European Commission

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

2009
2010
2011
2012
2013

OVERVIEW

Activities and Achievements of the EuFMD/FAO project and the Iranian Veterinary Organization

"COMBATING FMD THROUGH ENHANCED AND CO-ORDINATED SURVEILLANCE ACTIVITIES; PHASE III OF THE FMD SURVEILLANCE CENTRE INITIATIVE"

“Working towards monitoring FMD

redefining and control in I.R. Iran”

INDEX

The objectives for Phase 1
(May 2005-June 2008) were

1. To strengthen the national and local capacities for active surveillance of FMD;
2. To manage FMD risk nationwide effectively and timely;
During the second phase, September 2008-November 2009, project activities were based on the results of the first phase, with specific goals;
1.To strengthen FMD control at regional level, to decrease spread of FMD from Iran;
2. To consolidate the FMD diagnostic facilities at the Central Veterinary Laboratory (CVL).

Phase III Components
(November 2010 – November 2013)

1. Achieve PCP Stage 2 criteria and prepare for entry into Stage 3 in 2012-13 in at least one area;
2. Establish network of national and 5 subnational (sNL) FMD laboratories in Iran, in order to provide services required under Stage 2 of the PCP in all areas and Stage 3 PCP at least in one area (Western: West AZB Province);
3. Establish FMD control zone in West Azerbaijan Province, meeting all the criteria of PCP Stage 2 and some of the criteria of Stage 3;
4. To reduce risk of FMD incursions to Iran through improved FMD threat detection in "FMD hot spots/accumulation centres" and development of improved control measures to prevent spread to/from fattening farms in Central Iran;
5. To assist development and implementation of animal identification and animal movement control systems in Iran, as part of the effort to reduce the risks associated with movement and marketing of FMD infected animals.

Donor Trust Fund from European Commission Contribution
Government Implementing Agency Ministry of Jihad-e-Agriculture of I.R. Iran Veterinary Organization

Introduction: 3 phases of cooperation over 9 years

This document will highlight the activities and achievements of the cooperation between the Iranian Veterinary Organisation (IVO) and the European Committee for the control of Foot-and-Mouth Disease (EuFMD) during Phase III of the FMD surveillance initiative.

There were 2 earlier projects in which Eu-FMD and IVO worked together to improve the understanding and control of FMD. An overview of the objectives of the first 2 phases is given in the textbox.

The first Regional Roadmap meeting in Shiraz, November 2008, where the framework of the Progressive Control Pathway (PCP-FMD) was first presented, was a major achievement of the earlier phases. Since that first meeting, annual Roadmap meetings have been organized for the West-Eurasian region including 14 countries [1]. Co- operation between the countries in the region is viewed as essential for the control of FMD.

After beginning phase 3, the FAO/OIE Global FMD control strategy was launched, in which the PCP-FMD framework [2] has been adopted as the principal tool for the control of FMD in endemic countries. During this phase the "Risk based strategic plan for controlling FMD in Iran" was prepared, applying lessons learned from the project and expert advice.

In the following chapters, we relate the activities and achievements of Phase III to the expected outcomes of Stages 1 and 2 of the PCP-FMD framework, in order to demonstrate how the concept of PCP-FMD was implemented in Iran. We hope that it may serve as an example to other countries to learn how the PCP-FMD may be 'operationalized'.

We would like to thank the Iranian Veterinary Organisation, our Iranian colleagues, FAO-Iran and the EuFMD team for their support to bring this project to a successful conclusion.

Phase III in brief

The study of animal markets and movements demonstrated the volume of animal movements and the risk for spreading FMD.

Vaccine quality and potency tests were done and IVO plans to continue such testing in the future.

Laboratory quality control procedures were improved and a laboratory network was established, which is a key achievement to ensure ongoing monitoring of circulating strains and the rapid detection of incursions of new serotypes and strains.

An animal identification and registration system has recently been developed in Iran, which benefited from a training course and study tour to Montenegro as part of this project.

Ten key risks were identified as important causes of outbreaks and/or areas in which improvements of the control programs are required. Approaches and activities to mitigate these risks form the basis of Iran's risk based strategic plan for FMD control.

Chris Bartels, Melissa McLaws, Naser Rasouli Beirami, Keith Sumption

WHAT IS THE PROGRESSIVE CONTROL PATHWAY FOR FMD (PCP-FMD)?

The PCP-FMD was designed to assist countries where FMD is endemic to develop sustainable national FMD control policies appropriate for their livestock sectors.The PCP-FMD is composed of 5 Stages representing an increasing level of control, to the point where an application to the OIE for official recognition of freedom from FMD (with or without vaccination) may be successful and sustainable.

The PCP approach is based on the following principles:

- Continuous monitoring. Monitoring for FMDV circulation and understanding the epidemiology of FMD are the foundation of a control program, and therefore activities to meet these requirements are common in all Stages. Monitoring of outcomes (indicators of control effectiveness) within a national FMD management system is included at the higher Stages;
- Appropriate actions. Activities in each PCP Stage are appropriate to the required reduction in virus circulation and mitigation of disease risk to be achieved;
- Measuring results. Activities and their impacts are measurable in each Stage, comparable between countries, and generate information and potential benefits to national as well as international stakeholders;
- Optimizing use of limited resources. Control measures are targeted to the husbandry systems and critical risk points where the impact will be greatest.

PCP Stage 1 involves a low cost but comprehensive assessment of FMD risk and control options, describing the benefits of control and defining the capacity and motives for public and private investment. Stage 1 culminates in a strategic plan outlining the national policy and longer term strategy for FMD control.

In PCP Stage 2, the focus is FMD control in sectors where the benefits are highest, with public or private funding.

In PCP Stage 3, countries adopt a more aggressive strategy to control the circulation of FMD virus, which usually requires major public as well as private commitment.

In PCP Stages 4 & 5, the elimination of virus circulation is maintained, during preparation for application to the OIE for official recognition of freedom from FMD with or without vaccination.

For more reading on the PCP-FMD, please visit the EuFMD website.
Additional reading on the application of PCP-FMD is contained in publications [4] and [5].

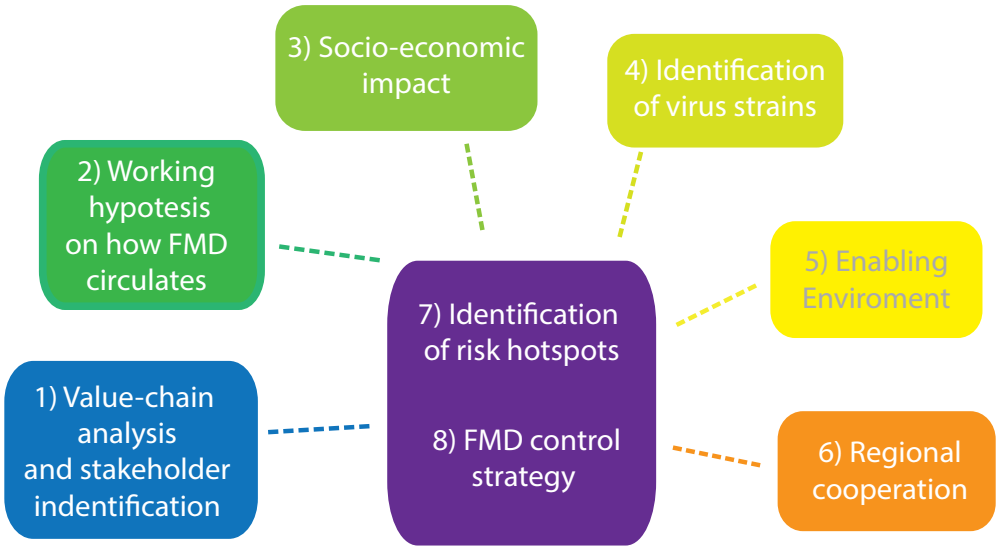
PCP-FMD STAGE1: UNDERSTANDING THE EPIDEMIOLOGY AND THE TRANSMISSION OF FMD

The focus of PCP Stage 1 is to gain an understanding of the epidemiology of FMD in the country and develop a risk-based control strategy to reduce the impact of FMD. It is divided into 8 expected outcomes.

Stage 1 requires the veterinary services to zoom out from their normal fields of work (disease control activities) and engage with private and public stakeholders to obtain an understanding about the value-chains related to livestock and animal products, as well as the social and economic impact of FMD.

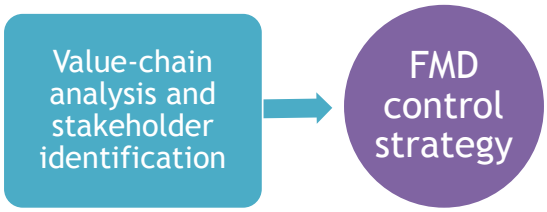
Additionally, the collection of FMD samples from the field to identify circulating serotypes and strains is critical. In preparation for the implementation of risk-based control activities, an assessment of the current operational capacity of the veterinary services (enabling environment) is required.

