

Global Foot and Mouth Disease Research Alliance (GFRA): current actions and future perspective



Global Foot-and-Mouth Disease
Research Alliance

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**Fighting foot-and-mouth
disease together**

Mission

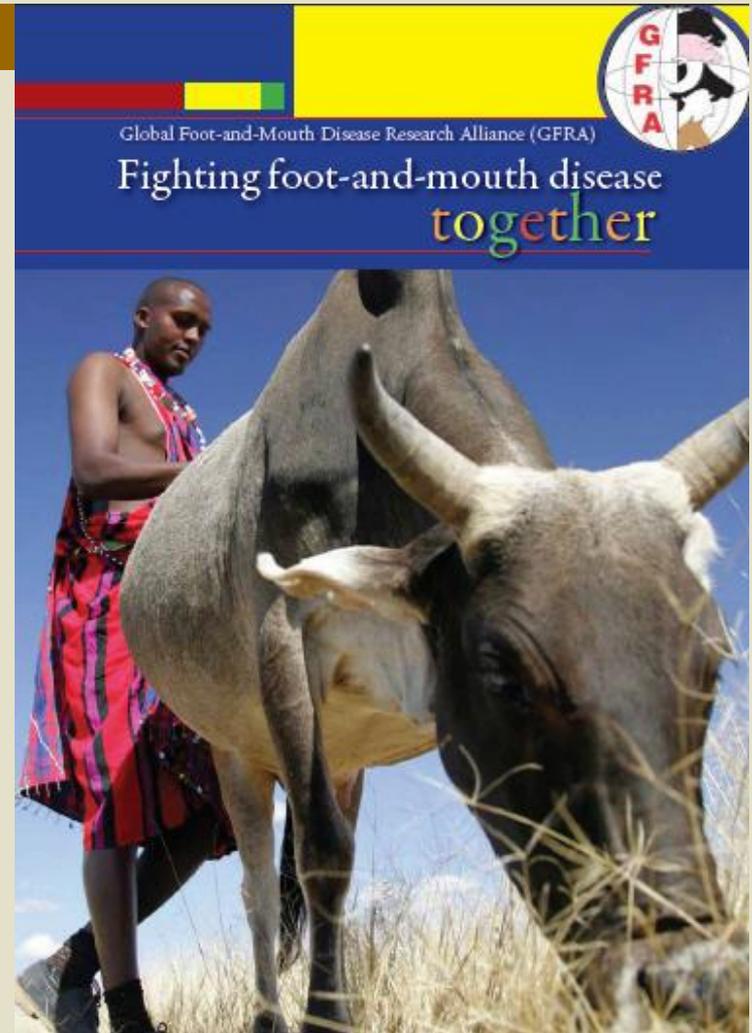
Establish and sustain global research partnerships to generate **scientific knowledge** and **discover** the tools to successfully prevent, control and eradicate FMD

<http://www.ars.usda.gov/GFRA/>

Fighting foot-and-mouth disease together



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Vision of GFRA

- A coordinated global alliance of scientists producing evidence and innovation that enables the progressive control and eradication of FMD



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History

- 2003 - GFRA is first established with five founder members: Institute for Animal Health, Pirbright Laboratory (UK); Plum Island Animal Disease Center (USA); Australian Animal Health Laboratory; National Center for Foreign Animal Disease (Canada); and International Livestock Research Institute (Kenya).
- 2004 - Inaugural GFRA meeting is held at U.S. Department of Agriculture, Washington, DC.
- 2006 - Meeting is held in Agra, India, to explore the needs of countries in FMD-endemic settings.
- January 2007. Funding by the United Kingdom Government (DEFRA) to IAH under GFRA umbrella to carry out collaborative research with the Plum Island Animal Disease Center.
- May 2008. Experts meet at the Plum Island Animal Disease Center to develop a strategic plan to expand the Alliance and make GFRA more inclusive and relevant to countries combating FMD worldwide.



History

- Oct 2008 - First open GFRA meeting is held at the EUFMD Conference, Erice, Sicily
- May 2009 - The second open GFRA meeting is held at the EPIZONE Conference, Antalya, Turkey
- Sep 2009 - Wellcome Trust funds GFRA partners IAH-UK, PIADC-USA, OVI-SA, Intervet-NL to improve FMD vaccine production
- Jan 2010 - Third GFRA open meeting on Pathogenesis at the Institute of Animal Health, UK
- June 2011 - Fourth GFRA open meeting, at the Disconvac – Meeting: FMD Cross protection, B. Aires, Argentina
- As of February 2012 - The GFRA is constituted by 35 institutions, public and private, distributed in five continents.

Apr 2012 – Fifth open meeting on Surveillance, Epidemiology, Vaccination and Control of FMD in Hazyview, South Africa.





