2013

EUFMD – Fund for Applied Research (EuFMD-FAR)

eufmd
european commission for the control of foot-and-mouth disease

Contents

EuFMD Fund for Applied Research (EuFMD-FAR)

Since 2008 the EuFMD has, under the multi-annual agreement with the European Commission (DG-SANCO), provided support for small applied research projects that are relevant to the technical issues that are seen as priorities of the EuFMD Member States[1]. The thematic priorities have been identified mainly at the EuFMD's biennial General Sessions, held in 2009, 2011 and 2013, and a specific Research Fund was adopted as a component (component #1.5) of the four-year Strategic Plan in April 2013[2]. The list of previously supported research projects is given at the end of this section.

Funding

The EuFMD-FAR has earmarked funding of 250,000 € for the period October 2013 to April 2015 under the Financial Agreement between EC and FAO relating to the EuFMD, managed through the trust fund TF MTF/INT/003/EC. Studies contributing directly to components of the 2013-15 work plan may also be funded by those components, which may allow more than the above fund to be used to commission work. Additional sources of funding from other donors, which seems possible following the 40th General Session, will be managed and reported through separate Trust Funds, and will have a common application format and review procedure.

The current (at 7/2013) funding is modest and limited to a ceiling of 50,000 € per study/project, enabling some five grants to the maximum amount in the period October 2013 to December 2014, with studies to be completed before 31st March 2015. This deadline allows for reporting and evaluation of the performance of the Fund at the 41st General Session of the EuFMD Commission. EuFMD-FAR is managed by the EuFMD Secretariat and advised both by the Standing Technical Committee, which acts as the Grant Review Board, and a Referee Panel.

Schedule for calls for applications

	Funding available	Invitation to apply	Closing Date	Announcement of Results
Round 1	100,000 €	August-2013	30th-September 2013	30th October 2013
Round 2	100,000 €	January 2014	28th Feb 2014	1st April 2014
Round 3 (subject to funds)	50,000 €	August 2014	30th September 2014	30th October 2013

[1] Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Georgia, Greece, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, The Netherlands, Turkey, The United Kingdom.

[2] As adopted by the 40th General Session of the EuFMD, April 22-24, 2013

Context

The Strategic Plan of the EuFMD for the period 2013-17 has **three Strategic Objectives** (Pillars), which are to:

1. **Improve** readiness for FMD crisis management by Members;
2. **Reduce** risk to Members from the FMD situation in the European neighbourhood (Progressive Control in neighbouring regions);
3. **Promote** the global strategy of progressive control of FMD.

The operational objective of maintaining a mechanism for emergency response to an FMD crisis in the European neighbourhood will underpin the first two objectives. The Plan will be made operational through a EC-provided funding agreement for two years, and has 13 components (see **Annex 1**), one of which is Applied Research.

EuFMD-FAR is placed under **Pillar I** for management purposes as the priorities for applied research identified during the 40th General Session are primarily technical and economic issues affecting FMD emergency management in the Member States of the EuFMD. However, applied research supporting **Pillar 2** and **3** Objectives is also eligible for funding.

The Plan and the associated agreement with the EC indicate that the immediate beneficiaries of research findings and outputs are the Veterinary Services of the 37 countries which are members of the European Commission for the Control of Foot-and-Mouth Disease (EuFMD)[3], and their associated agencies and institutions which underpin their FMD management capacity. Other countries in the European neighbourhood that border the members, where the situation of foot-and-mouth disease (FMD) creates a direct or indirect threat of introduction of the disease into one or more of the member countries of EuFMD, may be immediate beneficiaries of activities conducted to promote better management of FMD in those countries. The Member States are also the final beneficiaries for the international actions to reduce the risk of FMD conducted through the Global FAO/OIE FMD Control Strategy and supported under the third Strategic Goal of the Action.

Thematic priorities 2013-15

Studies must show a high relevance to the strategic objectives. Innovation is encouraged but results must also be tangible and there should be a good chance of uptake of the results within 1-3 years of completion. Grants are usually small but enable short pieces of work that demonstrate the proof of concept or generate biological, results or methods that can be applied by Member States or their agencies in their contingency plans (Pillar 1) or Progressive Control Plans (Pillar 2-3).

Strategic Objectives (Pillars) and areas of priority (2013-15)

The priorities in the bullet points are indicative but not exclusive. General priorities for Research and Development in Europe were also identified by the Special Committee for Research in October 2012 [**Annex 2**].