Together, these activities allow for the identification of risk-hotspots, which are areas where the FMD control should initially be targeted.



In the next chapters, we discuss the each of the outcomes expected in PCP Stage 1, and relate them to the IVO-EuFMD project activities over the last 3 years.

PCP-FMD STAGE 1 : OUTCOME 1



PCP guideline

All husbandry systems, the livestock marketing network and associated socio-economic drivers are well described and understood for FMD-susceptible species (value-chain analysis).

Context

Value-chain analysis is the study of the movements and connections of animals and animal products with people and places during the production cycle.

Identification of stakeholders is often the first step in value chain analysis. Stakeholders are persons, institutions and organisations that have an interest in FMD control, and include animal owners, animal dealers, veterinarians, animal market managers, dairy industries, slaughterhouses, universities, etc.

Control measures to reduce the impact of FMD will affect each stakeholder differently (positively or negatively).

Activities

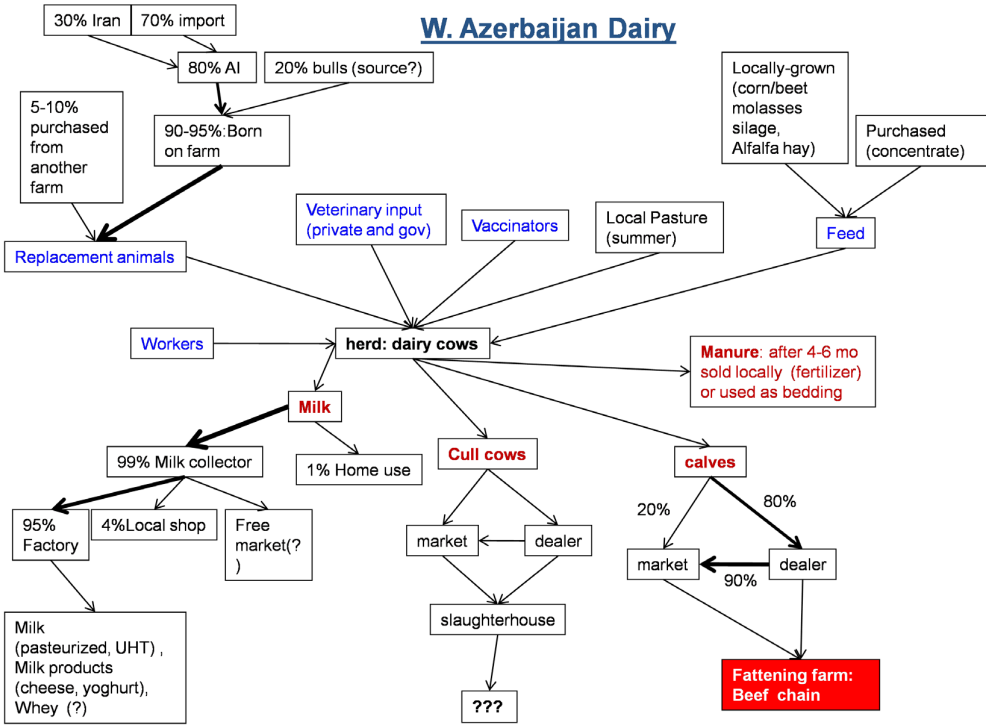
- Descriptive value chain workshops concerning West Azarbaijan and the whole of Iran;
- Survey of all animal markets.

Key points

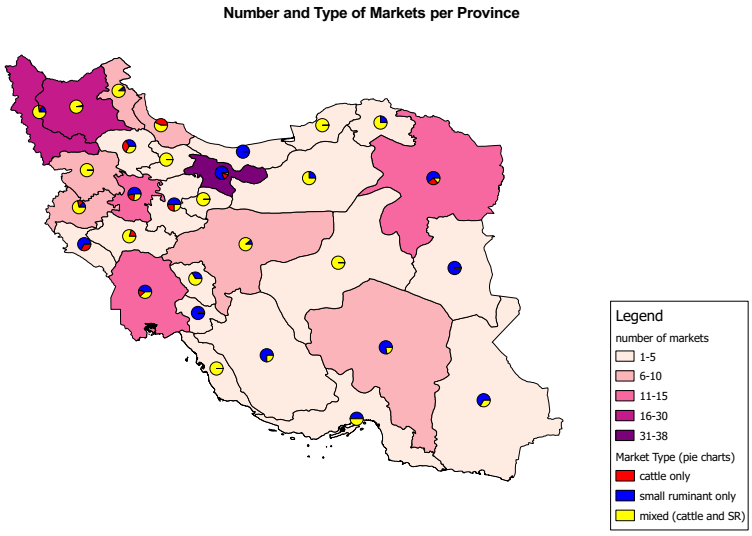
- Farms are not an entity on their own. With supplies and services coming and products going out, livestock and their owners have an intense contact structure. This contact structure has the potential to easily transmit FMD when no precautionary measures are considered (ie no biosecurity). An example is given of an average dairy farm (diagram 1, next page);
- Animal trading is THE most risky manner to transmit FMD. Most animal trading is done through animal markets. Animal markets are abundant, both at local (district) level and at national level (top diagram, next page);
- For Iranian livestock keepers, animal trading is more than an economic activity. A visit to an animal market is a social event to catch up with friends;
- Livestock from the periphery of Iran are transported, often unprotected against FMD or other infections, over large distances to central areas for further fattening;
- There is large scale Importation of livestock, primarily cattle. These imported cattle can criss-cross Iran in less than 3 days, and spread FMD from one country to another;
- Animal complexes, such as Damshahr market in Qom province, have a very high turn-over of

livestock with no biosecurity measures in place. Therefore, these complexes act as melting pots of infectious diseases (see bottom diagram).

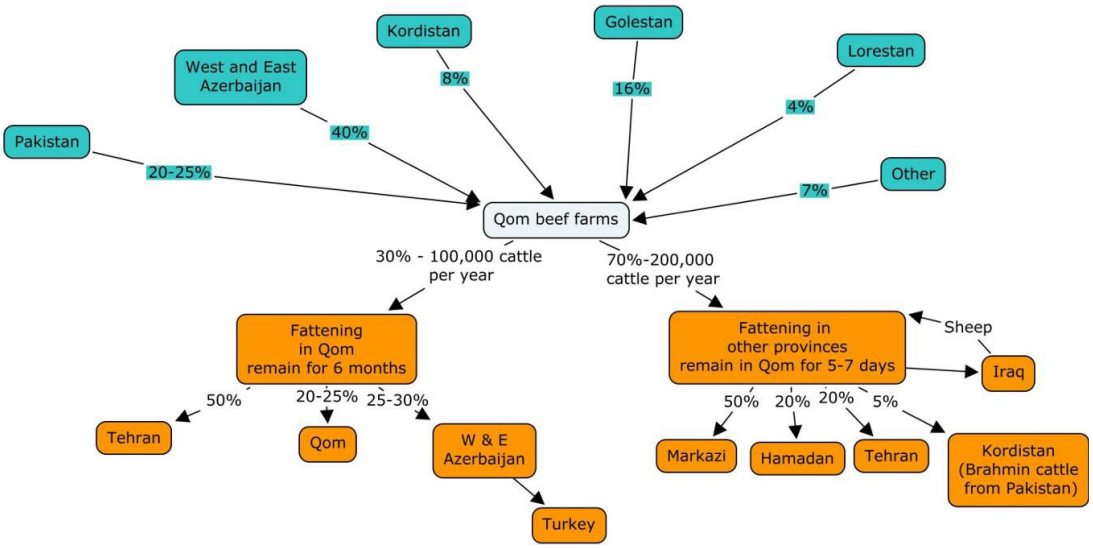
Diagram of suppliers onto a dairy farm and output from dairy farms with estimation of relative size for each relation



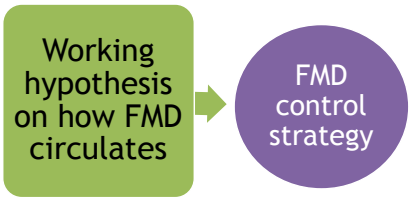
Survey of all animal markets in Iran, showing the estimated number and type of markets per province



Origin and destination of cattle fattened on beef farms in Qom province



PCP-FMD STAGE 1: OUTCOME 2



PCP guideline

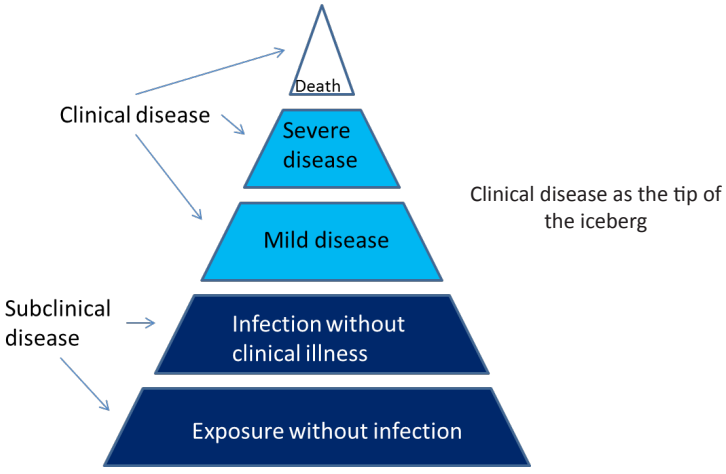
The distribution of FMD in the country is well described and understood and a "working hypothesis" of how FMD virus circulates in the country has been developed.

