

OPEN SESSIONS OF THE STANDING TECHNICAL AND RESEARCH COMMITTEES OF THE EuFMD COMMISSION

APPLIANCE OF SCIENCE IN THE
PROGRESSIVE CONTROL OF FMD

29-31 October 2012
Jerez de la Frontera, Spain



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¡Bienvenidos a Jerez!

The 2012 Sessions will bring together people and organizations involved in the areas of FMD control, laboratory services, research and development, predominantly from Europe and its neighbourhood regions, but with important participation from free and endemic countries from across the world. In addition to the two Open Sessions – of the EuFMD Standing Technical and Research Committees - the Annual Network Meeting of the OIE/FAO FMD reference Laboratory Network, and the Meeting of the Global Foot-and-Mouth Disease Research Alliance (GFRA), will use this opportunity to meet.

The Open Sessions, as the name suggests, are Open to all persons having FMD control as a part of their job description. The Standing Technical Committee has responsibility to provide strategic guidance and advice to the EuFMD on technical issues and bring attention to new developments which are important for policy making. In 2011, the Commission established a Special Committee on Research (SCR), with 12 elected members, replacing the former “Research group of the Standing Technical Committee”. The SCR has a role to review the technical developments reported at the Open Session which are important to FMD surveillance and control in the member states and may be commissioned, or propose, studies to the STC. In 2009-12, studies were commissioned on full genome sequencing, epidemiology in wild boar, telemetry and non-invasive sampling of wild boar, NSP and LPBE diagnostics for SAT viruses, serotype specific PCR assays, software for surveillance design, vaccine effectiveness in the field, and a global survey on FMD Research (through GFRA). It is a requirement of these supported studies to report to the Open Sessions.

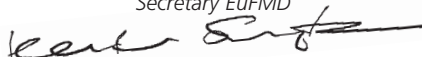
More epidemiology, more control: since 2002, attendance at Open Session has grown from around 100 to about 250, with a shift from predominantly lab based studies to field based - with over half the papers in 2012 coming from epidemiology and risk management studies. What is behind this? More capacity to partner between north and south institutions? The success of projects linking the field and advanced labs? Better communications and networking? The ideas coming out of Open Sessions and other events that bring people together? The new confidence in endemic regions that comes from applying ideas locally? Or because FMD is becoming recognized in endemic countries as important and preventable?

The Open Sessions have had a history of developing new ideas that are taken up by the international organizations – for example the Erice Session (2008) provided the concept of virus pools needing specific regional programmes, and the “Progressive Control Pathway (PCP-FMD)” developed by EuFMD with FAO as a framework for developing sustainable national programmes. **The PCP-FMD** has, since 2011, been a joint tool with the OIE, and provides a framework for the **Global Strategy for FMD Control** launched by FAO and OIE in Bangkok in June 2012. The Strategy has the aim of all endemic countries advancing two PCP Stages in the next 15 years; in other words, at the end of this period all countries will have at the least a control programme protecting their vulnerable sectors. So in the 4 years since Erice, a lot has happened that has led to a revised system for promoting progressive control. An increased amount of field work is needed as part of the PCP application at national level, and in parallel a lot more basic and applied research is needed in almost all disciplines.

The 2012 Open Session recognizes networking is essential, to develop and spread ideas. It recognizes that science will help us progress FMD control in every part of the affected world, and that what you publish and report at this Conference is part of the process of progressive control – your work is transforming the possibilities.

So bring on the Open Session at Jerez de la Frontera – at the frontiers of FMD science, our ideas should not observe boundaries!

Keith Sumption
Secretary EuFMD



Acknowledgements

The EuFMD Commission gratefully acknowledges the support of the European Commission and the EuFMD Member States, for funding the Committee meetings, Working Groups, and Research Studies. Professor David Paton and Dr Aldo Dekker are thanked for their work as Chairpersons of the Standing Technical and Research Committees, for their ideas and enthusiasm for the Open Sessions and behind the scenes in the work of the Committees.

