kirklareli	Lüleburgaz	Karamusul	Cattle	F. Isiaksa	3	>1 year	9	0	NA	0	24/01/2006	28/01/2006	mouth, foot, tongue leasions	29/01/2006	30/01/2006	31/01/2006
					A. Pehlivan	1		39	0	NA	0				02/02/2006		
					G. Pehlivan	1		23	0	NA	0				02/02/2006		
					H. Deresik	1		16	0	NA	0				02/02/2006		
					M. Deresik	1		13	0	NA	0				04/02/2006		
					F. Gunaliz	1		4	0	NA	0				04/02/2006		
					S. Asik	1		17	0	NA	0				06/02/2006		
					others	0		547	0	NA	0						
					TOTAL	9		667	0	21	0						
				sheep		0		762	0	0	0						
K3	Kirklareli	Lüleburgaz	Syeitler	Cattle	S. Goten	14	young	21	0	20	0	29/01/2006	01/02/2006	ulcers mouth & foot; pour general condition	02/02/2006	03/02/2006	03/02/2006
					others	0		69	0	0	0						
					TOTAL	14		90	0	20	0						
				sheep		0		290	0	0	0						
K4	Kirklareli	Babaeski	Mandira	Cattle	O. Kuzat	5		2306	0	5	0	31/01/2006	03/02/2006	salivation; high fever; ulcers mouth & foot; pour general condition	04/02/2006	04/02/2006	06/02/2006
					others	0		0	0	0	0						
					TOTAL	5		2306	0	5	0						
				sheep		0		2280	0	0	0						
K5	Kirklareli	Merkez	Kavakdere	Cattle	E. Uzer	12		5	0	17	0	03/02/2006	05/02/2006	ulcers in mouth & foot	06/02/2006	09/02/2006	09/02/2006
					others	0		516	0	0	0						
					TOTAL	12		521	0	17	0						
				sheep		0		1025	0	0	0						
K6	Kirklareli	Merkez	Orjinli	cattle	A. Demir	3		820	0	3	0	04/02/2006	06/02/2006	ulcers in mouth & foot	11/02/2006	11/02/2006	13/02/2006
					others	0		0	0	0	0						
					TOTAL	3		820	0	3	0						
				sheep		0		400	0	0	0						
K7	Kirklareli	Merkez	Kayali	cattle	O. Koca	17		0	0	17	0	04/02/2006	06/02/2006	ulcers mouth & foot; pour general condition	11/02/2006	11/02/2006	13/02/2006
					T. Koca	4		0	0	4	0						
					S. Goten	10		1	0	10	0						
					B. Goten	3		41	0	3	0						
					I. Ulusay	1		4	0	1	0						
					others	0		2056	0	0	0						
					TOTAL	35		2120	0	35	0						
				sheep		0		5070	0	0	0						
				goats		0		1265	0	0	0						
K8	Kirklareli	Dermiköy	Aveiler	cattle	K. Erdem	4		48	0	4	0		06/02/2006	ulcers mouth & foot; pour general condition	09/02/2006	09/02/2006	09/02/2006
					others	0		0	0	0	0						
					TOTAL	0		0	0	0	0						
				sheep		0		0	0	0	0						

ID	sampling date	samples send to SAP	samples received	confirmation date	source	dispersion	control measures	vaccination start	vaccination end	vaccinated animals	remarks
K1	25/01/2006	25/01/2006	02/02/2006	03/02/2006	4 animal from Havsa transported on 21 Jan by mr Remzi. Health certificate was produces at Havsa market. These animals become sick on the farm	none since control measures (are explained in the remarks)	25/01/2006	12-Feb	12-Feb	731	first outbreak in Kirklareli province
K2	30/01/2006	31/01/2006	03/02/2006	07/02/2006	3 animals were brought on the farm from Nadirli by same transporter (mr Remzi) as animal from Havsa 21/1. These animals get become on the farm	dispersion within village thourgh drinking well is possibly responsible for infection of other farms; none since control measures	30/01/2006	12-Feb	12-Feb	552	
K3	03/02/2006	03/02/2006	06/02/2006	06/02/2006	10 breeding animals are bought at Havsa market (28/01); own transport; 1 animal originates from Kirklareli province, 9 animals from Edirne province.	none since control measures	03/02/2006	11-Feb	11-Feb	67	
K4	04/02/2006	06/02/2006		13/02/2006	3 animals were brought on the farm (31/1) by same transporter (mr Remzi) as animal from Havsa 21/1	none since control measures	04/02/2006	19-Feb	19-Feb	2020	awaiting for lab results for Ali Bolgen (1 sick animal)
K5	09/02/2006	09/02/2006	09/02/2006	13/02/2006	Ali Bolgen (see comments)	none since control measures	09/02/2006	12-Feb	12-Feb	421	
K6	11/02/2006	13/02/2006	14/02/2006	14/02/2006	Ali Bolgen (see comments)	none since control measures	11/02/2006	13-Feb	13-Feb	752	vet is called but does not see the clinical signs of FMD
K7	11/02/2006	13/02/2006		16/02/2006	1 animal bought from Ali Bolgen in Havsa market, Bolgen brought the animal to the village;	spread within the village through drinking well; no more dispersion since implementation of control measures	11/02/2006			1825	1 animal sick on 6 feb and treated by inseminator, 8 animals sick on 11 feb First 17 effected animals are from the same establishment but died at different moments; afterwards (15.02) 18 animals at 4 different establisments showed clinical symptoms and were confirmed for FMD
K8	09/02/2006	09/02/2006		13/02/2006	see comment	none since control measures	09/02/2006	21-Feb	10-Mar	465 on 24/2	very isolated in forest. Still next farm is at 150m

T1	Tekirdag	Malkara	Balabaneik	Cattle		1	6	7y (first)	14	0	0	5	??	01/02/2006	salivation; ulcers in	03/02/2006
						2	2	2.5y (first)	6	0	0	2	??	01/02/2006	mouth;	03/02/2006
						3	3	2y (first)	15	0	0	3	??	01/02/2006		03/02/2006
						4	1	2.5y (first)	6	0	0	1	??	??	salivation	08/02/2006
						5	2	5y, 1.5y	12	0	0	2	??	??	salivation	08/02/2006
						6	1	5y	8	0	0	0	??	??	salivation	08/02/2006
						7	1		4	0	0	0	??	??	salivation	08/02/2006
						8	2	young	10	0	0	0	??	11/02/2006	salivation	11/02/2006
						9	3	young	25					11/02/2006	salivation	11/02/2006
					others	0			3250							
					TOTAL	21			3354	0	0	14				
				sheep					1275							
T2	Tekirdag	Malkara	Vakifdemir	Cattle	I. Anar	9	young		27	0	0	0		04/02/2006	08/02/2006	salivation, fever,	10/02/2006
					E. Kiyak	2			5	0	0	0			08/02/2006	ulcers	
					others	0			600	0	0	0					
					TOTAL	10			632	0	0	0					
				sheep					327	0	0	0					
T3	Tekirdag	Marmaraereglisi	Y. Ciftlik	Cattle	I. Anar	3	1y		19	0	0	0		06/02/2006	11/02/2006	fever, loss appetite,	12/02/2006
					others				750							salivation, ulcurs	
					TOTAL				750							on foot and mouth	
				sheep					730								

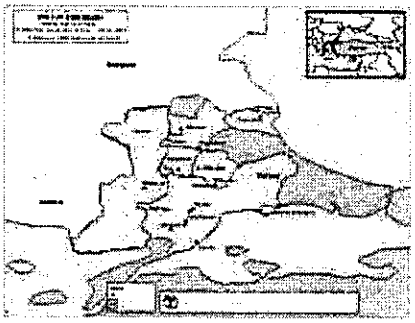
	03/02/2006	03/02/2006		08/02/2006	The man of farm 1 bought 3 animals at Havsa market on 21/01 and these were brought directly on the farm. First animal that gets sick on the farm is not bought at Havsa market. The 3 animals from Havsa get sick afterwards. There is one more animal from Havsa at the same transport this goes to another farm which does not get infected. Identity of transporter is unknown. Apparenly the second farm is the first case: He has 2 pregnant cows. 1 week after they give birth they get sick (3 feb). His animals do not mix with the others so the dispersion to the other farms is unclear. No idea how the infection came on this farm (farmer does not buy animals; no hustlers; only contact with other farmers in the coffeeshop)	common drinking well, no more dispersion after implementation of control measures	09/02/2006	11-Feb	11-Feb 2954 cattle 1178 sheep	
	03/02/2006	03/02/2006		08/02/2006									
	03/02/2006	03/02/2006		10/02/2006									
	not	not	not	not									
T1	not	not	not	not									
	not	not	not	not									affected animals in 6 and 7 were not slaughtered since they were light cases. Affected animals were not vaccinated.
	not	not	not	not									affected animals on 8 and 9 were vaccinated
	not	not	not	not									
	not	not	not	not									
	10/02/2006	10/02/2006	10/02/2006	10/02/2006	15 animals are bought by Anar at Havsa market on 4/02. 5 get sick, as 2 more animals. Orhan Gelan was transporter from Tarkidag. Anar sold 2 animals to the neighbour, they also got sick	none beside these two farms	10/02/2006	11-Feb	11-Feb 544 cow	All diseased animals got vaccinated
	not	not	not	not						
									228 sheep	
T2										
	13/02/2006	14/02/2006	??	??	Farmer has 6 animals and buys 11 from Havsa market on 4 feb. He devides the animals over 3 barns: 4 animals to barn A, 3 to barn B and 4 are put together with 6 own animals in barn C. On 11 Feb the farmer calls the vet since 1 animal is sick in barn B afterwards the 2 other get sick. All 3 recover after treatment. Only the 6 own animals are vaccinated. The farmer transported the animals on a rented truck from havsa. No other animals were on the truck.	no	12/02/2006	17-Feb	19-Feb 670 cattle 600 sheep	The outbreak was limited to 1 farm
T3										

Appendix 6

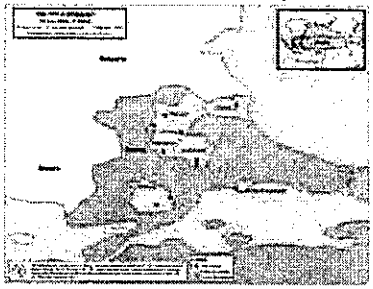
PROGRESS OF THE EMERGENCY CATTLE AND SMALL RUMINANT VACCINATION CAMPAIGN IN THRACE REGION OF TURKEY
(February to April 2006)
Report compiled by EUFMD Secretariat, FAO Rome
Data provided by the GDPC, Government of Turkey

Progress of the emergency cattle and small ruminant vaccination campaign in Thrace region of Turkey (February to April 2006)

Report compiled by EUFMD Secretariat, FAO Rome
Data provided by the GDPC, Government of Turkey



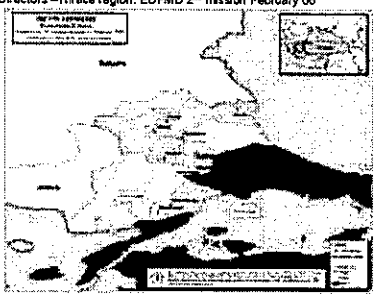
Situation at start of 2nd EUFMD mission – Thrace region

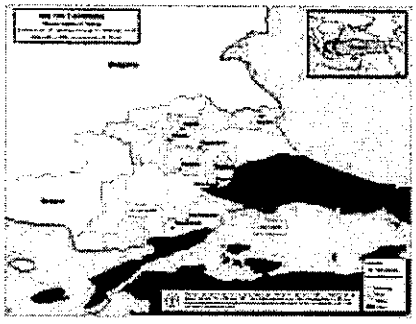


Mission 2; first phase of emergency vaccination

- EUFMD mission - Meeting with Provincial Directorates, Edirne 19th Feb
- On the use of SAP Institute vaccine delivered for EV
- Advice:
  - Apply EV in THREE Phases, with first Phase being to
  - complete a north-south zone that includes
  - all 1) affected villages and districts,
  - 2) those immediately neighbouring on the west side
  - 3) those in Tekirdag in proximity to affected locations in Kirklareli.
  - This Phase to be completed within one week (by 26th Feb)

Emergency vaccination – area priorities identified at meeting with Provincial Directors –Thrace region. EUFMD 2nd mission February 06





Second phase emergency vaccination

- **The second Phase would involve EV supplied by EC;**
- **Priorities:**
  - Complete Phase 1
  - to vaccinate the remaining parts of Edirne, Kirklareli and Tekirdag Provinces as a priority, within one month;
  - Vaccination in Istanbul and European parts of Canakkale should also proceed but may be seen as less high priority
- **Species: vaccinate small ruminants also**
- **Ages: Vaccination of young animals could reduce the gaps in vaccination and protect vulnerable ages, since maternal immunity to A22 should not fail/are.**
  - The vaccination could be given to calves from a day of age (to reduce deaths in very young animals from FMD) , although MERIAL have suggested 2 months of age for the first vaccination on the basis of their own data

Supporting emergency vaccination

- Recognising that AI control is also a priority for Government staff
- and that vaccination needs to be controlled to ensure all relevant animals are vaccinated in correct manner
- 2nd mission has identified need to support GDPC to rapidly implement vaccination in priority areas
- Discussion on how: vaccinators and transport main constraints

Third phase

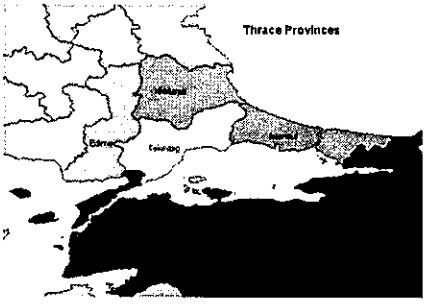
- Reduce risk of waning immunity
- Booster immunisations needed
  - Since the A22 is a primo-vaccination
  - Since high immunity required to provide protection against the new strain
  - Since infection will remain in contaminated holdings
  - Thereby reduce risk at turn out of animals in May
  - Priorities could be made - districts with confirmed infection

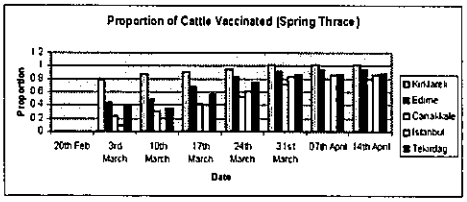
Progress of emergency campaign – Cattle Vaccination Thrace

Objective (as agreed with GDPC at final meeting of 2nd EUFMD mission) : complete vaccination of large and small ruminants in 5 provinces of Thrace by end of March 2006
Following slides are based on data provided by GDPC on a weekly basis in March and April to FAO

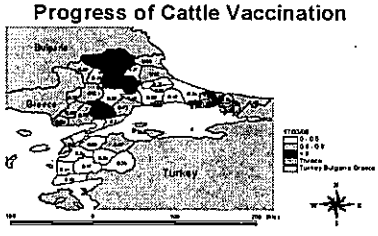
Other controls:

-
  - Continue policy of slaughter without delay of clinical cases (risk also of in contact)
  - Movements under strict control
  - Markets to remain closed (duration should be considered according to situation in whole region)
  - Post-outbreak surveillance important to prove level of immunity (and provide assurance that infected locations are known).