Context

Understanding the distribution of FMD outbreaks and virus circulation in space and time is essential to understand, and mitigate, FMD risk.

Through the existing GISVET system in Iran, reports on suspected FMD outbreaks in Iran are collected and investigated.

This passive surveillance system captures clinical FMD, which is the tip of the iceberg of FMD virus circulation. Additional studies are required to complete the FMD picture.



Activities

- Analysis of GISVet data;
- Large NSP serosurvey;
- Outbreak investigations.

Key points

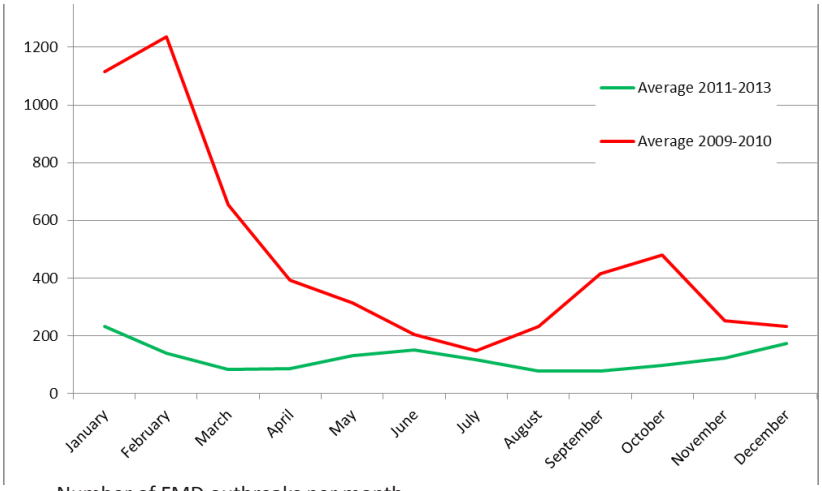
- FMD is widespread across the country, as shown by the constant reports of clinical outbreaks in the country;

- NSP serosurvey results suggest that passive surveillance, relying on observations of clinical disease, is revealing just around 1/5 of actual FMD infections;
- FMD circulates locally through movements of people, including vaccinators, inseminators, veterinarians and milk collectors. Improved biosecurity practises could reduce this transmission;
- FMD circulates between provinces and countries through movements of animals.

GISVET data on FMD outbreaks

As all provinces are linked to the GISVET information system, reports of clinical FMD are available real-time at central IVO.

Amongst other uses, this allows for monthly reporting by province, epi-unit type and serotype.



Number of FMD outbreaks per month

In the graph, the average number of recorded outbreaks between 2009-2010 and 2011-2013 are given by month.

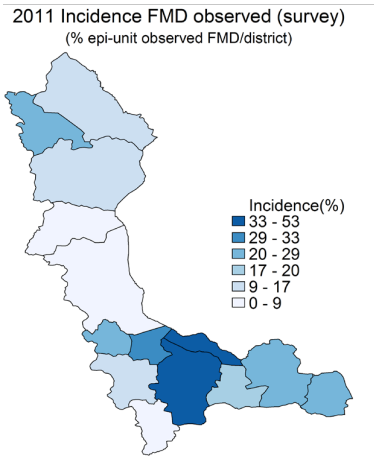
The high number of FMD outbreaks in January and February was due to a large outbreak of Serotype O PanAsia2 in 2010.

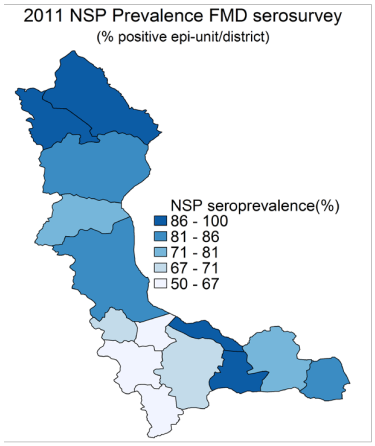
Sero-survey in West Azarbaijan

In 2011, samples were collected from 281 epi-units (villages, dairy and beef herds) in W. Azerbaijan province to detect evidence of FMD infection (NSP-Ab). Young animals (6-24 months of age) were sampled as these best indicate recent infection with FMD virus.

Results showed:

- Evidence of FMD virus circulation on over 80% of epi-units (left map);
- A high level of subclinical, unobserved or unreported level of FMD virus circulation;
  - Of the NSP-positive epi units, clinical FMD was noticed on only 18% in the 12 months prior to the sampling (right map);
- Cattle were more likely to test NSP positive if their owners traded livestock, as were cattle kept on dairy and beef farms.





This sero-survey allows IVO to monitor the effectiveness of FMD control measures over time

• The 2011 survey can act as the baseline reference against which the impact of future FMD control strategies can be assessed.

Disease outbreak investigation

In an analysis of 23 FMD outbreaks and 64 locations with no FMD outbreaks, four factors were found to be statistically significantly related to FMD outbreaks:

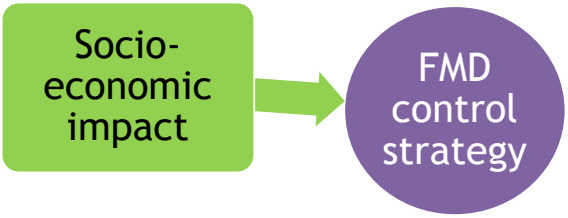
1. The inseminator visiting;
2. Contact of livestock with transhumance livestock;
3. Mixed grazing of cattle and sheep;
4. Sharing of housing facilities with other epi-units.

These results support findings from workshops on identification of important risks for FMD transmission: movement of animal health professionals such as vaccinators, inseminators, vet practitioners, milk-collectors between epi-units, and farms where no precautions are taken to limit FMD transmission (ie lack of biosecurity).

A five-step approach to outbreak investigation is being developed based on the principles of:

1) Sampling for confirmation;
2) Tracing of infection;
3) Raising awareness on FMD risk and impact with local farmers;
4) Impact assessment of FMD;
5) Evaluation of risk factors for FMD outbreaks.

To harmonize outbreak investigation nationwide, standard operating procedures are being set up, indicating in what situations and with what frequency to conduct these 5 steps of outbreak investigation.



PCP guideline

Socio-economic impacts of FMD on different stakeholders have been estimated.

Context

Information and knowledge on the actual economic losses incurred due to FMD in the different livestock sectors is necessary for two purposes:

1) Advocacy for FMD control with decision- and policy makers;
2) Raising of awareness with livestock owners and other professionals dealing with livestock about the impact of FMD on their businesses.

Activities

- Analysis of existing data;
- An overall assessment of the FMD impact across different production systems was not covered in this project, but is recommended for the future.

Key points

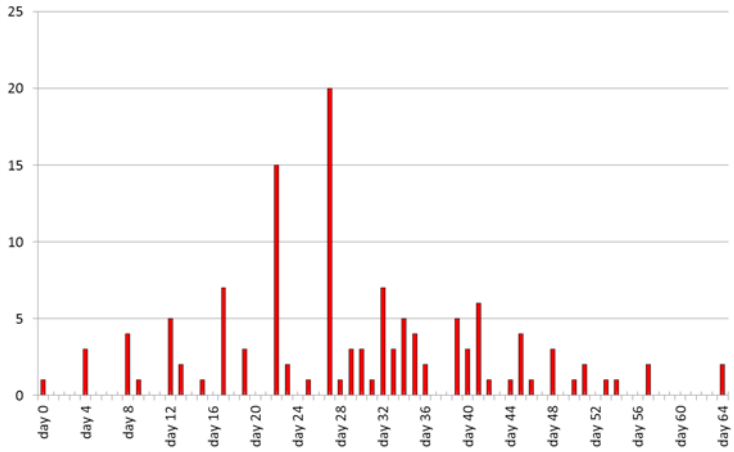
An outbreak of FMD causes very high direct and indirect financial losses in dairy herds. This is especially important as Iran has an increasing number of large dairy herds with over 500 lactating cows.

