



## **Inventory of web accessible recent FMD Real-time Alert Exercises carried out by European and other Countries**

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### **Introduction**

The objective of D-WP8-2a is to produce a web accessible inventory of recent Foot-and-Mouth Disease (FMD) control experiences in countries normally free of FMD. The most recent outbreak of FMD in E.U. countries was the one affecting the United Kingdom, Netherlands, Ireland and France in 2001. This report seeks to provide information on control strategies of European and other countries, with a particular emphasis on issues brought to light during real-time alert exercises. Council Directive 2003/85/EC of 29 September 2003 states that “Member States shall draw up a contingency plan specifying the national measures required to maintain a high level of foot-and-mouth disease awareness and preparedness” and “Member States shall ensure that real-time alert exercises are carried out in accordance with their approved contingency plan”. This report gives a record of European countries and others which are known to have carried out simulation exercises since 2001 and links to reports and evaluations of such exercises if they are available.

### **Materials and methods**

Inquiries were made by email in December 2005 to members of the EUFMD commission requesting information on recent FMD real-time alert exercises carried out in their countries and planned future exercises. An internet search was also used to find reports of simulation exercises and where possible telephone interviews and face to face interviews were carried out with participants. Open discussion rather than closed questions were used to gather information, as this helps us to identify the issues which the participants considered important. The author also attended a preparatory and evaluation meeting for the Nordic real-time alert exercise in 2005 and was involved in the FMD simulation exercise in Slovenia in June 2006.

Internet searches were also used to gather information on decision support tools available as an aid to outbreak management (Table 3) and further papers on the 2001 outbreaks in Western Europe (Table 4) along with a list of countries which have made their contingency plans available on the internet. (Table 5)

This report will be continually updated as new reports of exercises become available.

## Results

The status of European countries in relation to FMD real-time alert exercises as of August 2006 is listed in table 1 and table 2 refers to reports found through web searches on exercises carried out in non European countries. Many of the European countries did not respond to the email request and hence the position with regard to a number of these countries is not clear. Web searches revealed information and reports on exercises carried out in North America, Australia, New Zealand, The UK (mostly English speaking countries) and Switzerland. Issues raised at exercises are added as a supplement to the inventory and are based on information received from the above countries along with lessons learned during exercises in the Nordic countries, The Netherlands and Slovenia. Other European countries known to have carried out exercises since 2001 include The Czech Republic, France, Estonia, Hungary, Lithuania, Poland, Bulgaria, Germany, Slovakia and Cyprus. Exercises varied from the testing of the availability of resources to the testing and the training of the individuals who would be involved in a true outbreak. Two countries reported postponement of planned exercises due to attention been diverted towards the current threat of Avian Influenza. One country reported replacing a planned FMD exercise with an Avian Influenza exercise. One of the new EU accession states reported a postponement while harmonisation of its legislation with EU legislation took place.

**Table 1: List of recently carried out simulation exercises by European Countries with links to available reports**

Country	Date of recent exercises	Link containing details of the exercise or the report and/or contact points.	Planned 06/07
Austria	8 <sup>th</sup> to 11 <sup>th</sup> of Nov 04	No reports found	Yes
Bulgaria	31 <sup>st</sup> of March to 3 <sup>rd</sup> of April 2003	No report found	
Croatia	Exercise planned for Spring 2006 postponed		Yes
Cyprus	17 <sup>th</sup> to 20 <sup>th</sup> of March 2003	<a href="http://www.oie.int/fr/info/exercice/SIMUL0303CYP.pdf">http://www.oie.int/fr/info/exercice/SIMUL0303CYP.pdf</a> Description of Scenario	Unknown
Czech Republic	26-30 of May 03; 24-28 of May 04; 30 <sup>th</sup> of May to the 3 <sup>rd</sup> of June 05	No report available on web	Yes
Denmark	20-23 September 2005	Report not yet available Short report will be available in the OIE Bulletin	No
Estonia	10-14 of June 2002	No Report found	
Finland	20-23 September 2005	Report not yet available, Short report will be available in the OIE Bulletin	No
France	24-26 of June 2003 Exercise postponed in 2006	No report available on the web	Yes
Germany	Nov-2005	No report found	Yes

