Republic of Kazakhstan

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Status of the Republic of Kazakhstan on FMD

- On the 83d OIE General Session in 2015 the Republic of Kazakhstan was officially recognised as zone FMD free without vaccination for 9 regions of the country (Akmola, North Kazakhstan, Kostanay, West Kazakhstan, Aktobe, Atyrau, Pavlodar, Mangistau, Karaganda regions).
Pic. 1- Zoning of the territory of the Republic of Kazakhstan
FMD control programme in the Republic of Kazakhstan

Veterinary activity is regulated by the following number of legal acts: 15 major legal acts, 6 main legal acts of the Customs Union and Eurasian Economic Union, 34 Government Regulations of Kazakhstan, 7 Rules, 20 orders and 1 Master-plan on «Modernisation of Veterinary Service of Kazakhstan in accordance with international standards» (which was aprooved by the Director General of the OIE- B. Vallat)

In the Republic of Kazakhstan the FMD surveillance is a part of the constant FMD control programme, aiming to justify FMDV absence or virus activity on the whole territory of the zone and country.

According to the Chapter 1.4. and 8.7 of the OIE Terrestrial Code the system of FMD surveillance is under the responsibility of the Veterinary Service of the Republic of Kazakhstan.

In the framework of this surveillance the targeted population, in which this work is carried out for disease detection, includes all susceptible animals within the zone and the country.
FMD Control Programme in the Republic of Kazakhstan

1. The plan on control, prevention and eradication of FMD in the Republic of Kazakhstan.

2. State veterinary organisations on regional level are established, responsible carrying out the veterinary measures against FMD, including sampling, vaccination and identification of livestock;

3. Veterinary measures are carried out based on the principles of analysis, assessment and risk management. Taking into account the results of:
   - monitoring studies on FMD NSP;
   - territory zoning on FMD according to the results of scientific and laboratory studies according to the OIE recommendations;
   - epidemiological surveillance with inclusion of passive and active control is implemented;
   - newborn livestock animals identification is carrying out;
   - specific immune prevention is used against FMD in the framework of chosen strategy, on the basis of: *territory zoning; number and the timing of vaccination; connection of the diagnostic studies with the type of vaccine used.*

4. Veterinary Service reaction plan in case of emergency;
• **Scheme 1 – Veterinary Structure of the Republic of Kazakhstan**

**Republican level**

- Ministry of Agriculture
  - Committee of Veterinary Control and Supervision
  - Department of veterinary and Food Safety
  - National Reference Centre in Veterinary
  - Republican Veterinary Laboratory
  - Republican Anti-Epizootic Squad
  - Territorial inspections of regions and Astana, Almaty cities
  - Territorial inspections of districts and cities of regional status
  - Branch laboratory in Almaty city

**Local level**

- Regional Local executive bodies (cities of republican status, capital city)
  - Veterinary departments
  - Regional branch laboratories
  - Regional units
  - District branch laboratories
  - District branch laboratories
- State veterinary organizations
  - Veterinary points
- Rural district

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**7th West Eurasia FMD Roadmap Meeting • Kyrgyzstan • April 2016**
Vaccination

100 % vaccination coverage of cattle and small ruminants is carried out in 3 zones. Adult population is vaccinated 2 times, in spring (April- May) and in autumn (September-October).

Young animals are vaccinated starting from 3 months of age, each 3 months until they reach 18 months of age.

- trivalent vaccine, the potency is not less than 6PD50 on each valency in a dose, with the quality guarantee of the manufacturer;
- purified, does not cause antibody formation to NSP FMDV in vaccinated animals;
- containing types O, A and Asia-1 of FMDV, antigenically-related (with the coefficient of antigenic matching/ relation r₁ more than 0.30) with the types of O - Pan-Asia and Pan-Asia 2, type A - SEA-97 and Iran-05, type Asia-1 - Shamir, able to build intensive immunity in vaccinated animals against abovementioned types.

All this strains are genetically related to isolated virus for the last 3 years.
# Description of vaccination plan

Table 1. Information on the use of vaccine for the period of 2014-2016.

