FMD Outbreaks in 2010 in Japan

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Contents

1. Summary of FMD outbreak in Miyazaki Prefecture in 2010
2. Measures to enhance the preparedness
Summary of FMD Outbreak in Miyazaki prefecture in 2010
Geographic overview

Livestock population
- Dairy cattle: 1,500,000
- Beef cattle: 2,923,000
- Swine: 9,899,000

(Ref.) Human population
- 127,450,460

1st reported case
- 20 April 2010
- Tsuno City, Miyazaki Prefecture
Control measures on infected farm

1. Traffic restriction around the infected farm (<72hr)
2. Culling of all animals in the affected farm
3. Burial of animal body and other infected materials (feed, beddings, animal products etc.)
4. Disinfection
Control measures in infected area

1. Movement restriction area
   (10 km radius from each farm, 21 days)
   - Movement of animal and animal products is prohibited
   - Slaughterhouses, live animal markets are closed

2. Shipment restriction area
   (10 – 20 km from each farm, 21 days)
   - Shipment of animal and animal products out of the area is prohibited

3. Serological surveillance
   (3 km radius)

4. Clinical surveillance
   (10 km radius)
Vesicles on tongue (Dairy cattle)  Ulcers on dental pad (Beef cattle)
Ruptured vesicles on hoof (Pig)  Vesicles on muzzle (Pig)
Initial phase of epidemic

20 April 2010 (Day 0)
- First case confirmed
- One cattle farm
Initial phase of epidemic

21 April 2010 (Day 1) - 3 cattle farms
Initial phase of epidemic

22 April 2010
(Day 2)
- 4 cattle farms
Initial phase of epidemic

23 April 2010
(Day 3)
- 5 cattle farms
- 1 water buffalo farm
- As a result of follow up investigation, 6th farm (water buffalo) assumed as an index case
Initial phase of epidemic

25 April 2010 (Day 5)
- 6 cattle farms
- 1 water buffalo farm
28 April 2010 (Day 8)
- 8 cattle farms
- 1 water buffalo farm
- 1 pig farm
- First pig case confirmed
Time course of epidemic (until vaccination)

22 May 2010 (Day 32)
Total 181 farms affected
Emergency vaccination started
Emergency vaccination

- All cloven-hoofed animals in the movement restriction area (10 km radius)
- Oil-adjuvant killed vaccine against type O
- Started 22 May 2010, finished 26 May
- All vaccinated animals were culled after vaccination as risk animal

Number of vaccinated animals

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Cattle</td>
<td>45,944</td>
</tr>
<tr>
<td>Pigs</td>
<td>79,606</td>
</tr>
<tr>
<td>Others</td>
<td>118</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125,668</strong></td>
</tr>
</tbody>
</table>

Total | 1,066 farms
Time course of epidemic

- 22 May 2010 (Day 32): Vaccination started
- 26 May 2010 (Day 36): Vaccination finished
- 5 June 2010 (Day 46): Culling vac. animal started
- 28 June 2010 (Day 69): 291 inf. farms culled
- 30 June 2010 (Day 71): All vac. farms culled
- 5 July 2010 (Day 76): Containment of last case finished
Outbreaks in remote areas

**April-May 13**

(Miyakonojo City)

**May 21**

(Kawaminami Town Area)

**April 20- June 12**

**June 9**

(Miyakonojo City)

**June 10**

(Ebino City)

**April 28- May 13**

**June 10 – July 4**

(20km)

(53km)

(75km)
## Total number of culled animals

<table>
<thead>
<tr>
<th></th>
<th>Infected Farms</th>
<th>Vaccinated Farms</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>37,389</td>
<td>32,065</td>
<td>69,454</td>
</tr>
<tr>
<td>Beef</td>
<td>(36,277)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dairy</td>
<td>(1,112)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pig</td>
<td>173,261</td>
<td>54,688</td>
<td>227,949</td>
</tr>
<tr>
<td>Others</td>
<td>64</td>
<td>341</td>
<td>405</td>
</tr>
<tr>
<td>Total</td>
<td>210,714</td>
<td>87,094</td>
<td>297,808</td>
</tr>
</tbody>
</table>
Surveillance around affected farms

- **Serological surveillance (LPBE)**
  
  All farms within 3km around affected farms (10%-95% in farm).

- **Clinical surveillance**
  
  All farms within 10km around affected farms

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<thead>
<tr>
<th></th>
<th>Cattle</th>
<th>Pig</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serological surveillance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farms sampled</td>
<td>535</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>Number of animals tested</td>
<td>5,417</td>
<td>624</td>
<td>32</td>
</tr>
<tr>
<td><strong>Clinical surveillance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of farms visited</td>
<td>2,918</td>
<td>207</td>
<td>22</td>
</tr>
<tr>
<td>Number of animal inspected</td>
<td>99,997</td>
<td>299,570</td>
<td>185</td>
</tr>
</tbody>
</table>

*One infected farm was detected positive on July 4th.*
Surveillance for disease free

- Clinical surveillance
  All cattle and pig farms in Miyazaki pref.