Economic impact analysis at dairy complex

Between 12 February and 16 April 2010, an outbreak of FMD Serotype O-Panasia2 was investigated in 127 dairy units in Laban Animal Complex in Qom province.

Data were collected on:

- Morbidity, mortality
- Cost of treatment of animals
- Use of disinfectants.



Epi-curve of new FMD outbreaks in Laban dairy complex, Qom province in 2011

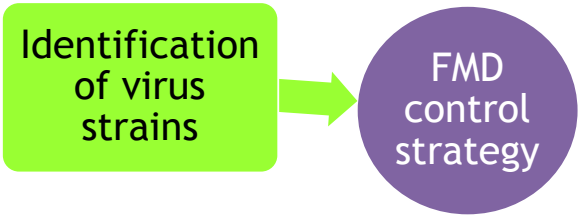
Clinical FMD was observed in all dairy units.

Of the 9,245 head of livestock present:
- 6,932 (75%) animals got clinical disease;
- 532 (5.8%) were recorded dead;
- 481 (5.2%) were recorded slaughtered as a result of the outbreak.

Overall estimated loss: $16,750/unit or $230 / head (average 70 head per unit)

Milk production losses:
- 30% estimated decrease in milk production, or 230 litres per lactating cow;
- Equivalent to $267 per lactating cow (with sales price of $1.16 per litre);
- Losses of almost $7,500 over 2 months for the average unit with 28 lactating cows.

Other losses:
- Deaths, involuntary culling, treatment and use of disinfectants;
- $10,800 estimated per unit.



PCP guideline

The most common circulating strains of FMDV have been identified.

Context

Because the FMD situation is constantly evolving, samples should be collected and analysed regularly over time. In an endemic situation, vigilance remains necessary for detecting newly-introduced virus serotypes and strains. If the vaccine no longer matches the field strains, the effectiveness of vaccination campaigns can be seriously reduced.

Activities

- An Iranian Laboratory Network has been established, with the CVL in Karaj officially appointed as the national reference laboratory for FMD;
- Training on antibody and antigen detection for FMD, including development of standard operating procedures for NSP-Antibody ELISA;
- Quality Assurance and Quality Control procedures were designed and implemented, including proficiency testing;
- A protocol (next page) was developed for virus sequencing in Iran and the World Reference Laboratory in Pirbright, England.

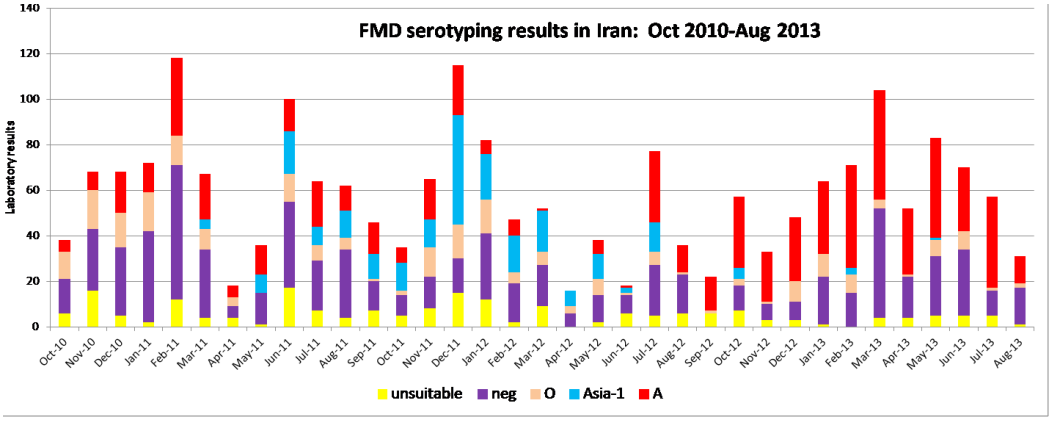
Key points

- Currently, serotypes A, O and Asia-1 are circulating in Iran, with the relative importance of each varying over time;
- Serotype Asia1 was introduced (see graph below) from Pakistan, spread across Iran very quickly and was subsequently detected in Iraq and Turkey;
- A strong surveillance and laboratory network is being developed to ensure that representative samples are collected and analysed to identify the serotype and, for a select subset, strains circulating. This includes regular shipment to an international reference laboratory for virus characterization.

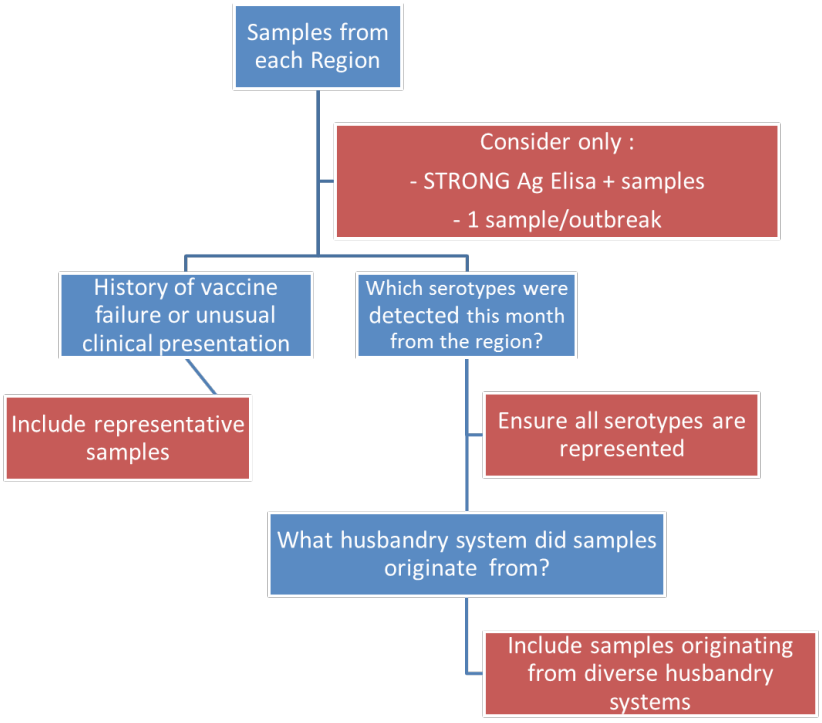
FMD virus sampling and identification

In 2012, 1,298 outbreaks were identified. Of these , 314 (24.2%) were serotyped (51% Serotype

A, 19% serotype O and 30% serotype Asia1), 27 (2.9%) were strain characterized. It can be seen from the graph below that the relative importance of the serotypes changes over time.

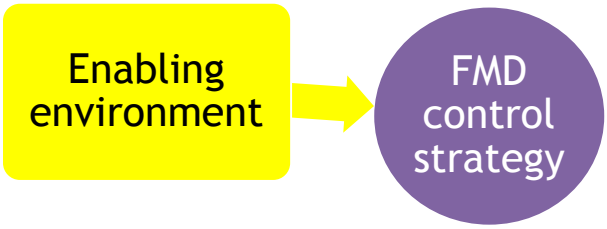


Monthly laboratory results on FMD serotype from Oct 2010 to August 2013



Protocol of sample submission to World Reference Laboratory in Pirbirght, England

PCP-FMD STAGE 1: OUTCOME 5



PCP guideline

There has been progress towards developing an enabling environment for control activities.

Context

This refers to activities to improve the general environment in which the veterinary services must work to control FMD. Includes strengthening the veterinary services, relevant infrastructure and legislation.

Activities

- Training in epidemiology;
- An expert in animal identification and registration visited Iran and provided a report with specific recommendations for developing an (I & R) system in Iran;
- A study tour travelled to Montenegro to discuss feasibility and practical issues for establishing I&R;
- Existing FMD control activities have been critically reviewed particularly with regard to active surveillance and outbreak vaccination.

Key points

- A central FMD Task force has been re-established, with support from provincial task force committees;
- Animal identification and registration was positioned under the authority of IVO;
- The pattern of outbreaks detected with active surveillance corresponded well with the passive reports. This has led to a risk-based approach for active surveillance.

Practical training in epidemiology

To strengthen the epidemiological capacity of IVO staff (both central and provincial) two initiatives were undertaken:

Practical Epidemiology for Progressive Control of FMD course (PEP-C).