The Open Session 2012 is made possible through the support of Dr Ulrich Herzog, President of the EuFMD Commission, Dr Alf Füssel (DG-SANCO), and our host, Dr Lucio Carbajo Goñi, Marta Cañzos and their team. We would like to acknowledge on your behalf the EuFMD team, and in particular Enrique Anton, who managed and undertook most of the many, major tasks involved with the Jerez Session.

The city of Jerez is thanked for its hospitality.

Organization of the 2012 Open Session

Chairman of the Standing Technical Committee:
Professor David Paton

Members of the STC:
Dr Christianne Bruschke
Dr Matthias Kramer
Prof David Paton
Dr Preben Willeberg

Chairman of the Special Committee on Research:
Dr Aldo Dekker

Members of the SCR:
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Dr Emiliana Brocchi (Italy)
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The EuFMD Team in Rome:
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Dr Eoin Ryan (Animal health officer)
Dr Vesna Milicevic (Animal health officer, STP program)
Dr Dimitrios Dilaveris (Animal health officer, STP program)
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Ms Manuela Zingales (Clerk)
Mr Leonardo Leon Perez (Clerk)
Mr Enrique Anton (Manager of the Jerez meeting)
Ms Claudia Ciarlantini and her team (graphic designer)

The generous support of our sponsors has greatly assisted to reduce the costs of the event, enabling us to widen participation, and is greatly appreciated.



And special thanks to our **Hosts** and **Local Organiser**:



Day 1 :: Monday 29 October PLENARY ROOM

Open Session of the Standing Technical Committee (STC): Focus on issues affecting FMD control in FMD free regions

SESSION I. OPENING

- 08:15 – 08:45** Welcoming/Opening remarks. Government of Spain (Marm), FAO, EuFMD
08:45 – 09:15 Frenkel lecture: Frenkel's legacy: What is keeping us? (*P.W. de Leeuw*)
09:15 – 09:45 Global surveillance – European neighbourhood and global FMD situation (*J. Hammond*)
09:45 – 10:00 Minister of Agricultura, Alimentación y Medio Ambiente (*M. Arias Cañete*)
10:00 – 10:30 **Coffee/Tea break**

PLENARY SESSION

SESSION II. FOCUS ON ISSUES AFFECTING FMD CONTROL IN FMD FREE REGIONS

What should the waiting periods be for reinstatement of FMD-free status after vaccination-to-live?

- 10:30 – 10:55** Aligning waiting periods for vaccinate to-Live & vaccinate-to-die (*D. Geale*)
10:55 – 11:20 A quantitative approach to determining waiting periods for fmd freedom. (*A. Cameron*)
11:20 – 11:30 Evaluation of the benefits and feasibility of a vaccination-to-live strategy in fmd free countries (*D. Hadorn*)

European Wild boar and their role in disease transmission: Lessons learnt and policy implications

- 11:30 – 12:00** FMD in wild boar and policy implications (*K. Depner*)
12:00 – 12:30 FMD in wild boar: can the virus be maintained in wildlife? Experiences and consequences from Thrace (*S. Khomenko*)
12:30 – 12:40 *Discussion*
12:40 – 13:40 **Lunch break**

SESSION III. FOCUS ON ISSUES AFFECTING FMD CONTROL IN FMD FREE REGIONS

- 13:40 – 14:10** Fmd lab bio-risk management: what have we learnt from application of the 2009 minimum standards? (*B. Haas*)

Approaches to the evaluation of FMD emergency management options and control measures in Europe

- 14:10 – 14:40** Economic evaluation of fmd management options: Implications for science and policy (*R. Bergevoet*)
14:40 – 15:10 Simple decision tools informed by model predictions when considering fmd emergency vaccination strategies (*P. Willeberg*)
15:10 – 15:20 *Panel discussion: With speakers and other invited panelists, to discuss ideas of where the work should go*
15:20 – 15:50 **Coffee/Tea break**

(cont. on page viii)