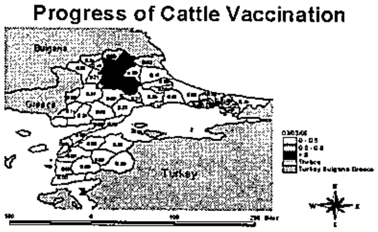




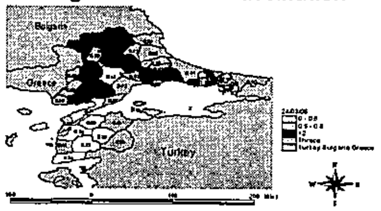
Progress of Cattle Vaccination



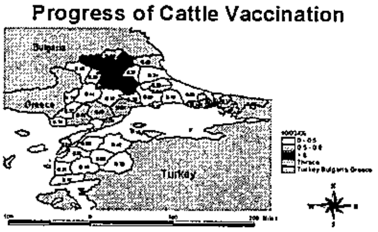
Progress of Cattle Vaccination



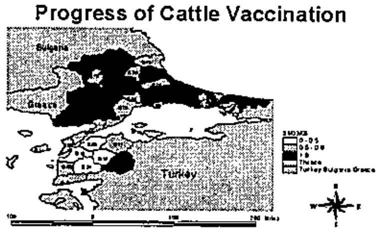
Progress of Cattle Vaccination



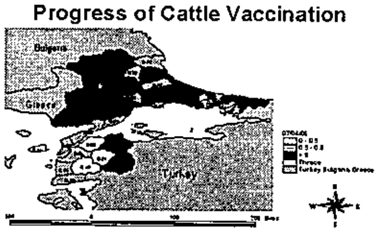
Progress of Cattle Vaccination

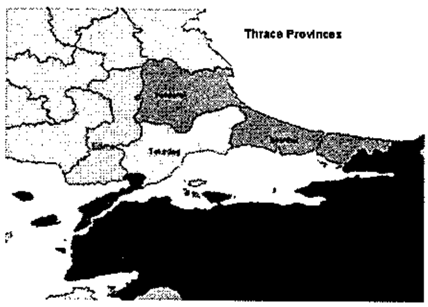


Progress of Cattle Vaccination

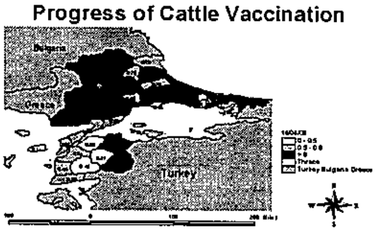


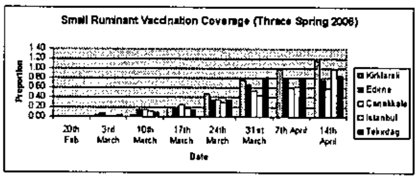
Progress of Cattle Vaccination





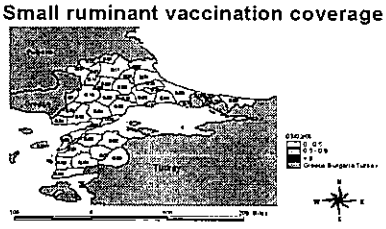
Progress of Cattle Vaccination



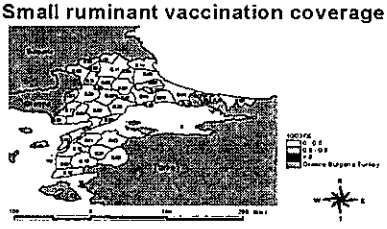


Small Ruminant Vaccination
(Spring Thrace)

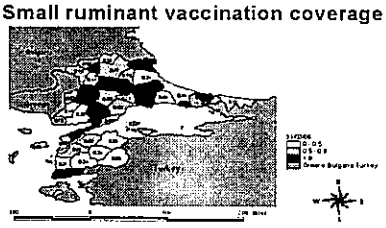
Small ruminant vaccination coverage



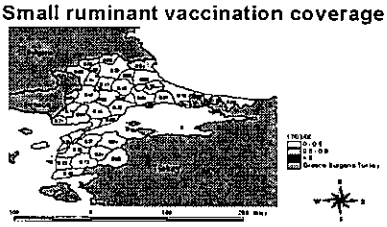
Small ruminant vaccination coverage



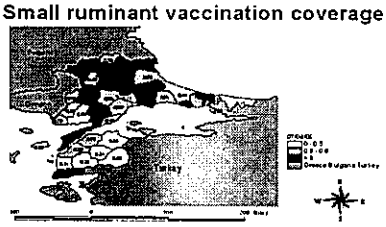
Small ruminant vaccination coverage



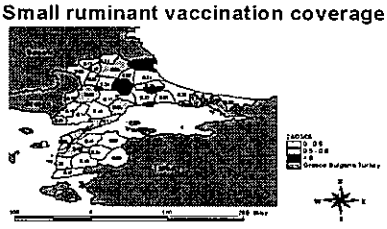
Small ruminant vaccination coverage



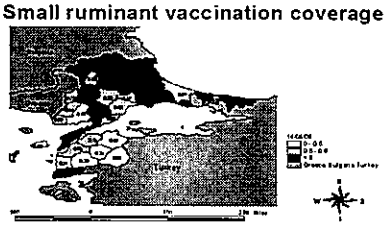
Small ruminant vaccination coverage



Small ruminant vaccination coverage



Small ruminant vaccination coverage



Appendix 7

MEETINGS OF THE ADVISORY GROUP ON SERO-SURVEILLANCE POST-OUTBREAK FOR THRACE REGION

Date: 14th June 2006
Place: Armada Hotel, Istanbul
Present: Mark Bronsvoort (University of Edinburgh, UK)
Keith Sumption (FAO, Rome)
Mustafa Tufan (GDPC, Ankara, Turkey)
Naci Bulut (SAP Institute, Ankara, Turkey)
Nick Honhold (FAO, Ankara, Turkey)
Ian Handel (University of Edinburgh, UK)

Purpose: Review of sero-surveillance for FMDV in Thrace Region of Turkey with the objective of identifying key information gaps and designing new sero-surveillance in view of recent outbreaks.

Summary

- 16 outbreaks of A22 like FMDV were reported between January and March 2006 and 1 outbreak of A22 like FMDV reported 14th June 2006
- Emergency vaccination with A22 carried out in February to April 2006
- **Booster vaccination should be carried out in Thrace to include A22**
- **Sero-surveillance for 2006 was conducted in February and March (designed in Dec 2005) - this should still be analysed for vaccine coverage and for evidence of viral circulation pre-outbreak**
- **The next round of sero-surveillance for Thrace will aim to identify evidence of virus spread from outbreak villages to neighbouring areas**

Background

Turkey has been carried out biannual vaccination in the Thrace region with the plan to control and eradicate FMDV. As part of the documentation needed for future declaration of disease free status sero-surveillance activities have been conducted annually to:

- identify problems in vaccination coverage and delivery
- support training requirements for field veterinarians
- identify areas of sub-clinical disease circulation or reporting failures.

In December 2005 a meeting was held and the sero-surveillance for 2006 designed with the following objectives:

1. Substantiate "freedom from FMD with vaccination" (absence of serological evidence for active FMD virus circulation) in Thrace.
2. Target additional sero-surveillance activity in Istanbul Province to assess the risk of incursion in Spring/Autumn.
3. Ensure prompt follow-up investigations of all NSP-seropositive cattle ($\leq$ 60 days after initial sampling), which should include both forward and backward "tracing" to one degree to assess spread in other at-risk villages.
4. Demonstrate field efficacy of vaccine

This plan was carried out by NB through the Provincial Directorate, Thrace Region.

However, around the time of the sero-surveillance exercise in spring 2006 (approx. 19th Feb - 6th March) a new A22 serotype was isolated in Thrace. Between 25th January and 1st March 14 outbreaks were reported, 8 in Kirklareli, 3 in Tekirdag and 3 in Edirne. Emergency vaccination was carried out using a single dose A22 vaccine between 11th February and 14th April. Overall coverage for this vaccination campaign was reported as 92%.

On the 14th June 2006, coincident with the planning meeting for sero-surveillance, a new case of A22 FMDV was confirmed in Çanakkale. Two members of the group (NH and NB) went on a mission to the Province to investigate this outbreak.

Discussion points
In view of the unfolding situation a number of possible objectives for a new serological study and/or use of the Spring sero-surveillance were identified and discussed.

- Could the existing sero-surveillance be used to estimate vaccine coverage and/or efficacy for A22 and this then guide future follow-up vaccination for A22 FMDV?
- Could the sero-surveillance be used to estimate the prevalence of sub-clinical infections/evidence of circulation of A22 in the region?
- Use the Spring sero-surveillance data to estimate vaccine coverage/efficacy and evidence for virus circulation other than for A22

1. Initial discussion of the new outbreak (14th June 2006) suggest that 6/128 cattle were affected and that the vaccine coverage in the affected village had been 36/128 cattle and 200/370 sheep/goats? However the census data for this village was 1000 cattle and 800 sheep and 450 goats. Coverage at the district was reported at 88% for cattle and 104% for sheep and goats.

2. This suggests that there has been very poor vaccine coverage in the area of the outbreak or that there is error in the figures. In addition, discussions on the estimates of coverage revealed that some areas had >100% coverage reflecting that the estimate of coverage was based on number of vaccine doses used with the census estimate of herd numbers as the denominator. It is possible that census data is inaccurate and hence quoted coverage estimates may be unreliable.

3. **Output: There is a need to improve the registration and identification of livestock in Thrace to reduce the errors in these summary data.**

4. Emergency vaccination for A22 using a single dose was carried out between March and April 2006. At the time of the meeting 14th June 2006, with a new outbreak in Thrace, concern was expressed that there will be declining protective immunity (although previous vaccination with A Iran 96 should mean that there is improved protection than that in a naïve population following a single vaccination). Therefore an increasing proportion of the livestock population of Thrace will be susceptible to new introductions of FMDV over the summer.

5. The group discussed analysing the emergency vaccination data to identify areas of poor effective coverage, taking into consideration original coverage, time since vaccination and distance from outbreaks; combining this into a risk model to identify priority vaccination areas. However the group's view was that the data quality would not support such a complex analysis.

6. The group strongly suggest that village and farm locations are geo-referenced in future to allow improved risk mapping and data management and display.

7. **Output: In view of the current outbreak and increasing population susceptibility the group advise follow-up vaccination (and primary vaccination for unvaccinated livestock) with A22 strain. The group felt that the village level vaccination data should be analysed to understand potential variation in coverage.**

8. We decided that the Spring sero-surveillance data was not appropriate to assess the efficacy of the emergency vaccination since it pre-dated the vaccination campaign (samples from before 13th March) and was not appropriate to investigate virus circulation since it was too soon after the outbreaks in January-March.

9. **Output: The Spring sero-surveillance data should still be analysed for specific regions in particular areas such as Istanbul where no outbreaks were declared. This would provide support that active surveillance for clinical disease had been effective.**

10. **Output: In view of the current outbreak, sero-surveillance for freedom of disease would be irrelevant at this moment. However, the group feels that targeted serology studies should be carried out in a surveillance zone (5-10km) around a sample of the 14 outbreaks to identify spread from the outbreak villages to neighbouring villages. The survey will sample from the majority of villages, within a designated radius, to detect infection within villages that exceeds a**

relatively high threshold (e.g. 10%) on the basis that the aim is to locate villages where there has been significant exposure/virus spread.

11. The group accepts that since movement controls have been lifted in these areas some exposed animals may have been moved to other villages and regions.

Appendix 8A

Report of the First Scientific Meeting on FMD virus circulation in the region Teheran, Islamic Republic of Iran, June 11-12th 2006

Summary
The region has been very hard hit by rapid invasion and impact of an A22 like virus (A Iran 05) in 2005-6 which continues to circulate in Turkey and I.R of Iran, and which has been detected in Pakistan and Saudi Arabia in 2006. Syria and Iraq have not reported detection of the A22 virus to date but remain at high risk. Type O remains endemic, but the risk of Asia-1 appears diminished with the last reported occurrence in Iran in August 2005. The dynamic situation requires continuous monitoring, not least because first detection of new strains in the centre of countries rather than border, and because of rapid animal trade movements, and because other antigenic variants type A variants were observed in 2005 and may continue to persist in the region and give rise to later re-emergence. Further, the type A Egypt 2006 has the potential for invasion of additional countries in the Middle East.

The meeting considered how future regional epidemics could be prevented, and developed recommendations relating to information exchange, virus isolate exchange to enable vaccine producers to respond, and the optimisation and improved monitoring of vaccination programs.

Conclusions on recent FMD control situation and virus circulation in the region of Turkey, I.R of Iran, Syria and Iraq;

1. Lack of information exchange between countries and to the international organisations has contributed to the scale of the type A epidemic experienced in the region in 2005-6.
2. The lack of immediate vaccine against the A22-like virus contributed to the scale of the outbreaks.
3. The available A22 antigen in international vaccine banks, or held by individual countries, could not be mobilised in timely manner because of delayed reporting of the identification of the problem of the A05/A22 like virus;
4. The A22 like virus (A Iran 05) FMDV genotype has proven to be highly invasive and has caused severe disease in all ages of cattle, although this appears reduced where high levels of previous type A immunity exists;
5. The infection continues to circulate in mid 2006 in Turkey and Iran and further extension of infection to other countries or zones is likely to occur;
6. The circulation of other A types in the region is likely to continue in 2006 given the detection of A Iran 96, A Iran 87 and A Iran 99 genetic types circulating in apparently restricted locations in Turkey and/or Iran in 2005;
7. The epidemiological circumstances that enable virus persistence of the various type A virus are unclear and therefore specific attention should be continuously applied to type A outbreaks and epidemiology;
8. The location and risk from other exotic viruses, including type A Egypt 2006 should be kept under review by each country;
9. The Asia-1 situation appears favourable in Iran and the region at present, but the situation in the wider region, including Pakistan, central and south Asia be kept under review and contingency plans; developed before decision to remove Asia-1 from vaccination programs is taken;
10. There is a need for regular regional meetings to assist risk assessment and selection of vaccination and other preventive measures based on similar or harmonised standards for virus typing and selection and monitoring of vaccination programs.

Summary of recent A22 like virus (A Iran 05) epidemiology
Outbreaks with a type A virus in Khouzestan (south-west Iran) were reported in August 2005, which subsequently spread in northwards to include east and west Azerbaijan provinces then to central Iran in autumn and winter 2005, with severe impact. Virus typing at the Razi Institute detected a virus a significant antigenic difference to A Iran 87 and the antigenic type was termed A 05; a homologous vaccine was produced, first for use in ring vaccination and later in a tetravalent (2A/o/Asia-1) formulation. In late November 2005 outbreaks with this type occurred in south-west Turkey, but back tracing suggests entry occurred in Igdir Province at an earlier point. Subsequent spread, assisted by winter conditions and animal movements for the annual kurban festival, involved up to 56 Provinces with high economic impact, from Thrace on the border with

Greece/Bulgaria, to Aegean coast, central and eastern Turkey. Since vaccination was applied in late February 2006, outbreak numbers and locations have reduced, down to 70 outbreaks in May 2006 in 28 Provinces. In both Iran and Turkey, the extension of the new type A over a wide area will have resulted in high number of potential carrier animals and has apparently succeeded to replace the previous type A genotype in much of the region.

Summary of experience in A 22/A Iran 05 control by vaccination:
Each of the four countries currently utilises a different A22 component in their programs. Turkey has applied emergency vaccination using A22 Mahmatli and A22 Iraq (EC supplied vaccine) with good success in Thrace region and Anatolia with no evidence of lack of protection against challenge when used in the face of infected populations.
Iran has applied a homologous A05 vaccine in ring vaccination and more recently in routine use. The A87 vaccine appears to cross-protect in the field. This potentially important finding requires to be confirmed through potency test A87 versus A05 challenge.
Iraq has routinely applied A22 vaccine for many years, and has not reported A22 problems in 2005-6.
Syria routinely applies A Iran 96 vaccine, and appears at present to have escaped invasion of A22 type. From experience in Turkey it is clear that the SAP Institute A Iran 96 vaccination did not protect against the invading type A strain.

Summary of recommendations of the meeting
- procedures to increase the sensitivity of detecting new subtypes and the subsequent exchange of essential information to assist risk assessment and identification of vaccine based preventive measures. A task force was proposed to develop the procedures in full compliance with the international requirements of OIE and the specific needs of the region
- to continue regular technical meetings to improve risk assessment and harmonisation of sub typing and the monitoring of programs.

Meeting report

Introduction
The meeting was hosted by the I.R of Iran and organised by FAO under the *Central Asia FMD Surveillance Project Phase 1*, a component of the project MTF/INT/003/EEC which is supported by European Commission.

Participation in the meeting was made by FMD laboratory experts and disease combat specialists from the veterinary services of I.R of Iran, Turkey, Iraq and Syria.
The meeting was opened by Dr Hassani, Head of the Iranian Veterinary Organisation (IVO), and by Dr Mubashar Riaz Sheik, FAO/WHO representative in I R of Iran.

Virus circulation in the wider region
The meeting first considered the wider epidemiological events in central and west Asia, receiving an update provided by the FAO WRL for FMDF at Pirbright (presented by Dr Valarcher). The most significant event in the region in the few years has been the rapid and devastating spread of a A22-like FMD strain in Iran and Turkey in the period, and which has also been isolated in 2006 from Saudi Arabia and Pakistan. The spread into Egypt of an unrelated type A of African origin is also of major significance, since this type is not covered by vaccines in routine use in the region and further spread in the near east is possible. He also highlighted the rapid eastwards extension of type Asia-1 into previously untouched parts of China, Russian Federation and Vietnam; the rapid movements of FMDV into new areas highlight the need for early warning of disease events.

Country situation – FMD circulation and selection and design of vaccination programs
Country presentations were then made of the situation in Iraq and in Syria.Type A22 like viruses have not been so far recognised in 2005 or 2006 in Iraq, but for various reasons the A22 component had been retained in the vaccination program, with current use of a trivalent A22/O/Asia-1 oil adjuvanted vaccine (Raksha vaccine, Indian Immunological) (IIL)) applied with a programmed vaccination in cattle every 9 months..
In Syria, A22 like viruses have also not been recently observed, and a trivalent A Iran96/O /Asia-1 Shamir vaccine sourced from MERIAL applied in all cattle (twice a year) and sheep (once a year-). Vaccine potency is tested by serology in groups of cattle (alternative potency test) with serology at WRL-Pirbright. Sero-monitoring of the program is practised, focussing on border populations, and evidence of circulating FMDV has been found in 2005 through NSP ELISA.