This was a 4-week training course held in Istanbul with 5 countries participating (Armenia, Azarbaijan, Egypt, Iran and Turkey). The topics were:

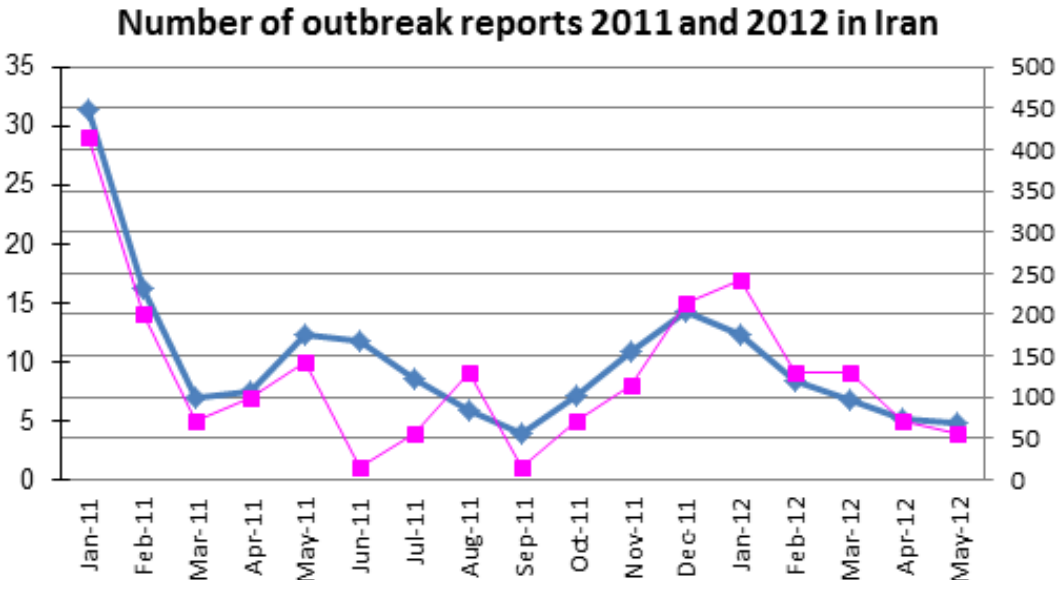
FMD outbreak investigation at the PEPC training

- Outbreak investigation;
- Value chain and stakeholder identification;
- Sero-survey and surveillance;
- Developing a risk-based strategy plan (RBSP, see outcome 8).

University of Tehran: IVO organised a course in epidemiology with the University of Tehran for over 20 provincial IVO staff. Over a 6 month period, participants gathered for one-week lectures on epidemiology and biostatistics.

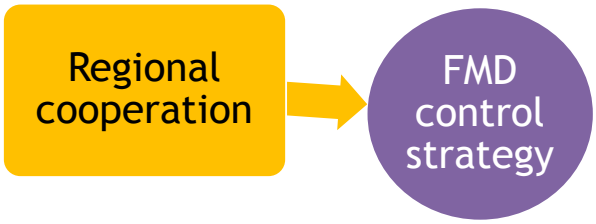
Review of FMD surveillance

Analysing the data on outbreak reporting based on passive and routine (random) active surveillance revealed that active surveillance contributed little to the overall picture of FMD in Iran. Therefore, active surveillance is now applied in areas where FMD was not reported for more than 2 months. Within an area, surveillance is conducted at high-risk locations such as villages near animal markets, beef farms and border locations.



Number of FMD outbreaks notified by passive (blue) and active (red) surveillance. Note the different scales on the left.

PCP-FMD STAGE 1: OUTCOME 6



PCP guideline

The country demonstrates transparency and commitment to participating in regional FMD control.

Context

As FMD is not bound to country borders, control of FMD requires a regional approach. This requires sharing of information on changing outbreak patterns and clinical expression of FMD in livestock.

Regional roadmap meetings have been held since 2008. The objectives are to

- review the progress of FMD control towards the vision of a "West Eurasian region free of clinical FMD by 2020" as defined at the Shiraz meeting in 2008;
- share information on FMD virus circulation to plan for vaccination and other preventive measures in the short term.

Key points

- It is increasingly recognised that significant advancement of FMD control in West Eurasia will only be accomplished with improved biosecurity and control of animal movements at a regional level;
- Iran has participated in all Roadmap meetings and IVO staff have been chairing the Epidemiology Network for several years;
- Early detection of Asia1 serotype in Iran (2011) allowed for timely modification of vaccine production in Turkey to include this serotype.

West Eurasian Roadmap meetings

Relationships and trust are built during these meetings: they encourage countries to improve their disease control policies and share information with their neigbours .

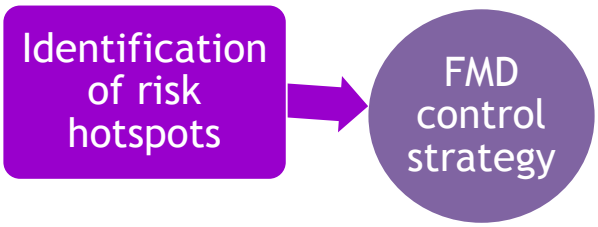
	2008	2009	2010	2011‡	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Kazakhstan	1	1	1		1	1*	2	2	3	3	4	4	5	5	5	5	5	5
Kyrgyzstan	1	0	0		1	1												
Tajikistan	0	1	1		1	1	2	2	2	3	3	3	3	3	3	3	3	3
Turkmen	0	0	0		1													
Uzbekistan	0	1	0		1													
Afghanistan	0	1	1		1	1												
IR of Iran	2	2	2		2	2	2	2	3	3	3	3	4	4	4	4	4	4
Pakistan	0	1	1		1	1	2	2	3	3	3	3	4	4	4	4	4	4
Turkey – Anatolia	1	2	2		2	2**	2	2	2	2	3	3	3	3	3	4	4	4
Syria	3	1	1			1*	2	3	3	3	4	4	4	5	5	5	5	5
Iraq	1	1				1*	2	3	3	3	3	3	4	4	4	4	4	4
Armenia	2	2	2		2	2**												
Azerbaijan	2	2	2		2	2**	2	2	3	3	3	3	4	4	4	4	4	5
Georgia	2	1	1		1	1*	2	2	3	3	3	4	4	4	4	5	5	5

‡ No Roadmap Meeting was held in 2011, therefore 2010 Stages maintained

*** To move to Stage 2 pending receipt of Control Strategy**

**** Will be changed to Stage 1 unless copy of control strategy received by end May 2013**

Overview of planned PCP-FMD stages for the countries in the West-Eurasian region, as defined during the Regional Roadmap Meeting in Baku, Azarbaijan, April 2013



PCP guideline

Important risk hotspots for FMD transmission are identified.

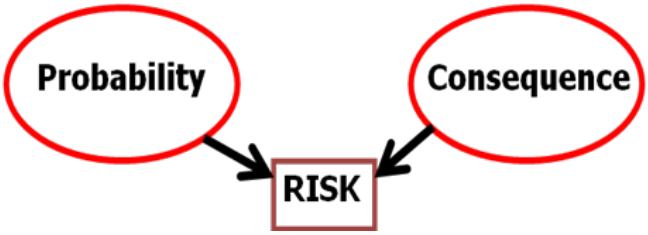
Context

Risk for FMD transmission is a combination of the probability of transmission occurring and the consequence of FMD introduction into a location.

Critical points for FMD entry and spread are identified, and potential mitigation options are explored.

This bring together results from previous Stage 1 outcomes:

- How, when, where, why and by whom animals and products are moving between farms (local level) and across Iran (national level);
- Circulating strains and serotypes;
- Impact of FMD for different stakeholders;
- Resources and options are available for control.



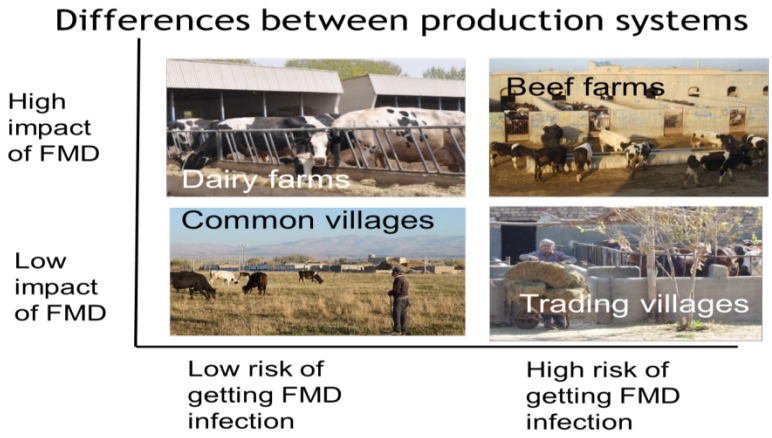
Key points

- The movement of young calves from the periphery to beef fattening farms in Central Iran pose a major risk for FMD virus transmission. To mitigate this risk, these calves should be fully immunized prior to transport;
- Animal markets have an important role in livestock trade. Options to reduce FMD virus transmission through markets include:
  - Improving animal market design and biosecurity practices
  - Developing a system in which animals are traded through 'agencies' rather than at markets;
- Biosecurity measures can reduce local spread of FMD virus. Veterinary professionals should 'lead by example' to show that simple measures are effective to reduce the risk of virus transmission.