<table>
<thead>
<tr>
<th>Name of zone</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thousands of doses for cattle</td>
<td>Doses for small ruminants</td>
<td>Thousands of doses for cattle</td>
</tr>
<tr>
<td>Zone 1</td>
<td>2024.1</td>
<td>7962.1</td>
<td>1889.4</td>
</tr>
<tr>
<td>(Almaty region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone 2</td>
<td>1374.6</td>
<td>4142.5</td>
<td>1880.7</td>
</tr>
<tr>
<td>(East Kazakhstan region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone 3</td>
<td>3252.6</td>
<td>16850.1</td>
<td>3468.6</td>
</tr>
<tr>
<td>(Zhambyl, Kyzylorda, South Kazakhstan region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>6651.3</td>
<td>28954.7</td>
<td>7238.8</td>
</tr>
</tbody>
</table>
Table 2. Results of serological surveillance by ELISA on antibody titre after vaccination in 2015

| Name of the zone | Cattle, small ruminants, pigs | | | | | |
|------------------|-------------------------------|---|---|---|---|---|---|
|                  | Number of studied | Results | Results in % | | |
|                  |                 | A | O | Asia-1 | A | O | Asia-1 |
| Zone 1 (Almaty region) | | | | | | |
| up to 12 months | 3638 | 3413 | 3417 | 3408 | 94 | 93,6 | 94 |
| from 12 to 24 months | 3742 | 3584 | 3601 | 3585 | 93 | 95 | 93,3 |
| older than 24 months | 37881 | 34457 | 34253 | 34041 | 91 | 91,3 | 91 |
| Zone 2 (East Kazakhstan region) | | | | | | |
| up to 12 months | 3386 | 3109 | 3058 | 3067 | 91,3 | 90,4 | 90,4 |
| from 12 to 24 months | 6014 | 5529 | 5573 | 5498 | 91 | 90,5 | 90,6 |
| older than 24 months | 35911 | 30850 | 30619 | 30188 | 86,6 | 84,7 | 84,2 |
| Zone 3 (Zhambyl, Kyrgyzstan, South Kazakhstan region) | | | | | | |
| up to 12 months | 2118 | 2068 | 2035 | 2055 | 93,7 | 95,3 | 94,7 |
| from 12 to 24 months | 6971 | 3998 | 3965 | 3971 | 94 | 96 | 96,4 |
| older than 24 months | 93427 | 90500 | 89650 | 90128 | 96 | 95,2 | 94,6 |
Pic. 2 Control on the borders between FMD free zones with vaccination
Serological surveillance

FMD serological surveillance based on the identification of antibodies to NSP is carried annually with the aim of no virus transmission in accordance with the Chapter 1.4 of the OIE Code.

1. Surveillance was developed by the method of random selection of cattle, SR, pigs herds for coverage of the whole territory of zones (in accordance with subparagraph 1) point a) Paragraph 1 of the Chapter 1.4.4 OIE Terrestrial Code, the simple method of random selection was used). Random selection was used on the whole territory of all 3 zones by the random selection of village, herd in selected villages and animals in different herds.

2. Surveillance was developed for coverage cattle herds with the high risk, where two methods of village selection was used: villages, where outbreaks were registered in 2000-2013 (last outbreak) and neighbouring villages; and settlements, situated within the border with Kyrgyzstan and China.
Study design

Strategy design of sampling is based on following:
Number of animals, subjected to testing is calculated with the use of two steps random sampling. Firstly, herds were selected for testing and then animals were selected within the selected herd.
Surveillance is covering young cattle and SR from the age of 3 months up to 1 year.
Unit of selection is a herd as epiunit
### Table 3. Planned number of cattle for testing on NSP in 2015

<table>
<thead>
<tr>
<th>Zones</th>
<th>Total number of animals</th>
<th>Cattle population</th>
<th>Expected young animals</th>
<th>Young animals on the time of sampling</th>
<th>Proportion of studied young cattle</th>
<th>Number of tested animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1 (Almaty region)</td>
<td>897 002</td>
<td>456 716</td>
<td>306 000</td>
<td>306 000</td>
<td>1%</td>
<td>3 060</td>
</tr>
<tr>
<td>Zone 2 (East Kazakhstan region)</td>
<td>843 389</td>
<td>310 444</td>
<td>251 460</td>
<td>208 000</td>
<td>1%</td>
<td>2 080</td>
</tr>
<tr>
<td>Zone 3 (Zhambyl, Kyzylorda, South Kazakhstan region)</td>
<td>1 439 607</td>
<td>686 568</td>
<td>556 120</td>
<td>460 000</td>
<td>1%</td>
<td>4 600</td>
</tr>
<tr>
<td>Total</td>
<td>3 179 998</td>
<td>1 453 728</td>
<td>1 173 845</td>
<td>974 000</td>
<td>1%</td>
<td>9 740</td>
</tr>
</tbody>
</table>
Table 4. Total number of livestock, planned for conduction of studies stratified by herds in 2015.