Canadian Food Inspection Agency



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Global Foot-and-Mouth Disease Research Alliance

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Membership

- Any organization interested in enabling the GFRA vision and mission is encouraged to join the alliance. There are three membership options:
 - 1) GFRA member. FMD research organization that has signed the GFRA MoU
 - 2) GFRA collaborator. Organization that collaborates on a research project with a GFRA member
 - 3) GFRA associate. Organization that benefits, shares or supports the GFRA mission

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Strategic Goals of GFRA

- **Goal 1.** Facilitate research collaborations and serve as a communication gateway for the global FMD research community
- **Goal 2.** Conduct strategic research to better understand FMD
- **Goal 3.** Development of the next generation of control measures and strategies for their application
- **Goal 4.** Determine social and economic impacts of the new generation of improved FMD control
- **Goal 5.** Provide evidence to inform development of policies for safe trade of animals and animal products in FMD-endemic areas



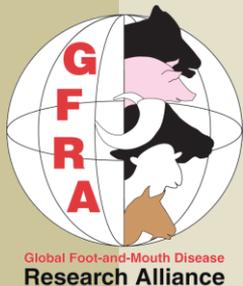
Research Activities Worldwide

- Report: 2010 - Research Activities worldwide
- Report: October 2011 - Update of Research Activities



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Purpose of the report

- This 2011 update report reflects current (2011) activities performed towards the first two goals of the GFRA:
 - facilitate research collaborations and serve as a communication gateway for the global FMD research community and
 - conduct strategic research to better understand FMD

It is envisaged that the report will be used to identify the gaps in strategic collaborations and research that may potentially prevent the progressive control and eradication of FMD in the future.



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GFRA Collaborations

➤ ARS-PIADC / IAH Pirbright-UK

- Interaction between Ad5-FMD vector and bovine dendritic cells
- Stabilization of FMDV capsid

➤ ARS-PIADC / INTA-Argentina

- Developing predictive tools for prevention of FMD
- Understanding Local and Systemic Protective Responses Against FMDV Infection in Cattle: A Genomics Approach

➤ ARS-PIADC / Department of Animal Health – Viet Nam / AAHL-CSIRO - Australia

- Molecular Epidemiology, Surveillance and Predictive Tools for FMD Control In Vietnam

ARS-PIADC / NARC, NVL Pakistan/ UC-Davis/ FAO

- Real Time Data Analysis and Research Capacity Building Foot and Mouth Disease (FMD) Control in Pakistan.



GFRA Collaborations...

- **IAH Pirbright / ARS-PIADC / ARC-OVI / Oxford U / Intervet**
 - Structurally modified master seed viruses to enhance conventional foot-and-mouth disease virus vaccine production
- **ARS-PIADC / ICAR – India**
 - Effective Molecular Vaccines Against Foot-and-Mouth Disease
- **IAH-UK/ ARC-OVI / Glasgow U / India Immunologicals**
 - Vaccine Matching for East and Southern Africa
 - Improved vaccine adjuvants



Fifth GFRA Scientific Meeting

➤ Surveillance, Epidemiology, Vaccination and Control of FMD

- April 17-19, 2012
- Hosted by the ARC-OVI, Hazyview, Kruger National Park, South Africa

- **Goal:**
- To share the latest knowledge on FMD virus ecology, to improve vaccine efficacy and vaccine matching within the GFRA.
- **Program content:**
- 1. FMDV-wildlife interaction and pathogenesis
- 2. Epidemiology and control in different regions of the globe
- 3. Vaccine efficacy
- 4. New and current approaches to vaccine matching
- **Participants:** GFRA and non-GFRA members involved or interested in the topics mentioned.



Fifth GFRA Scientific Meeting

➤ Ninety-five delegates attended:

- FMD experts from Botswana, Kenya, Namibia, SA, Tanzania, Uganda, Cameroon, Nigeria, Eritrea, Egypt, also Thailand, Vietnam, China & India presented FMD situation in their region.
- The FAO & OIE were represented

➤ FMDV in wildlife

- An important concept to remember is that the SAT viruses are buffalo-adapted viruses. The buffalo-livestock interfaces are the critical area for disease prevention/ control
- Current FMD management approaches in southern Africa are failing. What are the reasons for this?
- It is clear from discussions that FMD and its control present complex socio-economic and environmental impacts in the region



Fifth GFRA Scientific Meeting

- FMD in southern Africa, Tanzania & Uganda
 - more systematic surveillance, capacity building at all levels (incl. regional, national, inter-sectorial); and cross-sectorial collaboration on FMD research.
 - Describing the complex epidemiology and endemicity of FMD throughout Africa.
 - Cross-protection and vaccine-matching of the field isolates to available vaccines is required.

- FMD in central and West Africa
 - Experience continuous outbreaks of FMD: one of the main burdens to animal health and production.
 - Currently no control program, no vaccination and little is known about the viral strains circulating.



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Fifth GFRA Scientific Meeting

- Vaccine efficacy
 - Quality of vaccines
 - Minimum requirements, needs, etc

- Vaccine matching approaches
 - Serology: VNT, ELISA
 - New approaches, like Antigenic cartography
 - Linear mixed effect models
 - etc



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Together!



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