Risk assessment – national level

Animal trading is part of the social structure of the Iranian livestock systems. It involves many professionals, very large numbers of livestock and all corners of Iran. It knits together different production systems.

Risk of FMD transmission is lower for common villages with local production of milk and meat than for trading villages where numerous animals are introduced and sold for fattening in other parts of Iran.



Conceptual framework of FMD impact (Y-axis) and Risk of infection (X-axis) for different production systems in Iran

Risk assessment – at local level (ie individual farms and villages)

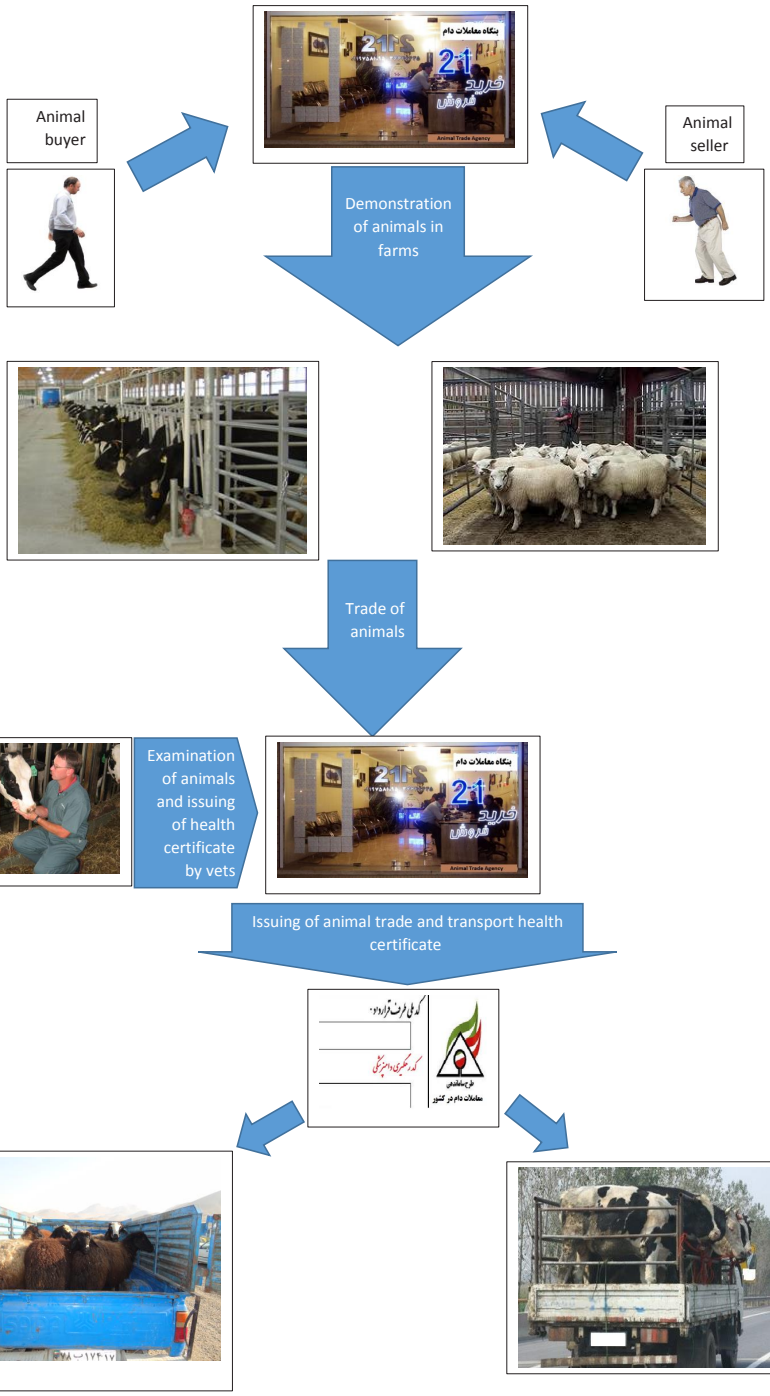
In a number of workshops, to the surprise of participants, veterinary professionals were identified as a major risk of spreading FMD infection.

There is currently little attention to biosecurity measures when going around to vaccinate, to sample for FMD in case of an outbreak notification or to treat sick animals.

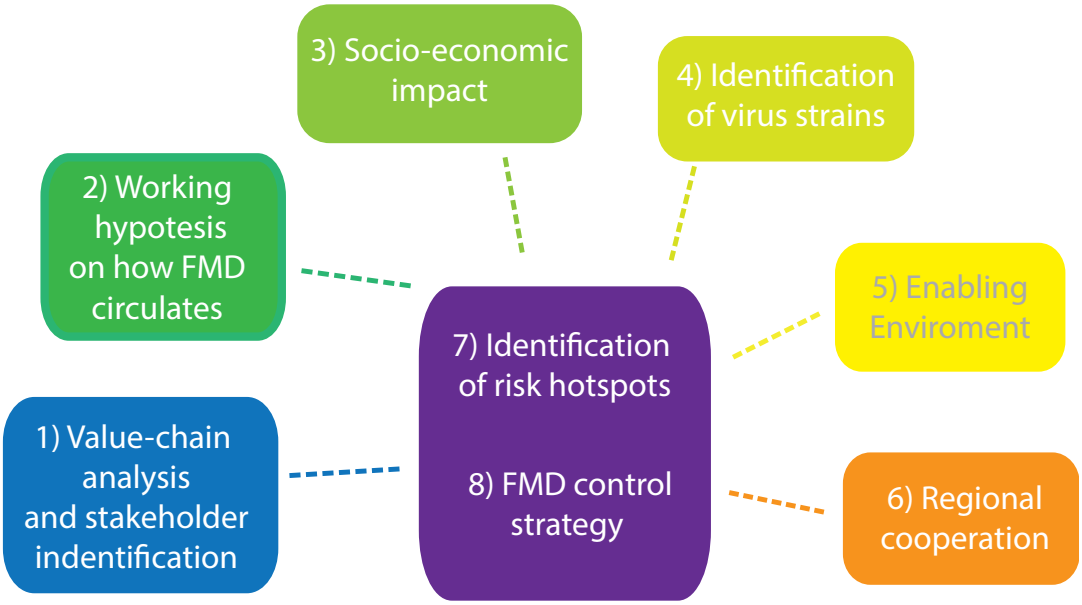
Animal Market Agency

Animal markets are known to be important locations for the spread of many transmissible diseases. A proposal is being explored to create 'Agencies' or offices where dealers can buy and sell animals from farmers directly without taking these animals through an animal market. This would reduce the spread of FMD and other diseases through animal markets.

Animal Trade Agency



An office where dealers can buy and sell animals from farmers directly without taking these animals through an animal market



PCP guideline

A strategic FMD control plan that has the aim of reducing the impact of FMD in at least one zone or husbandry sector is developed.

Context

Based on an understanding of the FMD risks and routes of transmission, a risk-based strategic plan (RBSP) is developed including a goal (long-term vision), a strategic objective (mid-term vision) and component objectives (short to medium term).

The identified risk hotspots (outcome 7) serve as the starting point for defining the component objectives. Next, tactics and activities are defined to achieve the objectives, as well as performance indicators and feasible targets.

Activities

A comprehensive RBSP for FMD control is being developed in Iran, with technical assistance provided under the project.