[3] http://www.fao.org/ag/againfo/commissions/eufmd/commissions/eufmd-home/en/

Pillar I: To Improve readiness for FMD crisis management by Members

- Improving efficiency of local control measures, including surveillance for FMD in control zones (risk based measures, communication networks, preclinical diagnosis, bulk milk testing, penside tests…);
- Emergency vaccination strategies, and vaccination to live;
- Socio-economics, and decision making;
- Tools for FMD surveillance and risk management in wildlife, surveillance tools and control options;
- Economic modelling on contingency planning in Europe;
- "Horizon scanning" - what's coming next and significance for risk managers and policy makers.

Pillar 2: To Reduce risk to Members from the FMD situation in the European neighbourhood (Progressive Control in neighbouring regions)

- Modelling management options/control measures in endemic countries;
- Tools for earlier detection of emergent epidemics;
- FMDV Information management, including epi and genetic database and analysis tools;
- Epidemiology supporting risk based surveillance and control;
- Socio-economic studies and methods relevant to PCP approach;
- Tools for monitoring and evaluating vaccination/control programmes.

Pillar 3: To Promote the global strategy of progressive control of FMD

- Policy issues, options, solutions affecting uptake of FMD vaccination and control measures by public and private stakeholders;
- Tools for assessing control options and strategies;
- Tools for assessing impact, monitoring progress;
- Epidemiology and socio-economic impact studies;
- Global Survey on FMD research.

Nature of the funded research

Examples of research funded by the EuFMD under the "Concept Notes" scheme between 2008 and 2013 are given at the end of this section and include reviews, epidemiological studies, development of diagnostic tests and biological materials needed in reference centres, developing methods for full-genome sequencing, proof of concept on use of smart phones in outbreak active surveillance operations, etc. Awards have an individual maximum of 50,000 €. Research is to be completed within 6-18 months with the longer of these periods possible only at the beginning of the two- year funding cycle.

Criteria

1. Relevance to strategic objectives or specific components of the EuFMD Strategy;
2. Address generic problems identified as common to many Member State veterinary services;
3. Likelihood of tangible results or outputs;
4. Urgency of need for results/outputs and lack of alternative funding;
5. Synergy or complementarity with field based activities relating to FMD;
6. Value for money.

Applicants

Applications are welcome from any source and are not limited by geographical origin. Awards are normally made to not-for-profit research centres with a capacity both for signing the contract -with principal investigators capable of delivering quality research- and for managing funds and reporting. Interested parties can discuss ideas prior to proposal with the Secretariat or Members of the Standing Technical Committee. The applicant should declare this contact with the STC on the form (Application Form: **Annex 4**).

Review Process

Applications will be assessed in two stages, first by external referees (Referee Panel) then by the Standing Technical Committee (acting as the Grant Review Board), a multidisciplinary panel of experts who are familiar with the priorities and scope of the fund and the context of the institutions which are expected to utilise the knowledge, tools and outputs.

Two-Tiered Peer Review Process

1st Review by Referee Panel

- FOUR external referees are chosen for their expertise in specific research areas; at least one of these is from the EuFMD Special Committee on Research but not an applicant in the current call;
- Initial review of scientific merit and research ethics;
- Rate and give comments on each grant application.

2nd Review by Grant Review Board

- Assess quality of Referee Panel's comments;
- Final review of scientific merit and research ethics;
- Evaluate relevance to scope of fund and thematic priorities, applicability to local context, applicant's track record, administering institution's research capability, "value for money" of proposals;
- Make recommendations on funding to the Executive Committee.

Assessment Criteria

These are provided in **Annex 3** and available **online**.

Composition of the Referee Panel

The Referee Panel includes the 15 members of the Special Committee for Research and Programme Development (SCRPD) of the EuFMD, plus three experts from the FAO FMD Reference Centres in Europe. The four Referees for each proposal will be selected by the Chair of the STC or, in the case of a conflict of interest, his/her Deputy. One referee must always be from the SCRPD but, according to need, the Chairperson may also invite an external referee to undertake the review if the expertise is not present within the SCRPD.

Reviewers should complete a conflict of interest statement before review.

Composition of the Grant Review Board (GRB)

The GRB is composed of the Members of the STC plus the Executive Secretary of the EuFMD Commission. DG-SANCO have the right to be represented in the GRB. Representatives of the GRB should complete a conflict of interest statement before review, and if doubt exists, not take part in the review of the applications in which a conflict of interest may exist. The Chairperson should ensure that there is a minimum of at least three persons for any decisions, co-opting a member of the Executive Committee if this is required.

