

RIFT VALLEY FEVER IN SWAZILAND

A REPORT OF THE 2008 SUSPECTED
OUTBREAK

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What is Rift Valley Fever?

- First described in 1930 in the Rift Valley of Kenya
- Caused by a virus (Genus *Phlebovirus*)
- Signs - high abortion rates in ruminants (cattle, sheep, goats) and high mortality in young.
- Transmission in animals: blood sucking mosquitoes of many genera [*Aedes* (resevoir), *Anopheles*, *Culex*, and others]
- Direct transmission to humans-handling infected animals and meat

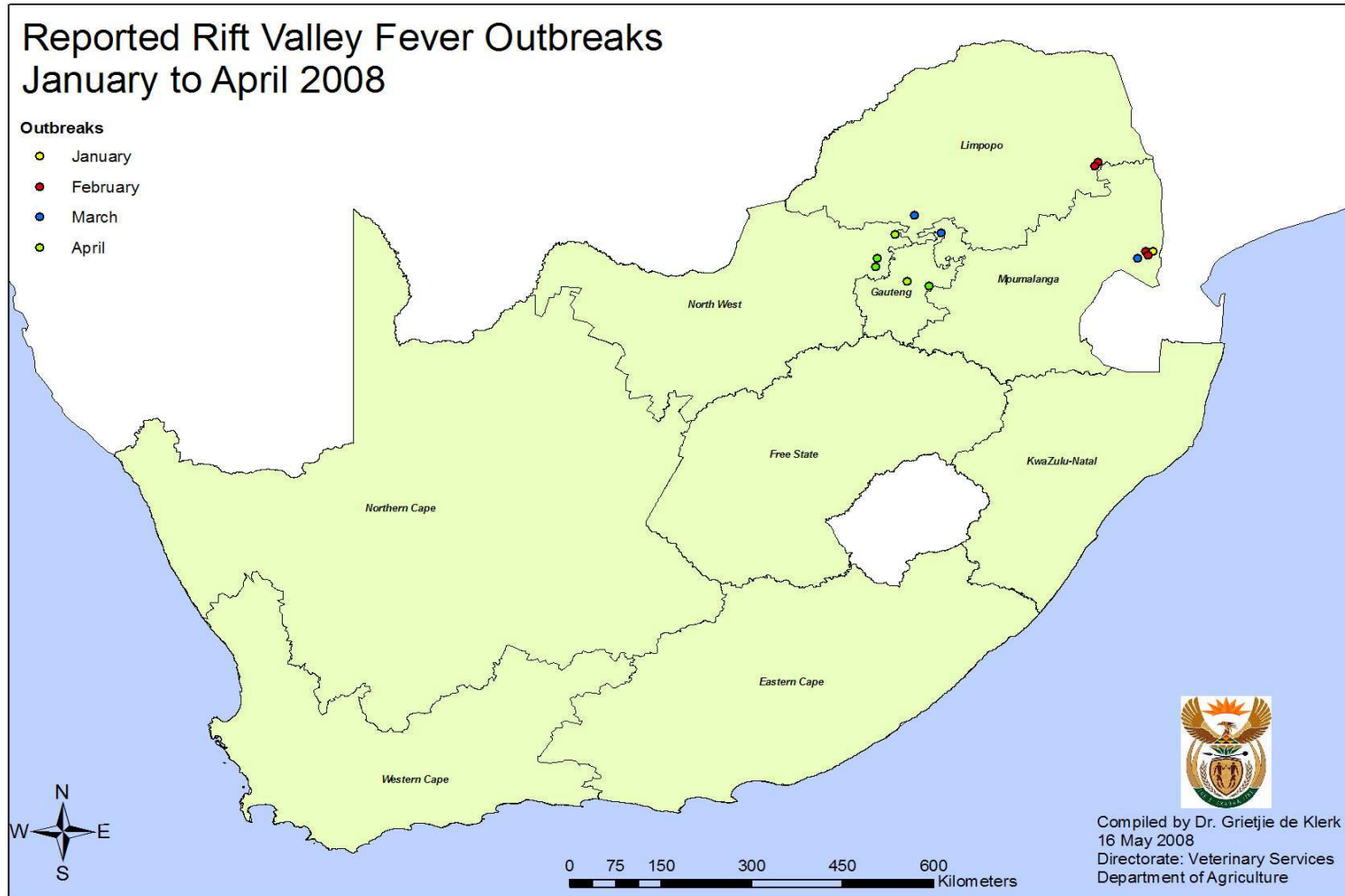


RVF in South Africa 2008

Reported Rift Valley Fever Outbreaks January to April 2008

Outbreaks

- January
- February
- March
- April



Legislation

- RVF is a specified disease according to the Stock Diseases Regulations (under section 3 of the Act).
- Minister may make disease regulations as may be necessary to prevent the introduction or spread of diseases amongst livestock and other animals.