<table>
<thead>
<tr>
<th>Zones</th>
<th>Cattle</th>
<th>Small ruminants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>herds, total number</td>
<td>herds, selected</td>
</tr>
<tr>
<td></td>
<td>herds, total number</td>
<td>herds, selected</td>
</tr>
<tr>
<td>Zone 1 (Almaty region)</td>
<td>14 269</td>
<td>153</td>
</tr>
<tr>
<td>Zone 2 (East Kazakhstan region)</td>
<td>9 373</td>
<td>104</td>
</tr>
<tr>
<td>Zone 3 (Zhambyl, Kyzylorda, South Kazakhstan regions)</td>
<td>30 937</td>
<td>104</td>
</tr>
<tr>
<td>Total</td>
<td>54 579</td>
<td>486</td>
</tr>
<tr>
<td>Zones</td>
<td>Number of animals planned for sampling</td>
<td>Number of sampled animals</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone 1</td>
<td>3 060</td>
<td>3 408</td>
</tr>
<tr>
<td>Zone 2</td>
<td>2 080</td>
<td>2 319</td>
</tr>
<tr>
<td>Zone 3</td>
<td>4 600</td>
<td>5 440</td>
</tr>
<tr>
<td>Total</td>
<td>9 740</td>
<td>11 167</td>
</tr>
</tbody>
</table>
### Table 6. Results of serosurveillance for small ruminants

<table>
<thead>
<tr>
<th>Zones</th>
<th>Number of animals planned for sampling</th>
<th>Number of sampled animals</th>
<th>Number of young animals, negative on NSP after retesting by ELISA</th>
<th>Number of animals, positive for NSP by ELISA</th>
<th>Final results on ELISA and PCR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In all herds</td>
<td></td>
<td>NSP positive herds in screening</td>
<td>Number of animals, positive for NSP by ELISA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All young animals</td>
<td></td>
<td>Among young animals</td>
<td>Among young animals aged 6-12 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Including at the age of 3-6 months</td>
<td></td>
<td>Among young animals aged 3-6 months</td>
<td>Among young animals aged 6-12 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Among young animals aged 6-12 months</td>
<td></td>
<td>Among young animals aged 3-6 months</td>
<td>Among young animals aged 3-6 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Among animals aged 3-6 months</td>
<td></td>
<td>Among animals aged 3-6 months</td>
<td>Among animals aged 3-6 months</td>
<td></td>
</tr>
<tr>
<td>Zone 1</td>
<td>9100</td>
<td>14 047</td>
<td>14 046</td>
<td>773</td>
<td>573</td>
</tr>
<tr>
<td>Zone 2</td>
<td>9100</td>
<td>10 000</td>
<td>9 965</td>
<td>2 939</td>
<td>1 795</td>
</tr>
<tr>
<td>Zone 3</td>
<td>9200</td>
<td>24 982</td>
<td>24 832</td>
<td>14 644</td>
<td>12 284</td>
</tr>
<tr>
<td>Total</td>
<td>27400</td>
<td>49029</td>
<td>48843</td>
<td>18356</td>
<td>14652</td>
</tr>
</tbody>
</table>
Scheme 2.

Algorithm of actions to demonstrate absence of FMDV transmission

1. Screening survey for NSP using ELISA method in the amount of 1% of young animals carried out by the Republican Veterinary Laboratory and National Reference Veterinary Centre.
   - In case of a positive result:
     - Retesting for NSP (survey of samples with two different ELISA test kits) carried out by the National Reference Veterinary Centre (NRVC) and KSRVI.
   - In case of a positive result:
     - Probang sampling of NSP positively reacting animals for RT-PCR testing carried out jointly by NRVC and KSRVI.
     - In case of a negative result:
       - Sampling of all animals of all ages in herds in which an NSP positive animal was found after second test for a reconfirmation NSP test.
     - In case of a positive result:
       - An outbreak is declared in case of confirmation of viral transmission.
   - In case of a negative result:
     - Circulation of virus is excluded.
   - After 30 days:

2. During 10 days:

   - After 30 days:
     - In case of a negative result:
       - Sampling of all animals of all ages in herds in which an NSP positive animal was found after second test for a reconfirmation NSP test.
     - In case of a positive result:
       - An outbreak is declared in case of confirmation of viral transmission.
     - In case of a negative result:
       - Circulation of virus is excluded.
Pic. 3  Clustering analysis among seropositive herds in screening studies in zone 1.