PARALLEL SESSION**Research Group (RG): Immunology and Vaccine Research****SESSION P1. IMMUNOLOGY AND VACCINE RESEARCH 1**

- 11:15 – 11:30** **Keynote:** The cellular innate immune response during acute infection of cattle and swine with FMDV (*W. Golde*)
- 11:30 – 11:45** Adaptive immune responses in the respiratory tract of fmd-vaccinated cattle after oronasal infection (*M. Pérez Filgueira*)
- 11:45 – 12:00** Characterization of opsonizing antibodies against fmd Virus (*A. Summerfield*)
- 12:00 – 12:15** Whole 140s FMDV particles are needed to elicit specific cellular immunity *in vivo* and to stimulate recall responses *in vitro* (*A.V. Capozzo*)
- 12:15 – 12:30** Intraserotype Chimeric Foot-and-Mouth Disease Vaccine Antigen elicit protection in cattle (*F. Maree*)
- 12:30 – 12:40** *Discussion*
- 12:40 – 13:40** **Lunch break**

SESSION P2: IMMUNOLOGY AND VACCINE RESEARCH 2

- 13:40 – 13:55** Rational development of FMD Virus Vaccines (*B.Charleston*)
- 13:55 – 14:10** Development of a bovine Enterovirus-based vector that expresses Multi-Epitopes of Foot-and-Mouth Disease Virus (*J.H.Park*)
- 14:10 – 14:25** Development and evaluation of an adenovirus vector based intranasal FMDV capsid vaccine in mice for increasing immune responses (*A. Babu*)
- 14:25 – 14:40** Alternative FMD vaccine potency tests based on serology and payload (*T. Willems*)
- 14:40 – 14:55** Improving challenge-free FMD vaccine batch acceptance (*R. Reeve*)
- 14:55 – 15:10** Relation between antibody response and protection in FMD vaccine depends on vaccine quality (*A. Dekker*)
- 15:10 – 15:20** *Discussion*
- 15:20 – 15:50** **Coffee/Tea break**
- 15:50 – 16:05** Cross protection against current Asia 1 field isolates is provided by a high potency Asia 1 Shamir Vaccine (*Y. Li*)
- 16:05 – 16:20** Testing the efficacy of 01 Manisa high potency vaccine against challenge with 0/Vietnam/2010 (0 MYA98 topotype) in pigs (*W. Vosloo*)
- 16:20 – 16:35** Antibody titres in fmd type a strains: comparison of methodologies to predict cross-protection (*T. Tesfaalem*)
- 16:35 – 17:00** *Discussion*
- 17:20 – 18:20** **Poster session**

Day 1 :: Monday 29 October *(cont.)*

**Open Session of the EuFMD Research Group (RG):
Focus on science contributing to the roll-out of progressive
control of FMD**

SESSION IV. PROGRESSIVE CONTROL PATHWAY FOR FMD (PCP): RESULTS, TECHNICAL DEVELOPMENTS AND ISSUES

- 15:50 – 16:20** PCP Stage 1– 3: Results, technical developments and issues.
(C. Bartels, N. de Haan, M. McLaws)
- 16:20 – 16:50** Socioeconomics: Enhanced fmd control through the integration of socio-economic approaches *(C. Bartels, N. de Haan, M. McLaws)*
- 16:50 – 17:20** The role of the OIE in fmd prevention and control. How to translate science in standards and guidelines, how to develop tools and ensure their convergence *(J. Domenech)*
- 17:20 – 18:20** Poster session
- 18:30**** **Dinner offered by the Spanish MARM**
(buses from the venue to the 'Yeguada' la Cartuja)

Day 2 :: Tuesday 30 October PLENARY ROOM

Open Session of the EuFMD Research Group (RG): Focus on science contributing to the roll-out of progressive control of FMD