Legislation

- Some of the main provisions of the regulations are:
 - Outbreak notification,
 - Movement restriction incl. imports/exports of animals and their products,
 - Inspection of stock,
 - Infection control procedures (detention, isolation, testing, inoculation, etc),

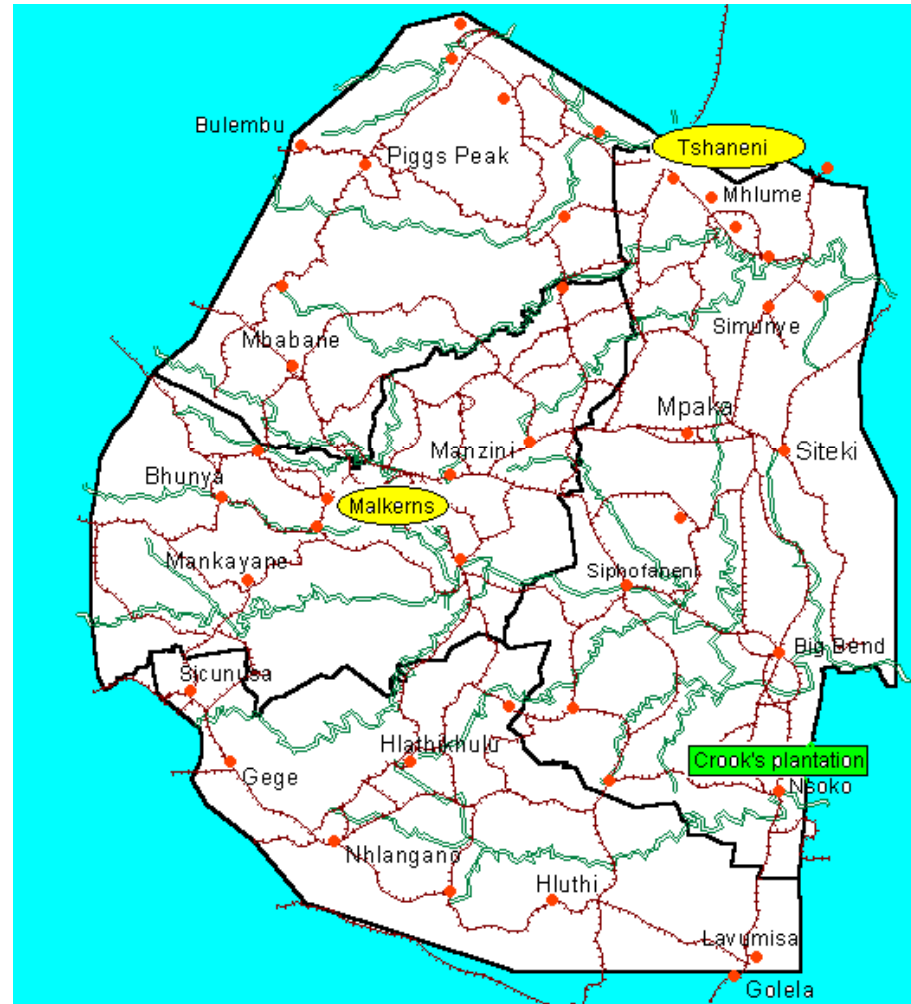


Legislation

- Slaughter of stock (+ or - compensation),
- Restriction and prohibition of animal slaughter, Slaughter of stock (+ or - compensation),
- Restriction and prohibition of animal slaughter,
- Control of slaughter places,
- Carcase disposal procedure,
- Etc.



Swaziland



Malkerns case

- Dairy farm of 170 animals
- Farmer had experienced 6 abortions (start dates 1st or 2nd wk of June 2008)
- Farmer advised to vaccinate herd – external advice during simultaneous outbreak in SA
- 170 animals were vaccinated (live or killed vaccine ??)
- Abortions continued –were investigated by the dept –RVF was suspected.



Malkerns case cont

- Submitted 2 aborted fetuses at CVL for PM and virus detection.
- PM findings RVF suggestive
- Liver samples were RT-PCR +ve for presence of RNA to RVFV.
- Liver Immunoperoxidase staining +ve for RVFV antigen
- Concluded as possible outbreak and reported to OIE on 28/07/08



Malkerns case cont

- At time of immediate notification report source and vaccine used was unknown.
- On 05/08/08 follow-up report to OIE submitted with the following information.
- New information was that inactivated vaccine had been used on aborted animals.