Risk-based Strategic Plan for FMD control in Iran

initiative Title :	The strategic control of FMD disease (project operational) based on risk factors	Goal : To improve livestock production and productivity
Project title :	The strategic control of FMD disease based on risk factors	Strategic Objective : To reduce impact of clinical FMD disease
to achieve the strategic objective we dertermine 10 intermediate objectives (as subprojects) on the base of risk factors of FMD and measures are implemented per subproject		
1- to reduce risk of FMD virus transmission caused by animal transportation and animal trading	5- to reduce risk of FMD transmission from high-risk areas and immadiate action against outbreaks	9- To establish sustained private-public partnerships through which the RBSP on FMD control is effectively supported and implemented
2- to improve the immunity against FMD and biosecurity of calves destined for fattening, at place of origin as well as destination	6- to reduce impact of clinical FMD in commercial dairy sector	10- to sustain risk-based control of FMD through advocacy with government and international agencies
3- to reduce risk of incursion of new strains and serotypes through importation of livestock	7- improvement of FMD vaccine which complies with quality standards and strengthening of IVO FMD laboratory diagnosis network	
4- to reduce the risk of transmission of FMD virus by 'veterinary' professionals through application of sufficient and effective biosecurity measures	8- To establish an accurate and effective system of monitoring and evaluation of the FMD control strategy	

NEXT HOME PREVIOUS

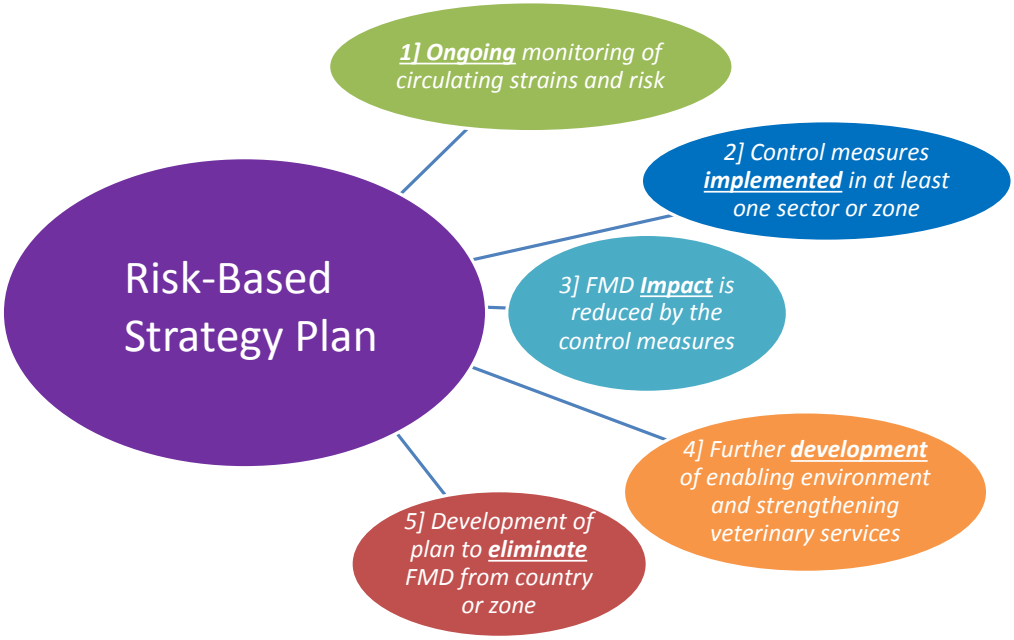
Overview of overall and strategic objectives of the Risk-Based Strategic Plan for FMD control in Iran, starting in 2014

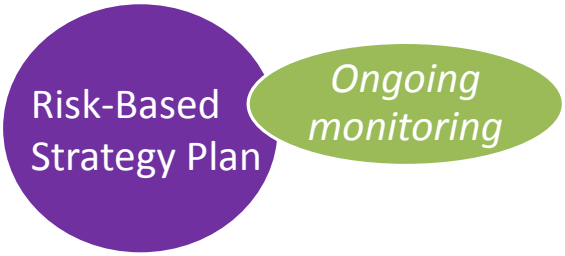
PCP-FMD STAGE2: UNDERSTANDING THE EPIDEMIOLOGY AND TRANSMISSION OF FMD

In PCP Stage 2, the country implements the national risk-based FMD control strategy to decrease the impact of FMD in at least one livestock sector or zone. There is ongoing monitoring of the actual level of implementation and the impact of the activities, as well as circulating strains and risks for FMD transmission.

PCP-FMD Stage 2 has 5 defined outcomes. The final outcome is to define a more aggressive control plan with the aim to eliminate FMD virus circulation from the country or a designated zone.

In the next chapters, we discuss the each of the outcomes expected in PCP Stage 2, and relate them to the IVO-EuFMD project activities over the last 3 years.





PCP guideline

Ongoing monitoring of circulating strains and risk in different husbandry systems.

Context

Activities described in Stage 1 are continued as required to keep the information current. Additionally, critical gaps in understanding should be identified and addressed, with particular emphasis on acquiring knowledge that could assist in more effective implementation of control measures. Thus, the understanding of both the epidemiology of FMD in the country and feasible mitigation options are progressively enhanced.

Activities

A monthly overview of FMD reports, laboratory results and vaccination was established. This overview included information from previous years, allowing to compare between years.

Key points

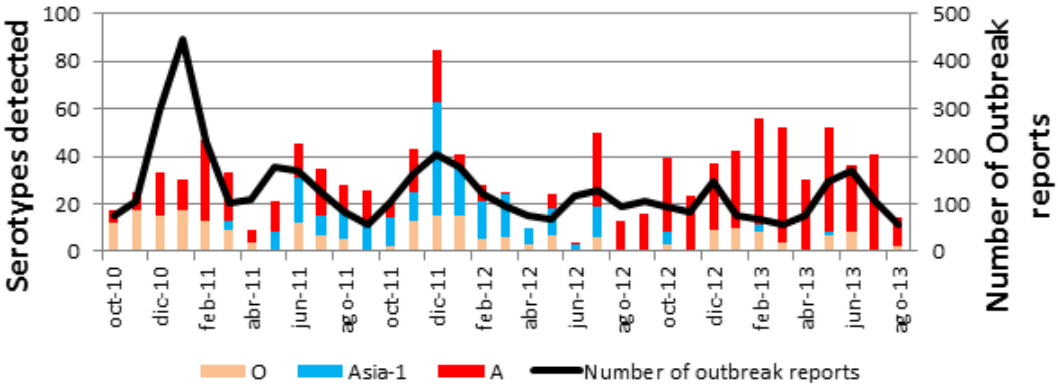
There are two peaks of clinical FMD annually:

- May-June: This outbreaks increased period again is simultaneous to spring migration of nomads.
- November-December: Possibly to do with Khorban (October) or migration of nomadic flocks.

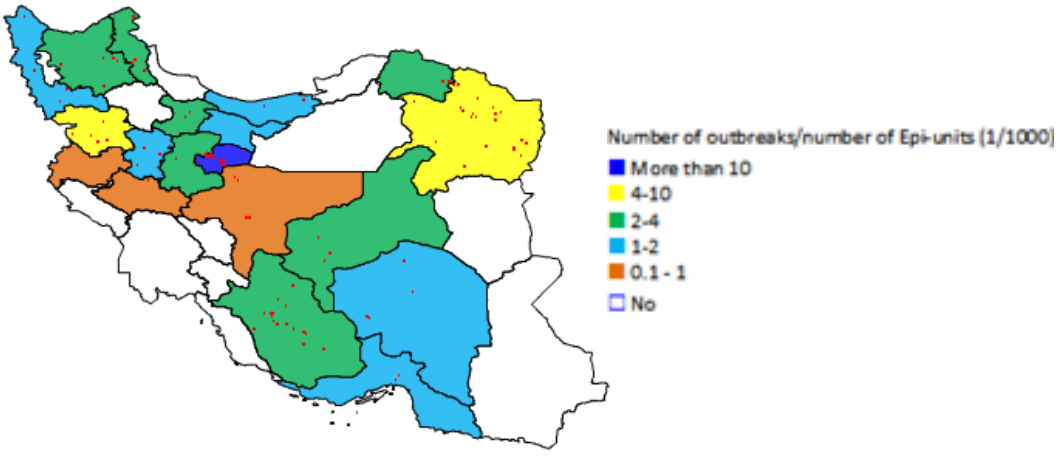
Monthly reporting

Monthly reports provide an overview of the FMD situation and the level of vaccination applied. These reports serve the following purposes:

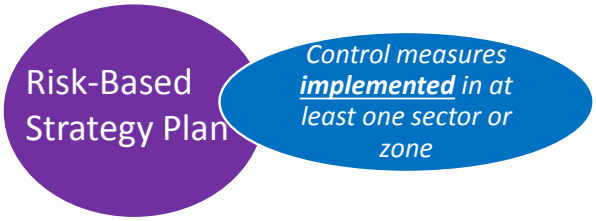
- To present the FMD situation to the CVO and the Ministry of Agriculture and demonstrate progress in FMD control;
- To discuss performance with provincial departments;
- To indicate the extent of FMD and IVO's activities to control the disease to private stakeholders.



Relation between detection of FMD serotypes and the number of FMD outbreaks recorded between October 2010 and August 2013



Map of Iranian provinces and the proportional incidence of FMD outbreaks during May-June: may relate to increased animal movements related to nomad migration.