The situation report of Turkey and a paper on development and testing of the A22 mahmatli vaccine were given by Dr Naci Bulut, SAP Institute Detection of the A22-like virus was made in December 2005, following outbreaks in south-east Turkey in late November. Back tracing indicated that the index case may have been in Igir Province, which border Iran and Azerbaijan. Genetic analysis and vaccine cross-matching indicated that a previously used A22 mahmatli vaccine should provide good protection, and therefore A22 production was initiated with antigen formulated and distributed (as trivalent vaccine) in mid February and used in the emergency response. However as a result of the harsh winter conditions and the animal movements during the kurban festival, unprecedented spread of the A22 virus occurred between November and February, with a very high level of outbreaks per month recorded in January and February. Since emergency vaccination of the A22 vaccine, and of the 2.5 million doses provided by EC, outbreaks have significantly reduced in number and no case was reported where breakdown of vaccination under challenge has been seen. The recorded number of type O outbreaks is much lower in 2006 than previously seen.
He also described the three components of vaccine potency testing procedure for each batch, cattle challenge, serological potency tests in 20 animals tested 21 days post immunisation, and serology on at least 200 animals randomly sampled circa 21 days post immunisation.
The I.R of Iran presented a country situation report and a report on development and testing of vaccines for use in Iran

The discussion on the above presentations, and the problems faced at regional level, was Chaired by FAO. Four types of problems were identified in the control of epidemic FMD in the past years:

1. Lack of timely warning of emergence of new subtypes in the region prevents authorities from developing, acquiring or applying suitable vaccines and other preventive measures.
2. Failure to prevent transmission; gaps in the prevention and control measures which allow persistence, emergence and epizootic spread of new virus types. High risk areas of the region continue to exist where factors such as low population immunity and high animal movement and contact act to maintain infection.

3. Lack of exchange on an urgent basis of key virus isolates and seed viruses which could be used to develop vaccines in response to virus emergence.
4. The lack of rapid availability of vaccine for emergency campaigns, including non-existence of vaccine banks in the region. Only Turkey is in development of an antigen bank to enable it to deal with fluctuating demand of field programs and for emergency use.

The meeting then elected reporting groups which provided recommendations to address the first three problems. Development of vaccine/antigen banks was proposed (by Syrian representative) to address the fourth problem.

The recommendations of the working groups were discussed on the 12th.

Vaccine performance and quality, and monitoring of vaccination programs
A presentation on the development and application of international standards for vaccine potency, quality and safety, was presented by Dr Valarcher .He provided a historical review of the development of the standards and on the OIE and European Pharmacopoeia requirements. The presentation was significant interest and stimulated many questions which could not be answered in the time available. The high interest of regulatory authorities indicated this topic is important for those funding and evaluating programs. Several participants called for higher standardization between countries of vaccine potency testing in line with the OIE. This topic should be a regular Agenda item for future meetings.

Sero-monitoring and the evaluation of vaccination programs
The system applied in each country for monitoring of vaccine quality, both locally produced and imported, and of vaccination program performance was summarised and discussed.
There was a wide variation in use of sero-monitoring in each country; randomised sero-survey for population immunity was only described in Thrace region of Turkey. Syria applies sero-monitoring in selected border provinces but not in a way that enables the average population immunity to be determined. The difference between monitoring of vaccine inputs (vaccine supplied, vials returned empty, spot checks on cold chain and audit of records), of population immunity, or of outcome (impact on FMDV incidence in an area) was discussed. Optimisation of programs was discussed, and the issue of sheep vaccination. It was generally agreed that optimising programs will require monitoring of FMD incidence (evidence of outbreaks and of new sero-conversions) in relation to population immunity in an area, and other epidemiological circumstances. A specific, integrated approach will be needed to determine is sheep required to be vaccinated to prevent their playing a role in maintaining infection.
Only Turkey (Thrace region), and Syria (in border regions) have regular (Thrace) or recent (Syria) sero-monitoring for virus circulation.
Harmonisation of vaccine monitoring between countries was proposed as a way to increase trust in the preventive measures being applied across boundaries.

Closure of meeting
Dr Sumption expressed his appreciation and that of FAO for the excellent arrangements made to host the meeting by staff of the IVO and of the Central Veterinary Laboratory, Karaj, Tehran, especially the Director of the CVL and staff responsible for liaison, the meeting room and interpretation. The meeting had been arranged at short notice and he thanked Dr Gieiger and the FAO Office in Iran for their hard work, and thanked the participants for their efforts to attend despite long and arduous travel schedules.

Annex 1

Country	FMDV – 2006	Vaccination program - 2006	Monitoring Program	Notes
I.R Iran	A 05, A87, type O (Asia-1; 2005, 2 outbreak)	Cattle: programs reaching 60-70% population; - 3 x per year (Merial A87/O Manisa/Asia-1Shamir) or Razi tri- (A05/O shabestan/Iran /Asia-1 Iran) or tetravalent A05/A87/O/Asia-1) Sheep: 1x/year, Razi , reaching 30% population	Vaccine: QC ar Razi Inst, no independent testing. Safety and sterility tested on Merial vacc. Program: Vaccine use recorded and analysed using GIS. Some sero-monitoring began 2005; limited program. Program to be designed for 2006-	Homologous A05 vaccine first produced by Razi Institute on emergency basis for ring vaccination in 2005.
Iraq	No virus typing presented. Sporadic cases	Cattle: Trivalent (A22/O/Asia-1) oil adjuvanted vaccine, Raksha; Indian Immunologicals). Program: every 9 months plus emergency ring vac. Sheep: some	Vaccine: no independent testing. Program: CVL undertakes some sero-monitoring post vaccination	
Syria	FMD outbreaks not reported in 2006. In 2005, NSP positivity (10-12%) indicated virus circulation.	Cattle: Trivalent A Iran96/O Indian 53/78/Asia-1 Shamir (Merial), applied twice per year Sheep: 1x year, all population merial	Vaccine: each batch tested in Syria (alternative potency test, serology at Pirbright) prior to application. Program: once a year sero-survey in cattle, 3 months post-vaccination, conducted at 6 locations close to borders across the country. (immunity and NSP)	
Turkey	A22 like (A Iran 05), type O	Two programs, one for Thrace region (2 x cattle, 1 x sheep) and Anatolian program (2 x cattle, sheep only on demand). Vaccine: SAP Institute oil adjubvated A22 Mahmatli, O Manisa, Asia-1; additional 2.5 million doses from EC of A22 Iraq/O/Asia-1.	Vaccine: 3 component testing of each batch (challenge, serology on 20 animals, immunity rate in >200 field vaccinated animals 30-60 days post vacc). Program: Recording of vaccine application. Sero-monitoring for immunity and NSP: - in Thrace, annual program designed Turkey/FAO/EC. - not yet official program in Anatolia but some applied to pvp program	A22 Mahmatli component revived and replaces A Iran 96 in emergency and routine vaccine used in 2006.

FIELD EVENT DEFINITION

1. The occurrence of very severe FMD outbreaks in vaccinated animals which have a high level of immunity (suggests new subtype)
2. The occurrence of FMD in vaccinated epidemiological unit in the face of a strong immunity, eg.1 or 2 months after vaccination (possible new subtype),
3. The emergence of important outbreaks (more than expected level) in vaccinated area,
4. The occurrence of FMD outbreaks in area with no background of FMD outbreaks (no animal movement, eg. in dairy cattle farms)
5. The occurrence of FMD outbreaks in border area (to be defined by risk) with severe clinical signs.

Recommendation:

1. *Preliminary report is needed to alert the situation (field event report)*
2. *Virus type and subtype should be established and reported in the full report.*

LABORATORY EVENT DEFINITION

1. Detection of a new subtype apart from already existing in the country
2. Increasing number of samples received over a short period
3. Having unexpected test results
4. Having more negative results rather than positive in virus detection tests;
5. Receiving samples from unexpected area such as free from FMD or where no outbreak has been recorded area for some prolonged period (e.g. 12 months)
6. Receiving samples from border area with high risk neighbouring countries
7. Having some epidemiological data indicating extraordinary situation
8. Having information from neighbouring country laboratory about emerging new subtype.

Recommendation:

1. Inform Headquarter and Field d Official Vet in order to be prepared to a new situation
2. More epidemiological investigation should be conducted
3. Communication network with neighbouring laboratories and steering institution should be set up
4. Diagnostic capacity and collaborative research programs should be increased
5. Each national reference laboratory should develop and implement a Laboratory Contingency Plan to assist it to cope with surges in demand
6. Each country should participate in an international QA scheme, such as the Phase XIX funded by FAO and implemented by the WRL Pirbright. The cost of the participation may be covered by EUFMD/FAO.

SHARING OF INFORMATION

What is needed?

- To inform quickly neighbouring countries of any significant events on FMD in the field or in the laboratory

How can we do it?

- To use standard form to get standard information
- To use a focal point to collect and disseminate information

Actually, several ways to exchange information:

- All countries are OIE members and they have to notify significant events to OIE through WAHIS
- signing bilateral protocol amount countries of the region to exchange significant information by E-mail or/and official notification
- unsigned agreement at level of CVO to share disease event information.

Recommendation:

1. Significant epidemiological events such as defined should be reported to the OIE, as per OIE requirements;
*2. Use the MTF/INT/003/EEC as focal point for sharing information on any significant event, with standard form which will be drafted by the project; **a task force** with members to be nominated by the CVO, from each country should prepare the forms and propose the working arrangements;*
*3. Regional workshop **each year**, or arranged earlier if an emergency of regional importance occurs, in one participating country.*

EXCHANGE OF CIRCULATING VIRUS STRAIN

FMD have 7 serotypes and each serotype easily exchanges its structure antigenicly and genetically, which resulted in a new devastating outbreak. When this occurs, preparing a new vaccine with a new strain will take time while causing the spread of the disease in the country and in neighbouring countries.

Therefore exchange of circulating virus strains will help to take appropriated measures before the spread of the disease.

Recommendation:
To establish rapid exchange of virus isolates leading to a regional virus strain bank.
Participating countries should license their laboratories for receipt of exotic virus isolates.

Appendix 9

FOOT AND MOUTH DISEASE STATUS IN THE ISLAMIC REPUBLIC OF IRAN
(Country report)

Mohsen Meshkat (DVM-PhD), Abdollahi Daran (DVM/Iran veterinary organization)

FMD status in I.R. of Iran (Country Report)

By:
Mohsen Meshkat (DVM-PhD)
Abdollahi, Darab (DVM) / Iran
Veterinary Organization

FMDV history in Iran

- ***Asia1***. Firstly isolated in 1956.
  - In 2000 after 9 years absence, it isolated from beef farms due to smuggling movement of animals from eastern borderline.
- ***Type O***: Firstly isolated in 1950.

Introduction :

- The Islamic Republic of Iran embraces approx. 1,648,000 square kilometers.
- It has around 7,744 kilometers of ground and marine borders with Turkmenistan, Azerbaijan and Armenia in the north, Afghanistan and Pakistan in the east and Turkey and Iraq in the west

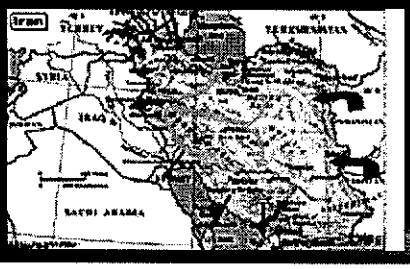
FMDV history in Iran

- ***Type A:*** Firstly isolated in 1960.
  - Serotype A-87 totally different from A22.
  - In 1996 -A96 which threaten even European territory especially Turkey due to high animal illegal movement condition in the country and border lines.
  - In 2005, new outbreaks of FMDV in cattle population in western provinces (khozestan, E. & W. Azarbijan, ..) which named A05 by Razi institute and introduced to vaccine that produced by Razi Institute

Cloven-hoofed Livestock population

- Sheep 52 million,
- Goat 21 million,
- Cattle & Calve 7.5 million ,
- Buffalo 0.5 million,
- Camel 120000

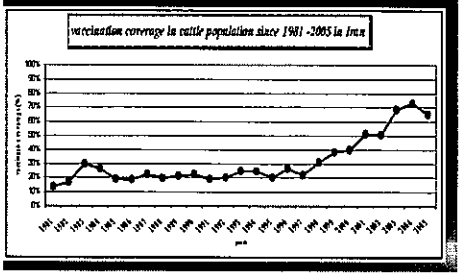
Livestock legal and illegal movement situation in Iran and border lines.



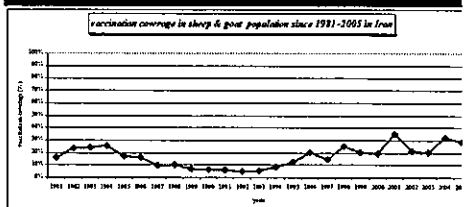
FMDV history in Iran

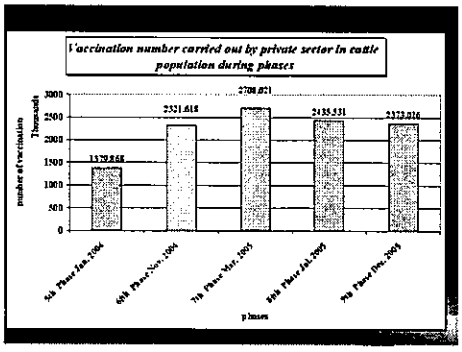
- Since 1950, FMD had been introduced in domestic farms.
- In 1959 Razi institute (Local vaccine producer) started to produce FMD killed vaccine with Frankel method

vaccination coverage in cattle population 1981-2005.



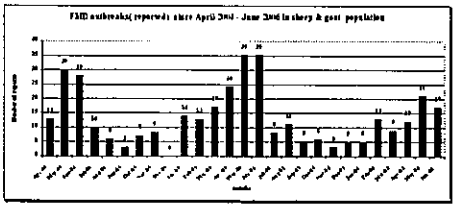
vaccination coverage in sheep & goat population 1981-2005.





Target mass vaccination

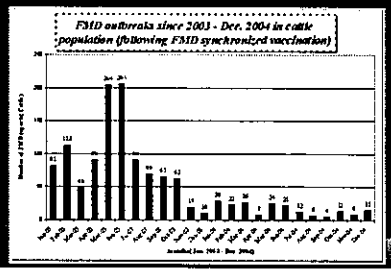
- Mass vaccination started on 1st Feb. 2003 in cattle population up to 3.2 million cattle and calves. Which increase up to 4.2 million during phases,
- Vaccination campaign finished during 30 working days



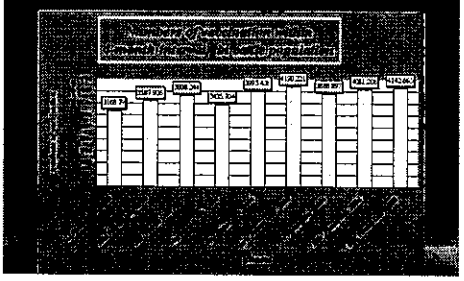
Target mass vaccination

- Government & private vaccinators, group of assessors and administrative staffs,
  - Cooperation of related livestock unions,
  - extension program such as printing and publishing more than 20000 sanitary public notice, media and TV & radio announcements and interview, has been under taken

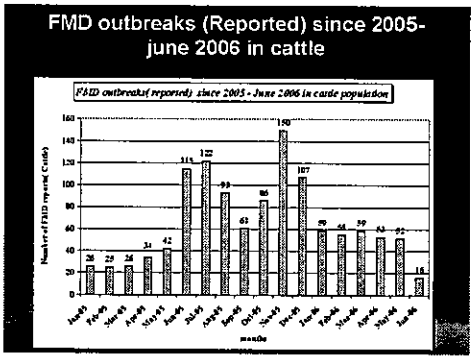
FMD outbreaks during Jan. 2003 – December 2004 in cattle population



Vaccination policy with 4-month interval in cattle population(Each phase lasted 30 working days)



FMD outbreaks (Reported) since 2005-june 2006 in cattle



Number of samples send to WRL during April 2005- June 2006

Lab.	WRL				
Count of result	type of animal				
result	goat	camel	cattle	sheep	Grand Total
Negative	1		2	1	4
type A			16	1	17
type O			4	2	6
Unknown		1	28	2	31
PCR +			2		2
Grand Total	1	1	52	6	60

Number of samples collected during April 2005-June 2006

Lab.	(All)					
Count of result	Type of animal					
result	Goat	Camel	Cattle	Buffalo	Sheep	Grand Total
Negative	10		212		45	267
Rejected	2		47	1	20	70
type A			107		3	110
Type A + O			2			2
Type A87	1		21		1	23
Type A85		1	76			77
Type A85 +A22			1			1
Type A85 +A87			9		1	10
Type A85 +O			2			2
type O	1		42		7	50
Unknown		1	134		12	147
PCR +			14	1		15
Asial					1	1
Grand Total	14	2	667	2	90	775