	In conjunction with Holland		
Hungary	13-17 of May 2002	No report found	Unknown
Iceland	18-20 Mar 2004		No
	20-23 September 2005	Report not yet available. Short report will be available in the OIE Bulletin	
Northern Ireland	Jun-04 Exercise Shearwater	Report not yet available	
Norway	20-23 September 2005	Report not yet available. Short report will be available in the OIE Bulletin	No
Poland	4-8 of November 2002	No report found	
Republic of Ireland	Exercise postponed in 2006		Yes
Slovakia	3-7 of June 2002	No report found	
Slovenia	27-29 of June 2006	Report not yet available	Yes
Spain	No		No
Sweden	20-23 September 2005	Report not yet available. Short report will be available in the OIE Bulletin	No
Switzerland	12-13 of Nov-03 Plus many local exercises	<a href="http://www.bvet.admin.ch/tiergesundheit/00195/index.html?lang=fr&amp;download=00605_fr.pdf&amp;PHPSESSID=ee06ae15654ab99406d2d4b7578664d3">http://www.bvet.admin.ch/tiergesundheit/00195/index.html?lang=fr&amp;download=00605_fr.pdf&amp;PHPSESSID=ee06ae15654ab99406d2d4b7578664d3</a> In French	Yes
The Netherlands	Nov-05 with Germany February 06	Report not yet available	Yes
United Kingdom	January to June 2004 Exercise Hornbeam	<a href="http://www.defra.gov.uk/footandmouth/contingency/exercisehornbeam.pdf">http://www.defra.gov.uk/footandmouth/contingency/exercisehornbeam.pdf</a> Complete Report	Yes

**Table 2: Other Real-time alert exercises carried out**

<b>Country</b>	<b>Date of recent exercise</b>	<b>Link containing details of the exercise or the report and/or contact points.</b>
Australia	9-13 Sep 2002 Exercise Minotaur	<a href="http://www.affa.gov.au/exerciseminotaur">http://www.affa.gov.au/exerciseminotaur</a> Complete report
	15-18 June 2004. Exercise Crucible	<a href="http://www.fao.org/AG/AGAInfo/commissions/docs/greece04/App41.pdf#search=%22exercise%20crucible%20fmd%22">http://www.fao.org/AG/AGAInfo/commissions/docs/greece04/App41.pdf#search=%22exercise%20crucible%20fmd%22</a> Short FAO report on this Laboratory simulation exercise
	Exercise Wild West , Western Australia 16-19 May 2006	No report found
New Zealand	Taurus March and April 2005 Waiheke May 2005	<a href="http://64.233.183.104/search?q=cache:YP1gXuZoAZQJ:www.clerk.parliament.govt.nz/Content/SelectCommitteeReports/ppExerciseTaurus.pdf+%22exercise+taurus%22&amp;hl=en&amp;ct=clnk&amp;cd=1">http://64.233.183.104/search?q=cache:YP1gXuZoAZQJ:www.clerk.parliament.govt.nz/Content/SelectCommitteeReports/ppExerciseTaurus.pdf+%22exercise+taurus%22&amp;hl=en&amp;ct=clnk&amp;cd=1</a> Short report <a href="http://www.oie.int/fr/info/exercice/SIMUL0503NZL.htm">http://www.oie.int/fr/info/exercice/SIMUL0503NZL.htm</a> Details of objectives of exercises
Panama	14-18 Oct 2002	No report found
Canada USA Mexico	November 1-9, 2000 Tert Tripartite exercise	<a href="http://www.smamedia.com/eidnet/fmd/tripartite/tertaa.doc">http://www.smamedia.com/eidnet/fmd/tripartite/tertaa.doc</a> After Action report <a href="http://www.gisvisionmag.com/vision.php?article=200206%2Ftechpaper1.html">http://www.gisvisionmag.com/vision.php?article=200206%2Ftechpaper1.html</a>