PCP guideline

Risk-based control measures are implemented for the sector or zone targeted, based on the FMD strategic control plan developed in Stage 1.

Context

Control efforts should be targeted to critical risk control points, and will most likely include both vaccination and enhanced biosecurity measures.

Activities

- Analysis of GISVet vaccination data to assess vaccination coverage;
- Vaccine quality assessment was conducted according to international guidelines, including a potency test;
- Training for Razi, CVL and IVO staff was provided on the principles and implementation of a potency test.

Key points

It was agreed that new vaccine batches must be assessed for potency.

Vaccine quality

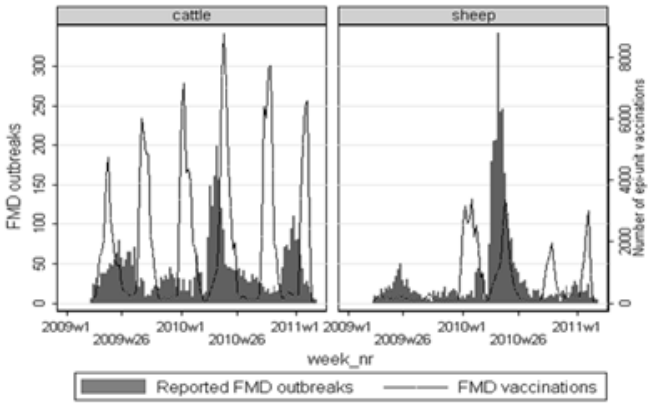
The project assessed vaccine production, and training was provided concurrently for staff from Razi institute, CVL and IVO on methods of vaccine quality assurance. For this purpose, potency testing was conducted in the Razi institute.

Vaccine production in Razi Institute is now under GMP including Vaccine Quality Assessment and Quality Control. In parallel, staff at the Central Veterinary Laboratory in Karaj have been trained to conduct vaccine quality control for safety, potency and matching.

In addition, the Razi Institute is currently working on an oil-based vaccine as these vaccines tend to protect longer than aquaous vaccines. In due course, vaccine-induced immunity will be improved to support FMD control.

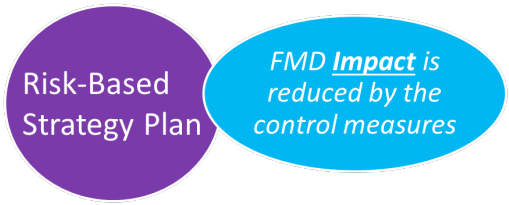
Data analysis GISVET

For the purpose of regular evaluation of vaccination coverage stratified by region, production types and species, adaptations to GISVET have been made. Scripts for automated data analysis have been written, but need further application.



Relation between vaccination campaigns and number of outbreaks recorded in GISVET, for cattle and sheep between Jan 2009 and Jan 2011

PCP-FMD STAGE 2: OUTCOME 3



PCP guideline

It is clearly established that the impact of FMD is being reduced by the control measures in at least some livestock sectors and /or zones

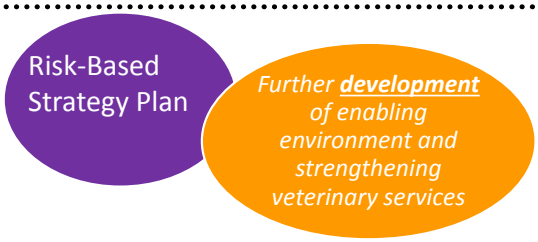
Context

It is important to demonstrate both that control measures are being appropriately implemented, and also that they are achieving the desired impact.

Key points

- Repeated data collection and analysis over time is required to demonstrate that the impact of FMD has decreased;
- Iran has collected some baseline data, but must continue to monitor changes in FMD incidence and livestock production practises in order to demonstrate lower impact of FMD.

PCP-FMD STAGE 2: OUTCOME 4



PCP guideline

There is further development of an enabling environment for control activities.

Context

The legal framework should ensure that control and surveillance activities can be carried out, there should be evidence that the country is committed to developing an effective and sustainable control program.

Activities

- Establishment of provincial FMD taskforces;
- The OIE conducted a PVS evaluation in Iran in 2009.

Key points

- Central FMD task force is complemented by provincial FMD task forces in West Azarbaijan, Qom, Markazi, Qazvin and Khorasan Razavi;
- The OIE-PVS evaluation has been the basis for establishing the laboratory quality assurance (see Stage 1, outcome 4) and formalizing communications with private stakeholders (see Stage 1, outcome 8).

OIE-PVS and evaluation of the Critical Competencies

In 2009, OIE conducted a PVS evaluation in Iran. It showed a positive picture of the structure of IVO and its competencies.

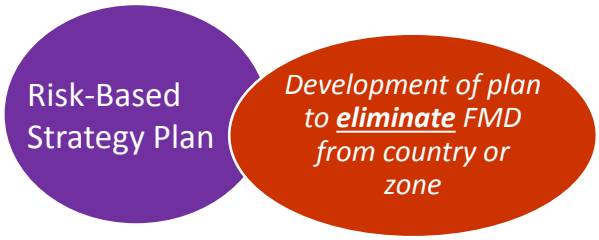
With regard to the critical competencies recommended for PCP-FMD Stage 2, the following 3 issues need further work (some points have been addressed):

- External coordination: coordination of IVO with other organisations such as the Ministry of Health;
- Communications: No formal consultation mechanisms are in place to engage public and private stakeholders;
- Laboratory quality assurance. This issue is resolved through the missions in support to the laboratories, see outcome 4 in Stage 1.

OIE PVS Critical Competencies and levels	FMD-PCP Stage			
	1	2	3	4
Professional competencies of veterinarians	2	3	3	3
Competencies of veterinary para-professionals	1	3	3	3
Continuing education	3	3	3	3
Internal coordination (chain of command)	1	2	3	3
External coordination	3	3	3	3
Management of resources and operations	1	2	3	3
Risk analysis	3	3	3	3
Emerging issues	1	2	3	3
Communications	2	3	4	4
Consultation with stakeholders	3	3	3	3
Official representation	2	3	3	3
Accreditation/authorisation/delegation	1	2	¾	¾
Veterinary statutory body authority	1	2	¾	¾
Veterinary statutory body capacity	1	2	3	3
Participation of producers and stakeholders in joint programmes	2	3	3	3
Preparation of legislation & regulation	1	3	3	3
Implementation of legislation & stakeholder compliance	1	3	3	3
Passive epidemiologic surveillance	1	3	3	3
Active epidemiologic surveillance	3	3	3	¾
Early detection and emergency response	1	1	3	3
Disease prevention, control and eradication	1	2	3	3
Ante and post mortem inspection	1	2	3	3
Veterinary laboratory diagnosis	2	2/3	2/3	2/3
Laboratory quality assurance	2	3	3	3
Quarantine and border security	1	2	3	¾
Animal identification and movement control	1	2	3	3
Transparency	2	3	3	3
Zoning	1	2	3	3
Veterinarians and other professionals	2	3	3	3
Veterinary para-professionals and other technical staff	2	3	3	3
Physical resources	2	2	3	3
Operational funding	1	2/3	4/5	4/5
Emergency funding	1	1	3	4/5

OIE-PVS critical components and the level of compliance in relation to the different PCP-FMD stages

PCP-FMD STAGE 2: OUTCOME 5



PCP guideline

A revised, more aggressive control strategy that has the aim of eliminating FMD from at least a zone of the country has been developed.

Context

This plan should be endorsed by the government veterinary authorities, and should ensure rapid detection and response to ALL outbreaks, in order to limit the spread of infection.

Iran may fulfil this outcome after it has consolidated progress in the other Stage 2 outcomes.

ACKNOWLEDGEMENT

This project would not have been possible with the continued support and motivation of many people, of whom we like to mention:

Dr Seyed Mohsen Dastoor, Dr Abdolamir Rezaei, Dr Darab Abdullahi, Dr Javad Emami, Dr Seyed Mohammed Barani, Dr Sedighe Kazeminia, Dr Mohammed Rashtibaf, Dr Abas Ganji, Ing Reza Hassanzadi, Dr Ali Araskhani, Dr Mehran Alamdari, Dr Akbar Khorasani, Dr OmidReza Amrabadi, Dr Vahid Otarod, Dr MohammedReza Sholehpash, Dr AliAkbar Faraji, Hasan Ekhtiarzadeh and Mohammad Sohrabi and other related staff in IVO, the provincial staff and farmers in West Azarbaijan, Khorasan Razavi, Qom and Markazi provinces, Razi Vaccine and Serum Research Institute, the FAO-Iran staff in Tehran and the EuFMD staff in Rome, Italy.

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