Minutes of these meetings will be reported to the EuFMD Executive Committee

Award of Grants and dispersion of funds

The EuFMD Secretariat will provide the Executive Committee with the recommendations for funding. Decisions will normally be taken by the Executive or the Chairperson of the Executive together with the EC at the regular Executive Committee Sessions at six-monthly intervals. In case of urgency, decisions will be taken by the Chairman and the representative of the EC as soon as the Review Board has made its recommendations.

Funding will be dispersed by the EuFMD through Letters of Agreement (LoA) which are contracts between the FAO of the UN and not-for-profit institutions. In exceptional circumstances, for instance where LoAs cannot be applied, the funds may also be dispersed through direct implementation mechanisms by the Secretariat. The application form should provide most of the details needed to finalise swiftly the LoA after decision is taken and initial funding dispersed. Limited changes to the proposal may be agreed when the LoA is negotiated; any major changes would require a review by the Chairman of the STC.

The Reporting schedule will be set at the time of the LoAs being agreed and normally the contractees must provide reports that coincide with the timing of the six-monthly STC meetings and provide an oral report to the biennial Open Session of the Standing Technical Committee (Next Session: October 2014 in Croatia).

Table 1: Titles of Research Studies funded by the EuFMD, 2008

1. Development of full genome sequencing methods and tools for application to FMD tracing in outbreak situations (Contractor: Pirbright);
2. Global Review of research on FMD (Awarded to GFRA, Contractor OVI);
3. Comparative performance of NSP tests for use in regions affected by SAT viruses (Contractor OVI);
4. Production of antisera for vaccine matching against SAT viruses (Contractor BVI, Botswana);
5. Production of antisera for studies on type A FMDV from African and elsewhere(Contractor: Lelystad);
6. FMD epidemiology in wild boar populations in endemic areas of Anatolia, Turkey (Contractor FAO/SAP Institute Turkey);
7. Methods for real-time tracking wild boar dispersion in Europe (direct management with Bulgaria);
8. FMD serology using commercial kits for use in wild boar –parameters for negative populations (AFFSA);
9. Development of methods for non-invasive sampling of wildlife for FMD (direct management with Bulgaria);
10. Application of vaccine effectiveness study methods to assess type Asia-1 and type A vaccine effectiveness in Turkey (Pirbright);
11. Contract to develop an "FMD surveillance design and analysis model " (FMDSurv software using multiple data sources to calculate confidence in FMD freedom) (AUSVet);
12. Application of smart-phone applications for real-time data collection in FMD outbreak investigation and local risk factor determination (Royal Vet College, London);
13. Improving molecular diagnostic tests for use with African FMDV; validation of PCR-serotyping of African FMDV serotypes and methods of transporting RNA/cDNA samples cheaply (DTU, Denmark and Pirbright).

Annex 1

EU FUNDED ACTIVITIES (2013-2015) CARRIED OUT BY THE FAO EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

STRATEGIC OBJECTIVES OF THE EC FUNDED ACTION

Three strategic objectives, also described as the Three Pillars of the EuFMD Strategy Plan 2013-17[4] are as follows:

1. To **Improve** readiness for FMD crisis management by Members;
2. To **Reduce** risk to Members from the FMD situation in the European neighbourhood (Progressive Control in neighbouring regions);
3. To **Promote** the global strategy of Progressive Control of FMD.

The operational objective of maintaining a mechanism for emergency response to an FMD crisis in the European neighbourhood will underpin the first two objectives.

THE 13 COMPONENTS (OUTPUTS) ARE DESCRIBED BELOW UNDER THE THREE OBJECTIVES:

STRATEGIC OBJECTIVE 1: IMPROVE READINESS FOR FMD CRISIS MANAGEMENT BY MEMBERS

Progress towards the Strategic Goal may also be assisted by joint activities with non-Member States of EuFMD where there is a mutual advantage recognised by the EuFMD Executive Committee.

Outputs of the Action and the Activities to be undertaken

1.1. Develop a cadre of European experts in FMD crisis management - recognition and response training

This includes conducting training on clinical disease recognition, sampling for diagnosis, local area epidemiological investigations, risk factor analysis, practical application of biosecurity principles, and other aspects of FMD crisis management.

1.2. Support contingency planning of Members and at European level – Developing decision support tools for managers

This includes conducting training and providing support for Members to use disease simulation models and decision support tools to assist contingency planning, and engaging with researchers on FMD modelling to facilitate technology transfer of appropriately developed tools to assist Members.

