Report EUFMD
Team 1

Executive Summary
A foot-and-mouth disease (FMD) outbreak at a smallholder farm on the border of the Koibaitek district and Rongai district in the village Kamonon, Kenya was investigated by a team of 8 veterinarians as part of the EUFMD real-time training course. The team was divided into two groups, a clinical team and an epidemiology team. Some cattle showed clinical signs of FMD, which were confirmed by laboratory test.

Epidemiological information gathered indicated there are many risk factors that could have been the reason for the introduction of the disease to this farm.

After considering different options, the team recommends implementing FMD control programme. A FMD control programme with the objective of significantly reducing economic impact on small holder dairy producers can be carried out cost-effectively.

General Introduction
Kenya is an endemic area for FMD. Serotypes that have been present are serotype O, A, SAT 1 and SAT 2.

The outbreak area is located in the Orynie village, Esageri division of Koibaitek district. Koibatek district comprises the divisions Esageri (15.000 cattle), Eldama Ravine (10.000 cattle), Mumberes (5.000 cattle) and Torongo (5.000 cattle). The district veterinary officer (DVO) Benjamin Kandie is assisted by 25 livestock officers and animal health assistants including support staff. The DVO has one central office and outposts for each division, refrigeration and sampling material is available in the DVO's office. One vehicle is available to cover the district. Farmers in this district are all subsistence farmers; average herd size is 20-30 cattle, with mixed holdings of sheep and goats.

Regular dipping of animals is mandatory by the Animal Cleansing Act; farmers have to bear the costs of 15 KSH / dip / animal. To this effect farmers are organized in local Community Management Committees, to organize the functioning of the 63 dips in the district. Cattle are dipped weekly, with monthly reports on dipping activity being filed to the DVO.

Field visit

Location
The farm that we visit is located at the border of Kaibatic district and Rongai district in the village Kamonon. The name of the farm is kapsatek Sasurwa owned by Toroitich Koima.

Farm
The farm produces several products: cow milk, goat and sheep meat; the farmer also grows beans and maize for own use, but if there is a surplus he also sells it. There are 9 cattle, 4 sheep and 1 goat at the farm. Beside that he owns 3 dogs that are walking around on his yard. There are no bio security measures taken.

Clinical findings:

7 animals were examined individually; 2 did not show lesions 5 animals showed lesions typical of FMD. The symptoms exposed included salivation, nasal discharge, reduced appetite, milk drop and hyperthermia. Age of lesions ranged between 2 and 7 days. No foot lesions were detectable.

The lesions detected varied between acute ulceration of the lingual and oral epithelium, to fibrin covered lesions up to lesions in the healing progress.

Cow, 1 – 2 days old lesion

Bull calf, 7 – 10 days old lesion (the oldest)

Laboratory results

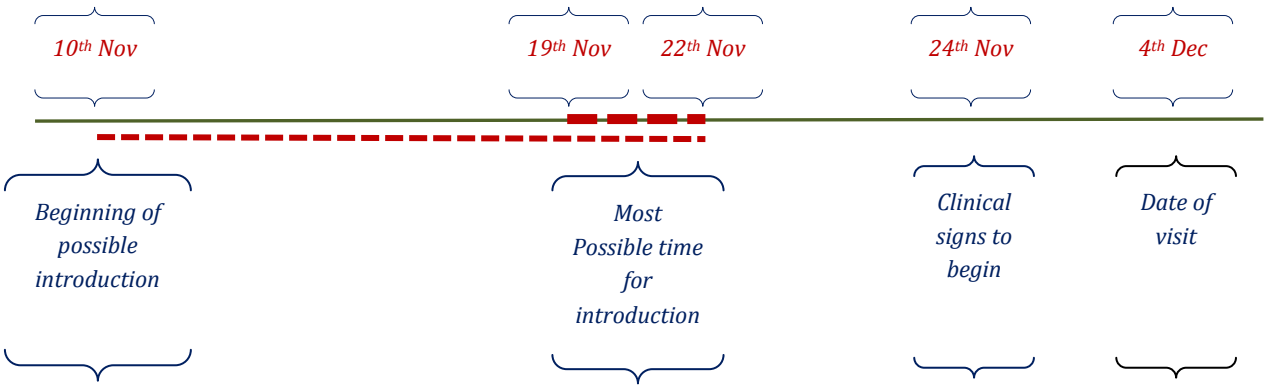
Blood samples were taken from 6 animals and sent for laboratory for confirmation. From 2 animals epithelium could be sampled. One of the epithelium was probed using the SVANODIP FMDV-Ag test. The test result was positive for pan-FMD and negative for the SAT2 FMD.

