



**OIE/FAO INTERNATIONAL SCIENTIFIC CONFERENCE  
ON FOOT AND MOUTH DISEASE  
Paris, 17-18 April 2001**



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ON FOOT AND MOUTH DISEASE  
Paris, 17-18 April 2001**

An OIE/FAO<sup>1</sup> International Scientific Conference on foot and mouth disease (FMD) was held at the Office International des Epizooties (OIE) headquarters from 17 to 18 April 2001.

The Members of the OIE FMD and Other Epizootics Commission and the International Animal Health Code Commission, the Presidents of the OIE Regional Commissions, the Experts of the OIE FMD Reference Laboratories, as well as Senior Staff of the FAO Animal Health Services and the OIE Central Bureau participated at the Conference.

The OIE Regional Coordinators and the Regional Coordination Unit, Observers from Member Countries and intergovernmental organisations also attended the Conference.

Dr Tony Garland, FAO-EMPRES<sup>2</sup>, was appointed Rapporteur.

The Agenda and List of Participants are given at Appendices I and II, respectively.

Dr Romano Marabelli, President of the OIE and Dr Bernard Vallat, Director General of the OIE welcomed the participants and thanked Delegations and Representatives of Member Countries for attending the Conference. His opening address was followed by further words of welcome from Dr Yves Cheneau, Chief of the FAO Animal Health Service. Both Dr Vallat and Dr Cheneau wished the Conference every success. The two opening speeches are at Appendices III and IV.

Dr James Pearson, Head, OIE Scientific and Technical Department, presented the Conference Objective and the Conference Agenda. The Agenda was approved by the participants. Each session was presided over by a Chairperson and a Rapporteur, who lead the discussion on each of the listed Agenda items. The recommendations developed during the meeting were discussed, modified as needed, and approved by the Conference participants. The final recommendations of the Conference are listed below.

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1 FAO: Food and Agriculture Organization of the United Nations

2 EMPRES: Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases

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**Conference objective:**

To consider current foot and mouth disease issues and draft science-based recommendations and resolutions, addressed to the Member Countries of the OIE and FAO, to be presented to the International Committee of the OIE at its May 2001 General Session and to the Governing Bodies of the FAO.

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**RECOMMENDATIONS**  
**of the OIE/FAO International Scientific Conference**  
**on Foot and Mouth Disease**

RECOMMENDATION No. 1

**Review the following definitions in foot and mouth disease Chapter of the OIE *International Animal Health Code*:**

- a) The criteria for the declaration of an outbreak
- b) Freedom from disease or freedom from infection

CONSIDERING THAT

In the OIE *International Animal Health Code* (the *Code*), Chapter 1.1.1. General definitions, an 'infected zone' is defined as an area 'in which a disease included in this *Code* has been diagnosed' and the definition of an 'outbreak' is restricted to an 'Outbreak of Disease'. Neither of these definitions covers subclinical infection

The inclusion of subclinical infection in these definitions is important for disease control and trade

In *Code* Chapter 2.1.1. Foot and mouth disease (FMD), only two categories for freedom from FMD are recognised, namely: 'FMD free where vaccination is practised' and 'FMD free where vaccination is not practised'

Vaccinated animals can become subclinically infected or develop a carrier state

The OIE FMD and Other Epizootics Commission has proposed changes to Chapter 2.1.1. of the *Code* to address FMD infection

THIS CONFERENCE RECOMMENDS THAT

1. The relevant chapters of the *Code* be amended to include a definition of FMD infection, encompassing the category of subclinical infection.
2. The OIE FMD and Other Epizootics Commission and the OIE International Animal Health Code Commission finalise the proposed changes to Chapter 2.1.1. of the *Code* to redefine 'freedom from FMD' as 'freedom from FMD infection'.
3. The FMD and Other Epizootics Commission of the OIE define the surveillance standards required to verify the status of 'Freedom from FMD Infection'.