SESSION V. FMD EPIDEMIOLOGY: TRANSMISSION, VIRUS CIRCULATION, RISK FACTOR

- 08:30 – 09:00** **Keynote:** Local differences in circulation, what have we learnt from patterns of fmd persistence and spread? (*N. Knowles*)
- 09:00 – 09:15** Limited transmission of foot-and-mouth disease virus from infected sheep to naïve calves (*C. Bravo de Rueda*)
- 09:15 – 09:30** FMDV infection in vaccinated and non-vaccinated sheep: transmission to contact animals and diagnostic aspects (*P. Eblé*)
- 09:30 – 09:45** Transmission of fmdv from infected buffalo (*Bubalus bubalis*) to vaccinated and naïve buffalo and cattle (*M. Madhanmohan*)
- 09:45 – 10:00** Within herd transmission and evaluation of the performance of clinical and serological diagnosis of foot and mouth disease in vaccinated cattle (*J.L. Gonzales*)
- 10:00 – 10:15** *Discussion*
- 10:15 – 10:45** **Coffee/Tea break**

SESSION VI. EPIDEMIOLOGY 2

- 10:45 – 11:00** Foot and Mouth Disease Virus (FMDV) in the african buffalo (*Syncerus caffer*) in Kenya (*S. Wekesa*)
- 11:00 – 11:15** Seroprevalence profile of foot-and-mouth disease in wildlife populations of West and Central African Regions with special reference to *syncerus caffer* subspecies (*A. di Nardo*)
- 11:15 – 11:30** Epidemiological patterns and risk factors for Foot-and-Mouth Disease exposure in traditional livestock-keeping systems of Northern Tanzania (*T. Lembo*)
- 11:30 – 11:45** Retrospective serosurvey of Foot and Mouth Disease (FMD) in free ranging domestic pigs and wild suids in Sub-Saharan African Countries (*M. Arias*)
- 11:45 – 12:00** Risks associated with unofficial livestock movements in the greater Mekong region (*A. Cameron*)
- 12:00 – 12:15** Risk factors for foot and mouth disease in beef cattle herds in Israel (*E. Klement*)
- 12:15 – 12:30** Risk mapping of foot-and-mouth disease prevalence in Central Asian Countries (*A. di Nardo*)
- 12:30 – 12:45** *Discussion*
- 12:45 – 13:45** **Lunch break**

SESSION VII. EPIDEMIOLOGY 3

- 13:45 – 14:00** Prevalence and risk factors for FMD-NSP-antibodies in cow and buffalo calves, and small ruminants in Egypt (*V. Maanen*)
- 14:00 – 14:15** Determining the level of vaccine-induced versus field-virus induced antibodies in livestock in West-Azarbaijan, Iran (*C. Bartels*)
- 14:15 – 14:30** Spatio-temporal origin and transmission of the Foot-and-Mouth Disease Virus outbreaks in Burgas Region (Bulgaria) in 2011 (*B. Valdazo*)
- 14:30 – 14:45** Molecular epidemiology of Foot-and-Mouth Disease Virus in the african buffaloes in Southern Africa (*C. Kasanga*)
- 14:45 – 15:00** *Discussion*

(cont. on page xii)

SESSION P3. IMMUNOLOGY AND VACCINE RESEARCH 3

- 08:45 – 09:00** Antigenic cartography for analysis of antigenic variations in FMD Virus (*B. Pattnaik*)
- 09:00 – 09:15** Evidence of further neutralisation after removal of five neutralising antigenic sites in serotype o FMDV (*A. Asfor*)
- 09:15 – 09:30** *Discussion*
- 09:30 – 09:45** Determining the Epitope dominance on the capsid of a SAT2 Foot-and-Mouth Disease Virus by mutational analysis (*P.A. Opperman*)
- 09:45 – 10:00** Study of antigenic site variation in fmd virus serotype 0 grown under vaccinal serum antibodies *in vitro* (*B. Pattnaik*)
- 10:00 – 10:15** *Discussion*
- 10:15 – 10:45** **Coffee/tea break**

