

# FMD simulation exercise RUTA 2019



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**Report on the Foot and Mouth Disease simulation  
exercise conducted in 2019 by the Nordic-Baltic  
Veterinary Contingency Group**

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# Summary

The simulation exercise on Foot and Mouth Disease (FMD) conducted by the Nordic-Baltic Veterinary Contingency Group (NBVCG) took place in Vilnius, Lithuania. The exercise involved a total of 41 participants from nine countries. The aim of the NBVCG Emergency Preparedness Exercise was to enhance joint emergency preparedness among veterinary administrations in the Nordic and Baltic Countries and to assist in the understanding of roles and responsibilities in the event of FMD outbreaks.

The aim of the simulation exercise was to prepare and conduct an FMD emergency vaccination plan and exit strategy, as well as to prepare and conduct the stamping-out of large herds.

The outcomes of the evaluation report on the discussions of the exercise were captured from evaluator observation and player feedback. A total of 41 people completed the questionnaire, including the two evaluators and 39 players. This represented a response rate of 100%.

The evaluation report recommended that the experience gained of killing and disposal from the ASF outbreak in the Baltic countries should be shared with the other countries.

In-country training, workshops and simulation exercises are recommended in order to maintain a high level of awareness of FMD, contingency plans and the ability of stakeholders to respond.

It was further recommended that a detailed vaccination implementation plan should be developed by countries that do not have such a plan. It is recommended that countries prepare for the development of their animal and herd databases in order to record animals and herds that have been vaccinated against FMD.

# Sammanfattning

Simuleringsövningen arrangerad av NBVCG och kopplad till ett utbrott av Mul- och klövsjuka (MKS), genomfördes i Vilnius i Litauen. Totalt deltog 41 deltagare från nio länder i övningen. Syftet med övningen var att öka de nordiska och baltiska ländernas gemensamma förberedelse för ett MKS utbrott samt att bidra till förståelse av roller och ansvar i händelse av ett utbrott.

I övningen ingick att förbereda och genomföra en vaccinationsplan inklusive hanteringen av vaccinerade besättningar, liksom att förbereda och genomföra avlivning av stora besättningar.

Utvärderingen baserades på resultatet av diskussionerna under övningen vilket noterades av utvärderarnas observationer och återkoppling från deltagarna. Totalt svarade 41 deltagare på en enkät, vilket gav en svarsfrekvens på 100 %.

Utvärderarna rekommenderade att den erfarenhet av avlivning och kvittblivning av kadaver som de Baltiska länderna fått från bekämpningen av ASF, skulle delas med de andra länderna.

Vidare rekommenderades en fortsatt satsning på utbildningar, workshops och simuleringsövningar för att bibehålla en hög medvetenhet om MKS, beredskapsplanering och förmågan att kunna hantera sjukdomen hos olika aktörer.

Utvärderarna rekommenderade också att alla länder bör utveckla en detaljerad implementeringsplan för vaccinationer samt en vidareutveckling av databaser för registrering av vaccinerade djur och besättningar.

# 1. Introduction

The Nordic-Baltic Veterinary Contingency Group (NBVCG) was established in 2006 after an initiative from the Nordic Council of Ministers. The NBVCG is an ongoing project of the Nordic Working Group for Microbiology & Animal Health and Welfare (NMDD).

The primary objective of the group is to improve cooperation, communication and the exchange of information and experience between the veterinary authorities in the Nordic-Baltic region and on an international level, in the context of contingency planning and during animal disease crises.

The secondary objective of the group is to increase awareness of epizootic animal diseases and zoonoses among professionals and stakeholders within the region, to identify areas of improvement in contingency planning and to obtain and spread knowledge related to fighting infectious animal diseases.

One of the important activities conducted by the NBVCG has been organizing simulation exercises on transboundary animal diseases. These simulation exercises have covered African swine fever, African horse sickness and fish diseases. They have been organized as either joint activities in one location or as an exercise conducted simultaneously in the member countries. The results of these previous exercises have been published by the Nordic Council of Ministers.

## 2. Leading to the RUTA exercise

### 2.1. FMD

Foot and Mouth Disease (FMD) is a highly contagious viral disease. FMD affects both domestic and wild cloven-hoofed animals that may show symptoms such as fever, loss of milk production and drooling and lameness due to vesicles in the mouth and around the hooves. The economic consequences not only involve loss of production but also significant loss of international trade. The disease can spread easily across borders, not only through animal trade but also through contaminated products.

There are several different strains of the virus, which are currently circulating in parts of Asia, the Middle East, Africa and South America. Vaccines have been developed to help contain and eradicate FMD in countries in which the disease is endemic or in which outbreaks occur frequently, but they do not cross-protect from other strains and require frequent booster vaccinations in order to provide immunity from the disease. In addition, vaccination does not prevent infection and consequently a carrier state.