## RECOMMENDATION NO. 2

### **Emergency foot and mouth disease control methods:**

#### **a) Stamping-out/restriction of animal movements**

##### CONSIDERING THAT

The speed and extent of spread of outbreaks of the Pan-Asian strain of type O FMD in certain European countries during 2001 has been unprecedented

The spread of FMD virus within newly infected countries during the European outbreaks of 2001 occurred mainly through the movement of subclinically infected animals, and principally of sheep, and via contact with contaminated vehicles used for the transport of these animals

The exact mode of FMD contamination has not always been identified, but vehicles, markets, and other places where animals are collected have played a major role in the spread of the disease

There is increasing evidence from North Africa, the Middle East and Europe to suggest that subclinically infected sheep are a factor of major significance in the transmission and spread of FMD, both within and between countries and over long distances

The safe and timely disposal of large numbers of carcasses constitutes a serious impediment to the implementation of a successful stamping-out policy

There is currently insufficient evidence of alternative options to rendering, burning and burial for large-scale disposal of carcasses

National veterinary authorities should negotiate in advance with the environmental authorities as to the availability of options for carcass disposal for use in different areas of the country

International trade and movements of live animals and certain animal products are the main route of the international diffusion of FMD virus and other diseases

Early suspicion, recognition and laboratory diagnosis of FMD is essential for efficient control

Countries that are FMD free where vaccination is practised need a sensitive and specific test that can identify infection in vaccinated animals

There is a requirement for the establishment of the validity and suitability of serological tests for the detection and quantification of antibodies to the non-structural proteins of FMD virus and also for guidance on their use in surveillance to assist in the definition of the FMD status of a country/zone following implementation of a stamping-out policy

The imposition of restrictions on the movement of species that are not susceptible to FMD, and particularly of Equidae, beyond the existing provisions of Chapter 2.1.1. of the OIE *Code* has posed problems

##### THIS CONFERENCE RECOMMENDS THAT

1. Member countries recognise the emergence of new and/or increasing risks to animal health including: changes to the livestock industry; increased movement of people, product and livestock; illicit traffic; and other factors predisposing to disease. Accordingly, Member Countries should undertake risk analyses and ensure that the risks are communicated to the relevant authorities and other sectors.
2. Countries engaged in international trade recognise the increased risk and impact of the occurrence of FMD and review their legislation, contingency planning, emergency preparedness, prevention measures and the availability of resources to ensure their adequacy.

3. Member Countries define the roles of their Veterinary Services and recognise that a national crisis planning exercise may be necessary, involving other agencies, for the effective management of a major FMD emergency.
  4. The Director General of the OIE set up an ad hoc group of specialists to examine the problem of the safe and timely disposal of carcasses arising from the enforcement of a stamping-out policy, and to recommend international guidelines for this purpose.
  5. Member countries free of FMD establish procedures for the immediate restriction of markets, gatherings of animals and transportation of susceptible species throughout the country, when the veterinary authorities first confirm the presence of FMD.
  6. Member Countries establish equipment, facilities and procedures for the effective disinfection of all relevant modes of transport used for the movement of animals and animal products, including as appropriate both the exterior surfaces and the interior transport compartment(s), both before and after their use for these purposes.
  7. The OIE Standards Commission evaluate the validity of tests for the detection and quantification of antibodies to the non-structural proteins of FMD virus and their suitability for monitoring and surveillance programmes and prepare guidelines for their application.
  8. The OIE FMD and Other Epizootics Commission evaluate the risk of transmission of FMD by the movement of Equidae and develop appropriate guidelines for consideration by the OIE International Animal Health Code Commission.
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RECOMMENDATION NO. 2

**Emergency foot and mouth disease control methods:**

**b) Criteria for the use of vaccination in livestock**

CONSIDERING THAT

FMD vaccines should comply with internationally recognised pharmacopoeia standards

Emergency FMD vaccination is not fully addressed in the *OIE Code*

National circumstances may alter the objectives and the available options for the control of FMD