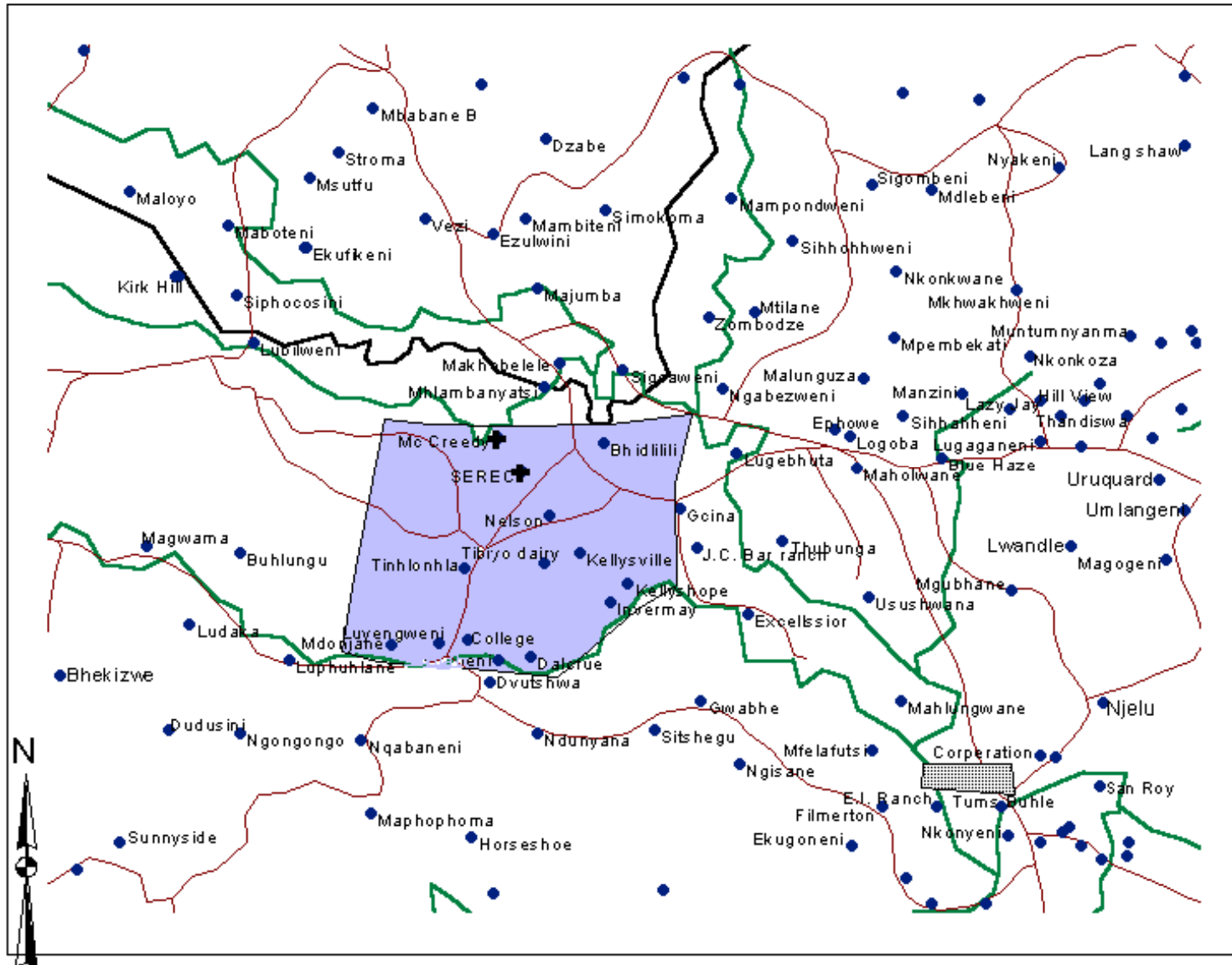


Immediate action - Malkerns outbreak?

- A 10 to 15 km quarantine area declared around farm
- Area geographically defined by Great Usuthu river in south, Mdonjane area in west, Mhlambanyatsi river on north, and Nokwane hills on east.