### 2.2. FMD in the EU

The entire EU is free from FMD. The last year of an outbreak of FMD in the Nordic and Baltic countries is shown in Table 1. The most recent epidemics in the EU have been in Bulgaria in 2011 and the UK in 2007. The 2001 epidemic in the UK resulted in the mass culling of animals, a total of almost 6.5 million, not only on farms that had the disease but also as a preventive measure at other farms. Also, twice as many animals were culled in order to prevent welfare problems at non-infected farms compared to the culling of animals at the infected farms.

**Table 1: The last outbreaks of FMD in the Nordic and Baltic countries**

Country	Last FMD epidemic
Denmark	1983
Greenland	Never reported
Estonia	1982
Finland	1959
Latvia	1987
Lithuania	1982
Norway	1952
Faroe Islands	Never reported
Iceland	Never reported
Sweden	1966

### 2.3. Combating FMD in the EU

The strategy in the EU is to prevent the entry of FMD into the EU by restricting trade from risk areas and the capacity building of farmers and other operators, as well as the public, in order to prevent transmission through contaminated products. The EU is also assisting neighbouring third countries to control and eradicate FMD. Vaccination against FMD is not permitted in the EU when the disease is not present (non-prophylactic vaccination policy).

The control measures for FMD required by the EU from the Member States are laid down in Council Directive 2003/85/EC. The main control and eradication measures are identifying the affected farms, imposing movement restrictions for both susceptible animals and their products to prevent further spread of the disease, stamping-out infected farms and cleaning and disinfecting the premises. However, restrictions would not only affect the infected farms, but also contact farms and through the zoning of farms as far as 10 kilometres away from an infected farm. Emergency vaccination could also be used in a disease outbreak situation.

### 2.4. Preparedness

In order to improve preparedness in the EU, according to Commission Directive 2003/85/EC section 12, article 72, EU Member States are obliged to have contingency plans for FMD, including plans for emergency vaccination, and to conduct FMD real-time alert exercises regularly. More detailed criteria and requirements for contingency plans and exercises are provided in Annex XVII of the Directive. Exercises should be carried out in close collaboration with the competent authorities of neighbouring Member States or third countries.

## 2.5. Background to the RUTA simulation exercise

In recent decades the number of animals on individual farms in both the Nordic and Baltic countries have increased greatly. There are cattle and sheep farms that have hundreds and even thousands of animals and there are pig farms with ten thousand animals. Organizing the culling of large number of animals on farms and the disposal of carcasses is not a routine procedure. Even though some experience has been gained in recent years in the Baltic countries in the culling of pigs infected with African swine fever, organizing the culling of large numbers of sheep and cattle would be a great challenge for the Nordic and Baltic veterinary authorities. Thus, the Nordic-Baltic Veterinary Contingency Group (NBVCG) identified a need for a simulation exercise concentrating on the culling of large herds.

It is also important to prepare for a situation in which vaccinating animals could be an alternative strategy to the mass culling of animals in eradicating FMD. Public opinion might not always support the mass culling of healthy animals. In addition, culling might not be economically feasible or otherwise possible in all situations. A lack of experience in organizing FMD emergency vaccination was identified as another reason for conducting an exercise.

## 2.6. Planning the exercise

NBVCG started planning the exercise in 2018. NBVCG asked for help from the European Commission for the Control of Foot-and-Mouth Disease (EuFMD) in organizing the exercise. A specific working group was established to focus on the planning of the exercise. Marius Masilius from Lithuania was named as team leader (Table 2).

**Table 2: Participants nominated for the original working group**

Organization	Activity	Expert
State Food and Veterinary Service, Lithuania	Team leader	Marius Masilius
NBVCG	Deputy team leader	Paulius Busauskas
NBVCG	Liaison officer to members of NB-VCG and responsibility for the budget	Siri Løtvedt
EuFMD	Consultant and facilitator	Sally Gaynor
EuFMD	Consultant and facilitator	Daniel Donachie
External	Evaluation	Patrik Moström



It was subsequently agreed that the EuFMD would provide evaluators for the exercise. Daniel Donachie was replaced by Maria de la Puente Arevalo in 2019 and Vilija Grikaliuniene joined the working group to help with practical arrangements in Lithuania.

## 3. RUTA

The RUTA Exercise (*Ruta graveolens* is the national flower of Lithuania) took place in Vilnius from 13–14 November 2019. The exercise followed the definition of a discussion-based exercise and, more specifically, a table top exercise in which all participants were in the same room.

### 3.1. Aim of the exercise

The aim of the NBVCG's RUTA Exercise was to enhance the joint emergency preparedness of veterinary administrations in the Nordic and Baltic Countries and to increase understanding of the roles and responsibilities in the event of outbreaks of Foot and Mouth Disease (FMD).

Further, the aim was to enhance knowledge and test the current FMD contingency plans of the Nordic-Baltic member countries with respect to the stamping-out of large animal herds and emergency vaccination.