THIS CONFERENCE RECOMMENDS THAT

1. The use of FMD vaccines that comply with the criteria defined in the *OIE Manual of Standards for Diagnostic Tests and Vaccines* be strongly encouraged, and the use of live FMD vaccines be strongly discouraged.
  2. The definition, conditions of application and the consequences of emergency vaccination against FMD be considered for inclusion in the *OIE Guidelines*.
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## RECOMMENDATION NO. 2

### **Emergency foot and mouth disease control methods:**

- c) Protection against FMD, including the use of vaccination, in special cases**  
(e.g. zoos, wildlife parks, rare breeds, rare genetic material, endangered species, animals in special research programmes)

#### CONSIDERING THAT

Certain rare and/or valuable animals and genetic resources are susceptible to foot and mouth disease

Member Countries have an obligation to conserve endangered species and in particular those covered by The Convention on International Trade in Endangered Species

In the case of a foot and mouth disease outbreak in a country/zone previously free of FMD, every measure should be taken to prevent the exposure of such animals to the virus

When the veterinary authorities consider that the risk of FMD infection appears imminent, vaccination is one measure that might be considered for the protection of such animals

In general, available FMD vaccines protect animals against the development of clinical disease, but do not protect them against the acquisition of infection

There is little scientific information available on the effects of FMD vaccination in wildlife species

Chapter 2.1.1., Article 2.1.1.6. of the OIE *Code* requires that, in order to regain the status of an 'FMD free country/zone where vaccination is not practised', either such vaccinated animals would have to be destroyed or a waiting period of at least 12 months would have to elapse

#### THIS CONFERENCE RECOMMENDS THAT

1. Member Countries ensure their national contingency plans include specific provision for the protection of such animals and materials.
2. The OIE consider the applicability of compartmentalisation for the control of FMD and other transboundary diseases.
3. Chapter 2.1.1., Article 2.1.1.6. of the *Code* be modified, where appropriate, to allow for emergency vaccination of certain rare or valuable animals to be permitted without prejudice to the FMD free status of the country/zone, provided that such vaccinated animals are individually identified and are maintained in a location that has physical barriers and where zoosanitary procedures are applied that are adequate to prevent contact with any susceptible animals that may be situated beyond the confines of the location, and that measures are in place that would prevent the spread of infection by fomites. This location could be considered as an 'FMD free zone where vaccination is practised', where all the attendant *Code* restrictions will apply to the vaccinated animals, their progeny, embryos, ova and semen and other products derived from these animals.
4. In respect of zoological collections, stakeholders should consider the funding of research into the efficacy of vaccines in non-domesticated ruminants and other species and the application of diagnostic tests in such species.

## RECOMMENDATION NO. 3

**Risk of FMD transmission due to trade in commercial products  
and the illegal carriage of animal products by international travellers**

## CONSIDERING THAT

The recent introduction of the Pan-Asian strain of type O FMD virus into new territories and countries, as into South Africa and Europe, is likely to have been through the feeding of contaminated swill or contact with contaminated fomites

Certain commodities of animal origin (e.g. sausage casings and intestines) are traded and some are carried by travellers without adequate precautions against their potential contamination with the FMD virus

Some Member Countries have recently imposed restrictions on products that are more stringent than those currently prescribed in Chapter 2.1.1 of the *OIE Code*

## THIS CONFERENCE RECOMMENDS THAT

1. Member Countries re-evaluate their legislation and enforcement practices to minimise the risk of the introduction of FMD and other infections through swill feeding.
  2. Member Countries strengthen measures to control the illegal carriage of animal products by international travellers.
  3. The OIE International Animal Health Code Commission in association with the OIE FMD and other Epizootic Commission develop standards for the importation of commodities that are not currently listed in the *Code* Chapter 2.1.1., Articles 2.1.1.8. and 2.1.1.28., such as sausage casings and other offal.
  4. Member Countries apply the standards of the *OIE Code*, unless there is scientific justification for more or less stringent restrictions. If such scientific evidence does exist, it should be brought promptly to the attention of the Director General of OIE, who will ask the specialist Commission to assess the information provided.
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## RECOMMENDATION NO. 4