**Table 3: Decision Support tools\***

The use of models to assess FMD transmission and control Tanya Kostova – Vassilevska, LLNL	<a href="http://www.llnl.gov/tid/lof/documents/pdf/309485.pdf#search=%22%20model%20fmd%20mark%20thurmond%22">http://www.llnl.gov/tid/lof/documents/pdf/309485.pdf#search=%22%20model%20fmd%20mark%20thurmond%22</a>
Use and abuse of mathematical models: an illustration from the 2001 FMD epidemic in the UK R.P Kitching et al	<a href="http://www.oie.int/eng/publicat/rt/2501/PDF/23-kitching293-311.pdf#search=%22Haydon%20%2C%20Kitching%20et%20al%20model%22">http://www.oie.int/eng/publicat/rt/2501/PDF/23-kitching293-311.pdf#search=%22Haydon%20%2C%20Kitching%20et%20al%20model%22</a>
Decision-support tools for foot and mouth disease control R.S. Morris, R.L. Sanson, M.W. Stern , M. Stevenson,J.W. Wilesmith (3)	<a href="http://www.oie.int/eng/publicat/rt/2103/2.4.Morris.pdf">http://www.oie.int/eng/publicat/rt/2103/2.4.Morris.pdf</a>
Epiman	<a href="http://epicentre.massey.ac.nz/Default.aspx?tabid=113&amp;pid=0">http://epicentre.massey.ac.nz/Default.aspx?tabid=113&amp;pid=0</a>
Imperial model (Ferguson et al. 2001)	<a href="http://www.sciencemag.org/cgi/content/abstract/1061020v1">http://www.sciencemag.org/cgi/content/abstract/1061020v1</a> Abstract
Edinburgh/Cambridge model (Keeling et al. 2001)	
Interspread/InterFMD (Morris et al 2001)	<a href="http://www.defra.gov.uk/science/documents/publications/JohnWilesmith.pdf#search=%22Interspread%22">http://www.defra.gov.uk/science/documents/publications/JohnWilesmith.pdf#search=%22Interspread%22</a>
Silent Spread/ExoDis Model (Risk Solutions 2005)	
Lattice Model (Kao 2003)	<a href="http://www.journals.royalsoc.ac.uk/media/8ga3ugwytn2yhy m3hk91/contributions/y/k/u/f/ykufdfxm9uc5qlxh.pdf">http://www.journals.royalsoc.ac.uk/media/8ga3ugwytn2yhy m3hk91/contributions/y/k/u/f/ykufdfxm9uc5qlxh.pdf</a>
Davis Model (Thurmond et al 2004)	
Windsread (rimpuff)	<a href="http://www.risoe.dk/vea-atu/atm_disp/rimpuff/rp/RP.html">http://www.risoe.dk/vea-atu/atm_disp/rimpuff/rp/RP.html</a>

**Table 4: Other Useful links**

Report on the Joint EUFMD/EC Workshop on FMD Simulation exercises 5 – 7 June 2001 - Brno, Czech Republic John Ryan	<a href="http://www.fao.org/ag/AGA/AGAH/EUFMD/reports/rg2001im/App37.pdf">http://www.fao.org/ag/AGA/AGAH/EUFMD/reports/rg2001im/App37.pdf</a>
Lessons learned from 2001 FMD outbreaks in France	<a href="http://www.oie.int/eng/publicat/rt/2103/4.0.ChmitelinANG.pdf">http://www.oie.int/eng/publicat/rt/2103/4.0.ChmitelinANG.pdf</a>
EU evaluation of situation with regard to suppressive vaccination in The Netherlands 2001	<a href="http://ec.europa.eu/food/fs/inspections/vi/reports/netherlands/vi_rep_neth_3324-2001_en.pdf">http://ec.europa.eu/food/fs/inspections/vi/reports/netherlands/vi_rep_neth_3324-2001_en.pdf</a>
Final report of a mission carried out from 20-24 August 2001 in the UK in order to evaluate the situation with regard to outbreaks of Foot-and-Mouth Disease.	<a href="http://ec.europa.eu/food/fs/inspections/vi/reports/united_kingdom/vi_rep_unik_3439-2001_en.pdf">http://ec.europa.eu/food/fs/inspections/vi/reports/united_kingdom/vi_rep_unik_3439-2001_en.pdf</a>
Origin of the UK Foot and Mouth Disease epidemic in 2001	<a href="http://www.defra.gov.uk/footandmouth/pdf/fmdorigins1.pdf#search=%22reports%20on%20UK%20FMD%202001%22">http://www.defra.gov.uk/footandmouth/pdf/fmdorigins1.pdf#search=%22reports%20on%20UK%20FMD%202001%22</a>