SESSION P4. FMD MANAGEMENT 1

- 10:45 – 11:00** Modelling into policy: How can an 'Intelligent Customer' ensure appropriate use of evidence? (*F. Gauntlett*)
- 11:00 – 11:15** Scaling up from 1-to-1 animal transmission experiments to epidemiological models of national outbreaks (*D. Schley*)
- 11:15 – 11:30** Epidemiological models of FMD in two different austrian regions (*J. Hiesel*)
- 11:30 – 11:45** Multi-criteria decision analysis for evaluating control options during FMD outbreaks (*K. Mintiens*)
- 11:45 – 12:00** Meta-Analysis on the efficacy of Foot-and-Mouth Disease Emergency Vaccination (*T. Halasa*)
- 12:00 – 12:15** Evaluating vaccination for Foot-and-Mouth Disease Control – an international study (*M.G. Garner*)
- 12:15 – 12:45** *Discussion*
- 12:45 – 13:45** **Lunch break**

SESSION P5. COMPLEMENTARY RESEARCH 1

- 13:45 – 14:00** A new approach to the oldest disease developing an antiviral drug strategy for the containment of Foot-and-Mouth Disease outbreaks (*N. Goris*)
- 14:00 – 14:15** The Pyrazinecarboxamide Derivative T-1105 offers protection against O1 Manisa Virus infection in Guinea pigs (*De Vleeschauwer*)
- 14:15 – 14:30** *Discussion*

SESSION P6. FMD MANAGEMENT 2

- 15:30 – 16:00** **Coffee/Tea break**
- 16:00 – 16:15** Simulated effects of introducing emergency vaccination or depopulation during fmd outbreaks in Denmark (*A. Boklund*)
- 16:15 – 16:30** Modelling the spread of fmd in endemic regions (*M. Tildelsey*)

(cont. on page xiii)

Day 2 :: Tuesday 30 October *(cont.)*

SESSION VIII. VACCINATION PROGRAMMES

- 15:00 – 15:30** **Keynote:** Effectiveness of vaccination programmes (*P. Fine*)
- 15:30 – 16:00** **Coffee/tea break**
- 16:00 – 16:15** FMD Asia-1 vaccine effectiveness in Turkey (*T. Knight-Jones*)
- 16:15 – 16:30** An investigation of vaccination effectiveness in two Cambodian villages facing an outbreak of Foot-and-Mouth Disease (*A. Cameron*)
- 16:30 – 16:45** The field effectiveness of inactivated vaccine for prevention of foot and mouth disease (*E. Klement*)
- 16:45 – 17:00** Foot and Mouth Disease: Vaccine impact and progressive control in India (*S.N. Singh*)
- 17:00 – 17:15** A high throughput liquid phase blocking elisa for quantitative estimation of antibody titers against structural proteins of Foot-and-Mouth Disease Virus (*G.K. Sharma*)
- 17:15 – 17:30** *Discussion*
- 19:30**** Meeting at the Alcazar for the “Afta” session
- AFTA – Thoughts Night session** (also known as the *Fred Brown* event)

(cont.)

- 16:30 – 16:45** Assessing and comparing control strategies for FMD in endemic countries: adaptation of the North American animal disease spread models (NAADSM) (*M.D. Salman*)
- 16:45-17:00** Geographically-grounded, cost-benefit based control policies: Built as equal circles or considering local connecting networks? (*A.L. Rivas*)
- 17:00-17-15** Costs and benefits of FMDS practises in commercial dairy farms in central Ethiopia (*A.F. Beyi*)
- 17:15-17:30** *Discussion*

Day 3 :: Wednesday 31 October PLENARY ROOM

Open Session of the EuFMD Research Group (RG): Focus on science contributing to the roll-out of progressive control of FMD