1.3. Thrace region: programme for early warning surveillance in Greece/Bulgaria/Turkey

This includes collation and analysis of existing surveillance data, development of risk-based surveillance methods, and tripartite coordination of activities, integration of decision support tools and risk analysis into policy evaluation and development, and management of support to surveillance activities.

4 As adopted by the 40th General Session of the EuFMD, 22-24 April 2013

1.4. Improved emergency management capacity for FMD in the Balkan region

A programme of support to Member States in the Balkan region to improve the quality of contingency planning, to improve awareness of FMD risks and the economic consequences of emergencies, and give attention to the issues affecting national reference laboratory capacity for FMD confirmation and surveillance.

1.5. Research activities relevant to resolve policy issues

This includes support for research projects which have been endorsed by the Standing Technical Committee of the EuFMD as being of benefit to EuFMD objectives; activities to translate research into tools, actions or activities which are of benefit to EuFMD activities; and actions to integrate research outcomes with policy.

1.6. Support provided to Member States through emergency technical response to FMD outbreaks in the member state or the European neighbourhood

This includes the maintenance of a capacity to provide advice, technical support and assistance to EuFMD Member States and countries in the European neighbourhood in the event of an FMD outbreak, including laboratory and epidemiological support. This baseline activity is also serviced by several of the activities listed above, as these will also act to maintain a degree of organisational readiness to respond to an FMD crisis. This also includes assisting and supporting Members with vaccine procurement and supply, through the provision of technical input, advice on selection of vaccine strains, risk based evaluation of vaccination strategies and other related activities.

1.7. Support for alignment of the performance of the National FMD Reference Laboratories (NRLs) of EuFMD members and neighbourhood countries

This includes the provision services of the Proficiency Test Services to the non-EU members of the EuFMD to enable them to participate to the same extent as the NRLs of the EU 28 under the Scheme implemented through the EU-RL at Pirbright; in addition the participation of neighbourhood countries according to priorities indicated in Strategic Goal 2.

STRATEGIC OBJECTIVE 2: REDUCE RISK TO MEMBERS FROM THE EUROPEAN NEIGHBOURHOOD[5] (PROGRESSIVE CONTROL IN NEIGHBOURING REGIONS)

Outputs of the Action and the Activities to be undertaken

2.1. South-East Europe: promote better management in Turkey and neighbours

This includes supporting the collation, analysis and application of epidemiological data, including spatial data, from the area; providing training in the practical application of epidemiology to control FMD and advance along the FAO/OIE Progressive Control Pathway (PCP); engaging with national veterinary services to support them in the detection, management, and control of FMD; and identification of circulating viruses.
This also includes secretarial and coordination support for the West Eurasia roadmap for Progressive Control of FMD, in coordination with other stakeholder bodies, as regards the European neighbourhood.

This component also includes:

(a) developing specific country projects in line with the PCP designed to improve national capacity to manage and control FMD and assist progress in cooperation with regionally coordinated GF-TADs programs and roadmaps;

5 The neighbourhood of the current 37 EUFMD Members is here defined as follows:

i. European Member Countries of the World Organisation for Animal Health (OIE) and member of the OIE Regional Commission for Europe which are eligible for membership in EuFMD;
ii. Countries and territories adjacent to Members;
iii. Countries in North Africa cooperating with Members in the framework of REMESA.

(b) as much as necessary to provide information to support analysis of the risk of FMD incursions into the European neighbourhood by identifying circulating virus strains, and actions to characterise the risk of FMD incursions due to factors which may be changing or subject to temporal or spatial dynamics, support for existing FAO or joint FAO/OIE surveillance networks, notably the WELNET in West Eurasia in coordination with other stakeholder bodies.

2.2. South-East Mediterranean: support better management in the neighbourhood of Cyprus and Israel

This includes holding workshops and training sessions for neighbour countries of Cyprus and Israel to support laboratory diagnosis, contingency planning, and vaccination strategy development; support to develop laboratory capacity in those countries; regional coordination of FMD control strategies.
This component also includes:

(a) developing specific country projects in line with the PCP designed to improve national capacity to manage and control FMD and assist progress in cooperation with regionally coordinated GF-TADs programs and roadmaps.

(b) as much as necessary, to provide information to support analysis of the risk of FMD incursions into the European neighbourhood by identifying circulating virus strains, and actions to characterise the risk of FMD incursions due to factors which may be changing or subject to temporal or spatial dynamics, support for existing FAO or joint FAO/OIE surveillance networks, notably the EARLN in East Africa and those under REMESA in coordination with other stakeholder bodies.