### 3.2. Objectives

The objectives of the exercise were to:

- a. prepare and conduct the stamping-out of large infected herds
- b. prepare and conduct an FMD emergency vaccination plan and exit strategy

These objectives were to be achieved by:

- sharing information on FMD pre- and post- outbreak procedures with the Nordic-Baltic Group members;
- testing the stamping-out procedures for large infected herds in the participating countries;
- discussing the content and design of FMD emergency vaccination plans;
- discussing potential exit strategies in the event that FMD emergency vaccination was implemented.

### 3.3. Participants

An invitation was sent to all NBVCG member countries, addressed to personnel with special responsibility for contingency planning and emergencies related to stamping out and emergency vaccination. A total of 41 participants took part in the exercise (Annex I).

### 3.4. Activities

The one and half days included a number of informative sessions, although the focus was working in smaller groups with the scenarios provided by the facilitators (full programme Annex II). Most of the exercise was organized into two main groups: The Nordic countries, excluding Finland, and the Baltic countries and Finland. The main groups were further divided into subgroups representing national and local disease control centres.

The exercise was divided into four modules:

Module 1: Detection

Module 2: Response – Early response measures

Module 3: Response – Emergency vaccination

Module 4: Recovery – Exit strategies

The players responded to the scenarios and injects given in each module by discussing and answering a number of questions related to the different injects, using their current knowledge and the current plans available in the various countries.

The exercise represented an opportunity to discuss, present and test multiple options and possible solutions. After every module, a hot-wash session was conducted that covered the activities discussed in the groups.

At the end of the event there was a final session covering conclusions and recommendations.

The scenario and the injects are presented in Annex III.

## 4. Evaluation

Sally Gaynor and Maria de la Puente Arevalo from EuFMD evaluated the exercise. Evaluators were assigned to observe and document the outcome of discussions and the achievement of the objectives during the exercise. Their primary role was to document player discussions including whether the discussions were in line with plans, policies and procedures.

Immediately following the exercise, the participants (players and evaluators) were asked to complete a questionnaire comprising four questions using SurveyMonkey®.

After the exercise, all players from each country were asked to complete a Player Feedback Form on the strengths, gaps and recommendations for the contingency plans of each country. A single collated response was submitted via email by each country.

The evaluators made two types of recommendations: recommendations for contingency plans and recommendations for future exercises. The summary of the evaluation report is contained in Annex IV.

### 1. Recommendations for contingency plans

1.1. Much experience has been gained on killing of pigs by countries affected by the recent African swine fever epidemic. It is recommended that Standard Operating Procedures (SOP) for killing and disposal methods used in these countries during real emergencies should be shared within the Nordic-Baltic group. Contingency plans should include the estimated killing rates for the different methods.

1.2. Agreements to share personnel, a memorandum of understanding (MOU) with other agencies or contracts with commercial companies for killing, disposal, cleaning and disinfection, vaccination and laboratories are recommended in order to enable rapid scaling up. In the case of limited resources, the contingency plans should indicate how resources should be prioritized.

1.3. In-country training, workshops and simulation exercises are recommended in order to maintain a high level of awareness of FMD, contingency plans and the ability of stakeholders to respond.

1.4. It is recommended that a detailed vaccination implementation plan should be developed by the countries that do not have such a plan. A plan should be considered even if the relevant country has a non-vaccination policy for FMD. Plans should cover governance, resources and logistics, biosecurity, identification/registration, movement controls, surveillance, communications and recovery of free status.

1.5. Given the importance of internal, external and crisis communications during animal disease emergencies, it is recommended that all countries have communication plans.

1.6. It is recommended that countries prepare for the development of their animal and herd databases to record animals and herds that have been vaccinated against FMD (noting that EU legislation requires animals that have been vaccinated against

FMD to have additional, permanent and indelible marking).

## **2. Recommendations for future exercises**

2.1. In order to ensure sufficient time is available to discuss key areas, the number of questions should be limited to allow more focus.

2.2. In order to ensure that all people in each discussion group are able to hear properly, smaller groups and/or different rooms for each group should be considered – depending on the facilities available and the size of the group.

2.3. In order to ensure that there is a facilitator available for each group, a facilitator/evaluator for each group should be considered if multiple smaller groups are planned.

2.4. Include agenda items for a facilitator and evaluator briefing, a hot-wash for players and a management team de-brief.

# Acknowledgements

The Nordic Baltic Veterinary Contingency Group would like to express its thanks to the Nordic Council of Ministers for political and financial support for veterinary contingency planning activities in the Nordic and Baltic countries.

The Nordic Baltic Veterinary Contingency Group would particularly like to thank the State Food and Veterinary Service, Lithuania, for its excellent assistance during the preparation and implementation of the exercise and for the great hospitality shown to all participants.



# Annexes

## Annex I: Participants

The mini-seminar comprised 41 participants from different countries: Denmark, Estonia, the Faroe Islands, Finland, Greenland, Iceland, Latvia, Lithuania, Norway, Sweden and the United Kingdom. Information on the public administrations, organizations and private sectors represented at the seminar is shown in the table below.