SESSION IX. DIAGNOSTIC DEVELOPMENTS AND LABORATORY NETWORKS

- 08:30 – 09:00** **Keynote:** New Elisa's for FMD (*E. Brocchi*)
- 09:00 – 09:15** FMD and SVD combined proficiency test studies 2011 (*B. Armson*)
- 09:15 – 09:30** New roles for "Auxiliary labs" in the diagnosis of FMD? (*B. Haas*)
- 09:30 – 09:45** Laboratory capacity for diagnosis of Foot-and-Mouth Disease in Eastern Africa: Implication on progressive control pathway (*A. Namatovu*)
- 09:45 – 10:00** Evaluation of FTA[®] cards as a laboratory and field sampling device for the detection and serotyping of Foot-and-Mouth Disease Virus (*M. Madhanmohan*)
- 10:00 – 10:15** Development of RNA transfection method for rescue of FMD virus in susceptible cell (*B. Pattnaik*)
- 10:15 – 10:45** **Coffee/Tea break**
- 10:45 – 11:00** Open fmd a resource for automatic and curated nomenclatures and tools for the FMD (epiphylogeography?) community (*P. Claes*)
- 11:00 – 11:15** Development and evaluation of a real-time reverse Transcription-Loop-Mediated isothermal amplification assay for rapid serotyping of Foot-and-Mouth Disease Virus (*M. Madhanmohan*)

SESSION X. DIAGNOSTIC DEVELOPMENTS AND APPLICATIONS

- 11:15 – 11:30** Diagnostic performance of an immunochromatographic lateral-flow strip test using generic rapid assay device for detection and serotyping of Foot-and-Mouth Disease Virus serotypes O or Asia 1 in clinical samples (*Z. Zhan*)
- 11:30 – 11:45** Development and evaluation of a one-step duplex real time RT-PCR for diagnosis of Foot-and-Mouth Disease (*K. Gorna*)
- 11:45 – 12:00** The development and evaluation of a SAT-adapted 3ABC Diva Test for Foot-and-Mouth Disease Virus in the Southern Africa context (*M. Chitray*)
- 12:00-12:15** Detection, isolation, and typing of Foot-and-Mouth Disease Virus from oral swab samples collected from balochistan province of Pakistan. (*M. Assad Ullah*)
- 12:15-12:45** *Discussion*
- 12:45-13:45** **Lunch break**

SESSION XI. WRAP UP AND CLOSURE

- 13:45** **FINAL Session of papers** – or The way ahead. Conclusions given by leaders (keynote speakers)
Recommendations
Appreciations and prizes
- 15:30** **Closure**

GFRA MEETING: An African Perspective

SESSION P7. GFRA MEETING

- 08:30 – 09:00** GFRA: State of the alliance overview (*F. Marée*)
09:00 – 09:15 Role of buffalo in the maintenance of FMDV (*B. Charleston*)
09:15 – 09:30 FMD virus ecology: Collaborative studies (*L. Rodríguez*)
09:30 – 09:45 Development of a safe antigenic marker FMD vaccine platform (*E. Rieder*)
09:45 – 10:00 Top priorities for research (*D. Paton*)
10:00 – 10:15 GFRA workshop in 2013 and concluding remarks (*F. Marée*)
10:15 – 10:45 **Coffee/tea break**

Open Session of the EuFMD Research Group (RG): Focus on science contributing to the roll-out of progressive control of FMD

SESSION P8. FMD MONITORING AND SURVEILLANCE: EXPERIENCE, METHODS AND APPROACHES

- 11:15 – 11:30** Estimating the incidence of foot and mouth disease (*M. McLaws*)
11:30 – 11:45 Risk factors for transmission of foot-and-mouth disease during an outbreak in Southern England in 2007 (*K. Sharpe*)
11:45 – 12:00 The use of oral fluids from pig herds for pre-clinical diagnosis and monitoring in a FMD emergency: Current research and future directions (*Z. Zhang*)
12:00 – 12:15 Foot-and-Mouth Disease Virus transboundary movements between Sub-Saharan Africa, North Africa and the Middle East (*N. Knowles*)
12:15 – 12:30 Maximising efficiency with a surveillance strategy for Foot-and-Mouth Disease during an outbreak in a previously fmd-free country (*K. Walker*)
12:30 – 12:45 *Discussion*
12:45 – 13:45 **Lunch break**