Conclusion

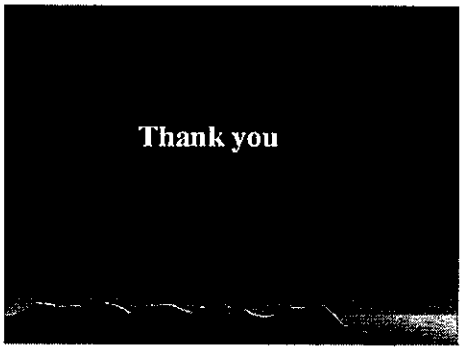
- continues vaccination policy
- GIS method conducted in all the provinces,
- Develop tools for Risk analysis,
- Contingency planning & emergency preparation,

Number of samples send to CVL during April 2005- June 2006

Lab.	CVL				
Count of result	Type of animal				
result	goat	cattle	Buffalo	sheep	Grand Total
Negative	9	179		43	231
Rejected	1	20	1	6	28
type A		90		2	92
Type A + O		2			2
type O	1	34		5	40
Unknown		77		8	85
Asial				1	1
Grand Total	11	402	1	65	479

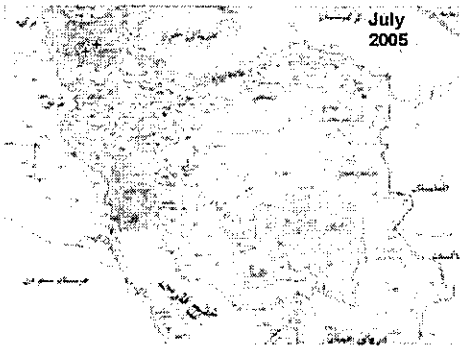
Number of samples send to RAZI Ins. during April 2005- June 2006

Lab.	RAZI INSTITUTE					
Count of result	Type of animal					
result	goat	camel	cattle	buffalo	sheep	Grand Total
Negative			31		1	32
Rejected	1		24		13	38
type A			1			1
Type A 97	1		21		1	23
Type A05		1	76			77
Type A05 +A22			1			1
Type A05 +A37			9		1	10
Type A05 +O			2			2
type O			4			4
Unknown			29		2	31
PCR +			12	1		13
Grand Total	2	1	210	1	18	232



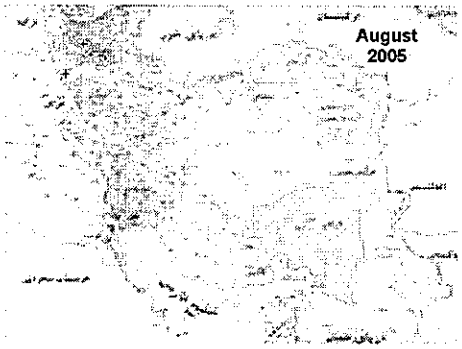
RAZI INSTITUTE, TEHERAN

GOOD SCIENCE



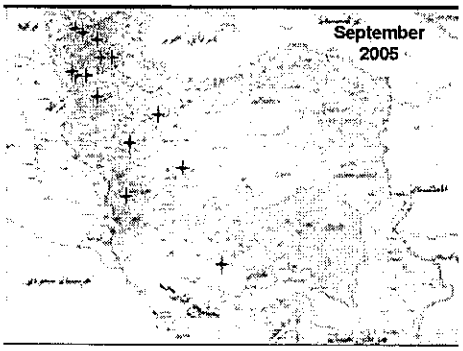
IRAN FMD Vaccine History

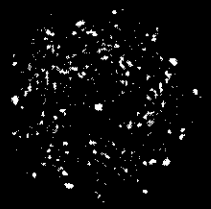
1960	O , Ashz	LK primary
1962	O , Ashz , SAT1	LK primary
1963	O , A , SAT1	LK p & BHK m
1966	O, Ashz,A22	frenkel & BHKm
1969	O , A22 ,	LK p & BHK m
1973	O , A22 , Asia1	BHKs&BHKm&frnkl



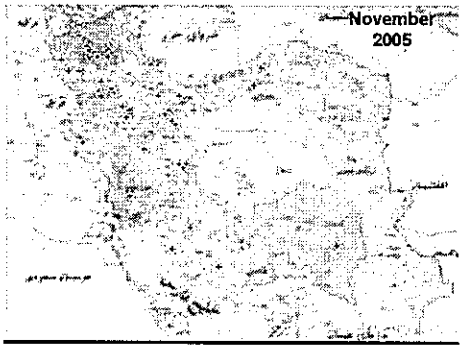
IRAN FMD Vaccine History$_{cont}$

1987	O , A87IR , Asia1	BHKs&frnkl
1992	O , A87IR	BHKs
1996	O , A87IR , A96	BHKs
1999	O,A87IR,A96,Asia1	BHKs
2001	O,A87IR,Asia1	BHKs
2005	O,A87IR,A05 ,Asia1	BHKs



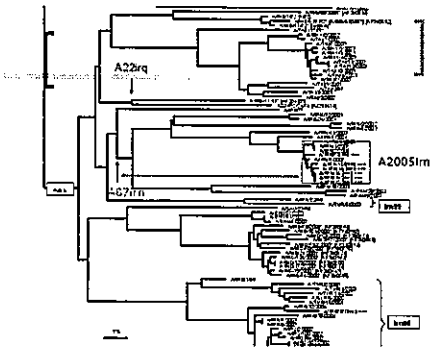


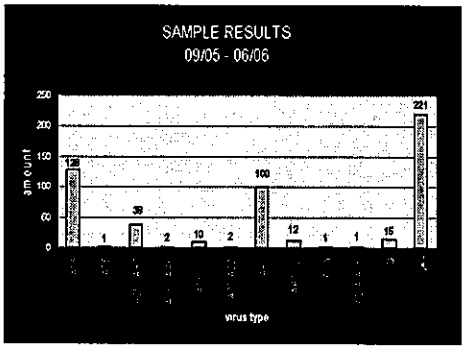
FMD virus



FMD Virus subtypes A IRAN 1987 - 2005

- A22 (A22 Iraq) 1977
- A87IR (mardabad) 1987
- A96 (A200) 1996
- A577 1997
- A05IR (A179) 2005





A Irn 1999/22					0.47*
A Irn 2001/31	0.38				0.1
A Irn 2002/5	1			0.05	0.1
A Irn 2003/5	0.33	0.14		0.12	0.1
A Irn 2003/7	0.13	0.09	0.06		0.03
A Irn 2003/10	0.38	0.29		0.14	0.39*
A Irn 2003/43	0.33	0.35			0.4*
A Irn 2004/7	0.47	0.11	0.12		0.1*
A Irn 2004/22	0.26	0.4	No result	No result	0.1/0.25*
A Irn 2004/23		1	0.12	0.14	
A Irn 2005/1		0.06	0.16	0.14	0.09
A Irn 2005/4	1	0.11	0.14	0.14	0.07
A Irn 2005/5	0.75	0.1	0.17	0.07	0.2*
A Irn 2005/7	0.22	0.05			
A Irn 2005/17	0.07	0.19			
A Irn 2005/22	0.45	0.05			
A Irn 2005/28	0.42	0.05			
A Irn 2005/29	0.45				

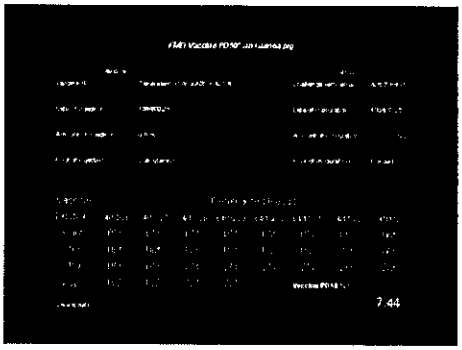
Relationship value of 5 subtypes A isolated from IRAN (1987 - 2005)

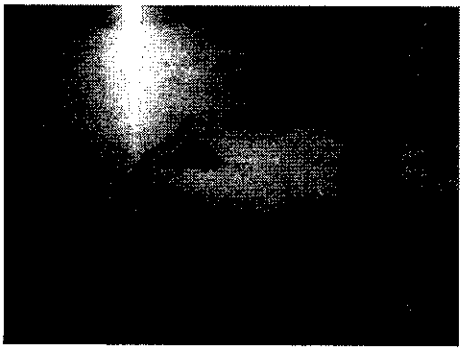
serum / Virus	A05IR	A87IR	A577	A22	A96
	1	0.46	0.5	0.37	0.05
	0.52	1	1	0.375	0.06
	0.46	0.92	1	0.37	0.062
	0.6	0.54	0.64	1	0.4
	0.048	0.6	0.72	0.68	1

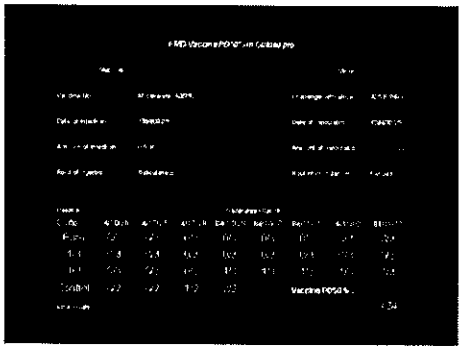
Relationship value of 5 subtypes A isolated from IRAN (1987 - 2005)

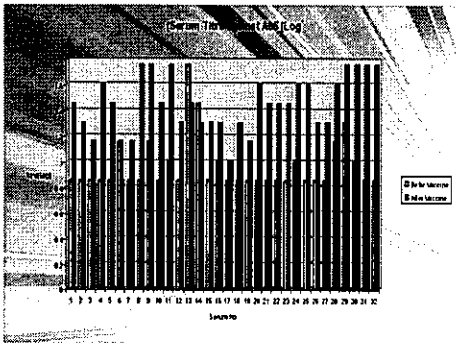
	A05IR	A87IR	A577	A22	A96
A05IR	1	....	....	....	....
A87IR	0.46	1	....	....	....
A577	0.47	0.91	1	....	....
A22	0.43	0.45	0.42	1	....
A96	0.05	0.21	0.20	0.27	1

0.7 – 1 no significant difference
0.3 – 0.7 significant difference (new sub type)
0 – 0.3 highly significant difference









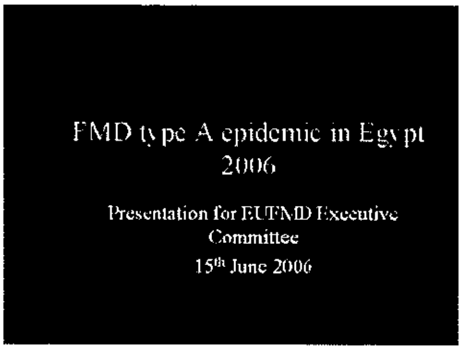
Sience saves life

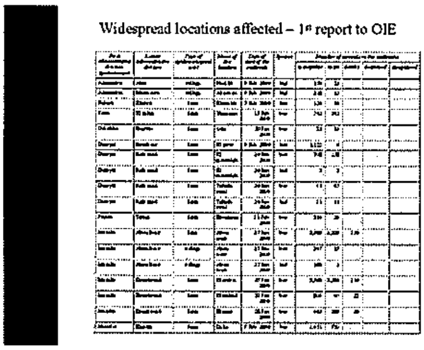
Science makes life easier

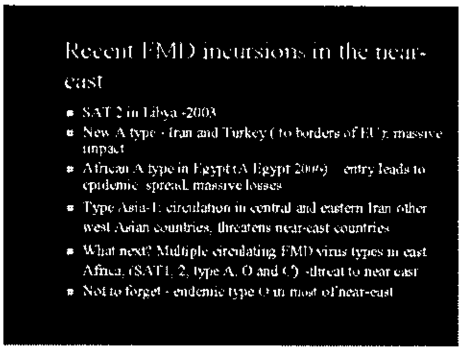
Science makes life purposfull

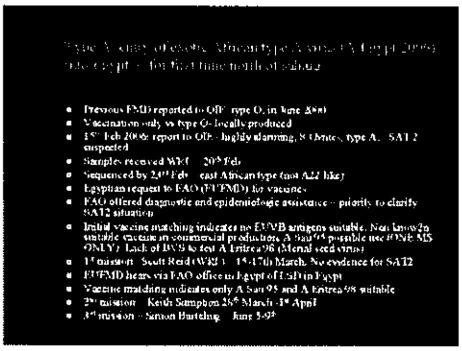
Through Research

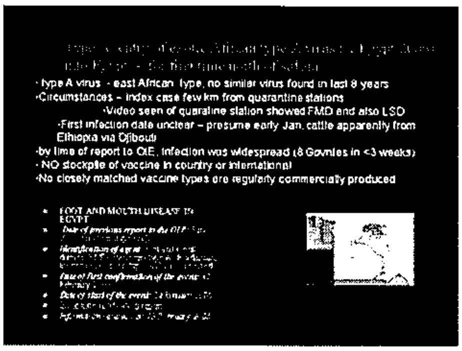
FMD TYPE A EPIDEMIC IN EGYPT, 2006

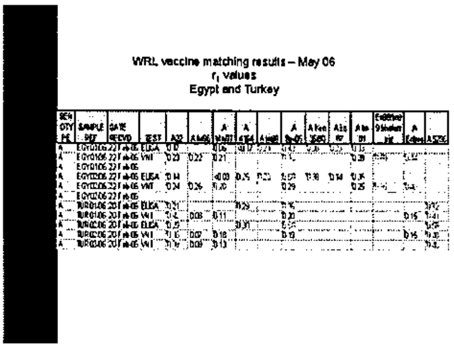












8. That **Egypt establishes a vaccine or antigen bank**, in Egypt or through a commercial contract with a vaccine supplier, that will enable GOVS to respond to new disease introductions with a rapid (1 week) delivery of vaccine for use in ring vaccination.
9. That Egypt, in collaboration with FAO and OIE, plays a supportive role to improve the information and surveillance for FMD virus types circulating in the Horn of Africa region, including networking between scientists to ensure better identification of risks and contingency plans to prevent similar future crises.

FAO support to the above

The lack of an antigenically matched vaccine to the A Egypt 2005 strain has prevented FAO from being able to offer a matched vaccine for use in this situation.

The EUFMD Commission of FAO wishes to support Egypt to produce the new vaccine at VSVRI Abbasia and therefore will act to supply of suitable cell lines for suspension cell culture; VSVRI is invited to make a precise request to FAO for other items immediately required to increase vaccine production throughput

On an immediate basis, FAO will assist to resolve technical questions by covering the costs of the shipment of samples to Pirbright (at least 3 shipments, for example one per month).

FAO invites a response to the above recommendations; FAO may be able to provide additional support on request, for example in training of GOVS staff , in preparation of investment plans, etc.

Acknowledgements

The open and transparent discussions with GOVS staff, which were held during such a difficult and busy times for GOVS in disease control, greatly assisted the mission. The hospitality provided during the field trip is most warmly appreciated.

Lumpy skin disease

The lack of detailed information available on LSD first appearance and subsequent spread prevents an accurate assessment of the situation. The situation in affected Governorates appears locally severe but possibly LSD has not spread widely in each affected area. The main risk season (fly season) is approaching and therefore extra attention is needed to 1) reduce spread in affected areas and 2) achieve good and effective vaccination.

General Recommendations

1. Epidemiology unit of GOVS should first review the current distribution and assess risk of spread of the epidemic.
2. GOVS should define the strategy and thereafter declare the campaign strategy for the current situation,
3. Given the infectivity of animals from herds during recovery phase after outbreaks, consider permitting movements only direct to slaughter;
4. If possible, complete vaccination across the country before the major fly transmission season occurs;
5. **Improve the vaccine handling instructions** and ensure **Governorates act to increase the understanding of veterinarians of the importance of vaccine handling** to avoid exposure of the live virus to sunlight and other factors that will affect vaccine efficacy;
6. Consider increasing the titre of virus in each dose, if lack of viable virus at the point of use is considered part of the problem of vaccine failure.
7. Provide virus samples from the outbreaks to Pirbright;
8. Test vaccine by a challenge test using LSD virus (Neethling virus); external support from Pirbright may assist to introduce and use the PCR test to determine the effect of vaccination on virus shedding.

Foot-and-Mouth Disease

Specific recommendations

1. Prevention at herd and village level:
    a. Banning of live animal markets in affected districts until vaccination completed (only allow direct to slaughter) ;
    b. Public awareness messages indicating how to avoid infection: via all effective routes;
    c. Connection to avian influenza; human activities spread FMD and AI - re-enforce the message
    d. Communicate how to avoid bringing infection into village/herds
    e. Communicate how to reduce spread within affected villages – sick animals to be nursed at home, NOT taken to pasture or clinics
    f. Public awareness
    g. Report cases to clinic
    h. Once infection is known within a district, continue the public awareness until vaccination completed.

