OIE STRATEGY FOR THE CONTROL AND ERADICATION OF FOOT AND MOUTH DISEASE AT REGIONAL AND GLOBAL LEVELS

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Summary: *More than one hundred developing and transitional countries in the world are still not free from foot and mouth disease (FMD), in spite of intensive global, regional and national efforts to get ahead of the disease. This situation presents a major challenge to the veterinary services worldwide as key role players in the move towards global liberalised trade in animals and animal products and ensuring an ideal of global food security and global market access for animals and animal products.*

Following the success of the programme to eradicate rinderpest from the world, a resolution adopted at the OIE/FAO Global Conference on Foot and Mouth Disease held in Asunción, Paraguay in June 2009, tasked the OIE and FAO to work together on a programme for the global control of FMD.

The paper provides a brief overview of the current situation of FMD across the globe and highlights some of the successful regional programmes already in operation to control the disease. An overview is given of the intended OIE/FAO global FMD control programme with the emphasis on some of the elements critical for the successful implementation and monitoring of such a global FMD control strategy.

Key words: *foot and mouth disease (FMD) – global strategy – Progressive Control Pathway (PCP)*

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1. Introduction

Foot and mouth disease (FMD) has been successfully controlled and eradicated in large parts of the world using conventional disease control measures including the vaccination of domestic animals. In some instances, countries have succeeded to harmonize and implement regionally-adapted control and eradication strategies in a common commitment to get ahead of the disease. However, several characteristics of FMD virus infection and factors inherent to the epidemiology of the disease complicate the ideal of global eradication of one of the most trade-sensitive and infectious animal diseases. Not only do seven serotypes occur with little cross-protection between the serotypes, but genetic and antigenic variants occur within serotypes. In addition, FMD virus can infect over seventy cloven-hoofed species, many of which are free-living wild animals.

Thus, in spite of intensive global, regional and national efforts to get ahead of the disease, more than one hundred developing and transitional countries of the world are still not free from FMD, thereby presenting a major challenge to move towards a global liberalised trade in animals and animal products, to ensure an ideal of global food security and global market access for animals and animal products.

Following the success of the programme to eradicate rinderpest from the world, a resolution adopted at the OIE/FAO[3] Global Conference on Foot and Mouth Disease held in Asunción, Paraguay in June 2009, tasked the OIE and FAO to work together on a programme for the global control of FMD [2].

The paper will give a brief overview of the current situation of FMD across the globe, will highlight some of the successful regional programmes already in operation to control the disease and will give an overview of the intended global programme for the control of FMD.

1.1. Brief overview of the global situation of foot and mouth disease

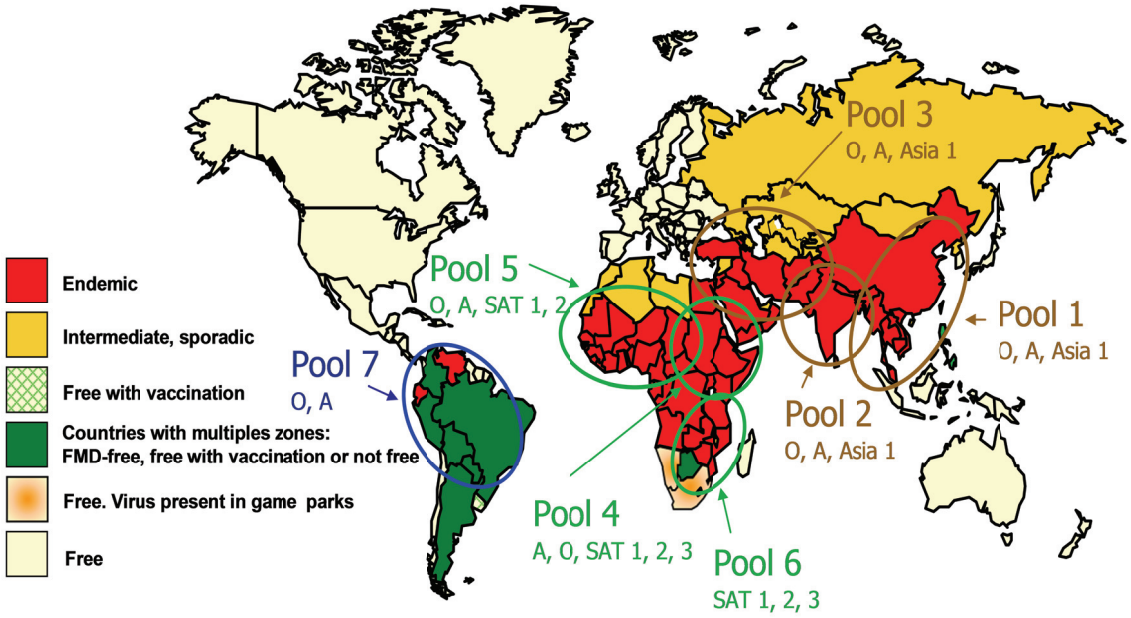
The regions continuously infected and re-infected with all serotypes of the FMD virus are Africa, the Middle East, the Far East, Southern and South-East Asia and Central Asia. This is with the exclusion of serotype C that was last diagnosed in 2004 in Brazil and Kenya. In the majority of countries in Africa, FMD remains an endemic disease with only three countries in southern Africa been zoned free from FMD. In the Middle East there is a continued spread of serotypes O (O-PanAsia-2 lineage) and A (A-Iran-05 lineage), with an emergence of O-Ind-2001 in Iran, with also outbreaks of this serotype lineage in the southern part of Asia. There appears to be a spread of A lineage A-Thai-2003 throughout South-East Asia, the Republic of Korea and the People's Republic of China. The Mya-98 lineage (South-East Asian topotype of serotype O) was identified as being responsible for the outbreaks in Japan, Mongolia, the People's Republic of China and Hong Kong SAR. Outbreaks occurred again in 2009 and 2010 in countries previously free, or without outbreaks for a number of years (Mozambique, Republic of Korea, Japan, Hong Kong, Chinese Taipei). In South America, the Southern Cone countries remain under threat from countries further North such as Ecuador and Venezuela [1].