2.3. North Africa: technical support to REMESA[6] actions

This component includes, at the request of those Members participating in REMESA:

(a) actions to support activities carried out by France, Spain, Italy and Portugal aiming at strengthening and regionally coordinating laboratory diagnosis, contingency planning, vaccination strategy development, risk based surveillance and other associated actions in Mediterranean countries of North Africa which pose a risk of FMD virus incursion into the REMESA area;

(b) as much as necessary to provide information to support analysis of the risk of FMD incursions into the European neighbourhood by identifying circulating virus strains, and actions to characterise the risk of FMD incursions due to factors which may be changing or subject to temporal or spatial dynamics, support for existing FAO or joint FAO/OIE surveillance networks, notably the EARLN in East Africa, RESOLAB in West Africa and those under REMESA in coordination with other stakeholder bodies.

STRATEGIC OBJECTIVE 3: PROMOTE THE GLOBAL STRATEGY OF PROGRESSIVE CONTROL OF FMD

Outputs of the Action and the Activities to be undertaken

3.1. Support FAO FMD Unit in collating information for review of progress of regional programmes on FMD control

This includes collation, analysis and dissemination of relevant information on regional FMD control programmes worldwide; support for workshops to coordinate this process; and other associated actions.

6 **RE**seau **ME**diterranéen de **S**anté **A**nimale – REMESA: http://www.remesanetwork.org/

3.2. Technical support to develop the FAO/OIE FMD Progressive Control Pathway (PCP) methods and guidelines

This includes engaging with the on-going development of the PCP, providing training in the application of the PCP at national level, regional level, and to international agencies; supporting the development of associated tools and activities to integrate relevant fields with PCP applications; and support for the development of regional PCP roadmaps.

3.3. Support the global system for improved FMD reference lab services (World Reference Laboratory Contract, supporting FAO/OIE Strategy and Gf-TADs)

This includes supporting the FAO FMD World Reference Laboratory to provide services to the European neighbourhood and globally, including diagnostic service, vaccine matching, molecular epidemiological analysis of worldwide and regional FMD patterns, and provision of laboratory proficiency test (PTS) ring trials for harmonisation of performance of the principal international reference laboratories (of FAO and OIE) including in non-EU states [7].

[7] EU Member States are included in the PTS funded under the EU-CRL activities, and non-EU EuFMD member states and NRLs in the European neighbourhood are supported to participate in this as a joint PTS programme under Component 1.7 in Pillar I.

Annex 2

REVIEW OF GFRA FMD GLOBAL RESEARCH DIGEST - PRIORITIES FOR FMD RESEARCH FOR EUROPE TO PRESENT TO DG-SANCO AND DG-RESEARCH

During the Open Session of the EuFMD in Jerez (Spain) in 2012, the highlights on research regarding Diagnostics, Epidemiology and Vaccines were presented. The Special Committee on Research at a Closed meeting evaluated the GFRA Review and made the following recommendations on R&D priorities, with (+++) indicating the highest priorities. This list is not formally endorsed by the EuFMD for the EuFMD-FAR as it was prepared for the guidance of EC institutions involved in decisions on Research Funding.

Recommendations on diagnostics and testing

Background

- The EuFMD special committee on research should produce a guideline on sending samples in compliance with UN dangerous goods guidelines;
- The WRL should give recommendations on optimal SOP and optimal primers of real-time RT-PCR for laboratories that do not have their own technique;
- Countries/organisations buying kits to detect antibodies against NSP should request the results of the WRL reference panel and/or the Panaftosa reference panel as evidence that the test provides a good result;
- The EuFMD Special Committee on Research should evaluate the outcome of the post-vaccination monitoring working group before it is finalised;
- The WRL has a list of viruses representative of the existing virus pools, NRLs have use these sequences and viruses to validate/improve in-house virus detection assays;
- The WRL has FMD reference panels available upon request. These panels should be used for the internal verification and validation of FMD antibody and virus detection techniques and for in-house developments.