**Table 5: Contingency plans available on the Internet**

Canada <a href="http://www.inspection.gc.ca/english/anima/heasan/fad/fmd/fmdtoce.shtml">http://www.inspection.gc.ca/english/anima/heasan/fad/fmd/fmdtoce.shtml</a>
Colombia <a href="http://www.oie.int/eng/info/Diseases%20pdf/Fiebre%20Aftosa-Colombia.pdf">http://www.oie.int/eng/info/Diseases%20pdf/Fiebre%20Aftosa-Colombia.pdf</a>
Cyprus <a href="http://www.oie.int/eng/info/Diseases%20pdf/FootandMouthDisease-Cyprus.pdf">http://www.oie.int/eng/info/Diseases%20pdf/FootandMouthDisease-Cyprus.pdf</a>
Ireland <a href="http://www.agriculture.gov.ie/index.jsp?file=publicat/fmd_manual/index.xml">http://www.agriculture.gov.ie/index.jsp?file=publicat/fmd_manual/index.xml</a>
Netherlands <a href="http://www.oie.int/eng/info/Diseases%20pdf/FootandMouthDisease-Netherlands.pdf">http://www.oie.int/eng/info/Diseases%20pdf/FootandMouthDisease-Netherlands.pdf</a>
United Kingdom <a href="http://www.defra.gov.uk/footandmouth/pdf/genericcp.pdf">http://www.defra.gov.uk/footandmouth/pdf/genericcp.pdf</a>

Links obtained from [http://www.oie.int/eng/info/en\\_prepaurgence.htm](http://www.oie.int/eng/info/en_prepaurgence.htm)

## Discussion

Below is a summary of some of the views of the participants in the exercises and some of the issues brought to light by the exercises.

### *Scenarios*

- It is important to have clear and specific objectives for the exercise and then produce a scenario which will best achieve these objectives. It was recommended individual activities should be tested separately first followed by one large exercise linking the activities together.
- Scenarios tested issues which were relevant to the various livestock systems in the different countries.
- The objectives of the exercises varied. In some countries it was used solely as a training exercise while in the more complete exercises attempts were made to test the availability of resources in an emergency situation.
- The activities also varied from exercises to exercise, varying from tabletop exercises only, to farm visits and on-farm investigations. Farm visits were sometimes supplemented with demonstrations of cleansing and disinfection routines and the taking of samples.
- It must be noted that simulation exercises executed in relation to diseases other than FMD, such as Classical Swine Fever and Avian Influenza, have processes which overlap with FMD exercises. For example communications, chain of command, organisation of National Disease and Local disease control centres, the implementation of movement controls and control zones. The processes and people involved in the above activities would be quite similar to those of an FMD real-time alert exercise or a true outbreak
- Where tracing was carried out on infected premises, the scenarios varied from fictional scenarios to the actual history of movements on and off the farm.
- New Zealand used an actual suspect situation to test their preparedness in “Operation Waiheke”
- Many of the exercises test the reaction to the first outbreak. But control measures may be required for several months during a true outbreak, such as serosurveillance, vaccination and supervised animal movements. These ongoing control measures, required until a country demonstrates freedom from disease, were not as regularly tested.
- There are large number of farmers and veterinarians from Western Europe and particularly the UK with on-farm experiences of the UK 2001 epidemic and could add to the realism of the scenarios and problems presented to participants. For many of the simulation exercises considered in this report, decision makers and policy makers from the UK outbreak have been called in to provide assistance but there is little evidence of involvement of individuals with actual field experience.

## *Communications*

- Internal communications between the National Disease Control Centre and the Local Disease Control Centres (NDCC and LDCC's) and between departments through email alone can lead to overloaded inboxes with emails going to the wrong individuals.
- When emails are used, non personal inboxes should be used and individuals must be employed to insure that the correct emails reach the correct individuals.
- Intranet databases supported by the use of email, paper and fax are suggested as the best means of recording activities at local and regional level.
- Communication with the media should be carried out in such a way as to promote cooperation and support rather than seeing it as a hindrance.
- Meetings should have fixed agendas with clear objectives (e.g. decision making or information sharing) and be attended only by the relevant personnel. There is a danger if meetings are not organised in this way, time is wasted and the decision makers are not left with enough time for their decision making activities.
- Cross border communication can be improved during "peace-time" by working together on projects such as simulation exercises. This ensures that important relationships are formed before a true outbreak occurs, leading to greater trust and willingness to share information and to cooperate in a true emergency situation.