- Serological surveillance
  2,124 samples from 150 farms with negative results (2% - 95% farms, 10% - 95% animals)

- Wildlife surveillance
  Targeting Shika deer and wild pig.
  145 serological samples are tested with negative results (Aug - Oct).
Recovery of FMD Free Status

2010

Jul. 5  Preventive measures against the last case was finished

Oct. 6  Submission of FMD Eradication Report to the OIE

2011

Feb. 4  Recovery of the FMD free status without Vaccination was declared by the OIE
The isolated viruses in Japan are closely related to ones that are isolated in Hong Kong (99.2%), Russia (98.9%), and Korea (98.6%) in 2010.

Movement of animal/animal products or people from Asian countries could be a cause of virus introduction, but hardly identify the actual entry pathway.

Epidemiological investigation for the cause of infection

-people?

-materials?

Homology of the virus

Russia 98.9%

Hong Kong 99.2%

Korea 98.6%

or other Asian countries?

Miyazaki Pref.

At the time of infection of the identical index farm, more than 10 farms should be infected.

Mid of March
Factors of resulting large scale epidemic

1. FMD occurrences on pig farms among the high density area of cattle farms
2. Delay of notification
   ✓ Infection was estimated to start from the middle of March
   ✓ More than 10 farms were already infected when the first case was detected
3. Delay of destruction of infected farms
   ✓ Difficulty to find places to bury carcasses
Measures to enhance the preparedness
MAFF set up a third party panel for the verification of FMD control measures taken in 2010 outbreak.

The panel submitted a report regarding a better control measures to MAFF in November 2010.

**Points**

1. Prevention
2. Early Notification
3. Initial Response
Points of amendments of
The Animal Infectious Disease Prevention Law (1)
(Last amended in April 2011)

1. Role of the national government and prefectural governments.
   - National Gov.: Preparing a contingency plan on disease control measures.
   - Prefectural Gov.: Conduct a preventive or control measures according to the contingency plan.
     Have an authority to request a mayor of municipality for cooperation.

2. Measures to prevent viral introduction from Overseas.
   - Animal Quarantine Officer is authorized to ask a question to passengers, inspect their baggage and disinfect what he/she finds to need to.
   - The DG of AQS can request an air carrier and an airport for a cooperation.
Points of amendments of The Animal Infectious Disease Prevention Law (2)

3. **Responsibility of the farmers**
   - The owners owe a responsibility for;
     - Daily practice of disinfection in a farm with a proper manner,
     - Annual report to a local veterinary office of the number of animals and a biosecurity measures conducted at their farm.

4. **Regular revision of biosecurity standards at farms**
   - Establish standards dependent upon type of animal and farm size.
     - ex.) Set up a Farming Area in the farm for higher biosecurity measures
       - Disinfection of the vehicles entering into the farm
       - Prohibit the people who is not responsible for farming practice to enter the Farming Area
       - Disinfection of hands and shoes of the people entering into the Farming Area
Points of amendments of The Animal Infectious Disease Prevention Law (3)

5. Early detection of infected animals and notification thereof
   - Obligatory notification of animal with pre-defined clinical signs (FMD/HPAI)
     Farmers or vets. → Prefectural Gov. → National Gov.

6. Enhancement of financial support by the National Government
   - Special indemnities additional to regular indemnities for compensation for FMD, HPAI, CSF etc.
     Case animals: 33% → +67% = 100%
     Co-reared animals: 80% → +20% = 100%
   - Not be paid an indemnities at all or fully for farmers who failed to take necessary measures to prevent and control infectious diseases.
   - Extend of compensation coverage for the cost of movement restriction.
7. Disinfection of vehicles and others passing a disinfection point
   - Vehicles passing through a disinfection point which is placed by prefectural government have to be compulsorily disinfected.

8. Prophylactic culling of risk animals
   - To prevent a broad spread of FMD, animals other than those in infected or suspected farm is possible to be culled when it is absolutely necessary.
   - In such case, National Government compensate for the culled animal.
Points of the FMD contingency plan

1. Preparedness
   - Vaccine bank, stocking of materials for control measures
   - Inspection of all farms of cloven hoofed animals

2. Notification, diagnosis

3. Immediate actions to the positive result
   - Setting up of Emergency Task Force
   - Sending experts from National Gov. (control measures, epidemiology, etc.)

4. Measures in affected farm

5. Movement/Shipment restriction
   - Enlarge/shrink the area according to the epidemic

6. Surveillance

7. Prophylactic culling

8. Vaccination
   - Vaccinated animals will be culled as a prophylactic measure

9. Others
   - No exceptional measures for breeding animals.
Thank you for your attention!