**Table 3: Public administrations and organizations represented at the seminar**

Country	National veterinary administrations, ministries	Other	Total
Denmark	3		
Estonia	3		
Faroe Islands	2		
Finland	6		
Greenland	0		
Iceland	1	1	
Latvia	3		
Lithuania	8		
Norway	4	1	
Sweden	7		
EuFMD		2	
<b>Total</b>	<b>37</b>	<b>4</b>	<b>41</b>

## Annex II: Programme

### Programme for the exercise

The exercise started with the registration of participants at the State Food and Veterinary Service of Lithuania, Siesikų Str. 19, Vilnius from 08.45–09.00 on 13 November and ended at 12.30 on 14 November 2019.

The one and half days included a number of informative sessions as well as working in smaller groups on the tasks provided by the facilitators. At the end of the event there was a final session covering conclusions and recommendations.

**Table 4: Programme for the exercise**

#### 13 November

Time	Action
8.30–8.45	Registration of participants.
8.45–9.15	Welcome and Opening Introduction to desktop (tabletop) simulation exercise (Marius Masiulis (MM), Paulius Bušauskas (PB))
9.15–9.45	Introduction to FMD (Maria De La Puente Arevalo, EuFMD)
9.45 –10.15	Warm-up exercise – game “Jeopardy” (MM)
10.15 –11:00	Module 1: Detection (MM, PB)
11.00–11.15	Coffee break
11.15–12.30	Continuing on Module 1 and starting Module 2: Response (MM, PB)
12.30–13.00	Hot wash-up for Module 1 (MM, PB)
13.00–14.00	Lunch (Collegium Hall of the State Food and Veterinary Service)
14.00–15.30	Continuing on Module 2 (MM, PB)
15.30–15.45	Coffee break
15.45–16.15	Hot wash-up for Module 2 (MM, PB)
16.15–17.30	Module 3: Response (MM, PB)
17.30–18.00	FMD Escape Room (for a selected number of participants)
18.30 –20.00	Social event for the participants

## 14 November

Time	Action
9.00–10.30	Continuing on Module 3 and starting Module 4: Recovery (MM, PB)
10.30–10.45	Coffee break
10.45–12.00	Continuing on Module 4
12.00–13.00	Hot wash-up for the SimEx (MM, PB)
13.00–14.00	Lunch (Collegium Hall of the State Food and Veterinary Service)

## Annex III: Injects

The use of injects is a way of communicating to players the events and scenarios that have been prepared for the exercise. It is through injects that players gradually become familiar with the exercise events and receive the problems to be solved. The exercise leader forwarded several injects during the exercise for the working groups to solve.

### Module 1: Detection

#### Scenario Inject 1

Step 1. The date is 10 November 2019, Sunday.

In the village of Pavartyčiai Lithuania, on a small farm with two pigs and four sheep, a suspicion of animal disease arose.

The owner of the farm noticed that two pigs (a sow and a fattening pig at ten months of age) started to be sick several days ago (7–8 November 2019, he is not very sure about this). He saw depression and he took the temperature – fever was about 40.5 °C. He also observed some lameness and squealing in the pigs. In addition, the owner observed lameness in two sheep out of four.

He called a private veterinarian, who saw some oral lesions and vesicles on coronary band of the sheep. Private veterinarian noticed the same lesions in the pigs.

He took blood samples from the pigs for African Swine Fever analysis (ASF). Private veterinarian notified the regional veterinary service. Close to the small farm, there is a commercial sheep farm.

#### Scenario Inject 2A

Step 2A. The date is 11 November 2019, Monday

Due to the fact that report from private veterinarian arrived during a weekend, an epidemiological investigation by the regional service was carried out on Monday. It was found out that:

Owner originally had three pigs and one of the pigs was slaughtered at home one week ago, on the 2 November 2019. This pig was sampled and tested negative to ASF. Meat was processed at home and sent to family members in Norway, including raw meat.

The sow kept on the farm aborted this day.

Two weeks ago, relatives had been in India and brought home some meat products.

The sheep of the farm grazed close to a commercial sheep farm.

#### Scenario Inject 2B

Step 2B. The date is 11 November 2019, Monday

In the village of Magnor, in Norway, in a few cattle herds, which were grazing

together, similar clinical symptoms were observed – fever, drop in milk production, loss of appetite. Some of the cows were lame.

In the herd where Lithuanian farm workers were taking care of the milking cows, some vesicles were observed in the mouth and on the feet of a few animals.

The Veterinary Service was notified and the samples from diseased cattle were taken (saliva, fluid from vesicles and blood) and sent to the laboratory for Foot and mouth disease (FMD) detection.