2. Vaccination:
    i. Give highest priority to increasing the production at Abbasia of type A Egypt 2006 vaccine, thereby producing at least 2 million doses per month of type A vaccine to enable production of national needs in 4 months;
        1. in short term, type O manisa vaccine requirements to be sourced from other producers that comply with GMP and OIE/EP requirements;
        2. To increase monthly production, FAO to respond to informal request of Abbasia for BHK cell lines that are adapted for suspension cell culture;
        3. Abbasia to provide the A Egypt 2006 seed virus (BHK cell adapted) to FAO to enable production at other quality approved sites;
    ii. Vaccination strategy;
        1. **define and declare the campaign strategy** – the objectives of vaccination, and the time to reach this; for example to achieve vaccination of all large ruminants in Egypt within 4 months, and emergency vaccination in high risk populations within 4 weeks after vaccine availability;
        2. **priority population:** should include all **large** ruminants including calves (from one day of age) since maternal antibodies do not exist from past vaccinations; include sheep and goats in later campaigns when adequate vaccine supply has been achieved

3. **boosters**: given the very high level of contamination, the primary vaccination with type A should be followed by a booster dose 1-3 months later. Since vaccine is in short supply, it is suggested that boosters are not given until vaccine sufficient for 100% of the national cattle and buffalo population has been distributed (e.g. in 3-4 months from present)

4. define and declare the strategy – the objectives of vaccination, and the time to reach this - for example:

a. Objective 1: to reduce risk of spread to currently unaffected Governorates by creating a strategic vaccination barrier in Governorates that have special importance for disease movement;

i. Governorate of.....

ii. Target of 100% vaccination in this Governorate within 30 days;

b. Objective 2: to reduce potential loss in most at risk districts which are threatened by proximity to infected districts;

i. Before vaccine is released, each affected Governorate should define their free and least affected districts;

ii. GOVS should then decide on vaccine allocation , taking into consideration the need to create geographical blocks of vaccination (districts that are joining)

iii. Conduct vaccination on an emergency basis in order to achieve an effective immunity in the population - giving a short but feasible target time, e.g. 14 days to achieve 100% vaccination in such Districts, after vaccine receipt

iv. Aim at high (100%) vaccination of cattle and buffalo within such districts,

v. To avoid waste of vaccine and to reduce spreading infection by vaccinators:

1. Vaccination to be conducted at the household (not centrally) on the proclaimed day;
2. fresh needles for each animal to be used, re-use after sterilisation if necessary;
3. every team to carry disinfectants and to disinfectant themselves and vehicles before moving to new villages;
4. if teams meet signs of FMD infection;
   a. to avoid vaccination on that holding and those within 100 metres and/or those holdings beside road used by this group of animals moving to fields in past week;
   b. team to remove possible virus on boots, hands, clothing and vehicle before moving on;
   c. if in a District widespread (>25%) active or undiscovered past infection is detected, then to avoid waste of vaccination and spreading infection, move to another District, or more than 5 km from the affected villages;

c. Campaign progress:

i. each week the Governorates to provide the following progress report to GOVS: number of cattle and buffalo vaccinated in past week, by district; cumulative totals vaccinated per district; and cumulative proportion vaccinated (% total cattle and buffalo vaccinated)

d. Sero-monitoring:

i. Consider blood sampling of a cohort of >20 vaccinated animals every 3 weeks (21 day) intervals to assess duration of immunity;

ii. Review sero-monitoring scheme to ensure that the it will meet needs of current situation;

Report of a short mission (5 to 9 June 2006) to the Veterinary Serum and Vaccine Research Institute(VSVRI) at Abassia, Cairo to advise on possibilities to improve and increase FMD vaccine production.

By Dr. S.J. Barteling[7], FAO Consultant

(abridged version for 73rd Session Report)

Summary

In Egypt in February this year there were outbreaks of FMD type A in a (private) quarantine station near Ismalia that receives cattle from Ethiopia for slaughter in Egypt. In Egypt routine vaccination is against type O1 only, therefore Egyptian cattle were not protected against this FMD sero-type. The virus escaped into the country and caused very severe disease in dairy cattle and buffalo in particular. Sheep and goats don't seem to be susceptible for this type of virus.

The virus type was not matched very well by existing vaccine strains and, therefore, international assistance, by sending vaccines from international suppliers, was not possible. The country must completely rely on the vaccine production at VSVRI at Abassia, Cairo. There, in March they started to produce type A vaccine which was added to the type O to make the vaccine bi-valent. The production so far was reasonably successful and 3 million doses have been produced since then. The vaccine was immediately sent to the field to protect valuable dairy herds and buffalos in threatened areas in the first place. The vaccine seemed to work reasonably well and the number of (registered) outbreaks on the large dairy farms has recently been decreased considerably. However, there certainly is FMD going on in backyard farms where it is not always notified.

The aim is to vaccinate in the course of the year all susceptible cattle and buffalo twice. To this end 14 million doses are needed. With the current facilities the institute can only provide about 60 – 70 % of that quantity, and, therefore the production output must be increased by approximately 35%.

The production facilities are in a relatively poor condition. I have discussed with the staff how to improve the situation by simple means, trying to introduce some of the principles of Good Manufacturing Practice (GMP).

The virus is produced in roller bottles with cells of the baby hamster kidney (BHK) cell line which is not easy to scale-up. Limitations are roller bottle equipment and incubating room facilities.

There is experience with BHK suspension cultures. A number of staff members were made familiar with this technology about twelve years ago when they have been trained in Lelystad, The Netherlands, in the context of an EU-supported project. Also, in the context of that project sophisticated (Applikon) fermentor equipment was installed as well as modern filter equipment, an ultra-centrifuge and UV-scanning equipment for 146 S antigen detection.

The suspension cells obtained from Lelystad were lost by contamination and by insufficient backing-up from the liquid nitrogen stock. Also, the electronic regulation equipment of one of the (key) fermentors needs to be repaired. I have contacted the supplier but am awaiting their reaction.

The idea is to incorporate BHK-suspension cultures into the system and use cells that both grow in roller bottles and in suspension like were used in Brescia in the past. Dr. Sumption has already approached Brescia to send the cells to Cairo. VSVRI intends to seed roller bottles with cells grown in suspension (BHK cells on roller bottles often give higher virus yields than in suspension). Seeding with suspension cells will allow using the roller bottles for virus production that currently are used to produce sufficient cells. It would increase the production capacity with about 30 %. For seeding all the roller bottles approximately 40 l of suspension culture cells are needed daily. However, one must be careful. The Brescia cells certainly have properties that differ from the current VSVRI cells and might perform less good for the current Egyptian vaccine strain. Also, the production becomes dependent on the success of the suspension cultures and one must be careful to change a winning team. Therefore, I have recommended first to apply seeding with suspension cultures (when available) for half the roller bottle capacity only. This will require approximately 20 l of suspension cells per day. If the 140 l Applikon fermentor is used for cell production, the remaining cells can be sent to the (old) Olsa fermentor (250 l) for virus production. I have advised on how to operate the Olsa fermentor by simple means. If this is successful, certainly sufficient antigen can be produced to fulfil the Egyptian requirements.

All these aspects have been discussed with the staff.

Also the organization of the production may need further attention. Medium preparation and cell production could better be carried out in (two) specialized units.

A Quality Control (QC) laboratory and a Research and Development (R&D) unit both well equipped and with well trained staff should accompany the production.

---

a. [7] Simbar Consultancy, Amsterdam

Formulation of the vaccine is not based on 146S-antigen content but on a fixed volume of virus harvest. Virus harvests are evaluated for sufficient antigen by the classical semi-quantitative complement fixation reaction (CBR) test and by a semi-quantitative ELISA test. By these (immunological-based) tests at least the presence of a certain amount of antigen is verified. They also check that the harvest contains the intended virus-type and is not contaminated with the other type.
146 S equipment is available but not operational. I have given some suggestions to make this equipment operational, however there was not sufficient time to implement my suggestions and to try this out.

Conclusion and recommendations

1. Facilities and organization

1.1. The facilities are about 50 years old and not well-maintained and are nowhere suited to meet criteria for Good Manufacturing Practice. Certainly, improvements by simple means (regular thorough cleaning, painting etc.) can contribute to a better production environment.

1.2. In general terms the vaccine production can be called old-fashioned. There are no (fixed) Standard Operational Procedures and clear quality criteria. It is a "free-floating system'. On a daily basis the operator or the management decides about what to do.

1.3. The organization of the vaccine production laboratory is evaluated by haphazard circumstances (available rooms, equipment, staff), not by a logical task-associated schedule of complementary activities in rooms dedicated to a particular task. For the longer term it is recommended to build new facilities with proper logistics and organization that meet basic GMP requirements.

1.4. Functions of rooms and names of staff members responsible for the functionality of the rooms are not indicated. Often production rooms contain much "rubbish" that does not contribute to the functionality of the rooms. It is recommended to implement a system making individual staff members responsible for functionality of rooms. A system of (critically) self-auditing by staff members may help in that respect.

1.5. The medium preparation for cell and virus production is carried out at 5 locations, which is not very efficient. Also, quality control becomes more complicated, in fact is missing. It is recommended to create one unit for medium preparation and to try to implement optimal a-septic circumstances.

1.6. Cell production is at 4 locations. For the moment one can leave it like that. On the longer term, when suspension cultures of the Brescia cells are successful, a more simple organization is recommended.

2. Vaccine formulation

2.1 Evaluation of antigen content of (inactivated) virus harvest is by semi-quantitative CBR and ELISA tests. Equipment for quantitative sucrose gradient centrifugation is available and it is recommended to make this (again) operational, if necessary, by making a pre-concentration step of samples by precipitation with PEG (e.g. 5x concentrated).

2.2 When 146S data are in agreement with CBR and ELISA data, vaccine formulation should be based on µg antigen rather than on culture harvest volume.

2.3 Saponin (0.8 mg/dose) is added as well as Al(OH)3 gel. The saponin is semi-purified and is obtained from two suppliers. Because batches of saponin may differ in their adjuvant activity it is recommended – for better standardization – to add saponin from both suppliers.

3. Vaccine performance

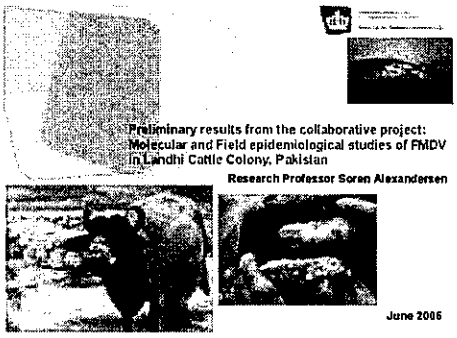
3.1 A batch of bivalent vaccine has been tested in cattle that were naïve for FMD (no antibodies). The vaccine performed quite well with neutralising antibody titres that varied in the range of 1.5 and 2.0 for type A and O respectively. These levels suggest sufficient protection. Better insight would be gained if more batches could be tested. Also it would help to send the samples to WRL, Pirbright for testing and to compare the results.

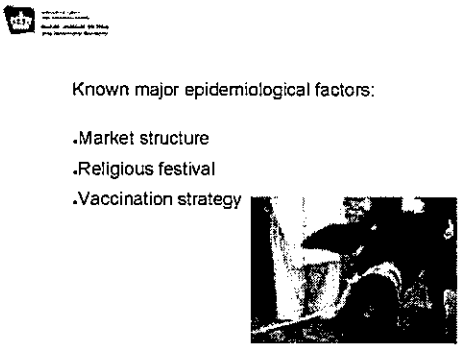
3.2 Performance of the vaccines in the field will be evaluated by post-vaccination serology of cattle in an relatively isolated area (kind of oasis) of which the Egyptian Veterinary Service is pretty sure that there are no cases of FMD yet. Although the first data must be available, I have not seen them yet and I have asked to send them by e-mail. It will certainly contribute to better insight on quality of the vaccines, their stability, and adequate (cold chain) shipment conditions. Also, it is recommended to send these sera to WRL for further evaluation.

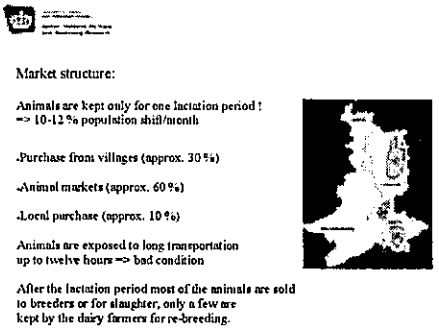
Acknowledgments
I thank Dr. Adel Rahman and his staff for the warm welcome and the open, friendly, and supportive atmosphere during my stay at VSVRI. The hospitality encountered was greatly appreciated.

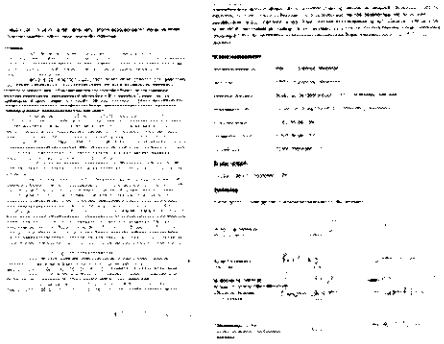
PRELIMINARY RESULTS FROM THE COLLABORATIVE PROJECT: MOLECULAR AND FIELD EPIDEMIOLOGY STUDIES OF FMDV IN LANDHI CATTLE COLONY,

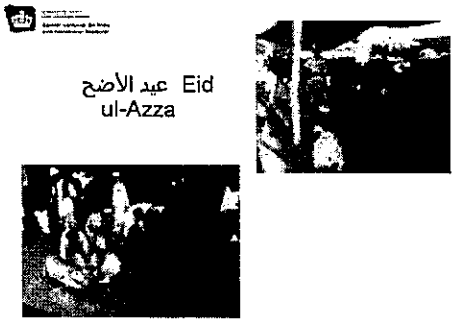
Soren Alexandersen











Milk supply in Pakistan:

- Milk supply in Pakistani urban areas consist mainly of Dairy colonies in the outskirts of cities
- Milk/Milk products are a major part of traditional Pakistani diet

- Landhi Cattle Colony is the largest dairy colony in Pakistan and the largest Buffalo colony in the world (more than 200 000 animals, 95 % > buffalo's)

FMD vaccine practise in Landhi Cattle Colony

- The majority of commercial dairy farmers use FMD vaccine (both local and imported)

- The usual practise is to vaccinate once with the expensive imported vaccine (mostly Aftovax Merial, France, but also Decivac FMD, Intervet,and/or several (2-3) times with the monovalent-(O)- vaccine produced by FMD research centre in Lahore.

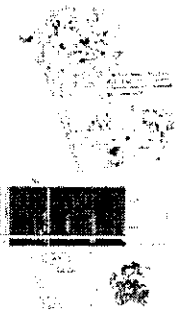
- In addition, vaccines imported from India, China, former Yugoslavia and Spain are sometimes used.