Laboratory tests carried out in the local laboratory identified the virus belonging to serotype A.

The upper SVANODIP FMDV-Ag test shows a positive result for FMD virus.
The lower SVANODIP FMDV-Ag test was negative for serotype SAT2.

Epidemiological findings

The oldest lesions that where found were 7 to 10 days old.



- The common dip of the area is located on this farm.

  Approx. 240 animals from 40 different farms visit this dip weekly.

- The working staff on this farm is only family and people from the village. Other workers from outside where visiting one month ago. The veterinarian visited two month ago.

- Watering takes place at a common dam outside the farm.

- The feeding takes place at the farm. Only when there is draught he purchases feed from outside. This did not occur in the last two months.

- The farmer hires the neighbour's bull for breading (did not happen the last two month)

- Equipment i.e. ploughing machine and sprayer are in common use.

- Dead animals are being buried in the farm ground. This has not occurred in the last year.

- Sick animals are not separated from healthy once.

- The animals have not been vaccinated for the last eight months.

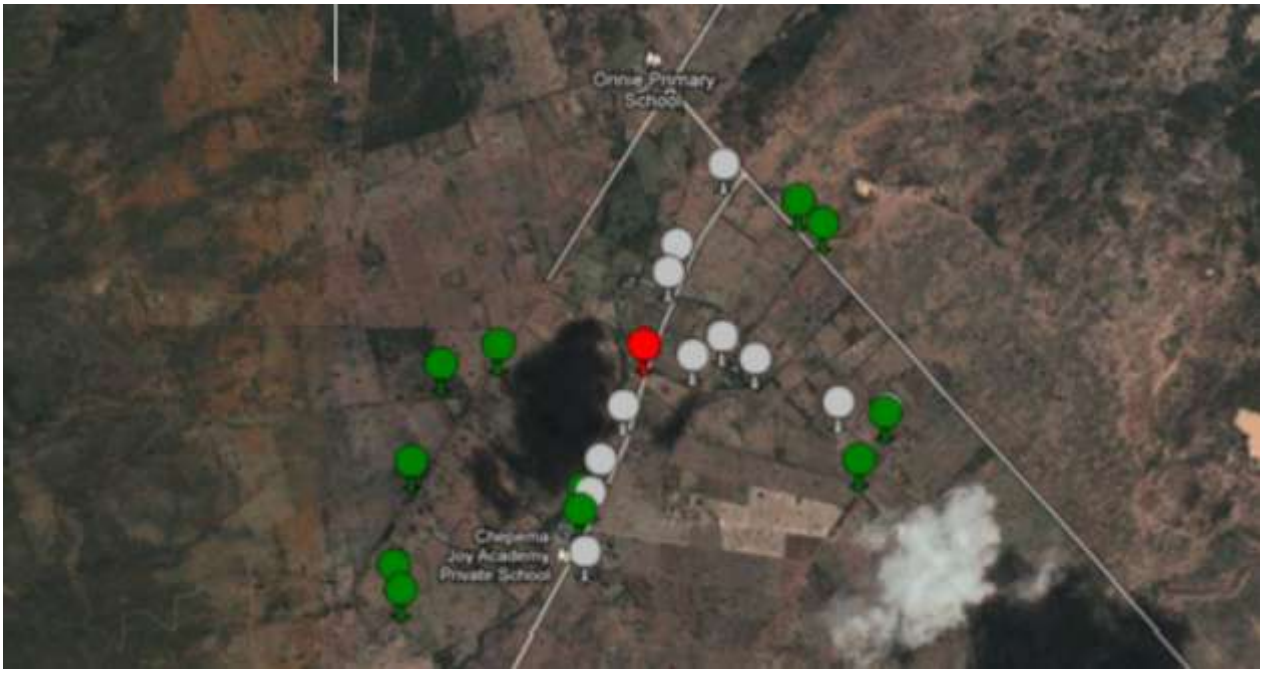
- Two bulls were purchased within the possible incubation period. They were bought in the Njoro district. One of the bulls did not have any clinical signs at all and the other was the one with the oldest lesions on the farm.