1.2. Regional approaches to the control of foot and mouth disease

While the globalisation of trade and the increased movement of animals and animal products across the globe remain an important risk factor for the spread of the FMD virus across the globe and a threat to the free status of countries, the history of FMD outbreaks throughout the years confirms that the most common spread of FMD virus occurs across national borders and within the more close proximity of regions. Available data on the occurrence of FMD virus across the globe indicate seven distinct pools of FMD virus which can be grouped to delineate focal regions for disease control purposes (Figure 1). The control of the disease in a global context thus needs to be approached from different angles of which the regional approach has been accepted as the most proven method to illicit a common commitment between countries sharing similar —or closely related— geographical, cultural, trade and other interests relevant to the control of FMD.

3 FAO: Food and Agriculture Organization of the United Nations

Figure 1.– Regional FMDV pools



Pool positions are approximate and colours indicate that there are three principal pools, two of which can be subdivided into overlapping areas. (Source: Institute of Animal Health, Pirbright, United Kingdom) [1]

The two regions of the world that have attempted and proven that a regional approach for FMD can work and can contribute towards gradually and progressively moving towards achieving FMD freedom, are South America and South-East Asia.

1.3. SEACFMD regional programme for South-East Asia and the People's Republic of China

The South-East Asia FMD Campaign (SEAFMD) was launched in 1997 and is now entering its third phase of activities. Eight countries —Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Thailand and Vietnam— initially participated in the programme which has achieved considerable success. Since 2010, Brunei, the People's Republic of China and Singapore joined the programme, to now form the SEACFMD Campaign. The programme provides for improved disease control and prevention, effective coordination between countries, a progressive zoning approach, training, development of sound communication and information exchange strategies, and engagement of industries. From a scientific and technical perspective, there have been major initiatives in areas such as progressive zoning approaches with strong epidemiological and diagnostic inputs. These activities will be continued and expanded under Phase 3. In addition, efforts will be made to work more closely with neighbouring countries, including Bangladesh and India. The SEACFMD 2020 Roadmap for achieving FMD freedom by 2020 is currently under review and will be adapted in accordance with new priorities and disease trends [4].

1.4. The regional FMD programme in South America

At the end of the 1980s, a regionalized approach was developed, based on the conceptual and scientific-technical framework of the ecosystems of the disease which eventually evolved into a Hemispheric Plan for the Eradication of Foot-and-Mouth Disease, 1988–2009 (PHEFA[4]). PHEFA was based on the epidemiological relationships between complementary livestock production systems. Traditional forms of raising, fattening and processing cattle influence the diffusion and maintenance of infection in different areas. As a result of tailored disease control and eradication strategies developed under the ecosystem approach, countries in the Southern Cone achieved a good sanitary situation which opened new international markets for products of animal origin. However, FMD still occurred in some countries. Central America, North America and the Caribbean were kept free of the disease 'without vaccination'. In South America, Chile and Guyana are considered countries free 'without vaccination'; Uruguay is free 'with vaccination'; while zoned freedom 'without vaccination' is

4 PHEFA: *Plan Hemisférico de Erradicación de la Fiebre Aftosa*

recognized for Colombia, Peru and in the Santa Catarina province of Brazil, and areas free of FMD 'with vaccination' are recognized in Argentina, Bolivia, Brazil, Colombia and Paraguay [3].