### Scenario Inject 3

Step 3. The date is 12 November 2019, Tuesday

An official suspicion of combatable disease was received by the State Food and Veterinary Service in Vilnius from the Pavartyčiai village. It was reported that an abnormal number of sheep were lame on a commercial sheep farm. The Regional Service was informed and an inspection on the farm was carried out.

During the clinical examination by the vet employed at the sheep farm, slight clinical signs (loss of appetite due to erosions in the mouth, small vesicles and erosions on the tongue) and sudden and severe lameness were observed in 85 out of 1865 sheep. Three young animals had died without any clinical signs.

### Scenario Inject 4

Step 4. The date is 12 November 2019, Tuesday

The following day an epidemiological investigation on the commercial sheep farm was carried out by the Regional Veterinary Service. The investigation team based on the clinical examination, that they cannot rule out the presence of FMD on the farm.

Blood samples and saliva were collected from 28 of the animals with clinical signs and sent to the laboratory to be tested for FMD.

### Scenario Inject 5

Step 5. The date is 13 November 2019, Wednesday morning

The FMD virus was confirmed by PCR and antigen ELISA in the saliva and blood of all the animals tested in Lithuania in the National Food and Veterinary Risk Assessment Institute (Reference Laboratory for FMD). The FMD virus was also confirmed by PCR and antigen ELISA in saliva, blood and fluid from vesicles of all animals tested in Norway in the Norwegian Reference Laboratory for FMD"

## **Module 2: Response – Early response**

### Scenario Inject 6

Step 6A. The date is 13 November 2019, Wednesday

FMD has been confirmed in Lithuania, on the small farm and on the commercial sheep farm with 1865 sheep. Notifications to the EC and OIE are being made and a press release is being prepared.

The decision to cull the commercial farm and the small farm has been made.

#### Scenario Inject 6

Step 6B. The date is 13 November 2019, Wednesday

FMD has been confirmed on three cattle farms with twenty dairy cattle in Norway. Notifications to the EC and OIE are being made and a press release is being prepared. Close to the infected cattle farms there are around fifty farms with approx. 2,000 cattle, 12,000 sheep and 4,000 goats.

The decision to cull the affected farms has been made.

### **Module 3: Response – Emergency vaccination**

#### Scenario Inject 7

Step 7A. The date is 14 November 2019, Thursday

In the district municipality of Radviliškis, despite the fact that the small farm and the commercial sheep farm have been stamped out, FMD continues to spread. The decision has been taken to vaccinate the entire municipality of Radviliškis and the neighbouring municipality of Pakruojis.

#### Scenario Inject 7

Step 7B. The date is 14 November 2019, Thursday

The disease has spread rapidly in Norway, in the border region close to Sweden (municipality of Eidskog).

Vaccine has been requested, but it will take a week until it will arrive.

#### Scenario Inject 8

Step 8A.

30,500 doses of homologous vaccine has arrived to Lithuania.

The total infected area is 2,951 km<sup>2</sup>.

The number of commercial farms: 28 cattle farms, 13 sheep farms, 1 goat farm, 6 pig farms.

The number of animals susceptible to FMD in these commercial farms: 24,096 cattle, 3,177 sheep, 51 goats, 48,270 pigs.

The number of backyard farms: 636 cattle farms, 59 sheep farms, 62 goat farms, 771 pig farms.

The number of animals susceptible to FMD in the backyard farms: 889 cattle, 90 sheep, 84 goats, 2,156 pigs.

The CVO has decided to vaccinate all animal susceptible to FMD in the entire administrative sub-district, rather than wait for detailed surveillance with limited numbers of staff to define infected areas, though intensive surveillance to find the



disease should be carried out.

#### Scenario Inject 8

##### Step 8B.

18 thousand doses of homologous vaccines arrived to Norway.

The total infected area is 641 km<sup>2</sup>.

The number of commercial farms: 30.

The number of animals susceptible to FMD in these commercial farms: 1,950 cattle, 11,800 sheep and 3,950 goats.

The number of backyard farm: 20.

The number of animals susceptible to FMD in the backyard farms: 50 cattle, 200 sheep and 50 goats.

Experts recommend that it would be practical to vaccinate all animal susceptible to FMD in the entire administrative sub-district, rather than wait for detailed surveillance with limited numbers of staff to define infected areas, though intensive surveillance to find the disease should be carried out.

#### **Module 4: Recovery – Exit strategy**

##### Scenario Inject 9

Vaccination has been successfully implemented. No further FMD outbreaks were detected. CVO would like to know, how the freedom would be regained.

## Annex IV: Evaluation report

### A summary of the EVALUATION REPORT FOR EXERCISE RUTA

#### Section 1: Outcome of discussions on the key questions

The outcomes of the discussions of the exercise were captured from evaluator observation and player feedback sessions (completed during the exercise).

The outcome of the discussions on the key questions are detailed below.