- The milk is collected at the farm with a tractor that collects milk from almost all farms in the area.

Survey Findings

Information on the farms within the vicinity of Farm 1 was collected and analysed using Epicollect application to identify local risk factors in order to understand the pattern of recent FMD outbreak.

25 farms were visited and all farmers were asked questions according to a pre-prepared questionnaire.



Survey questions

Below each question is the variable code.

1. Farmer name
name

2. How many cows do you have?
cows

3. How many sheep do you have?
sheep

4. How many goats do you have?
goats

5. Have you had any cases of FMD in your household in the last 2 months?
fmd

6. Describe the clinical signs seen.
signs

Drooling
Milk drop
Lameness
Reduced appetite

High temperature
Lesions in mouth
Lesions on feet
Lesions on teats

7. Enter the other clinical signs seen
other_signs

8. Have the animals been vaccinated for FMD in the eight months?
vaccine

9. If yes, when were they last vaccinated? (MM/yyyy)
vaccinated

10. Have you introduced any new cows/sheep/goats in the last two months?
new_animals

11. What grazing systems have you used in the last two months?
grazing

Zero grazing
Fenced grazing
Communal grazing
Other

12. What other grazing system did you use?
other_grazing

13. Have you used the local dip in the last two months?
dip

14. Do animals from other households use the same water supply as yours?
water

15. Do your animals leave the household compound to access water?
water_leave

16. Which of these breeding methods have you used in the last two months?
breeding_method

No breeding
Artificial insemination
Own bull
Hired bull
Bull at grazing

17. Have you lent your bull out in the last two months?
loan_bull

Findings

Each farm was having one or more risk factors that could be related to the outbreak of FMD.

- Common Grazing /Watering / Dipping / use of equipment
- Shared bulls
- Milk collection

11 out of 24 farmers said that they don't have clinical signs of the disease. What we found is that the question was not specific enough, i.e. on one farm we noticed that the farmer said that he did not have FMD in the last two month but had clinical signs now. It is important that your question is clear.

Conclusions

FMD is an endemic disease in this area and the farming practises (grazing, watering, breeding and dipping) are such that they include many risk factors that make it hard to control the spread of the disease.

Nevertheless, a control programme should be carried out in order to reduce the disease incidence. Disease control programme with the objective of reducing the economical impact of the disease can

be carried out in a cost-effective way with the already available humane and technical resources. Local community committees responsible for the management of the local dips provide a good opportunity to include farmers support for a vaccination program.

Funding for the vaccination programme must come from farmer's financial contribution. As FMD is not considered as having a significant economic impact on milk production, farmers have been reluctant to vaccinate regularly. The efficacy of the control programme by vaccination relies mostly on the regularity and the coverage of the vaccination. To obtain this effect an information campaign should be started, raising farmers awareness about the economic impact and the potential financial benefit they can get from investing in a vaccination programme.

Recommendations

After considering the information gathered and assessing the risk factors associated with FMD virus introduction for a small-holder in this area, the team's recommendations are:

- Raise awareness of an outbreak in the districts (so farmers can start taking bio security measures) i.e. SMS system should be implemented;
- In an outbreak period encourage farmers to apply **all** bio security measures (NOT to use common grazing/water/dip); an option would be segregation of animals of infected and uninfected farms. Farmers should bring water and feed into the farm. Instead of dipping the animals they should be sprayed at farm;
- Vaccination
    - regular vaccination (every 6 months) with a quadrivalent vaccine matched to most likely circulating serotypes
    - vaccinate during an outbreak all animals in the surrounding of 3 km radius of an infected premises.
- Make an operation manual in collaboration with local veterinary authorities;
- Information and education of farmers on economic impact of FMD;
- Ban on movement of live animals;
- No vehicle should enter nor leave the farm. Collection and delivering of products should take place at the entrance, near the road of the farm.