## *The taking and delivery of samples*

- In some cases samples were taken from animals while others considered this to be unnecessary experimentation with animals.
- Aerial transport of samples presented problems which need to be addressed. FMD samples are classified as dangerous goods (infectious substances affecting animals) under IATA guidelines.<sup>†</sup> The strict regulations associated with the aerial transport of such goods and confusion regarding these regulations has caused delays in transport during simulation exercises and in true suspect cases. The financial and political costs of such delays may be large as a negative result would be required to lift the movement restrictions. It must also be noted that infectious substances are not permitted to be shipped as checked luggage or as carry on luggage and must be shipped as cargo.

## *Slaughter/Vaccination strategy*

- Most countries appear to have animal databases and GIS systems as necessary aids to assist in these control measures.
- For countries with a heavy dependence on exports as the main market for their products, stamping out is still preferred over vaccination as it is still considered to lead to an earlier return to an OIE free status.
- In other countries public opinion is against any future mass cull of animals as occurred in the UK in 2001 and this will strongly influence some countries towards a vaccination to live strategy.
- Countries that use a vaccination strategy must be aware that the correct vaccine may not be immediately available.
- The U.K. contingency plan provides for greater individual assessment of the decision on whether or not to slaughter individual farms rather than a blanket decision directing

the slaughter of for example all contiguous premises and dangerous contacts. If this policy is to be used in future outbreaks, then further consideration must be given to testing this strategy in real-time alert exercises and to the training of individuals who would carry out these assessments.

- Countries or decision makers do not need to take specific positions for or against the use of vaccination before the event. The use of vaccination is an extra option available as an aid in the control of disease.

### *On-farm slaughter*

- The technique for slaughter of cattle was usually a captive bolt humane killer although a few countries preferred the use of lethal injection. Reasons given for this included
  - Lack of availability of trained slaughter men
  - Less environmental contamination
- There would rarely be an actual opportunity to slaughter animals on a farm as part of a real-time alert exercise. Countries tested the availability of the required personnel, loading facilities and disinfection facilities. Even the logistics of personnel availability is difficult to test as many of the people involved in the slaughter process would only become available after the closure of abattoirs associated with movement restrictions.
- Valuation is normally carried out on the farm, although one country questioned the need for on farm valuation, with the objective of reducing the number of people required on the farm and to reduce delays between diagnosis and slaughter.
- Rendering is the most common choice for disposal of animals. For countries with large land area and a low density human population, burial poses fewer problems than densely populated countries.
- The importance of counselling services both for farmers and staff involved in the slaughter process was expressed.
- The potential for falsified claims for on-farm damages, injuries or work done is another issue which varies from country to country. One opinion suggested that photographs should be taken of the slaughter farm before slaughter.

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\* Reference to the use of the decision support tools list does not imply endorsement by the FAO

† OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals CHAPTER 1.1.1. Sampling methods

**References:**

OIE Manual of Diagnostic Tests and Vaccines for Terrestrial Animals CHAPTER 1.1.1. Sampling methods.

Decision Support Systems (making hard decisions with imperfect information). Presentation made by Mark Bronsvort to the Closed meeting of the Research group of the Standing Technical Committee of the EUFMD Commission, Germany, September 2005.

Exercise Minitaur Evaluation Report. A report on the FMD real-time alert exercise carried out from 9-13 September 2002 and released on 19<sup>th</sup> of April 2005.

A Report on Exercise Hornbeam –A series of linked exercises testing The UK Government's Foot and Mouth Disease emergency preparedness January – June 2004, State Veterinary Service, Contingency Planning Division December 2004.

NOSOS, Simulation de foyers de fièvre aphteuse: exercice effectué par le Service vétérinaire Suisse 12 et 13 novembre 2003.

The views and experiences of participants to Real-Time alert exercises carried out in Slovenia, The Nordic Countries and The Netherlands.

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