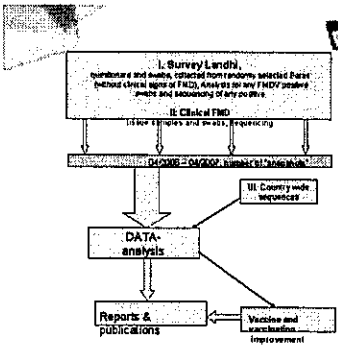
A combination of

„shoe-leather/rubber boots epidemiology"

and

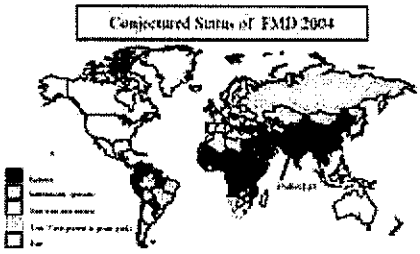
„armchair and molecular epidemiology"

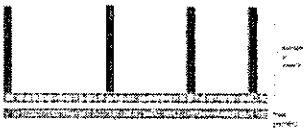


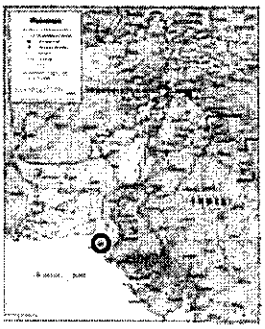


Made 2 visits, Collected 16 samples With 13 (1%) positive for FMD (type O and A) and collected 126 mouth swabs

Conjectured Status of FMD 2004

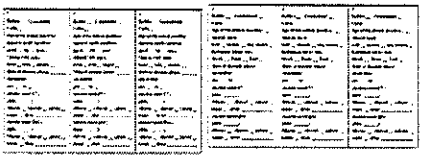




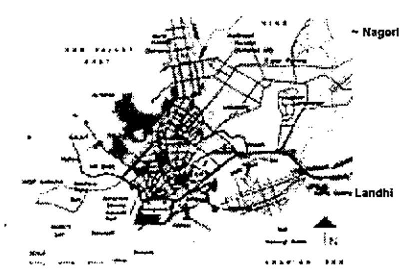


Landhi FMD Survey Questionnaire

Sample No.: ___

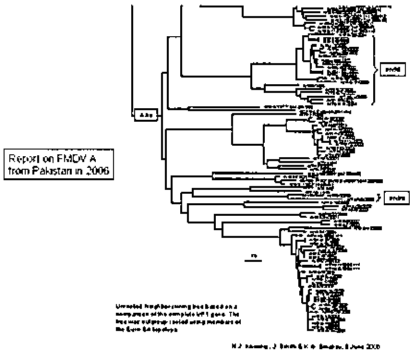


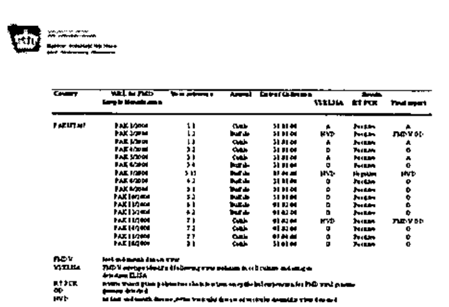
Karachi city districts and Landhi Dairy Colony

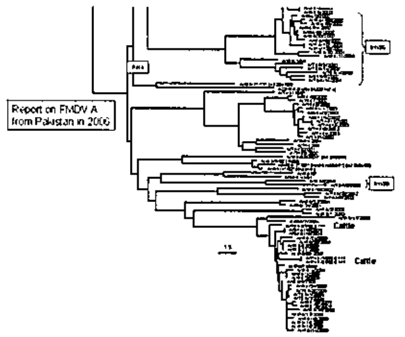


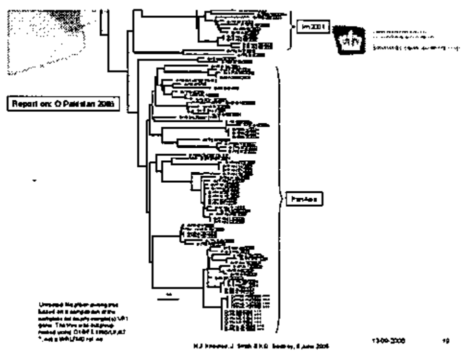
Some problems with shipment of samples FROM WRL and consequent (mental) reactions !!

?

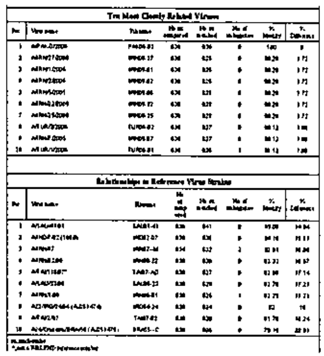


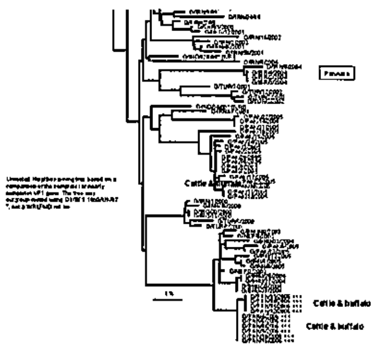






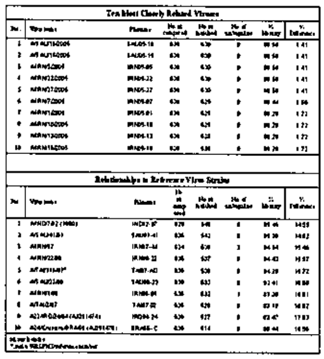
Serotype: A
WRL Ref No: PAK/1/2006
Sender Ref: 1.1
Date collected: 31/01/2006
Species: Cattle
Topotype: Asia
Genotype/strain: none designated





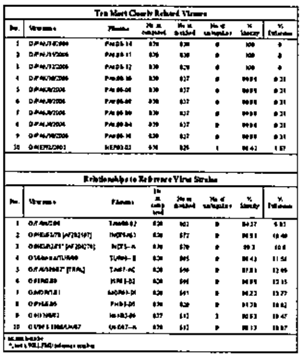
Serotype: A
WRL Ref No: PAK/6/2006
Sender Ref: 3,3
Date collected: 31/01/2006
Species: Cattle

Topotype: Asia
Genotype/strain:
none designated



Serotype: O
WRL Ref No: PAK/15/2006
Sender Ref: 7,7
Date collected: 07/04/2006
Species: Cattle

Topotype: ME-SA
Genotype/strain: PanAsia



EPIs taken at visits by Soren Alexandersen in Pakistan.

[illegible]

Short summary of results so far:

Samples containing FMDV type A marked in yellow and type O in green

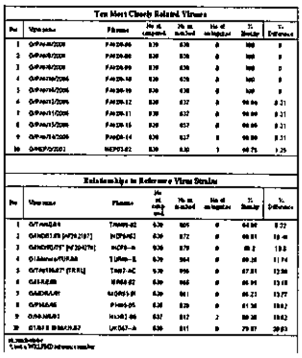
Of the 3 type A samples (all from cattle), two were similar/identical and one slightly different (A PAK/5/2006 in blue text and marked with *).

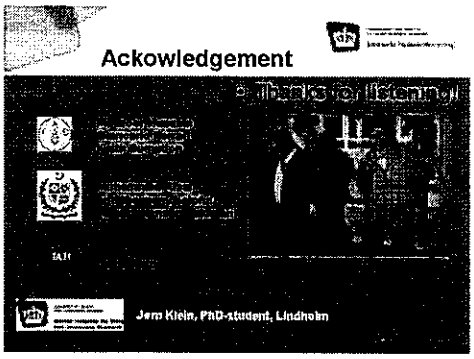
Of the 10 type O samples, 4 fell in one group (red text and a *) and the other 6 in another slightly different grouping (both found in both cattle and buffalo).

Serotype: O
WRL Ref No: PAK/4/2006
Sender Ref: 3,2
Date collected: 31/01/2006

Species: Cattle

Topotype: ME-SA
Genotype/strain: PanAsia





Rapport de Mission FAO

European Commission (DG-SANCO) under the EC/FAO Agreement on Activites of the EUFMD Commission

Collecte d'échantillons biologiques dans les foyers de Fièvre aphteuse au Niger pour la détermination et la caractérisation des souches virales circulant en Afrique de l'Ouest

(19 novembre - 03 décembre 2005)

Summary (English)
Recommendations (EN and FR versions)
Full Report available from the EUFMD Secretariat

Dr. E. Couacy-Hymann, DVM, MSc, Ph.D
Coordonnateur régional du TCP 2916
LANADA / LCPA
Bp 206 Bingerville, Côte-d'Ivoire
Tél : 225 22 403 136 / 138, Fax : 225 22 403 644
E-mail : e.couacy-hymann@globeaccess.net

Dr. F. Geiger, Expert FAO
Projet EUFMD – Téhéran – Iran

Summary
This mission has been undertaken to collect samples from FMD outbreaks in Niger as it is recognised that the Sahalian zone is an enzootic area for FMD in West Africa. These biological samples will be served to characterise virus strain circulating in West Africa.
The mission, from November 19th to December 03rd 2005, lies in the inter-epizootic season of FMD outbreaks according to information collected from farmers and veterinary field staff. One peak of outbreaks is observed during the raining season from June / July to September and the second during the dry fresh season, from December to February. Due to this, few samples are collected. However the success of this mission is in the collection of important field information from farmers and field staff. Indeed, a better understanding of animal movements through the country and from neighbouring countries such as Nigeria, Benin, Burkina-Faso is obtained. FMD is spread from sick animals to naïve one easily at the concentration zones like cattle markets, gathering zones and water sites according to the seasons.
The surveillance made by vet field staff is very weak due to a lack of means to work. In consequence, they have not the real image of the field situation. In contrast, farmers has a good knowledge of FMD and how limiting its diffusion from herd to herd. FMD is one of the major diseases for them and expect an urgent solution to this problem which causes high mortality in the young animal population.
FMD is reported in some cases from sheep but not from goats.
Other diseases reported by farmers are: CBPP, PPR, Pasteurellosis and TBD.
This mission was a success and need to be extended to identified and enzootic countries. Other major diseases will be taken in account.

Programme de tournée
19.11.05 : Abidjan – Niamey
20.11.05 : Niamey – Ingall (nuit à Ingall)
21.11.05 : Tournée à Ingall (nuit à Ingall)
22.11.05 : Départ pour Zinder via Agadez (nuit à Tanout)
23.11.05 : Départ de Tanout pour Zinder – Diffa (nuit à Diffa)
24.11.05 : Diffa – Ngui-gmi (Lac Tchad) (nuit à N'gui-gmi)
25.11.05 : Ngui-gmi - Lac Tchad (nuit à N'gui-gmi)
26.11.05 : Ngui-gmi - Sayam (ferme d'état, nuit à Sayam)
27.11.05 : Sayam – Gouré (nuit à Gouré)
28.11.05 : Gouré – Matameye – Dakoro (nuit à Dakoro)
29.11.05 : Dakoro – Birma N'konni (nuit à Birma-N'konni)
30.11.05 : Birma-N'konni – Gaya (nuit à Gaya)
01.12.05 : Gaya – Ouna- Niamey

02.12.05 : Débriefing à la FAO, au Ministère de l'Elevage.
Total distance parcourue : 5622 kms

Recommandations

Pour le Niger :

Actions immédiates

- La fièvre aphteuse fait partie des 4 maladies (peste bovine, PPR, PPCB et Fa) retenues dans le cadre du projet PACE. L'information et la formation des agents de terrain remontent à 2001. Les ateliers de formation prévus dans le cadre du TCP FMD 2916 n'ont pas été exécutés.

Aussi est il nécessaire et urgent d'organiser des ateliers de formation portant sur la fièvre aphteuse dans 4 régions du pays : Niamey, Agadez (Ingall), Zinder ou Maradi et N'gui-gmi. Au cours de ces ateliers des affiches sur la FA (confectionnées par le TCP 2916 et disponibles à la Direction de la Santé animale) seront distribuées avec des pots de prélèvement contenant du milieu adéquat de transport. Assisteront à ces ateliers, les responsables techniques de l'élevage, les éleveurs, chefs coutumiers.

Ces ateliers seront organisés par le Directeur du Labocel en collaboration avec le Coordonnateur national du TCP. Le Coordonnateur régional du TCP devra participer à l'animation de ces ateliers comme lors de l'atelier de Niamey en 2004.

Ces ateliers devront avoir lieu en janvier / février 2006 pour permettre aux agents d'être outillés pour la collecte d'échantillons en cette saison sèche froide.

- Associer les projets d'appui à l'élevage tels les ONG et Proxel à la collecte des données de terrain.
- Instituer une motivation pour l'agent qui effectue un prélèvement biologique de qualité et accompagné d'une fiche de commémoratifs correctement remplie.
- Continuer d'effectuer des prélèvements biologiques dès qu'un cas de Fa est connu.
- Effectuer des prélèvements sanguins sur les petits ruminants vivant ensemble avec les troupeaux de bovins atteints de Fa.

Actions à moyen terme

- L'élevage étant un secteur de première importance pour le Niger, la santé du cheptel doit être pris en compte de façon réelle. Aussi est-il judicieux d'équiper les postes vétérinaires pour leur permettre d'assurer le service qui leur est demandé.

Pour la sous-région :

- Organiser le même type de mission dans les zones de transhumance du Burkina-Faso, Bénin et inclure le Nigeria. Pour cela le Coordonnateur régional devra prendre attache avec les différents coordonnateurs nationaux pour l'organisation de ces missions de terrain. Seront concernés par ces missions le Coordonnateur régional, l'Expert FAO et le Laboratoire vétérinaire en collaboration avec le Coordonnateur national. Ces missions de terrain pourraient servir à recueillir d'autres données d'importance en santé animale du pays visité.
- Créer un pôle d'expertise en Afrique de l'Ouest appuyé sur le Laboratoire régional de Bingerville (Côte-d'Ivoire) afin de centraliser les données sur la fièvre aphteuse et avec des coordonnateurs nationaux à même d'animer le réseau.

- **Un projet d'Observatoire régional de la Fièvre aphteuse en Afrique de l'Ouest**

Les éléments collectés au cours de cette mission permettent d'affirmer que la Fièvre aphteuse est endémique dans la bande sahélo-soudanienne et que les mouvements d'animaux liés à l'agro-pastoralisme sont les facteurs de dissémination de la maladie.
Compte tenu des conséquences économiques directes et indirectes que cette maladie a sur l'économie villageoise, une surveillance active de cette maladie permettrait d'envisager la mise à disposition des éleveurs et des propriétaires de bœufs de traits qui le souhaitent le vaccin permettant d'éviter la maladie.

S'appuyant sur les réseaux épidémiologiques existants (programme Pace, projets thématiques des ONG, etc....) et un réseau de laboratoire nationaux mis à niveau, un projet de réseau régional de surveillance de la Fièvre aphteuse pourrait permettre de suivre l'évolution de la maladie et des souches circulant dans la sous-région.

La participation du Nigeria à ce projet est à mon avis une des conditions de réussite de ce projet.
Une réunion bilan du TCP / RAF / 2916, avec invitation du Nigeria, serait sans doute l'occasion de présenter ce projet d'Observatoire régional de surveillance de la Fièvre aphteuse.

- Rédiger et présenter un projet pour financement par les bailleurs de fonds pour le contrôle de la fièvre aphteuse en Afrique de l'Ouest avant la fin de l'année 2006.

- **La recherche de bailleurs internationaux du projet d'Observatoire régional de la Fièvre aphteuse en Afrique de l'Ouest**

Un projet argumenté économiquement devrait être présenté, avec le soutien des pays participants et des organisations internationales (OIE et FAO), aux instances internationales susceptibles d'être intéressées par le soutien financier d'un tel projet .

Recommendations

For Niger :

Immediate Actions

- FMD is one of the four diseases retained in the PACE project to be involved in the surveillance along with Rinderpest, CBPP and PPR. Workshop on these diseases has been organised in 2001 and nothing was implemented during the FMD TC project.

So it is urgent to organise workshops throughout the country : Niamey, Agadez (Ingall), Zinder / Maradi and N'gui-gmi.
CVO, field staff, farmers and Tribal organisation will attend these workshops.
Materiel for samples collection and posters will be distributed.
Workshops will be organised by the head of the vet lab (Labocel) in collaboration the head of Vet Services.
The regional coordinator will be involved
The programmme should be start early in 2006: January / February.

- ONG and other projects involved in livestock development will be concerned by this surveillance of FMD.
- Field staff will be motivated for the collection of good specimens.
- Samples collection has to be done on a regular basis.
- Serum samples from small ruminants will be taken to study the role of these species in FMD disease.

Middle term Actions

- Field staff have to be well equipped for efficient activities.

For West African region :

- A similar mission will be undertaken in other countries: Burkina-Faso, Benin and Nigeria. For this purpose the regional Coordinator will liaise with appropriate persons in these countries for the organisation of these missions.
  These missions will involve the regional Coordinator, FAO Expert, and The national Vet Laboratory (in collaboration with the national FMD Coordinator).
  During these missions other major diseases could be taken in account.

- Establishment of a regional centre for FMD surveillance lied on the regional lab in Bingerville in connection with national coordinators.

- New regional project of FMD in West / central Africa to be presented for funding by end of 2006.

Remerciements

Nous remercions les Autorités du Niger qui ont permis d'effecteur cette mission dans de très bonnes conditions.
Nous remercions les Autorités locales qui nous ont accueillis et nous ont aidés à accomplir cette mission.
Nous remercions la Représentation locale de la FAO pour son assistance.