FMD vaccines are an important component of disease control and eradication strategies in South America and national programmes in South America used in 2009 approximately 500 million doses of bi- and trivalent vaccines to cover approximately 336 million heads of cattle, with varying coverage percentages. The PHEFA regional programme partially achieved its goals when it ended in December 2009: 85% of the susceptible livestock lives in zones/countries recognized as free either with or without vaccination. Bolivia, Ecuador and Venezuela still struggle to organize and implement their national FMD programmes. For the last five years, the disease has been endemic in Ecuador and Venezuela, whereas Bolivia had it last outbreaks in 2007.

In 2007, the Southern Cone Standing Veterinary Committee (CVP[5]) and the OIE signed an agreement for a regional approach for FMD control in the MERCOSUR. The agreement provided for the establishment of a 'high surveillance zone' on each side of the borders of the countries party to the agreement, namely Argentina, Bolivia, Brazil and Paraguay. The thrust of the agreement was to implement a regional approach for FMD control in the Southern Cone region following outbreaks of FMD prior to the establishment of the agreement. The application of the agreement was monitored by expert missions of the OIE in 2007, 2008 and 2009. The conclusion of these missions was that there was full commitment by the participating countries and that excellent progress was made with the implementation of the agreement and the regional approach for the control of FMD in the region [3].

1.5. The essential elements of a global strategy for the control of foot and mouth disease

Since 1994, the OIE has given further impetus to the ideal of moving towards global freedom from FMD by providing international standards and guidelines to enable a system for officially recognizing Member Countries free from the disease. To further facilitate the trade in animals and animal products, the standards for officially recognizing entire Member Countries free from FMD have been gradually expanded to make provision to recognize *free zones* within infected countries —and more lately *disease-free compartments*— as well as to identify more animal products that can be traded as safe commodities even in the presence of the disease or irrespective whether vaccination is applied or not in controlling the disease. Out of the current 177 OIE Members, there are 65 countries free from FMD without vaccination, 1 country free with vaccination, 10 countries having zones free without vaccination and 6 countries zones free with vaccination.

This is however a slow process that depends on the ability of countries or territories to achieve and maintain the recognized disease-free status. It is also a costly process that necessitates a sustainable and effective veterinary service and the political will and commitment. It is acknowledged that many developing and in-transition countries experience their own unique problems to move towards the ideal of country or zonal freedom and that the international community should consider additional appropriate means to promote the concept of the global control of FMD and to assist especially developing and in-transition countries or territories to become active participants in the pathway towards global freedom [2]. The OIE also realized that its involvement in the attempt of countries to gain recognition for country or zonal freedom, only becomes evident when countries are in the final stage of submitting applications to the OIE for the recognition of their free status. It became evident that many countries wishing to obtain official recognition are in need of not only guidance and support from the international community during the preparatory process, but also some sort of recognition of their strategy to control the disease and to comply with the requirements for eventually obtaining official recognition of freedom.

The FAO has developed a stepwise pathway for countries to move towards the ultimate ideal of obtaining official freedom from FMD (Figure 2): the so-called PCP (Progressive Control Pathway).

5 CVP: *Comité Veterinario Permanente del Cono Sur*

The OIE Scientific Commission for Animal Diseases acknowledged and endorsed the PCP and, to further assist countries, developed a legal text for the OIE *Terrestrial Animal Health Code* to allow for the official recognition of the strategic plans of Members to control FMD. The proposed text will be submitted for adoption by the OIE World Assembly of Delegates during the 79th OIE General Session in May 2011[6]. Adoption of this text will allow countries to apply for official recognition of their national strategic plans which could be used to negotiate for support and recognition by trade partners and politicians [3].

The OIE Scientific Commission also requested the Ad Hoc Group of experts on FMD to formulate a draft strategy for the global control of FMD. The draft strategy that was endorsed by the Scientific Commission, addresses several critical and essential aspects of a global strategy such as: regional strategies; the need for global, regional and national cooperation; the engagement of key role players and stakeholders; sustainability; surveillance; vaccination; diagnostic needs; and auditing of the process [3].