##### Killing and disposal

- Killing team size varied from 6–10 people (but some countries include a biosecurity officer, a health and safety officer, and a value in the killing team).
- At least one team member would be a veterinarian to ensure that animal welfare rules are respected.
- The estimated rates of culling were:
  - 12 cows/ hour/ team – 100 cows/day/team (based on an 8-hour day)
  - 250 sheep/ hour/ team – 2,000 sheep/day/team (based on an 8-hour day)
- Four teams of six people would be required to kill the 1,800+ sheep within two days.
- It was estimated that disposal of 1,800+ sheep carcasses would take four days (where the rendering capacity in the relevant country is 500 sheep/day).
- In countries with limited or no rendering capacity, burial or burning may be carried out, depending on local environmental constraints.

##### Emergency vaccination strategy

- The Baltic Group decided on a ring vaccination strategy – targeting both commercial and backyard holdings, but prioritising commercial holdings.
- As the affected country has limited exports, the likely decision would be to vaccinate-to-live (rather than vaccination-to-kill).
- The Nordic Group considered that there was insufficient information available to make the decision. However certain principles would be applied:
  - Affected neighbouring countries would be consulted, with the aim of agreeing a common strategy.
  - Where ring vaccination is carried out, it would be implemented from the outside-in (as opposed to preventive culling, which would be implemented from the inside-out).
  - If blanket vaccination was to be chosen – commercial herds would be prioritised over backyard herds.
  - If there were many backyard pig herds in the vaccination zone, cattle and small ruminants would be prioritised for vaccination, and slaughtering of pigs would be considered.
- Most countries would have vaccination teams of three or four people (one veterinarian, one tagger and one or two recorders), with additional farm help needed for handling the animals.
- An estimated ten teams (plus handlers) would be required to vaccinate 15,000

animals in 3–6 days.

#### Emergency vaccination plan

- Most countries have outline vaccination plans, but have not developed detailed implementation plans, although one country has some templates.
- The complexity of the EU legislation on the movement controls makes drafting of guidelines and key messages for stakeholders difficult.

#### Vaccination exit strategy

- Most countries have not examined this in detail.
- The requirements to test all vaccinated animals (in the case of vaccination-to-live) is resource intensive, and would require arrangements to share or engage additional staff for sampling and laboratory testing.

### Section 2: Summary results of the SurveyMonkey® questionnaire

Following the exercise, participants (players and evaluators) were asked to complete a questionnaire containing four questions using SurveyMonkey®. The survey took approximately ten minutes to complete.

Q1. Participants were asked to indicate whether their role was a player, evaluator or observer.

There were no observers in this exercise. A total of 39 people completed the questionnaire, including the two evaluators and 37 players. This was a response rate of **100%**.

Q2. Participants were asked the extent to which they agreed with statements a) – e) relating to the conduct of the exercise, and statements f) and g) relating to the objectives of the exercise.

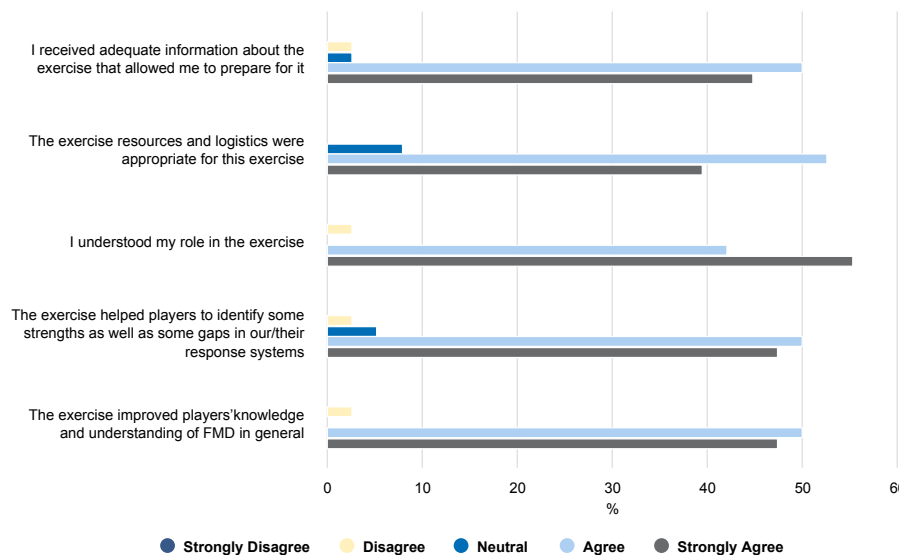
Of the 39 respondents, **38 (97%)** responded to this question, whilst one person skipped it. Of the 38 respondents:

- a. **95%** responded that they agreed (50%) or strongly agreed (45%) with the statement: *I received adequate information about the exercise that allowed me to prepare for it.*
- b. **92%** responded that they agreed (53%) or strongly agreed (39%) with the statement: *The exercise resources and logistics were appropriate for this exercise.*
- c. **97%** responded that they agreed (42%) or strongly agreed (55%) with the statement: *I understood my role in the exercise.*
- d. **87%** responded that they agreed (37%) or strongly agreed (50%) with the statement: *The exercise ran smoothly in a coordinated and structured manner.*
- e. **92%** responded that they agreed (50%) or strongly agreed (42%) with the statement: *All players were appropriately and fully engaged during the exercise.*