Annexe

Les visites réalisées ont été les suivantes :

REGION	DEPARTEMENT	LIEU	Personne rencontrées
AGADEZ	Tahoua	Antenne de Tahoua	Dr Mati MAHAMAN
	Tchirozerine	Poste d'Ingall	Sahiri SEIDOU
		2 Puits Touaregs	
		1 Puit Peuhl M'Bororo	

		Village d'Amataktal	Président des éleveurs
	Agadez	DRRA[8]	M. Moussa SALE
	Tchirozerine	Poste d'Aderbissinat	M. Amza NAKAKA
ZINDER	Tanout	DDRA	Responsable Santé animale
	Zinder	DRRA	Dr Jonathan ABDOU, adjoint Mallan OUSSEIENI, responsable Santé animale
DIFFA	Diffa	DRRA	Adama MANI, Directeur Moussa ISSA, responsable Santé animale
	N'Guigmi	DDRA	Habou ISSA
		Chefferie	Ihoussa MAIMANGA
	Doro (village de pêcheur)	Chef de village, Président de la coopérative d'éleveurs	Yacouba MAIMANGA
	Fourdi (village d'éleveurs)	Ranch d'Etat de Sayam	Aboubakar SALISSOU
ZINDER	Matameye	DDRA	Issa GARBA, Directeur
MARADI	Dakoro	DDRA	Aboubakar HASSIMI, Adjoint
		Projet PROXEL	Methié FAYE, Chef de projet Dr Issouf HAMIDOU, vétérinaire sanitaire
		Eleveur	Fodi BAMMO
DOSSO	Dosso	DRRA	Aba BAOUA, responsable Santé animale
	Gaya	DDRA	Abdullai DJIBO, Directeur Abdullai BOUKARI, responsable Santé animale
	Ouna	Poste vétérinaire	Boubakar BOUREIMA

[8] Direction régionale des ressources animales

IRAN PROJECT PROGRESS REPORT

Project Symbol	Title			Reporting period
MTF/INT/003/EEC	Central Asia FMD Surveillance Centre Project (Combating Foot-and-mouth Disease through enhanced and co-coordinated surveillance activities)			October 2005 / April 2006
Operating Unit	**Lead Technical Unit**	**EOD- date**	**NTE-date**	**Total Project Budget**
A.G.A.H	EUFMD Secretary			Phase 1: US$ 761,000

Progress and Outputs

Summary Immediate Objectives

- To implement the project in Iran according to the rewritten priorities activities and work plan (*cf. previous Project Progress Report, priorities activities and work-plan*) in the 3 pilot areas (7 provinces)

Description of progress towards achievement of Immediate Objectives

- **Project implementation proposals** accepted and Project National Coordinator nominated by the new Head of Iran Veterinary Organisation the 12th of November 2005
- Nomination of **Project National Coordinator** on

Outputs produced during reporting period as outlined in Plan of Operations / Work Plan, under all headings and sub-headings.

- Setting up the **FMD Task Force** at national level and regional level in the 7 pilot provinces

Inputs

1. **List National & International Professional staff assigned to the project during the reporting period**

National		**International**	
Name	Function	Name	Function
Dr. Charkhkar	Project National Coordinator	Dr. Francis Geiger	International Coordinator
Dr. Otarod	Epidemiological Unit responsible,	Dr Donal Sammin	International Consultant for WT1 (Workshop on FMD Active Surveillance and Outbreak investigation)
Dr. Wishte	FMD Task Force Manager		
Dr. Abdullahi	FMD Task Force Co-Manager		
Dr Rassouli Beirami	FMD vaccination campaign resp.		
Dr. Jamdar	FMD Task Force National team		
Dr. Qodsian	Central Veterinary Laboratory (CVL) Director, accidentally dead in November 2005		
Dr. Nazem Shirazi			
Dr. Sedighi Moghadam	New CVL Director		
M. Reza Hassan Zadeh	CVL Molecular Biology Department responsible		
	CVL Serology Department responsible		
	CVL Virology Department responsible		

2. **Equipment received during the reporting period**

not equipment ordered during this period

3. **Training activities during the reporting period, viz: fellowships, study tours, field days, local workshops. Pls list how many trainees (male/female) were involved in each activity.**

During this period, one **workshop** on **active surveillance and outbreak investigation**, **working days in the field** in the **pilot areas**, participation to a **regional meeting** and organisation of a **training session** in World Reference Laboratory have been the main issues

3.1 Local workshop on Active Surveillance and FMD outbreak investigation (agenda_final_WT1)

PROVINCE	NAME	RESPONSABILITY
QAZVIN	Esam NADJAR	FMD Task Force Regional Manager
QOM	S. Mohammad BARANI	FMD Task Force Regional Manager
MARKAZY	Abbas GANJI	FMD Task Force Regional Manager
WEST AZERBAIJAN	Ali CHARMDOOZI	FMD Task Force Regional Manager
CENTRAL KHORASAN	Ali MOGHADAM JAFARI	FMD Task Force Regional Manager
SOUTH KHORASAN	Mohammad SOHRABI	FMD Task Force Regional Manager
SOUTH KHORASAN	Saeed ZIBAEI	FMD Task Force Regional Team
NORTH KHORASAN	Ali ZAREI TOUSI	FMD Task Force Regional Manager

Private sector representatives

PROVINCE	NAME	RESPONSABILITY
QAZVIN	Davood NASERI	FMD Task Force Regional Team
CENTRAL KHORASAN	Ahmad LANGARI FERDOWSI	FMD Task Force Regional Team

IVO Headquarter representatives

DEPARTMENT	NAME	RESPONSABILITY
ANIMAL HEALTH DEPT	Hassan WISHTE	FMD Task Force National Team
ANIMAL HEALTH DEPT Epidemiological Unit	Vahid OTAROD	FMD Task Force National Manager
ANIMAL HEALTH DEPT	Darab ABDOLLAHI	FMD Task Force National Team
ANIMAL HEALTH DEPT	Morad MORADI	Observer
ANIMAL HEALTH DEPT	Naser RASOULI BEIRAMI	FMD Task Force National Team
TRAINING DEPT	Samad BAKHTIARI	FMD Task Force National Team
CVL	Reza HASSAN ZADEH	FMD Task Force National Team
IVO Consultant	Ebrahim MOLAYEMI	Observer

3.2 Meeting of the Executive Committee (meeting-EC_051205)

DATE	PARTICIPANTS	DUTIES
25/12/2005	Dr Charkhkar, Project National Coordinator Representative of Budget, Animal Health	Presentation of the project to the new Executive Committee chaired by the

	Department, International Affairs Department, Training and Extension Department	Project National Coordinator, Dr. Charkhkar. Presentation and Validation of the Project Organisation, the pilot areas, priorities and the6 months work-plan

3.2 Working in the field in the pilot areas (Qazvin-report_060412)

PROVINCE	PARTICIPANTS	DUTIES
QAZVIN	Dr. Wishte, FMD Task Force National Manager p.i Dr Safari, Head of the Province Dr Nadjar, FMD Task Force Manager Dr Chokri, FMD Task Force Dr Gholampour Agdami - Buinzara District - FMD Task Force	- To define High Risk Areas (HRA) according to FMD situation in the province - To set up a specific network including private sector for FMD active surveillance - To plan FMD Surveillance program in HRA
WEST AZERBAIJAN	Dr. Rassouli, FMD Task Force National Team Dr, Head of the Province Dr , Animal Health Deputy Dr Charmdoozi, FMD Task Force Manager Dr, FMD Task Force	- To define High Risk Areas (HRA) according to FMD situation in the province - To set up a specific network including private sector for FMD active surveillance - To plan FMD Surveillance program in HRA

3.3 Participation to a regional meeting (BTOR_Tashkent_060405)

MEETING	PARTICIPANTS	DUTIES
Taskent, Ouzbekistan GFTS/INT/907/ITA 29/30 March 2006	Dr. Geiger Francis, International Coordinator Dr. Wishte, FMD Task Force National Manager p.i	- To present Iran GIS Animal Disease System (GISVET) - To present FMD and AI surveillance systems in Iran - To propose to link GFTS/INT/907/ITA Project and MTF/INT/003/EEC project through common seminars, visit tours, workshops, and training sessions.

3.4 Meeting about new subtype A (meeting_IR_NRIGEB_060419)

PARTICIPANTS	ITEMS
Dr Mahravani - Razi Institute, Head of FMD Department Dr Ghorasi – National Research Institute for Genetic Engineering and Biotechnology (NRIGEB)	To share data concerning new type A isolated in Iran To evaluate and discuss about scientific collaboration between Razi Institute, National Research Institute for Genetic Engineering and Biotechnology and IVO Central Veterinary Laboratory in the framework of the project

3.5 Organising the first training in WRL (Training_WRL_2006_final)

PREVISIONAL DATE	PARTICIPANTS	DUTIES
15/26 May 2006	M. Reza Hassan Zadeh, Central Veterinary Laboratory Dr. Ali Reza Honari, Mashad Regional Laboratory	This training course, laboratory-based, provided: 1) An overview of the different virological and serological tests used at IAH-Pirbright for the diagnosis of foot-and-mouth disease, including quality assurance requirements. 2) Hands-on instruction and practice in the tests of particular interest to each participant. Dr Nigel Ferris was the person responsible for the training

Problems encountered and actions taken or requested to resolve them

Main problems encountered during this period were:

1. Changing of Iran Veterinary Organisation (IVO) Head and Management Staff in October 2005
2. Delay to nominate the Project National Coordinator
3. HPAI cases on wild birds in February 2006, with high priority of HPAI in IVO till end of April
4. Lack of regular and easy access to data either in Surveillance Department and Central Veterinary Laboratory
5. Lack of presence and investment of the Project National Coordinator
6. Lack of decision concerning equipment and materials order
7. No active surveillance report coming from pilot areas analysis

Main actions taken during this period to resolve them:

1. Meeting with the new Head of Iran Veterinary Organisation to present the project; objectives, implementation proposals in order to obtain project validation and approval
2. Meetings with the new deputy for Animal Health to present the project; objectives, implementation proposals and to obtain nomination of Project National Coordinator

1+2. To remember importance of nomination of Project National Coordinator to implement and conduct the project

4. To propose an FMD Task Force organisation and to try to work with them on regular basis
5. To motivate FMD Task Force team through meeting in Tehran, never less the Project National Coordinator didn't attend to this meeting
6. To ask decision-maker to decide about equipment order
7. To ask the FMD Task Force Manager to set up pilot areas report analysis

Work plan and expected outputs for the next reporting period

1. Work plan - phase 1 :months 4-5-6-7-8-9

*** Field evaluation, adaptation and review of FMD investigation Forms and Guidelines in Pilot studies areas**

Assimilation and evaluation of information and lessons learnt from active surveillance (for national and provincial level)

*** Workshop** on **rapid epidemiological appraisal - WT 2**
Production of initial risk map for animal movement

*** Attachment** for **FMDV typing - T 2**
to become fully familiar and proficient in all aspects of work on the study of the molecular epidemiology of FMD

*** Training** in **Vaccine quality control - T 1.3**

Competency to set up potency test for FMD vaccine

2. Outputs for the next reporting period are:

2.1 – FMD Surveillance

- To analyse active surveillance reports coming from the 3 pilot areas (high risk areas)
- To connect Central Veterinary Laboratory to GISVET system in order to register FMDV results in GIS system
- To produce risk map according to the active surveillance in the pilot areas

2.2 – FMDV diagnosis

- To strengthen capacity for FMDV diagnosis and sub-typing in Central Veterinary Laboratory after training period in WRL
- To support Laboratory equipment and materials according to the needs of the trainees

Reports

Please list all reports, other than progress reports, but including consultant's reports, finalised by the project during the reporting period only. Indicate for each of those:
- Recommended inclusion in FAO's computerised documentation system as it contains data/info suitable for future use.
- It has been restricted by the Government as it contains confidential information.
- It has been distributed, giving date if applicable. If not done so, pls send 4 copies to the Responsible Operational Unit.

1. Meeting report-Dr Hassani (12/11/2005)
2. Executive Committee Meeting report (05/12/2005)

3.1 Workshop on FMD active surveillance and outbreak investigation - agenda (28/01/2006)
3.2 WS Conclusions and recommendations (19/02/2006)
3.3 Project implementation recommendations (19/02/2006)

4. WRL response for training sessions (14/02/2006)
5. Meetings report-02/2006 (28/02/2006)
6. Dispatch note to EUFMD secretary (11/03/2006)
7. BTOR from Tashkent Regional Meeting (06/04/2006)
8. Qazvin Province report (12/04/2006)
9. Meeting report on new subtype A (19/04/2006)
10. New subtype A in Razi Institute (24/04/2006)
11. FMD Task Force meeting report (24/04/2006)

Reporting Officer	
Name: GEIGER Francis	Date: 05/01/2007
Title: International Coordinator	Signature:

Appendix 17

FAO EUFMD RG WORKPLAN 2005-2007

Theme		Task (*blue italic = associated task*)	Who	Draft/frequency	Completion
1. Global Surveillance	1.1	Global surveillance maps/models	Liaison person (**DP**) to actions between CA, FAO and OIE	Yearly progress report	Ongoing
	1.2	*Establish regular risk reporting – virus types circulating in Iran, Pakistan, Afghan...*	*FG, MH, DP (link)*	*3 monthly*	*Should be ongoing*
	1.3	Improving delivery of viruses from risk areas (WG1)	**Secretariat, WRL**	Yearly report on gaps/progress	Ongoing
	1.4	*Vaccine strain matching*	*Contact point: DP CRL, CA,OIE/FAO network of ref labs, ImproCon project*		
	1.5	Priority antigens for the European Ag banks	**WRL**	6 months Every 2 years	Ongoing
	1.6	Minimum size of vaccine stocks in EU vaccine banks – position paper	**AD**, (Paul Barnett), KS, AEF	Outline Progress report 2006	2007 (pre-General Session)
	1.7	Type C vaccination/eradication position paper	**KS**, DP, KDC, SoA (+FAO colleagues)	Draft1 – January	Open Session - 2006
2. Prevention		Strategy for prevention of FMD entry into Europe – group should review risks and interventions	**FM/MB**, AEF, (KS)	2006 – progress report	2007 (April)
3. Sero-monitoring		Design sero-monitoring in vaccination zones – Thrace and Trans-Caucasus - refine, re-design - support future official status (Thrace)	**MB**, KDC, DS, SiA, MG, (CP)	by Feb-2006. Results – Open Session	Ongoing
4. EQA FMD Diagnostics		Establish EQA support for 2006– virus detection and serology (inc. clear demarcation of funding under CRL and FAO support)	**DP**, KDC, HY, GG, BH	Meet to co-ordinate with CRL. Agreement/contract – end Nov	Open Session (ongoing)
5. PVS		Post vaccination surveillance – Position papers guidelines * link to OIE ad hoc groups - Test/optimise guidelines through simulation at workshop (using selected scenarios)	**KDC***, DP*, AD, EB*, DS, MG, AEF* **Secretariat**	 Spring 2006 WS	end 2005 OS 2006

		- Complete analysis on sheep and pigs, buffalo	GG, KDC, DS	OS 2006	
6. DSS		Decision support systems – develop position paper on validity, applicability, gaps	**Secretariat** (links also with CA)	OS 2006	
7. Biosecurity		Biosecurity guidelines – follow up required: - paper should be updated by paper recommending updates covering other situations - review gaps between standards of FAO and OIE	**BH**, SoA, HY, AEF	First report – end 2005-	OS 2006
8. Virus inactivation		Inactivation studies	**SoA**, MG, AD, SiA (IAH-Don King, MB)	interim Nov 2005 OS 2006	
9. Pen-side test		Pen-side tests position paper (prev WG13)	**DS**, HY, BH, MB, (Naci Bulut, Nigel Ferris)		OS 2006
10. LCP		Laboratory Contingency Plans	**Secretariat** (link to CA - Tony Garland)	Send guidelines from Cordoba around immediately	
		Scaling up diagnostic capacity (prev WG11): Workshop on upscaling serology –only interesting for eastern European countries, particularly that are not candidate countries Need information on capacity of laboratories (needed for EUFMD – Executive Com)	**Secretariat, GG, CA**	CA will send around as Manual (check timetable-end 2007)	Survey by April 2006 – to include LCPs and EQA, existing capacity.
11. Diagn. Reagent Bank		Diagnostic reagent banks (prev WG10): - clear recommendation needed; update position paper with latest RG paper so this could be used in tender	**BH**, AD, EB, AEF		Spring 2006
12. Potency test		Potency test evaluation (Turkey) - *FMD_ImproCon* - Position paper on potency tests in pigs - do we require vaccines to be tested in pigs, and are there new alternatives? *link to China – *Update monitoring vaccination campaigns (Chania paper) and Workshop on vaccine QA (OIE/EP) – in West Asia*	Link person (SiA, KDC) *AD, BH, SoA, AEF, (Paul Barnett*)*	OS 2006	
13. Sample transport		Sample transport guidelines – update text; include new options	BH (Nigel Ferris) (OIE –Jim Pearson)	Update Vilmos P paper for 2005 report	1/12/05
14. Training		*Training /knowledge management*	*Secretariat*		

15. Meeting		Open meeting Israel 17-20/10/2006	**HY, Secretariat** KDC, AD, DP	by end Novembe r 2005	
16. Meeting		Closed meeting (October 2007) (Netherlands, Italy,....)	**Secretariat**		

SiA: Sinan Aktas; SoA: Soren Alexanderson; EB: Emiliana Brocchi; MB: Mark Bronsvoort; KDC: Kris De Clercq; AD: Aldo Dekker; GG: Georgi Georgev; MG: Matthias Greiner; BH: Bernd Haas; FM: François Moutou; DS: Donal Sammin; HY: Hagai Yadin; DP: David Paton; KS: Keith Sumption; CP: Carsten Pötzsch; AEF: Alf-Eckbert Füssel; FG: Francis Geiger; MH: Manzoor Hussein; EC: Erika Carlsson; WRL: World Reference Laboratory; CRL: European Community Reference Laboratory.

CA = Co-ordination Action – FMD and CSF laboratories (DG-Res).