Research

- Research funding bodies should support research on type-specific RT-PCR techniques for virus pools or virus serotypes, or topotypes, or sub-regions as in some samples the concentration is not sufficient for ELISA and virus amplification in cell culture is not always available in some countries (++);
- Companies should develop ready-to-use kits and easily transportable sample storage kits for molecular diagnosis of FMD infection (issue for companies but involves issues on costs and return, volume of market) (++);
- Research bodies should support the continuous improvement and updating and validation of existing ELISAs (in house and ready to use kits) for SP and NSP serology and for antigen detection and serotyping (+++);
- Research funding bodies should support the development of new ELISA kits for SATs Abs and SAT3 Ag, to complete the portfolio of new generation ELISAs for serological and virological diagnosis (+++);
- Research funding bodies should support the development of isotype-specific ELISAs (IgM, IgG, IgA) in kit formats (+);
- Research funding bodies should support the development of simplified diagnostic tools, such as penside test for virus detection and serotyping based on LFC and PCR (++);

- Research funding bodies should support next Generation Sequencing, with potential implication also for diagnosis (i.e. characterize/identify new viruses, or mixed population?, or recombinations, etc.) (++);
- Research funding bodies should support multiplex testing technologies for Ag, Abs, genomes (++);

Recommendations regarding epidemiology

Background

- EuFMD should support research assessing the patterns of virus spread and the dynamics of strain circulation in virus pools which pose a risk to Europe through phylogenetic analysis and molecular epidemiology, including analysing viruses circulating in regions and epidemiological groups from which samples are less likely to be submitted currently (+++);
- Research funding bodies should support socioeconomic studies, including value chain analysis, are needed to support and inform effective control measures, characterising the drivers, constraints, social patterns, incentives as well as movement patterns affecting FMD epidemiology, and improve ways of communications to and between stakeholders to improve FMD prevention and/or control (+++);
- Research funding bodies should support investigating the predictors of transmissibility of FMDV, including molecular and antigenic characterisation and relating the findings with field and experimental transmission studies (++);
- Research funding bodies should support research to determine and characterise the drivers of transmission in endemic countries, as well in free countries neighbouring endemic countries, with readily available records, including risk factors, vaccine effectiveness (+++);
- Research funding bodies should support research into the role of African and Asian Buffalo in persistence and spread of different serotypes (++);
- Research funding bodies should support research into the timing of transmission between adult African and Asian Buffalo and their offspring (++);
- Research funding bodies should support research into the potential role of wild boar and wildlife in FMD spread, including ecological studies, non-invasive sampling, transmission studies and modelling (+++);
- Countries using prophylactic vaccinations should support research into the factors influencing vaccine effectiveness in endemic countries, including evaluation and post-vaccination monitoring methods, estimating coverage and disease incidence and determining how to use key indicators to assess vaccination effectiveness (+++);
- Research funding bodies should support the development of decision support tools/models to support the formulation and refinement of vaccination strategies, including methods of harmonising outcomes in different countries where programme elements may differ (++);
- Research funding bodies should support models that estimate the acceptable level protection for countries zones and compartments, by combining different surveillance and control components (+++);
- Application of disease spread models to endemic settings to characterise key transmission parameters and explore the application of model outputs in improving control measures (++);
- Research funding bodies should support research to characterise the mechanisms of spread related to indirect contacts, including fomite-borne viruses (++);
- Research funding bodies should support studies into transmission and pathogenesis to characterise the relationship of pregnancy and parturition to disease susceptibility in ruminants (+);

- Research funding bodies should support research for epidemiological situations where vaccination is carried and outbreaks occur. In those cases the results of diagnostic tests can be complex therefore longitudinal surveys should be carried out and the results of various (serological) tests should be evaluated to understand which results can be expected in such situations. e.g. collect more info on level of cross-reactivity between serotypes in serological ELISA (needed for interpretation of serosurveys) and further evaluate available tests for SP-serology in the context of regions/vaccines/virus pools.

Recommendations to improve vaccines and vaccination programmes

Background

- Countries that use prophylactic vaccination are recommended to do quality control on vaccine that is used;
- Countries that use prophylactic vaccination are recommended to evaluate after how many serial vaccinations response to NSP can be expected;
- Countries that use prophylactic vaccination are recommended to evaluate the quality of their vaccination programmes;
- Guidance is needed on monitoring vaccination programmes (which tests and how to apply them); EuFMD should continue to support the WRL in vaccine matching outbreak strains that occur world-wide;
- The Special Committee on Research should evaluate the WRL report on strains advised for inclusion in antigen banks before it is presented to the EuFMD executive committee and/or the EuFMD General Session;
- Adeno virus vaccines are now licensed in USA – are their implications for possible use in Europe?