The overall objective of a global FMD control strategy is to consolidate disease-free regions by a gradual reduction in the incidence of FMD in three distinct approaches:

- to maintain the status in FMD-free countries and zones 'without vaccination';
- to maintain the status in FMD-free countries and zones 'with vaccination' and where appropriate, progress to the status of FMD-free 'without vaccination'; and
- to gradually improve control in FMD-infected countries aiming at an OIE-recognized status.

2. Regional strategies

The control of FMD on a global scale demands the integration of several regional approaches. The status of FMD-free countries can be severely compromised if neighbouring countries do not adopt comprehensive integrated measures that are agreed upon at a regional level. When attempting to institute an FMD control and eradication programme it is important to recognize that different regions of the world face a variety of and often unique problems. The type and importance of diverse production systems and species as well as economic considerations, regarding among other things the cost of vaccination, surveillance and access to export markets, may influence the choice of strategy adopted. Therefore, it is expected that regions will adopt varying strategies that suit their particular circumstances. Successful regional strategies such as those instituted in South America, based on a thorough knowledge of livestock production systems, trade relationships and disease occurrence, could be the basis to customize FMD control strategies in other regions of the world.

3. Global, regional and country level coordination

Coordination of a global effort to control FMD needs to occur at three levels:

- at the country level with the involvement of producers, including subsistence farmers as well as medium- and large-scale producers, official veterinary services and other key players within the government and the private sector;
- at the regional level through the adoption of harmonized approaches, and in close coordination with neighbouring regions; and
- at the global level to identify areas of potential concern as well as to identify possible solutions that can be adapted from region to region.

Transparency in reporting outbreaks and their thorough investigation are the cornerstones to understanding the epidemiological situation and to measure success.

6 Note by the editors: The proposed text was adopted during the 79th OIE General Session in May 2011.

4. Proposed strategies

To fulfil the objective of global control of FMD, regional strategies need to consider the current FMD status of the countries or zones.

4.1 FMD-free countries and zones 'without vaccination'

The objective of a strategy in FMD-free countries or zones 'without vaccination' is based on three essential risk mitigation principles, namely:

- application of measures to avoid the introduction of the infection;
- implementation of surveillance to ensure the detection of the infection;
- development of contingency plans in case of an emergency.

Consideration should be given to the following elements:

- **Prevention,** such as import requirements following the recommendations of the OIE *Code* and risk analysis; monitoring of FMD risks in neighbouring countries and trading partners and establishment of protection zones as appropriate;
- **Early detection,** through the application of principles such as disease awareness, surveillance and reporting, and to ensure diagnostic capability;
- **Emergency response,** such as the development of national contingency plans considering different possible approaches such as stamping out or modified stamping out;
- **Vaccination,** with or without slaughter of vaccinated animals and providing for compensation.

4.2 FMD-free countries and zones 'with vaccination'

In addition to the above requirements (§4.1), countries or zones applying vaccination should ensure that vaccination coverage is sufficient to stop virus circulation. Once enough evidence is gathered documenting the absence of virus circulation, countries should consider ending the use of vaccine. Cessation of vaccination will gradually reduce population-immunity and may lead to FMD outbreaks if the virus is still circulating undetected. Therefore, decisions leading to a prohibition of routine prophylactic vaccination should be based on a thorough risk assessment taking into consideration:

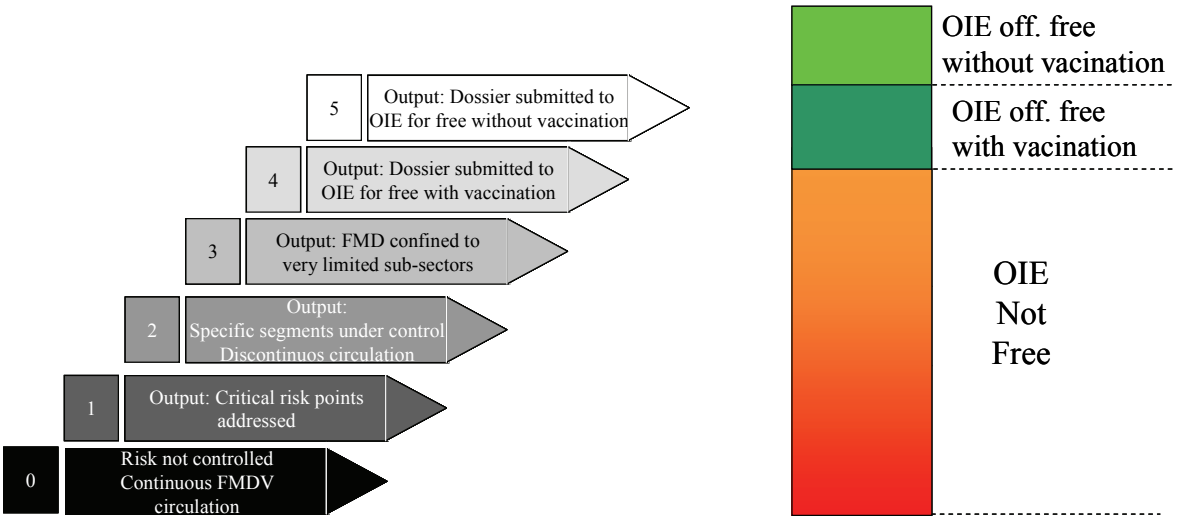
- the existence of undetected remaining pockets of FMD infection in the national population of susceptible livestock and wildlife; and
- the risk of reintroduction from neighbouring countries or zones or wildlife populations where applicable.

4.3 Infected countries or zones

The proposed FAO PCP strategy is based on a progressive control pathway and regional roadmaps for infected countries/zones to initiate FMD control. The PCP includes six different stages ranging from level 0 when there is continuous FMDV circulation with no reporting or control actions, to level 5 when a country is officially recognized by the OIE as free without vaccination (Figure 2).

Currently, the OIE recognizes only three different statuses for countries with regard to FMD: countries not free from FMD (PCP stages 0-3), FMD-free countries or zones applying vaccination (PCP stage 4) and FMD-free countries or zones without vaccination (PCP stage 5).

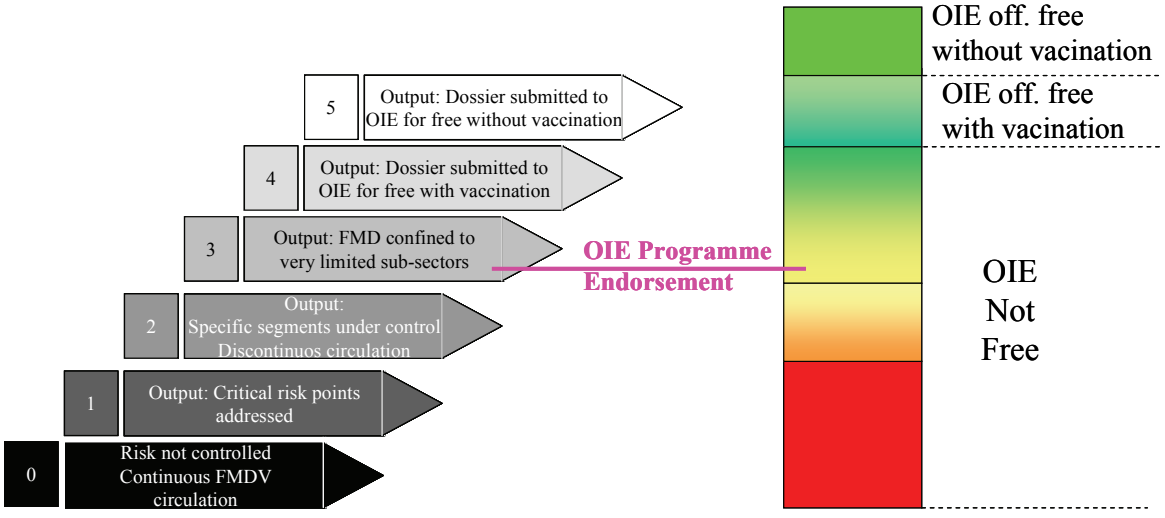
Figure 2.– Relationship between FAO's Progressive Control Pathway and OIE's official FMD statuses



The PCP proposal does not explicitly describe the use of zones as part of the strategy. However, zoning may provide a useful tool to prioritize the use of resources and constitute the building blocks towards reaching country freedom. Zones could theoretically extend over more than one country and simultaneous applications for endorsement could be submitted. However, countries should be evaluated separately to ensure equivalence of other factors such as the status of veterinary services, etc.

Both processes are complementary and support the overall objective of global FMD control. To strengthen the level of integration between both approaches it is proposed that the OIE recognizes the effort of FMD-infected countries by endorsing their FMD control programmes as an additional step in the process (Figure 3).

Figure 3.– Proposal for the level of endorsement of national strategic plans for FMD by the OIE



While this endorsement will not change the status of a country or zone, it will provide additional assurance that a country or zone has control over the situation and will thus act as an incentive to further increase their efforts. This can enhance the credibility when compliance with requirements contained in the *Code* chapter on FMD for specific commodities is certified and may also contribute to safer trade in animals and their products between countries of equivalent status.

Endorsement by the OIE will require that countries having reached stage 3 of the PCP submit to the OIE Scientific Commission their FMD control programme for consideration, providing details on the following key elements:

- efficiency of veterinary services;
- disease surveillance;
- diagnostic capability;
- vaccination;
- emergency response;
- regional integration;
- social participation;
- knowledge of livestock production systems;
- epidemiological situation;
- outbreak investigation.

4.4. Efficient veterinary services

Countries that have —or plan to initiate— FMD control programmes should have efficient veterinary services. A first step to assess their effectiveness is to undergo an evaluation of the performance of their Veterinary Services (OIE PVS Tool) followed by a PVS Gap Analysis to address the potential weaknesses and capitalize on the current strengths of the system. The PVS assessment, although strongly recommended, will not be compulsory for countries or zones applying for OIE endorsement of their national FMD control programme.

4.5. Engagement of key players

All successful FMD control programmes involve the participation of farmers and producers in every step of the process. A continuous dialogue between the official veterinary services, producer associations, private veterinarians and para-veterinarians will assist in the development of strategies that stand a better chance of adoption and success. The FMD control strategy needs to establish a communication link with subsistence and small-scale producers who are not usually represented in producers associations.

4.6. Political support and sources of funding

A prerequisite for a national programme is the political commitment of the government and producers and the existence of a strong veterinary service that has the power and the resources to implement the programme. Political and financial support is relatively easy to obtain in countries exporting livestock and their products. When the country or zone or certain strata of the small-scale producers are not involved in international trade, the incentives to control FMD may not be readily apparent. The FMD situation in such countries, zones or subpopulations might pose a risk if the disease goes unchecked. Regional collaboration is required to directly or indirectly finance control efforts. While additional funding can be sought among livestock associations, slaughtering plants and vaccine production enterprises, coordination, however, should remain under the control of the Veterinary Authority. The legal framework needs to be established in each country to fully support the national and regional FMD control programme.

4.7. Disease surveillance

Disease reporting, active clinical surveillance and epidemiological investigation are the most important components of a surveillance system aimed at the timely detection of FMD. Detection of disease will be most effective if those directly in contact with the susceptible population have the necessary knowledge and are integrated in the system and have incentives or are encouraged to report suspicions. This includes farmers, community animal health workers, para-veterinarians, private practitioners, official veterinarians and other local sources of information at the community level. Serological surveys, either random or targeted, are important in assessing disease prevalence, substantiating disease freedom or assessing the effectiveness of vaccination coverage, but have limited use in the detection of disease. Tests for antibodies to FMD viral non-structural proteins are available to help detect undisclosed virus circulation in vaccinated populations, even in the format of pen-site tests.

4.8. Surveillance coverage

An effective surveillance system should reach all geographic areas in a country as well as all susceptible species and production systems. Surveillance systems, including diagnostic laboratories, should monitor continuously the geographic distribution of the different strains circulating in domestic animals and wildlife. In countries where wildlife plays a role in the epidemiology of FMD, the surveillance systems need to include specific activities to ensure that an effective separation between domestic species and wildlife is maintained.

4.9. Diagnostic capability

4.9.1. National laboratories

All clinical suspicions of FMD require laboratory confirmation following the recommendations of the OIE *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals*. National and sub-national laboratories need to ensure that diagnostic results are communicated to the national surveillance system, field veterinarians and producers. A continuing quality control programme for the laboratories should be in place to ensure that diagnosis and vaccine control are carried out in compliance with strict quality standards. National laboratories are also needed to provide independent and impartial quality control of vaccines through testing of vaccine-induced protection. This needs to be measured both before (potency tests) and after (population immunity) batch release.

4.9.2. Reference Laboratories

Regional control schemes can be facilitated by a regional reference laboratory, preferably recognized by and collaborating with OIE and FAO. These reference laboratories provide training, test reagents, test validation and proficiency testing that promotes harmonisation and cooperation between national laboratories and strengthens their capability. National laboratories should submit samples to OIE Reference Laboratories for confirmation of findings and for in-depth characterisation such as genetic typing and vaccine matching. A global network of OIE and FAO FMD Reference Laboratories has been established to pool surveillance data, to share virus strains and reagents and to promote best practices in laboratory methods. The network contributes to transparency and early warning of emerging threats and provides vaccine strain recommendations.

Twinning is a concept developed by the OIE with the objective of pairing OIE Reference Laboratories —or laboratories with recognized expertise in FMD— with laboratories located in countries wishing to improve their diagnostic capability in this area.

4.10. Vaccination

Vaccination is an essential tool in the control of FMD. However, vaccination on its own will not achieve the desired results unless the vaccination programme is part of an integrated control strategy. Vaccination does not prevent infection, but prevents the occurrence of clinical signs and thus reduces viral shedding. Vaccination campaigns should be properly documented to monitor vaccination coverage, and serologically monitored for their effectiveness.

Vaccine quality: Highly effective vaccines are available. Nevertheless, many countries still use vaccines that may not conform to international standards in terms of purity, safety, potency and efficacy. Vaccines used within the framework of FMD control programmes should be licensed under the authority of the official veterinary services in accordance with international standards and preferably tested independently for safety and potency. Countries wishing to obtain the endorsement of their national control programme by the OIE should demonstrate compliance with the standards prescribed in the *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* or provide a timeline for the transition to the use of such vaccines.

Vaccine matching: Seven major regional FMD virus pools have been identified (Figure 1). Each pool requires vaccines containing the appropriate serotypes and subtypes of FMDV. Countries should be encouraged to share FMDV isolates with OIE Reference Laboratories and develop regional or sub-regional programmes and laboratory capacities, to harmonize and optimize efforts for the control of the strains present in a region and to have recommended vaccine strains for each pool.

Vaccine delivery: Effective delivery of vaccine, including preservation of the cold chain and proper injection, is the cornerstone for reaching an adequate level of population-immunity. Government/private schemes can be established to ensure vaccine distribution at the local level. In South America, for example, such schemes have been established in which local enterprises share the responsibilities to deliver vaccines to producers. This joint venture allows that local public/private enterprises become responsible for the application of the vaccine charging the farmer a small, variable fee that revolves back to the local enterprise to pay for administrative and contractual expenses.

Vaccination coverage and administration of vaccines: Over and above the needs to maintain and observe the cold chain, vaccination campaigns must be properly prepared and announced, and the administration of the vaccines to the animals must be properly supervised and documented. Evidence on vaccination coverage of the target populations should be maintained.

Population-immunity: Vaccination programmes should aim to achieve a level of population-immunity sufficient to avoid the spread and persistence of FMD in a population. Suppression of FMD may be achieved by vaccinating the entirety of the susceptible population, or focusing on populations of greater epidemiological significance. For example, most South American and several Southern African countries only vaccinate bovines, while ovines, caprines and swine are not vaccinated or not systematically included in their vaccination programmes. However, in other ecosystems the silent persistence of FMD virus in sheep is considered a source of continuous virus circulation also in other susceptible animals. If certain species are excluded from the vaccination programme the epidemiological rationale to do so should be documented. The population-immunity necessary to effectively suppress clinical disease in a herd or a given subpopulation strongly depends on the potency of the administered vaccines.

FMD vaccination programmes should include periodic surveys to assess the level of population-immunity and to identify potential areas or production systems where the level of immunity is not adequate.

Vaccine banks: Viral antigens for vaccine production can be stored deep frozen in readiness for thawing and formulation to provide a rapid response to an incursion of new strains of FMD virus either into FMD-free countries or into countries where the strain in question had not been previously found. Vaccine banks could also be useful in regions where the disease is endemic to ensure that sufficient stocks are available if targeted vaccination is needed. Such banks may be held at national or regional levels. The access rights and replacement obligations must be clearly established and backed up by appropriate funding.

Vaccine banks need the effective support by laboratories that have the capacity to carry out vaccine matching tests, taking also into account the potency of the available antigens, in order to provide advice to managers on the priority antigens to be stored in the bank.

4.11. Role of research

There should be continuing dialogue with the research laboratories and their funding agencies to address the needs arising in the field to improve diagnostics, surveillance and control and to support risk assessment and decision making. The establishment of networks of research laboratories has been helpful to develop consensus on funding for gap filling and other priorities and, through collaboration, to deliver critical mass for developing better tools and control options.

4.12. Emergency response

Each country should have an emergency response plan that is regularly updated and tested (including simulation exercises) and embedded in the legal framework. Emergency funds

should be available to cover operational costs and indemnities. Coordination with all role players including the police and armed forces should be well established to ensure control efforts will be executed rapidly and with success. It is also important that these plans are coordinated on a regional level between countries in geographical proximity or close commercial ties.

4.13. Compensation

Appropriate compensation is essential to ensure cooperation by farmers. Funding is essential and often lacking thus leading to non-compliance if the disease occurs again. Where possible, regional funds could be pooled to ensure a source is available in an emergency and to protect the region from a disease incursion. Partnerships between government and the private sector have proven effective to develop contingency funds in several parts of the world.

4.14. Regional integration

Each of the regional FMDV pools requires a regional approach (regional roadmap) specifically designed to reduce the spread of FMDV among the countries involved. Individual country programmes need to consider their relationship with other programmes existing in the region. Regional agreements including the Chief Veterinary Officers in each country and representatives from OIE, FAO and relevant regional organisations, should be established to ensure proper coordination.

Close cooperation between administrations is required to constantly analyse factors that have a direct or indirect impact on the epidemiology of the disease, such as environmental, political and economic events that may affect previously established trade and animal movement patterns or to set incentives to promote or abandon disease control measures.

Within the GF-TADs[7] programme it is essential that neighbouring Steering Committees work closely together and assist each other where necessary.

4.15. The role of OIE and FAO

Countries wishing to obtain endorsement of their FMD control programmes by the OIE should submit a dossier based on the specific questionnaire developed for this purpose. The OIE Scientific Commission will review the information and may, if required, ask for additional information. Endorsement of the control programme will not require the approval by the OIE World Assembly of Delegates. Endorsement and revocation of endorsement will rely on the recommendation of the FMD Ad Hoc Group and final approval by the Scientific Commission.

GF-TADs, with the support of the relevant regional and international organizations, will play a major role in regional coordination and implementation of the PCP process. The application of this process will strengthen the role of GF-TADs in the global FMD control. The OIE will make an assessment of national control programmes that have reached PCP level 3.

The OIE and FAO could further provide advice to countries or regions in areas such as the design of surveillance programmes or vaccination strategies. In addition, OIE and/or FAO will recommend specific vaccine strains for each of the regional FMDV pools ensuring that countries base their choice of vaccine on scientific data. This information could assist vaccine manufacturers in developing new vaccine strains for the different pools. The current FAO/IAEA TCP programme and the OIE laboratory twinning programme could be utilised to develop laboratory capacity and so improve diagnostic capacity in countries.

4.16. Incentives to apply for endorsement

Endorsement of national FMD control strategies by the OIE could act as an incentive for countries to embark on efforts to further control the disease and could facilitate access to funding via an already demonstrated success and commitment to improvement.

A country with an OIE-endorsed FMD control programme may find it easier to establish bilateral trade agreements with other FMD-infected countries as the endorsed status provides

7 GF-TADs: FAO/OIE Global Framework for the Progressive Control of Transboundary Animal Diseases

additional assurance on the quality of veterinary services and disease control methods applied in the country. In particular, endorsement could facilitate trade for certain commodities as described in Articles 8.5.9., 8.5.12., 8.5.23. and 8.5.26. of the *Terrestrial Animal Health Code* [5].

Countries at this level will be in a better position to establish disease-free zones or compartments.

4.17. Auditing process

Once on the endorsed pathway, countries will have to be transparent to allow audits by the OIE and FAO through their GF-TADs structures or offices, not only to monitor the progress or maintenance of the endorsement but also for assistance where the necessary levels are not maintained. In principle, audits of the status will be conducted only on request of the country or zone or on the initiative of the regional coordinating bodies.

Endorsement of the FMD control programme (PCP step 3) will be made by the OIE using generic procedures for official disease status recognition. In addition to the regular audits, countries or zones have to submit an annual report to the OIE stating any changes (if applicable) in the control programme that could affect the endorsement of their FMD control programme.

5. Conclusion

The veterinary profession will soon demonstrate to the world that, through regional cooperation, donor support, the commitment of countries, and with the full support and guidance of international organisations such as the OIE and FAO, it has succeeded in eradicating rinderpest. There is no reason that, with the same commitment, cooperation and dedication at all levels, FMD could not be also controlled —if not eradicated— globally. The challenges to control FMD globally are in some ways similar to the challenges that faced the decision makers who decided on a global rinderpest campaign, but in many ways also vastly different, with unique challenges. This is however a challenge that we could not shy away from if the veterinary profession is committed to share the ideal of global food security, liberalisation of trade and the socio-economic advancement of the majority of developing and transitional countries that remain to be excluded from participation in the international trade in animals and animal products due to the persistence of FMD in their livestock population.

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