WORKSHOP ON THE APPLICATION OF VALIDATED FOOT AND MOUTH DISEASE DIVA TESTS IN SUPPORT OF A VACCINATE TO LIVE STRATEGY FOR EUROPE

Kris De Clercq, Nesya Goris, David Paton, Keith Sumption
VAR Ukkel Belgium, FMD WRL Pirbright UK, FAO EUFMD

Workshop on the Application of validated foot-and-mouth-disease DIVA tests in support of a vaccinate-to-live strategy for Europe

Kris De Clercq, Nesya Goris, David Paton, Keith Sumption
VAR, Ukkel, Belgium
FMD WRL, Pirbright, UK
FAO EUFMD

1

Need for DIVA test validation

- FMD Events in 2001
- Changes to OIE Terrestrial Animal Health Code and to EU Directive on Control of FMD (2003/85/EC)
- Purpose of DIVA testing
  - Post-vaccinal demonstration of freedom from
    - Virus circulation
    - Carriers

2

Non-Structural Protein (NSP) Serology

- Validation difficulty
  - To check specificity – need sera from vaccinated but not infected animals
  - To check sensitivity – need sera from vaccinated and infected animals

3

Sensitivity and Specificity of tests

- NSP antibody development depends on extent of virus replication
- Single shot of European vaccine does not affect specificity
- Best data available for cattle
  - Se, Sp, Covariance, Test combinations

5

Herd-based Sensitivity and Specificity

Test System and sensitivity/specificity*	Minimum herd size	Outcomes for different herd sizes	Herd Size					
			10	30	60	100	200	400
Cedi/Cedi retest	91	Sample size	–	–	–	93	133	145
Se = 81.8%		% false positive herds	–	–	–	3.9	2.3	3
Sp = 99.2%		Cut-point	–	–	–	2	3	3
Cedi/Cedi retest/ Svanova confirmation	61	Sample size	–	–	57	87	77	82
Se = 58.7%		% false positive herds	–	–	0.6	0.7	0.8	0.8
Sp = 99.99%		Cut-point	–	–	0	0	0	0
Cedi/Cedi retest/ Probang RT-PCR confirmation	61	Sample size	–	–	57	87	77	82
Se = 67.1%		% false positive herds	–	–	0	0	0	0
Sp = 100%		Cut-point	–	–	0	0	0	0

6

Difficulties with NSP-tests

- Cannot prove absence of infection – use of design prevalence
- Finding of any positives invalidates freedom
- Need to classify herds with seroreactors
- Free from virus circulation?
- Free from carriers ?
- Herd based sensitivity and specificity
  - Sensitivity problems in small herds
  - Specificity problems give rise to difficulty in classifying herds

7

NSP Test validation

- Comparative testing of 6 NSP-ELISAs at Brescia workshop
- Coordination: EU FMD_Improcon, EUFMD and OIE Ad Hoc Group
- Sera from naïve European cattle, sheep and pigs
- Sera from animals vaccinated and/or infected experimentally to study vaccine efficacy
- Field sera from endemic regions
  - Zimbabwe, Hong Kong, Israel, Turkey, South America

4

Workshop on Application of NSP-tests

Objectives

- (1) design and implementation of a serosurvey: (a) to detect infected herds/flocks or (b) to prove freedom from infection
- (2) how to interpret and follow-up seropositive animals and/or herds/flocks
- (3) how laboratory test results can be used for rational decision-making
- (4) to identify the resources required to undertake the preferred strategy

5

Workshop on Application of NSP-tests

Participants

- (1) Decision-makers: CVOs, heads of NDCCs (National Disease Crisis Centres) and others
- (2) Technical: laboratory-based experts and veterinary epidemiologists (National Expert groups)
- (3) Representatives of DG-SANCO, FAO and OIE

9

Workshop on Application of NSP-tests

Output

- report which will assist the organisers to finalise guidelines for specific epidemiological situation.

Method

- Participants will be divided in different group and each group will receive a different outbreak situation. A serosuvey has to be established for each situation. Results will be discussed and will be the basis for a joined proposal for European post-vaccination guidelines.

10

Open Session of the Research Group of the European Commission for the Control of Foot-and-Mouth Disease (EUFMD)
Eilat, Israel - 16-20 October 2006

International Control of Foot-and-Mouth Disease:

Tools, trends and perspectives

Preliminary Scientific Programme

1. Control of FMD
   1.1. Risk analysis
   1.2. Contingency Planning and the importance of simulation exercises
   1.3. Trade in animals and animal products
   - Subclinically infected animals and carriers: the nightmare for international trade
   - Trade economics and their influence on disease control

2. Epidemiology
   2.1. Molecular epidemiology
   2.2. Virus transmission: the art of understanding FMD spread

3. Surveillance: virus prevalence or freedom of disease

4. Vaccines
   4.1. Vaccine development
   4.2. Vaccine production and strain selection
   4.3. Vaccine control: validation, QA/QC, alternatives to potency testing
   4.4. Vaccine application and alternatives to vaccines

5. Diagnostics
   5.1. DIVA tests: development, validation and their application
   5.2. Confidence in results: QA/QC – Ringtests

6. Pathogenesis
   6.1. Virus host interaction
   - Role of IFN and other cytokines
   - Role of virus variants (porcinophylic viruses)
   6.2. Pathogenesis: the missing links

7. Others

Appendix 20

STATEMENT 1

MTF/INT/011/MUL - TF number 904200

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Financial Report as at 31 May 2006

	US$	US$	Eur	Eur
Balance as at 1 January 2006		102,044		84,492
Interest received	1,866		1,545	
Contributions from member countries (As per statement 2)	264,480	266,346	218,989	220,534
Expenditure				
Commission Secretary	73,493		60,852	
Consultant	3,500		2,898	
Admin. Support Personnel	36,301		30,057	
Contracts	0		0	
Duty Travel	-1,181		-978	
General Operating Expenses	0		0	
Expendable Equipment	1,945		1,610	
Non-Expendable Equipment	0		0	
Total Expenditure		(114,058)		(94,440)
Balance as at 31 May 2006		254,332		210,587
Balance restated at UN Exchange rate of 31 May 2006				199,396

STATEMENT 2

TRUST FUND No. 9042.00 - MTF/INT/011/MUL -
Inter-Regional - Euopean Commission for the Control of Foot-and-Mouth Disease

Status of Contributions as at 31 May 2006
(expressed in US$)

ORACLE CODE: TF-AGADD-TFAA970089122

Member Governments	Outstanding 31/12/2005	Contribution due for 2006	Received up to 31/05/2006	Outstanding 31/05/2006
ALBANIA	0.00	3,900.00	3,879.71	20.29
AUSTRIA	0.00	11,960.00	11,948.04	11.96
BELGIUM	0.00	19,890.00	0.00	19,890.00
BULGARIA	0.00	11,960.00	11,947.11	12.89
CYPRUS	0.00	3,900.00	0.00	3,900.00
CROATIA	2,600.00	3,900.00	0.00	6,500.00
CZECH REPUBLIC	0.00	11,960.00	11,947.34	12.66
DENMARK	0.00	19,890.00	19,890.00	0.00
FINLAND	0.00	11,960.00	11,960.00	0.00
FRANCE	0.00	39,650.00	39,650.00	0.00
GERMANY	0.00	39,650.00	39,650.00	0.00
GREECE	0.00	11,960.00	0.00	11,960.00
HUNGARY	-9,200.00	11,960.00	0.00	2,760.00
ICELAND	0.00	3,900.00	0.00	3,900.00
IRELAND	0.00	11,960.00	11,938.06	21.94
ISRAEL	0.00	3,900.00	0.00	3,900.00
ITALY	-5,108.77	39,650.00	0.00	34,541.23
LITHUANIA	0.00	3,900.00	3,883.77	16.23
LUXEMBOURG	15.14	3,900.00	3,883.86	31.28
MACEDONIA	5,600.00	3,900.00	0.00	9,500.00
MALTA	0.00	3,900.00	3,892.87	7.13
NETHERLANDS	0.00	19,890.00	19,882.00	8.00
NORWAY	0.00	11,960.00	0.00	11,960.00
POLAND	0.00	19,890.00	19,890.00	0.00
PORTUGAL	17,890.15	11,960.00	0.00	29,850.15
ROMANIA	15,300.00	19,890.00	19,890.00	15,300.00
SERBIA and MONTENEGRO (ex YUG.)	18,400.00	11,960.00	30,347.00	13.00
SLOVENIA	0.00	3,900.00	0.00	3,900.00
SPAIN	0.00	19,890.00	0.00	19,890.00
SWEDEN	0.00	19,890.00	0.00	19,890.00
SWITZERLAND	0.00	19,890.00	0.00	19,890.00
TURKEY	0.00	19,890.00	0.00	19,890.00
UNITED KINGDOM	0.00	39,650.00	0.00	39,650.00
YUGOSLAVIA a/	0.00	0.00	0.00	0.00
TOTALS	**45,496.52**	**496,210.00**	**264,479.76**	**277,226.76**

a/ The arrears of the former Socialist Federal Republic of Yugoslavia are abolished in accordance with the resolution of the 71st Executive Committee.

STATEMENT 3

MTF/INT/004/MUL - TF number 909700

FOOT AND MOUTH DESEASE - EMERGENCY AID PROGRAMME

Financial Report as at 31 May 2006

	US$	US$	Eur	Eur
Balance as at 1 January 2006		42,238		34,973
Interest received		487		403
Expenditure				
Consultancy	0		0	
Duty travel	0		0	
Expendable Procurement	0		0	
Support Costs	0		0	
Total expenditure		0		0
Balance as at 31 May 2006		**42,725**		35,376
Balance restated at UN Exchange rate of 31 May 2006				33,496

STATEMENT 4

MTF/INT/003/EEC - TF number 911100

FOOT AND MOUTH DISEASE

Financial Report as at 31 May 2006

	US$	US$	Eur	Eur
Balance as at 1 January 2006		1,619,045		1,340,569
Interest received	20,542		17,009	
Contribution received	0		0	
		20,542		17,009
Expenditure				
Consultancy	-		0	
Duty Travel	16,951		14,035	
Training	8,365		6,926	
General Operating Expenses	1,716		1,421	

Appendix 21

LIST OF PARTICIPANTS

73rd Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease
Istanbul, Turkey
15 & 16 June 2006

Executive Committee

Denmark/Danemark
Dr Torben Grubbe
Officially designated alternate
Danish Veterinary & Food Administration
Animal Health Division
Ministry of Food, Agriculture & Fisheries
Morkhoj Bygade 19
Dk-2860 Soborg
Tel: 45-33-956034/ Fax: 45-39-675248
e-mail: tgr@fvst.dk

Greece/Grèce
Dr. B. Batziliotis
Chief Veterinary Officer
Ministry of Agriculture
2, Acharnon Str.
10176 Athens
e-mail: vetserv@ath.forthnet.gr

Dr Spiros Doudounakis
Head of Unit of Animal Diseases
Ministry of Agriculture
2, Acharnon Str.
10176 Athens
Tel: 30-210-8836420 / Fax: 30-210-2125719
e-mail: vetserv@ath.forthnet.gr

The Former Yugoslav Republic of Macedonia / Ex-République Yougoslav de Macédoine
Dr Slobodan Čokrevski
Director of Veterinary Services
Ministry of Agriculture, Forestry and Water Economy
Leninova Street, 2
1000 Skopje
Tel: 389-2-3112261 / Fax: 389-2-3112261 or 05
e-mail: scokrevski@veteri na.gov.mk

The Netherlands/Pays Bas
Dr Peter de Leeuw
Chief Veterinary Officer
Food and Veterinary Affairs Department
Ministry of Agriculture, Nature and Food Quality
Bezuidenhoutseweg 73
PO Box 20401
2500 EK The Hague
Tel: 31-70-3784278 / Fax: 31-70-3786134
e-mail: p.w.de.leeuw@minlnv.nl

Romania/Romanie
Dr Eugen Olaru
Officially designated alternate
Head of Major Viral Diseases Department
Institute for Diagnosis and Animal Health
rue Negustori, No. 1 B
Secteur 3, Bucarest
Tel : 40-21-3157875 / Fax : 40-21-3124967
e-mail: predoi@ansv.ro

Turkey/Turquie
Dr Nihat Pakdil
Director General
MARA, General Directorate of Protection & Control
Ministry of Agriculture & Rural Affairs
Esat cad. 3, Bakanliklar
06100 Ankara
Tel: 90-312-425 7789 / Fax: 90-312-418 6318
e-mail: nihatp@kkgm.gov.tr

Observers

Belgium/Belgique
Dr Kris De Clercq, Chairman, Research Group, EUFMD
Department of Virology
Section Epizootic Diseases
CODA-CERVA-VAR
Groeselenberg 99
B-1180 Ukkel
Tel: 32-2-379 04 00 / Fax: 32-2-379 04 01
e-mail: kris.de.clercq@var.fgov.be

EC - European Commission/Commission européenne

Dr Alf-Eckbert Füssel
Head of Sector
DG SANCO/E2, Animal Health, Welfare and Zootechnics
Rue Froissart, 101, 3/6 7
B-1040 Brussels, **Belgium**

Rue Froissart, 101, 3/67
B-1040 Brussels, **Belgium**
Tel: 32-2-2950870
Fax: 32-2-2953144
e-mail: Alf-Eckbert.Fuessel@cec.eu.int

Ms Nermin Kahraman
Sector Manager for Agriculture and Fisheries
Delegation of the European Commission to Turkey
Uður Mumcu Cad. No. 88, 4th Floor
Gaziosmanpapa – Ankara, **Turkey**
Tel: 90-312-4598700 / Fax: 90-312-4361093
e-mail: nermin.kahraman@ec.europa.eu

OIE – World Organization for Animal Health / Organisation Mondiale de la Santé Animale

Dr Gideon Brückner
Head of the Scientific and Technical Department
12, rue de Prony
75017 Paris, **France**
Tel: 33-1-44151966 / Fax: 33-1-42670987
e-mail : g.bruckner@oie.int

National Experts

Dr Mustafa Tufan
Director of Veterinary Epidemiology and Information Section
General Directorate of Protection and Control
Ministry of Agriculture and Rural Affairs
Tel: 90-312-4257789 / Fax: 90-312-4186318
e-mail: mustafat@kkgm.gov.tr

Dr H. Haluk Askaroglu
Director of Animal Health Services Section
General Directorate of Protection and Control
Ministry of Agriculture and Rural Affairs
Tel: 90-312-4257789 / Fax: 90-312-4186318
e-mail: haluka@kkgm.gov.tr

Dr Sinan Aktas
Deputy Director of the SAP (FMD) Institute
Eskisehir Tolu 7 Kilometre
Ankara
Tel: 90-312-2873600-201 / Fax: 90-312-2873606
e-mail: sinana@sap.gov.tr

Dr Abdulnaci Bulut
Expert
SAP Institute
Eskisehir Tolu 7 Kilometre
Ankara
Tel: 90-312-2873600-201 / Fax: 90-312-2873606
e-mail: nacib@sap.gov.tr

Other experts

Dr Soren Alexandersen
Research Professor
Danish Institute for Food and Veterinary Research
Department of Virology, Lindholm
DK-4771, Kalvehave, **Denmark**
Tel: 45-72-347833 / Fax: 45-72-347883
e-mail: sax@dfvf.dk

Dr Mark Bronsvoort
Lecturer in Epidemiology
Centre for Tropical Veterinary Medicine
Royal (Dick) School of Veterinary Science
University of Edinburgh
Easter Bush Veterinary Centre
Roslin, Midlothian EH25 9RG, **UK**
Tel: 44-774-8804923
e-mail: mark.bronsvoort@ed.ac.uk

Dr Claudiu Diaconu
Head of High Containment Unit
Institute for Diagnosis and Animal Health
63, Dr. Staicovici Street
Sect. 5
050557 Bucharest, **Romania**
Tel: 40-21-4100945 / Fax: 40-21-4113394
e-mail: diaconu.claudiu@idah.ro

FAO

Joseph Domenech
Chief, Animal Health Service – CVO, FAO
Animal Production and Health Division
Viale delle Terme di Caracalla
00100 Rome, **Italy**
Tel: 39-065705-3531
Fax: 39-065705-5749
e-mail: joseph.domenech@fao.org

Ms Melek Cakmak
Assistant FAO Representative
FAO Office in Turkey
Birlik Mah., 2 Cad., No. 11
Cankaya 06610
Ankara, **Turkey**
Tel: 90-312-4541059 / Fax: 90-312-4961436
e-mail: fao-tr@fao.org

EUFMD Secretariat/Secrétariat

Animal Health Service
Animal Production and Health Division
FAO HQs – Viale delle Terme di Caracalla
00100 Rome, Italy
Fax no. +39-065705-5749

Dr Keith Sumption
Secretary, EUFMD
Tel: 39-065705-5528
Keith.sumption@fao.org

Dr Keith Sumption
Secretary, EUFMD
Tel: 39-065705-5528
Keith.sumption@fao.org