Research

- Research funding bodies should support research on development of new vaccines that will induce a stronger and longer lasting immune response (+++);
- Countries that use prophylactic vaccination are recommended to study the duration of immunity (++);
- Research funding bodies should support research into antivirals to be able to cover the immunity gap in case of an emergency vaccination (++);
- Countries that use prophylactic vaccination should do research on the time of first vaccination in face of maternally derived antibodies (++);
- Research funding bodies should fund research into the identification of viral determinants of cross-protection between serotypes (+);
- Research funding bodies should support research on replacing traditional vaccine matching by sequence based determination of antigenicity (++);
- Research funding bodies should support research on evaluating after how many serial vaccinations response to NSP can be expected;
- Research bodies should support research on origins of variation in FMD isolates, is recombination in the field a possibility that could suddenly result in a larger risk for spread and pathogenicity (+)?

Recommendations regarding GFRA report

- The GRFRA report provides useful information on research activities of its members but is not fully comprehensive of the research programs and research advances worldwide. Therefore, it is recommended that the report is supplemented with a review of recent published or internationally presented research globally and to include a gap analysis. It would be useful to have an update of the report in autumn 2013.

Recommendations regarding biosecurity and safe trade

- It is recommended that the minimal standards for laboratories working with FMD virus are updated before the 2013 general session, to better reflect the functions of auxiliary diagnostic laboratories;
- Research bodies should support research into alternatives for formaldehyde fumigation (++);
- Research bodies should support studies of survival of FMDV in commodities and animal products to facilitate trade (++);
- Research bodies should support studies in the amount of bone and lymph nodes in deboned meat and the risk posed by these products in trade (++).

Annex 3

EUFMD-FAR PROPOSALS: ASSESSMENT CRITERIA

Referee's Assessment

FOUR External reviewers are invited to review each application to be both objective and specific in their critical appraisal of each grant application, and to focus on the scientific merit and significance.

Scientific merit

- Originality;
- Relevance to the fund and thematic priorities;
- Significance of the research questions;
- Quality of scientific approach;
- Credibility of design and methods;
- Applicability of the outputs.

Research ethics/animal welfare

Are there any ethical/animal welfare concerns? Are measures in place to address these?

Grant Review Board

After review by the Referee Panel each proposal will be discussed further, bearing in mind the track record of the principal applicant, the research capacity of the administering institution and the value for money of the proposal. Funding recommendations will be finalised in the Grant Review Board meeting. Summary statements containing questions, comments and/or recommendations will be forwarded to the applicant.

Scientific merit (see above)
Research ethics (see above) plus
Relevance to the scope of funding

- Is the topic within the scope of the fund and the thematic priorities?

Track records of the applicants

1. What is the likelihood that the proposed study can be accomplished by the investigators given their documented experience and expertise? Track record includes the applicant's compliance with the terms and conditions of previous awards and records of research output.

Research capacity of the administering institution

- Research capacity refers to the ability of the administering institution to provide an environment conducive to productive research, in terms of:

~ physical space;
~ facilities and equipment;
~ qualified research staff;
~ qualified support/administrative staff.

The emphasis placed on each aspect varies between applications, depending on their relative strengths.

Rating a Grant Application

A score ranging from **4** (Recommended for support / High) to **1** (Not worthy of support / Low) will be assigned by the referees to indicate the scientific merit under each heading in the Referee's Assessment Form. The overall rating for each application will be discussed and finalised in the Grant Review Board meeting. The overall rating is defined as follows:

4 - Recommended for support	Nil or very minor issues to address only
3 - Recommended for support subject to clarifications/ amendments	Minor revision and clarification required for a successful delivery
2 - Not recommended for support at present	Major revision required for significant improvement
1 - Not worthy of support	Minimal impact on research/flaw in methodology/ incomplete application/out of scope of the fund

Annex 4

APPLICATION FOR FUNDING FROM EUFMD-FAR

[The word version is available for download on the Eufmd website]

PART A: TECHNICAL and PART B: ADMINSTRATIVE

PART A: TECHNICAL

1. TITLE OF THE STUDY (AND ACRONYM, IF LONG!):

2. Applicant Name and institution: …….
   Provide also e-mail and phone contact details

   Lead Investigator (if different).

   Is this application made on behalf of several parties (collaborators whose inputs will be vital to success)? If YES, give details

   a. *Add*
   b. *Add #2 etc.*

3. Has this proposal been discussed with members of the EuFMD Standing Technical Committee or Secretariat before application?
   YES/NO. If yes, indicate who and in what time period. Prior discussion can often be helpful to applications, but for transparency the extent of involvement of STC in steering proposals should be known by the Review Board.