The district map of zone 1 (Almaty) with positives on NSP, tested by ELISA for 2015 (confirmation results in 2015 by PCR, in 2016 by ELISA were negative).
Pic.4 Clustering analysis among seropositive herds in screening studies in zone 2.
• Pic 5. Clustering analysis among seropositive herds in screening studies in zone 3
<table>
<thead>
<tr>
<th>No.</th>
<th>Name of activity</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>KZT million</td>
<td>Euro million</td>
</tr>
<tr>
<td>1.</td>
<td>Diagnosis of diseases of animals</td>
<td>9 082.70</td>
<td>37.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 548.5</td>
<td>38.5</td>
</tr>
<tr>
<td>2.</td>
<td>Conducting anti-epizootic measures</td>
<td>11 050.20</td>
<td>45.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 500</td>
<td>46.5</td>
</tr>
<tr>
<td>3.</td>
<td>Construction, reconstruction veterinary laboratory, biostorage</td>
<td>1 371.30</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>537</td>
<td>4.2</td>
</tr>
<tr>
<td>4.</td>
<td>Antiepizootic activities, elimination of outbreaks of acute and chronic infectious</td>
<td>8 614.60</td>
<td>35.4</td>
</tr>
<tr>
<td></td>
<td>diseases of animals, including:</td>
<td>8 954.2</td>
<td>36.5</td>
</tr>
<tr>
<td></td>
<td>purchase and storage of veterinary drugs</td>
<td>6 321.30</td>
<td>25.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 320.2</td>
<td>25.8</td>
</tr>
<tr>
<td></td>
<td>purchase SI &quot;Republican Antiepizootic Squad&quot;</td>
<td>1 111.50</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 109.2</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td>reimbursement of the cost for withdrawing animals and destruction of sick animals</td>
<td>1 181.80</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 203.5</td>
<td>5</td>
</tr>
<tr>
<td>5.</td>
<td>Material and technical support of &quot;Republican Antiepizootic Squad&quot;</td>
<td>1.8</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>0.02</td>
</tr>
<tr>
<td>6.</td>
<td>Material and technical support of «National Veterinary Reference Centre»</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>Building of new 126 gov.laboratories (additionally to existing 18 regional + 192</td>
<td>6240</td>
<td>31.2</td>
</tr>
<tr>
<td></td>
<td>rayon level gov.lab)</td>
<td>3120</td>
<td>12.5</td>
</tr>
<tr>
<td>8.</td>
<td>Total sum for building of new 126 gov.laboratories: 12000 mln tenge or 74.9 mln</td>
<td>2496</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>EUR</td>
<td>1248</td>
<td>5</td>
</tr>
<tr>
<td>9.</td>
<td>Material and technical support of «Republican Veterinary Laboratory» of 126</td>
<td>1 122.90</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td>veterinary gov.lab 7170 mln tenge or 34.7 mln euro</td>
<td>1 800</td>
<td>6.2</td>
</tr>
<tr>
<td>10.</td>
<td>Organization and Carrying out identification of farm animals</td>
<td>643.8</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>Monitoring, reference laboratory diagnosis and ensuring food safety in veterinary</td>
<td>850.2</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>medicine</td>
<td>9 319.90</td>
<td>38.3</td>
</tr>
<tr>
<td>12.</td>
<td>Material and technical support of the state veterinary organizations</td>
<td>2 356.10</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 255.90</td>
<td>5.9</td>
</tr>
<tr>
<td></td>
<td>TOTAL:</td>
<td>49 237.90</td>
<td>210.01</td>
</tr>
<tr>
<td></td>
<td>For FMD</td>
<td>41 147.60</td>
<td>207.52</td>
</tr>
</tbody>
</table>
Short-term plans

1. Republic of Kazakhstan is developed the control programme on FMD and submitted it to OIE for validation;

2. In September-October 2016 the next OIE PVS mission is planned;

3. In the framework of OIE Twinning education the ongoing work on increasing the quality of education of veterinary experts is carried out;

4. In 2016 FMD simulation training in collaboration with OIE, Pirbright Institute will be organised on the territory of the Republic of Kazakhstan.
Thank you for attention!