### Research needed to better prevent, control and eradicate foot and mouth disease

#### CONSIDERING THAT

Changes in farming and trading practices have exacerbated the distribution and severity of recent FMD outbreaks in previously FMD free countries

The role of subclinically infected animals and contaminated commodities is prominent in the dissemination of FMD

Molecular biology and immunological techniques have proved invaluable in the characterisation of FMD virus strains and the tracing of FMD infections

Current test systems for the surveillance and detection of FMD infection in individual animals and commodities pose some serious deficiencies

Currently available vaccines and vaccination systems have limitations

The slaughter of animals and disposal of carcasses pose logistical, welfare, environmental and social problems

There is little specific data on the risk of transmission of FMD infection by animal and animal products; particularly those derived from vaccinated animals

#### THIS CONFERENCE RECOMMENDS THAT

Research should be encouraged in the following domains:

1. **Early detection systems** including robust, pen-side diagnostic tests for use on live animals, and commodities, such as IgA, IgM detection, preclinical and subclinical diagnosis based on antigen/viral, relevant genomic or immunological methods.
2. **Surveillance systems**
  - Development of practical and statistically based sampling programmes.
  - Development and validation of serological tests that are applicable to a wide variety of livestock and wildlife susceptible to FMD virus. Of particular and immediate need are the serological tests to differentiate infection from vaccinal immunity, to establish that herds are free of FMD infection, and to develop assay systems that can be reliable for individual animal certification. Critical to accomplishing this task is the acquisition of standard reference sera.
  - Establishment of antigen profiles against well described polyclonal and monoclonal antibodies to better appreciate and anticipate vaccine protection and relevant viruses around the world. (To achieve the creation of antigen banks, Member Countries are urged to submit virus samples to a reference laboratory on a regular basis.)
3. **Vaccines** that, ideally, encompass some or all of the following improved characteristics over currently available vaccines:
  - Readily affordable; easily applied; induce a broad spectrum of antigenic coverage (cross serotype and strain), engender rapid onset and long duration of immunity; engender protection of the oropharynx against the acquisition of persistent infection.
  - Induce vaccinal antibody response(s) that can readily be distinguished from that (those) due to infection.

- Avoid requirements for refrigerated conservation.
- Can be combined with a proven antiviral drug, without modifying efficacy, and protect against viral infection.

In addition the following activities are encouraged

- Marker-type vaccine development.
- Development of vaccines that do not engender antibodies to the non-structural proteins of FMD virus in vaccinated animals.
- Development of vaccine efficacy studies in species other than cattle.

**4. Epidemiology** with special emphasis on:

- Risk analysis, impact and cost–benefit analysis.
- The role of subclinically infected animals (including wildlife, small ruminants, and camellidae), The role of Equidae in transmission of FMD infection to susceptible hosts.
- Infection tracking and predictive modelling.
- Re-evaluation of wind-borne spread of FMD virus.
- Development of *performance indicators* to assist countries with a particular epidemiological status of FMD to advance to a more favourable status.

**5. Risk analysis** on animal products and products from convalescent/vaccinated animals using epidemiological and experimental data, including predictive modelling studies.

**6. Economic research** and surveys on trends and market forces for animals and animal products as well as on the financial and other resource needs for the effective functioning of national Veterinary Services in dealing with disease emergencies and the management of national programmes for the control of major epizootics.

**7. Other methods to improve control**

- Disinfectants that are effective in the presence of organic matter, are noncorrosive, and do not harm the environment.
- Investigation of the survival of FMD virus in smoke plumes, when infected carcasses are burned.
- Methods of carcass disposal.