4. Short description of the background to application
   Indicate how the problem area or research topic was identified - e.g. from a Session of the Research Group, following a country project or meeting, from own research findings etc…

5. Key policy or technical issues addressed :

6. Relation to the EuFMD Strategic Objectives 2013-17:
   The three Objectives are found in the Guidance Document, and online at the EuFMD site (40th General Session pages). ***Explain*** *how the research will contribute to Strategic Objectives 1, 2 or 3; and indicate what types of institution or stakeholder will be the direct beneficiaries (immediate users) of the findings or outputs.* ***Indicate*** *if there is a specific link to a work component of the EuFMD/EC Action [one or more of the 13 Components].*

7. Technical Background
   Up to 500 words plus references to indicate why the study approach was selected and any relevant references to methods that are essential to success of the approach but not yet widely accepted or applied.

8. Definition of Outputs

8.1 Simple and short definition of what the Service Provider will DO

Conduct a field based study, in vivo experiment, review, etc…

8.2 Simple and short definition of what the provider will PRODUCE: (Outputs)

These will be used by FAO to verify progress, for payment purposes, as for example a narrative report is used to justify an interim payment.

e.g

- *Provide an interim report on project activities upon completion of the animal experiment.*
- *A final report detailing the activities conducted under the collaboration, which will be presented to the EuFMD standing technical committee and may be published on the EuFMD website.*

9. Description of study plan, activities and/or services to be provided by the applicant(s)

The detail to be provided must be sufficient to allow assessment of the appropriateness of

- *the method used;*
- *the data that will be generated for analysis;*
- *the efficiency of the design and use of inputs.*

10. Workplan and Timeframe (Duration)

The timing of major activities and milestones must be given, either in relation to the date of signature of the agreement/first payment, or in relation to monthly calendar if the study is affected by season, for example.

Proposed Date of final report:

(Note: not to exceed March 2015)

Milestone	**Details (example)**	**Due date**
1.	Animal experiment and Interim report	+ 6 weeks after 1st payment
2.	Data analysis and final reporting	+10 weeks

11. Inputs required to implement the project

Inputs to be provided free of charge by Recipient Organization

Indicate what is provided as part of the capacity of the applicants, and what additional support will be used for.

***Example**: The Service Provider will make available a scientific team and FAO will make a contribution towards the overall cost of staff resources. Remaining time is provided free of charge by the Service Provider, during the overall timeframe of the LoA.*

Inputs to be provided in kind by EuFMD or FAO

List of Inputs

Indicate if EuFMD or FAO are expected to provide any inputs, for example from the field components of the EuFMD work programme or other projects or activities.
Indicate if the application is dependent on decisions by any other agency (co-funding or affecting the progress). Added value: indicate if/how the application will add value to on-going FMD activities/research of the applicant or partner.

Timing of Inputs

The usual schedule of payments for LoAs is an initial payment, an interim payment (upon an interim report) and a final payment after completion. The initial payment is usually not more than 30% of total. Indicate if there are specific needs for a different schedule of payments, for example the majority of costs are up front for animal experiments, etc.

12. Budget (a detailed description of costs as estimated by Service Provider can be given in an Annex)
As far as possible, use a summary table with budget lines that your institution is prepared to report on later (in the Final Financial Report), and a separate table indicate how these were calculated.

Example of a summary

Budget lines	**Quantity/cost**	**Amount, Euro**
Research and laboratory staff costs	1508 hours total, refer to staff cost table if many categories	4177.7829
Consumables and direct experiment costs (30 days)	Use itemised breakdown , refer to table or annex	12467.422
Overhead Expenses	Indicate how calculated	12703.306
Total		**29348.51**

13. Bottlenecks/risks :
Indicate any assumptions that must hold if the activity is to reach expected output.

Indicate risks that could have a significant impact upon progress (and which might justify later requests for extension or change in plan, for example).

14. Further information on the matter
Copies of research cited that is vital to the understanding or evaluation of the proposal can assist.

PART B: ADMINSTRATIVE

Curriculum vitae of the lead applicant and any significant research partners should be provided.

Details on the Entity/Institution that is proving the administrative capacity may assist if the entity has no track record with FAO of LoAs or is non-Governmental.

1. Details on the applicant(s). The applicant is normally expected to be the contact point and provide the Reports.

2. Details on the Entity that will sign any financial agreement

3. Name and title of the person who will sign a financial agreement (the Signatory for a LoA with FAO)
    a. If Letters of Agreement (Standard Contract) with FAO are not feasible then suggested route for payment of the inputs required to undertake the activity:

4. Version Number: (the applicants Version number –useful in case changes are made)

5. Date of this Submission: