

## **Risk analysis for the appearance of foot and mouth disease which represent for Romania the contiguity with third countries**

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### **Introduction**

Foot and Mouth Disease (FMD) represent a very important danger for territories where the disease evolve, due to the increased spreading, pandemic aspect, huge number of receptive animals and of the important damages for the affected countries, due to the cost implications for applying the control measures, for decreased productivity and restrictions on trade and exports.

The last pandemic of FMD were registered in Romania in 1972, since then, each year, Romania declares indemnity to the World Organization for Animal Health (OIE).

So far, the risk for introducing the FMD in Romania are represented by:

- Illicit traffic at borders with receptive animal at FMD (that means uncontrolled movements of receptive species);
- The type of borders (terrestrial, which can be transited, without control, by animals – wild receptive species);
- The vicinity with third countries which epidemiological situation is not known;
- The geographic position of the country in the South-East of Europe, in the vicinity of Balcanic Peninsula, Middle East and the Community of Independent States former of Russian Soviet Federation. Long ways of these territories, the disease evolve cyclical, the favorable elements for this being the passing-by of commercial trade rules between countries inside above mentioned territories, un-declaring of the real epidemiological situation, ignoring of bio-security measures and lack of the control at borders, both for animal transport and people traffic.

During 2007-2009, OIE received reports concerning the evolution of the FMD in a Member State (United Kingdom) and the following third countries: Benin, Bahrain, Botswana, Burkina Faso, Cambodgia, China, Ciad, Columbia, Ecuador, Egipt, Etiopia, Ghana, India, Iran, Israel, Kazahtan, Kenia, Kirgistan, Kuwait, Laos, Liban, Mali, Myanmar, Namibia, Senegal, Shri-Lanka, Sudan, Thailanda, Togo, Turcia, Venezuela, Zambia and Zimbabwe.

Concerning the specific prophylaxis of the disease, a great number of the Middle East and Far East countries vaccinates against the FMD virus, at least along the borders.

The Member States of the European Union, including Romania, have a common politic of un-vaccination against FMD virus, applying, whenever necessary, the provisions of the Council Directive 2003/85/EC with later amending and

completions. But, there are also exceptions from this rule, included into the 8-th section of above mentioned directive. For emergency cases, there is a Community Bank of Vaccines against FMD, whose stocks are renewed whenever is necessary.

## **Objectives**

The main objective in drawing up this analysis, is to establish the risk to which Romania is exposed concerning the penetrating of FMD virus, to identify the potential risk sources, to evaluate the potential damages which evolution of the disease on Romanian territory may produce and to analyze if the empowered administrations in applying the control measures is prepared properly to face the crisis. .

The risk analysis will be useful as reference in organizing the international simulation exercise for FMD “Red Alert” organized by Romania in cooperation with the National Committee for Emergency Situations and with TAIEX, between 7-th-10-th of September 2009.

Another objective is to have a reference points for risk control, which, in technical terms is named “risk management” having as main phases identification, evaluation and management of the risk.

As member state, Romania apply the community legislation in the field, represented by council directive 2003/85/CE regarding the community measures for FMD control which repeal the Directive 85/511/CEE and decisions 89/531/EEC and 91/665/EEC and amend the Directive 92/46/CEE published in Official Journal of al European Community (JOCE) no. L 306 from 22-th of November 2003, as was modified last time by Commission Decision 2005/615/CE which amend the annex XI at Council Directive 2003/85/CE, regarding the National reference laboratories in certain Member States, published in the publicată in the Official Journal of the European Community (JOCE) no. L 213 from 18-th of August 2005, transposed into Romanian legislation through NSVFSAs President Order no 113/2007.

The criteria and requirements established in 13 Section (art. 74-78) and the annex no 17 of above mentioned directive helped to the drawing up the Contingency Plan for FMD which Romania prepared to apply in combating of this disease.

Identification of the risk (hazard) for emerging the FMD in Romania, in the present epidemiologic context.

<b>Crt. No.</b>	<b>Identification of the risk(origin of the disease)</b>	<b>Additional Risk factors</b>	<b>General evaluation of the impact through disease emerging</b>	<b>Apparence mode</b>	<b>Present risk for Romania</b>	<b>Prophylaxis or corrective activities for reducing the spreading of the disease.</b>
1	By domestic or wild animals from susceptible species coming from intercommunity trade and animal imports	Animals from wild species carrier of the virus on long term (buffaloes and deers)	Medium, introducing being possible only when imports are performed from third infected states, having regard that in European Commission the last outbreak of disease was lifted (extinguished) in October 2007.	Sporadically and spontaneous, with manifest clinical signs..	Law, having regard the country with which Romania has commercial relationship with animals from susceptible species.	Narrow control of the animal imports concerning certification and clinical exam of the animal transports. Banning of the imports from territories with unknown epidemiological situation.
2	By illegal traffic of domestic animals over the border with third countries or by crossing over borders of the wild animals coming from infected zones towards free zones.	Were not identified factors	Medium, referring to animals which transit these states, coming from infected countries. Law, considering wild species, so long as is known epidemiology of the area.	Sporadically, but the debut may be insidious, and the finding of clinical signs may be delayed.	Law to moderate, having regard the vicinity with third countries, when the control on the movement and certification of the commercial changes of animals is not comparable with that of the Member States.	The conditioning of commercial changes with third countries by a harshly check of movement and by alignment of the legislation concerning the community changes of animals with that of community legislation in the field.
3	By people coming from zones where the FMD evolves.	Were not identified so far.	Law, having regard the stability of the virus in environment.	Sporadically, having regard the way transmission of the disease	Very law	Control at the border of the tourists who come from zones with a high epidemiological risk
4	By exotic carrier animals, from	Especially through introducing in	Medium, by introducing of circus animals or by	Sporadically and spontaneous, with	Law to moderate, if animals came from third	Strict control of exotic animals import,

	susceptible species (circus animal, zoo animals etc	country of exotic species came from risk zones.	populating the zoos, having regard the capacity of these animals to remain carrier.	clinical	countries which have unknown epidemiological status	regarding certification and clinical exam of the samples
5	By vehicle coming from infected zones.	There were not identified	Very low	Sporadically	Low	Installing of disinfection filters at the borders, in case of evolution of the disease in the neighboring countries.
6	By spreading of the virus by air flow in favorable climatic conditions	Only in case of vicinity with territories in which the disease evolves	Very low, in the neighboring territories of Romania; there is not present the disease at the moment	Sporadically	Very low, in the present epidemiological context	There are not possible prophylactic or corrective activities in this context
7	By fresh meat and by frozen meat and other products from infected animals coming from trade or import	By uncontrolled imports from countries recognized as being infected	Medium, if there are taken into consideration the imports of beef frozen meat from South America.	Sporadically, having regard the environment for virus propagation	Very low, having regard the frozen temperature and the meat acidification process and of acidification of milk products	The limitation of import or the intercommunity with products coming from risk areas.

## **Identification of the risk**

The identification of the risk, taking regard the OIE definition, represent the identification of the pathogen agent which, introduced in a territory by intercommunity trade or by import from third countries, is potentially capable to start up the disease, being a critical important component in the risk analysis.

The identified risk for Romania, in the global present epidemiologic context is represented by the introducing the virus by import of ruminants and pigs, of exotic animals in circus and zoo purposes, as well as fresh meat and of other products coming from ruminants and pigs originated in zones of the Middle East, where the disease evolve in present (Israel), from state of Africa or China.

Having regard the commercial relationship very reduced with these states, the present risk is extremely low for introducing the disease by domestic animals, and low towards moderate, for introducing the disease by receptive animals, from exotic species.

The risk may grow exponentially when epidemiological events appears in the neighborhood of Romanian borders.

## **The estimation of the risk**

The evolution of the FMD outbreaks in the last two decades in Europe was sporadically, being observed in state from Balkan Peninsula (Bulgaria 1994, 1996), Greece (1994, 1996), Albania (1996), Yugoslavia (1996), Macedonia (1996), but also in East European countries: Russia (1995) or in Western countries: Italy (1993), Netherlands (2001) and United Kingdom (2001, 2007). The disease is also registered periodically in Turkey, in the buffer zone Anatolia.

As for now, the disease evolves in Middle and Far East, as well as of Africa and South America.

Having regard that, at present, the disease is not presented in any European countries or in neighborhood areas, we appreciate that the risk of introducing the virus in our countries is very low. Nevertheless, the observing of the annual surveillance program of the native herds and of those originated from intercommunity trade or by import from third countries, as well as the control of all animal transports immediately after entering country, at destination, is compulsory for maintaining the freedom status for FMD of the country.

## **The evaluation regarding the danger for exposal at FMD**

There are exposed to the risk domestic and wild animals from receptive species which may come into contact with sick or carrier animals, or with products and by-products coming from these, which were not exposed to thermal treatment.

Observing the rules of the intercommunity trade and certification of the animal transports, the danger for FMD exposal is low, having regard that in Member States

any outbreak evolved last two years. A low to medium danger is maintained in exotic animals which are passing-by Romania or are imported from third countries, and these may be circus or zoo animals.

Regarding the impact of the disease upon people, the consequences of human exposure to FMD virus are negligible.

### **The evaluation of the consequences**

Both direct and indirect effects of the evolution of FMD in a territory are responsible for a great part from total costs, and depends, largely, by the duration of the outbreak.

The impact which have the evolution of an FMD outbreak on Romanian territory is complex, and it could reflect on the following segments:

- a) economic, with major financial losses, which can be due to:
  - losses due to the costs following to applying control measures (replacement value of animals, costs referring to killing animals and rendering, equipments, facilities, disinfectants, protection clothes, vaccination – eventually-, costs for personnel etc.)
  - losses due to the restriction imposed to the trade with animals from susceptible species;
  - losses in tourism and services sectors, due to the abstention which tourists have to visit countries where a disease evolves;
  
- b) social, due to:
  - socio-ethical aspects, the massive killing of animals are not any more accepted by great public;
  - in rural areas, there is an impact on the inhabitants incomes, having regard that peasants practice rearing of animals for subsistence purposes.

### **Conclusions**

1. The eventually introduction of FMD on Romanian territory would have major consequences on countries economy and trade. But the active surveillance of the disease and the applicable control measures if disease bursts out could reduce these consequences and would limit the spreading of the disease.
2. The effects which evolution of the disease would have on the environment are important, thus veterinary authorities shall take into account the principles for environment protection when choose and plans the rendering methods, in view of adequate management of crisis situations.
3. Even for Romania the estimated risk at present is low, the consequences of an FMD outbreak may be substantial; thus, Romania shall be prepared, any time, to cope with a crisis determined by the evolution of the disease.

4. The simulation exercise of FMD “Red Alert” which will take place in Gura Humorului locality, Suceava County, during 7-10-th of September 2009, will demonstrate if the intervention way prepared by Romania for crisis time is adequate.

In the end of this Risk Analysis, taking account by the present epidemiological context, we may conclude that the risk for introducing the FMD in Romania, at present, is very slow; the alignment with the community legislation imposes Romania to be prepared for appliance of the control measures in case of epidemiological crisis.

### **Bibliografie:**

1. APHIS Risk Analysis on Importation of Foot and Mouth Disease (FMD) Virus from Surrey County, England, in the United Kingdom (United States Department of Agriculture Animal and Plant Health Inspection Service Veterinary Services National Center for Import and Export Regionalization Evaluation Services March 2008)
2. Council Directive 2003/85/EC of 29 September 2003 on Community measures for the control of foot-and-mouth disease repealing Directive 85/511/EEC and Decisions 89/531/EEC and 91/665/EEC and amending Directive 92/46/EEC. Official Journal of the European Communities, Nov 22, 2003. L 306: p. 0001 - 0087.  
<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0085:EN:HTML>
3. The social and economic impact of emerging and re-emerging diseases, Ron Bergevoet, Animal Sciences Group, Wageningen UR
4. OIE (2007-2009). Office International des Epizooties (OIE), Disease Information (weekly reports)
5. Office International des Epizooties (OIE), Terrestrial Animal Health Code, OIE Listed Diseases. Article 2.1.1.3.  
[http://www.oie.int/eng/normes/mcode/en\\_chapitre\\_2.1.1.htm](http://www.oie.int/eng/normes/mcode/en_chapitre_2.1.1.htm)
6. Foot and Mouth Disease, Internet web page. Government of the United Kingdom, Department for Environment Food and Rural Affairs (DEFRA).  
<http://www.defra.gov.uk/animalh/diseases/fmd/default.htm>
7. Office International des Epizooties (OIE), Terrestrial Animal Health Code - 2007, Part 1, Section 1.3. Risk Analysis.  
[http://www.oie.int/eng/normes/mcode/en\\_titre\\_1.3.htm](http://www.oie.int/eng/normes/mcode/en_titre_1.3.htm)
8. WHO. Foot and mouth disease: consequences for public health.