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## RECOMMENDATION NO. 5

### **International action to safeguard animal health, trade and food security**

#### CONSIDERING THAT

The World Food Summit (November 1996), in recognising the importance of epidemic diseases of livestock (including foot and mouth disease) to both international trade and world food security, committed the governments of countries and the civil society to seek to ensure effective prevention and progressive control of such diseases

Infectious diseases, especially those of an epidemic nature or of public health concern, are assuming increasing economic importance in the changing farming and trading systems of both industrialised and developing countries

Emerging or evolving infectious diseases have the potential to quickly move from local to international significance

In recent years epidemic diseases have caused heavy losses both in industrialised and developing countries and that there have been dramatic incidents of transboundary and international spread of disease

The events involving the spread of the type O Pan-Asian strain of FMD virus to many countries and most recently to South Africa, the United Kingdom, Ireland, France and the Netherlands, and of type A virus in South America, have shown just how vulnerable countries are to epidemic livestock diseases, even countries with sophisticated quarantine controls

Effective disease control requires efficient disease detection systems, competent diagnostic laboratories and close co-operation and joint management of official Veterinary Services with private veterinarians, farmers, industry, consumers and other organisations, especially medical authorities and national emergency services, as well as regional and international co-operation

When national programmes are jointly developed, managed and financed between the public and the private sectors, notable successes have been achieved, for example in the Global Rinderpest Eradication Programme and the Hemispheric Plan for the Eradication of FMD in the Americas

#### THIS CONFERENCE RECOMMENDS THAT

1. The control of FMD and other animal diseases of significance to international trade, food security, food safety and public health be considered as a service for the good of the international public.
2. National Veterinary Services undertake to increase the awareness and the involvement and education of political authorities, farmers, veterinarians, other organisations, industry and consumers in the early detection, reporting and control of infectious diseases, as well as in the joint management and financing of national eradication programmes.
3. The provision of financial support, technical assistance and other support by countries with highly developed livestock industries to less developed countries to improve their national Veterinary Services and to better control and eradicate their important animal diseases will provide very substantial mutual benefits to both parties.
4. Special attention should be given to international co-ordinated programmes for rinderpest, foot and mouth disease and classical and African swine fever. This initiative would also provide templates for the surveillance and tactical control of other important diseases.

5. As a first step, the OIE and FAO should convene a high level international meeting to improve awareness and establish agreement that there international concerted actions are needed against foot and mouth disease and other animal diseases that are of significance for trade, food security, food safety and public health.
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.../Appendices





**18 April: 9:00-10:00**

- c) Criteria for the use of vaccination in special cases i.e. zoos, wildlife parks, rare breeds and special research programs,

- Dr S.K. Hargreaves Dr R.A. Bell

**10:00-11:00**

**4. Risk of foot and mouth disease transmission due to trade of products**

- Dr E. Correa Melo Dr A.N. Panin

**11:00-11:30 Break**

**11:30-12-30**

**5. Research needed to better control and eradicate foot and mouth**

- Dr K. De Clercq Dr J. Lubroth and other research workers

**12:30-13:00 Lunch**

**14:00-15:00**

**6. Development of programmes to control and eradicate foot and mouth disease and other epizootics from endemic countries; consider initiating this process by convening an FAO/OIE conference of high level officials and specialised financial institutions to discuss methods to develop and implement these programmes**

- Dr Y. Ozawa Dr M.M. Rweyemamu

**15:00-15:30 Break**

**15:30-16:30**

**7. Consideration of proposed resolutions to be presented to the OIE International Committee.**

- Dr G.A. Thomson Dr W.-A. Valder

**8. Closing remarks**

- Dr B. Vallat, Director General, OIE
- Dr Y. Cheneau, Chief Animal Health Service, FAO

**Rapporteur: Dr A.J.M. Garland**

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**OIE/FAO INTERNATIONAL SCIENTIFIC CONFERENCE  
ON FOOT AND MOUTH DISEASE  
Paris, 17-18 April 2001**

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