- f. **92%** responded that they agreed (50%) or strongly agreed (42%) with the statement: *The exercise helped players to identify some strengths as well as some gaps in our/their response systems, plans and procedures for FMD stamping out and vaccination.*
- g. **97%** responded that they agreed (50%) or strongly agreed (47%) with the statement: *The exercise improved players' knowledge and understanding of FMD in general, stamping out and emergency vaccination (including the consequences of vaccination).* The weighted average scores (on a scale of 1–5) are shown in **Table 5**. All statements scored highly (range 4.32–4.50). The scores for statements f) and g) indicate that the objectives of the exercise had been met, whilst the scores for statements a) – e) indicate a high level of satisfaction with the way the exercise was organised and conducted.

**Figure 1** below gives a graphical demonstration of the answers to Question 2.

**Figure 1. Example of answers given by the respondents (example is Question 2).**



A weighted average score was calculated for each of the seven statements, using a scale of 1–5, where 1 indicates a strong disagreement with the statement, and 5 indicates a strong agreement with the statement. The weighted average scores, in descending order, are shown in **Table 5**. All statements scored highly (range 4.32–4.50). The scores for statements f) and g) indicate that the objectives of the exercise had been met, and the scores for statements a) – e) indicate a high level of satisfaction with the organisation and conduct of the exercise.

**Table 5: Weighted average scores for statements on the conduct and objectives of the exercise**

Statement	Weighted average (Scale 1–5)
a) I received adequate information about the exercise that allowed me to prepare for it	4.37
b) The exercise resources and logistics were appropriate for this exercise	4.32
c) I understood my role in the exercise	4.50
d) The exercise ran smoothly in a coordinated and structured manner	4.32
e) Players were appropriately and fully engaged during the exercise	4.34
f) The exercise helped players to identify some strengths as well as some gaps in our/their response systems, plans and procedures for FMD stamping out and vaccination	4.32
g) The exercise improved players' knowledge and understanding of FMD in general, stamping out and emergency vaccination (including the consequences of vaccination)	4.42

Q3. Participants were asked to indicate the main strengths and areas for improvement.

Of the 39 respondents, **32 (82%)** replied to this question, whilst seven skipped the question.

The main **strengths** identified were:

- the knowledge and experience within the countries, and the willingness to share this and to cooperate with each other; and
- existing plans and SOPs in many of the relevant areas.

The main **areas identified for improvement** were:

- vaccination strategies, vaccination procedures and SOPs, adaptation of national animal databases to register FMD vaccinated animals and vaccinated herds/flocks, and the exit strategy; and
- procedures for scaling-up personnel and equipment for killing.

Q4. Participants were asked to share any recommendations they had to improve similar exercises in the future.

Of the 39 respondents, **25 (64%)** replied to this question, whilst fourteen skipped the question. Twenty-two respondents made recommendations for improving similar exercises, and three respondents made no recommendations.

The main **areas identified for improvement in the conduct of similar table-top exercises** were:

- to reduce the number of questions to allow more focus and time for discussion on the key areas; and

- to reduce the number of people in each discussion group and use different rooms for each group, to make discussion easier (acoustically).

### Section 3: Results of the Player Feedback Form

After the exercise, all players from each country were asked to complete a Player Feedback Form on strengths, gaps and recommendations for the contingency plans in each country. A single collated response was submitted by email by each country. Responses were received from six countries: Norway, Denmark, Estonia, Latvia, Finland and Sweden. A summary of the responses from the six countries is set out below.

Suspicion	Strengths	All countries have well developed contingency plans that describe the chain of command and the procedures to be taken on suspicion of FMD. Countries generally have a good network of official and private veterinarians.
	Gaps	Several countries are concerned about the lack of awareness of FMD amongst farmers and veterinarians, as they have either been free of FMD for many years (range 32–67 years) or FMD has never been reported. One country has to send their samples for testing in another Member State, as the facilities are not currently available within the country.
	Recommendations	All countries think that raising awareness of both FMD and of current contingency plans, amongst stakeholders, is necessary. The need for more FMD training, simulation exercises and also communication training were also mentioned. On-line training for both veterinarians and farmers was suggested.
Confirmed disease	Strengths	All countries have contingency plans that describe the procedures to be taken on confirmation of FMD, including procedures at crisis centres. Several countries referred to the good cooperation and communication that exists with operational partners and with stakeholders. One country mentioned the good laboratory capacity for confirming or ruling out disease.
	Gaps	The main issue for countries is the ability to scale up and sustain resources to deal with large outbreaks – in particular personnel and equipment for killing, disposal and cleaning and disinfection.
	Recommendations	In the case of limited resources, the contingency plans need to indicate how resources should be prioritized. Agreements with other countries to share personnel, MOUs with other agencies or contracts with commercial companies for killing, disposal and cleaning and disinfection are recommended to enable rapid scaling up. Training, workshops and simulation exercises are needed to ensure a high level of awareness and capability amongst stakeholders.



	Strengths	Most countries have well developed plans for organizing killing operations, with Standard Operating Procedures for the different killing methods. A lot of experience has been gained from the African Swine Fever epidemic in the Baltic countries, especially in killing of pigs.
Stamping out	Gaps	Although experience in killing and disposal of pigs has been gained through ASF controls, the same experience does not exist for cattle and small ruminants. In some cases SOPs exist for methods which have not yet been tested (e.g. gassing of pigs under 30 kg). In other cases, limited equipment supplies are an issue. There is limited experience in handling and killing animals on free-range pig farms and extensive (almost wild) beef cattle.
	Recommendations	MOUs with other agencies or contracts for killing, disposal and cleaning and disinfection are recommended to enable rapid scaling up. Training, workshops and simulation exercises are needed to ensure a high level of awareness and capability amongst stakeholders.
	Strengths	Two countries have some experience of vaccination for bluetongue, and one of these also has experience of vaccination for anthrax. Most countries have high-level plans for emergency vaccination, and are clear on who makes the decision to vaccinate. Some have considered the pros and cons of vaccination, and the criteria for introducing vaccination. At least one country has used disease spread modelling and cost-benefit analysis to determine their vaccination policy. Some countries have already made the decision not to vaccinate for FMD, which is mainly influenced by animal density and dependency of trade. One country mentioned that they had discussed vaccination with key stakeholders.
Vaccination	Gaps	Some countries have plans on how to implement a vaccination campaign. However, the plans do not contain details on the strategy(s) to be used in different scenarios, movement controls in vaccination zones, managing the impact of restrictions, communications on vaccination and the exit strategy. The difficulty in understanding the legislation on the movement controls was noted. Other difficulties identified were the lack of complete accuracy of animal databases, the possibility of stakeholder influence on political decision-makers, and the high numbers of personnel required to implement an emergency vaccination campaign.
	Recommendations	Most countries recommended the updating of their plans on emergency vaccination to provide more detailed information on different vaccination strategies, and guidelines on vaccination implementation, movement controls in vaccination zones and exit strategies. Training and simulation exercises on vaccination were also recommended by several countries. One country recommended examining ways to improve the accuracy of the animal database.

## Section 4: Recommendations

### Recommendations for contingency plans

1. Much experience has been gained on killing of pigs by countries affected by the recent African swine fever epidemic. It is recommended that SOPs for killing and disposal methods that have been used in these countries during real emergencies should be shared within the Nordic-Baltic group. Contingency plans should include estimated killing rates for the different methods.
2. Agreements to share personnel, MOUs with other agencies or contracts with commercial companies for killing, disposal, cleaning and disinfection, vaccination and laboratories are recommended to enable rapid scaling up. In the case of limited resources, the contingency plans should indicate how resources should be prioritized.
3. In-country training, workshops and simulation exercises are recommended to maintain a high level of awareness of FMD, of contingency plans and of capability to respond amongst stakeholders.
4. It is recommended that a detailed vaccination implementation plan should be developed by the countries that do not have one. A plan should be considered even if the country has a non-vaccinating policy for FMD. Plans should cover governance, resources and logistics, biosecurity, identification/registration, movement controls, surveillance, communications and recovery of free status.
5. Given the importance of internal, external and crisis communications during animal disease emergencies, all countries are recommended to have communications plans.
6. Countries are recommended to prepare for the development of their animal and herd databases to record animals and herds that are vaccinated for FMD (noting that the EU legislation requires that animals that are vaccinated for FMD to have additional, permanent and indelible marking).

### Recommendations for future exercises

1. To ensure sufficient time for discussion on the key areas, keep the number of questions limited to allow more focus.
2. To ensure that all the people in each discussion group are able to hear properly, consider having smaller groups and/or using different rooms for each group – depending on the facilities available and the size of the group.
3. Ensure that there is a facilitator for each group, and consider a facilitator/evaluator for each group if multiple smaller groups are planned.
4. Include agenda items for a facilitator and evaluator briefing, a hot-wash for players and a management team de-brief.

# About this publication

## FMD simulation exercise RUTA 2020

*Report on the Foot and Mouth Disease simulation exercise conducted in 2019 by the Nordic-Baltic Veterinary Contingency Group*

Maarja Kristian, Hanna Lounela and Thomas Svensson

ISBN 978-92-893-6698-4 (PDF)

ISBN 978-92-893-6699-1 (ONLINE)

<http://dx.doi.org/10.6027/temanord2020-530>

TemaNord 2020:530

ISSN 0908-6692

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