Map showing diptanks adjacent to the RVF affected diptank (Serec)



Tshaneni findings

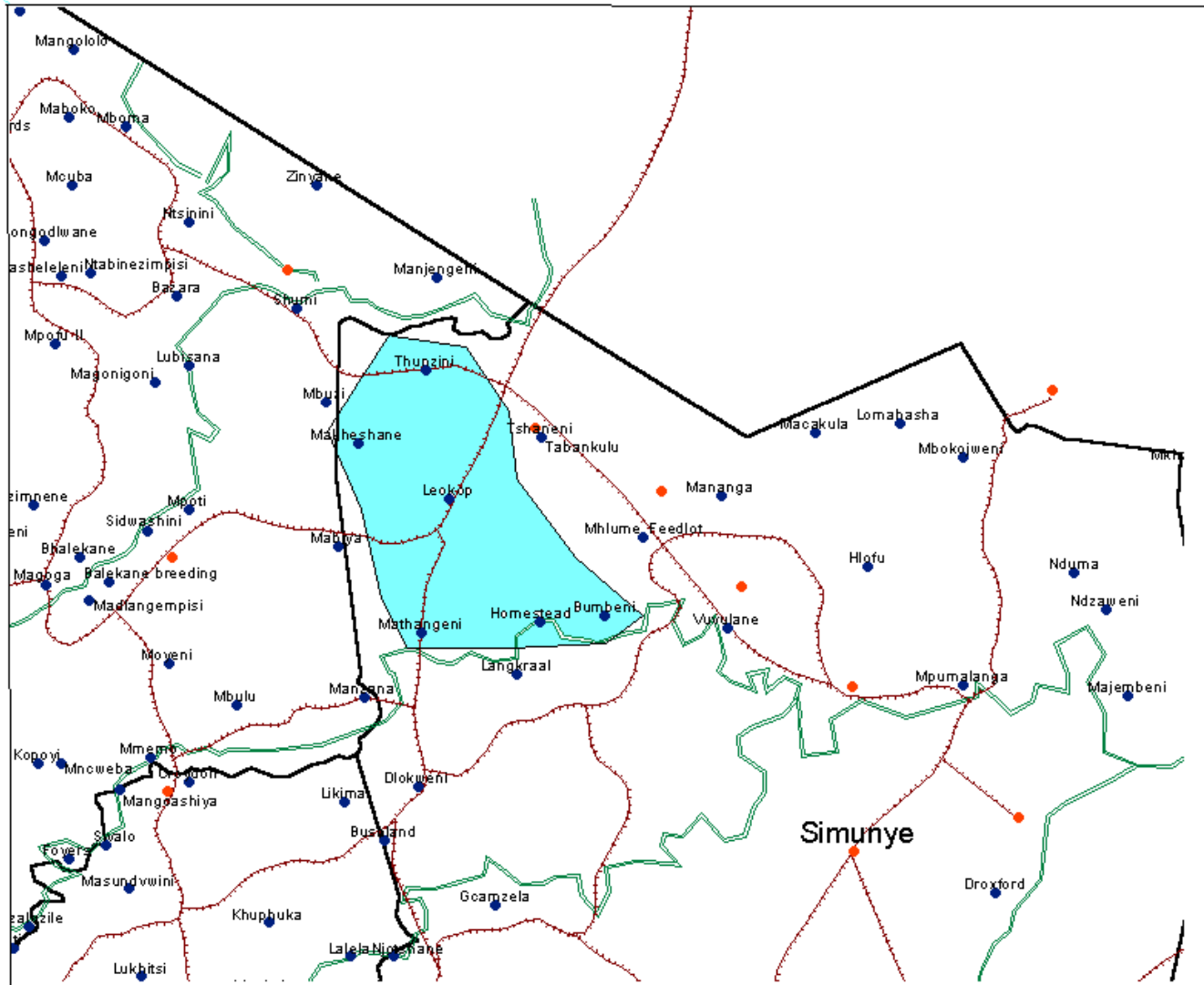
- IYSIS farm advised to vaccinate following SA outbreak
- Low calving and weaning % problems
- Vaccinated March 08 using live vaccine
- Tested 4 (unvaccinated?) animals where 1 reacted strong +ve
- Tested 30 more animals (vaccinates and nonvaccinates)
- 2 out of 23 non vaccinates were weak +ve

Tshaneni findings cont

- 3 out of 7 vaccinates weakly +ve
- No evidence of clinical disease in farm
- Logical conclusion at that time:
 - IYSIS is free of RVF natural infection
 - Serological reactors were probably all vaccinated
 - Possibility of live vaccine virus passed from one animal to another



IYSIS Area



Issues pertaining to vaccine use

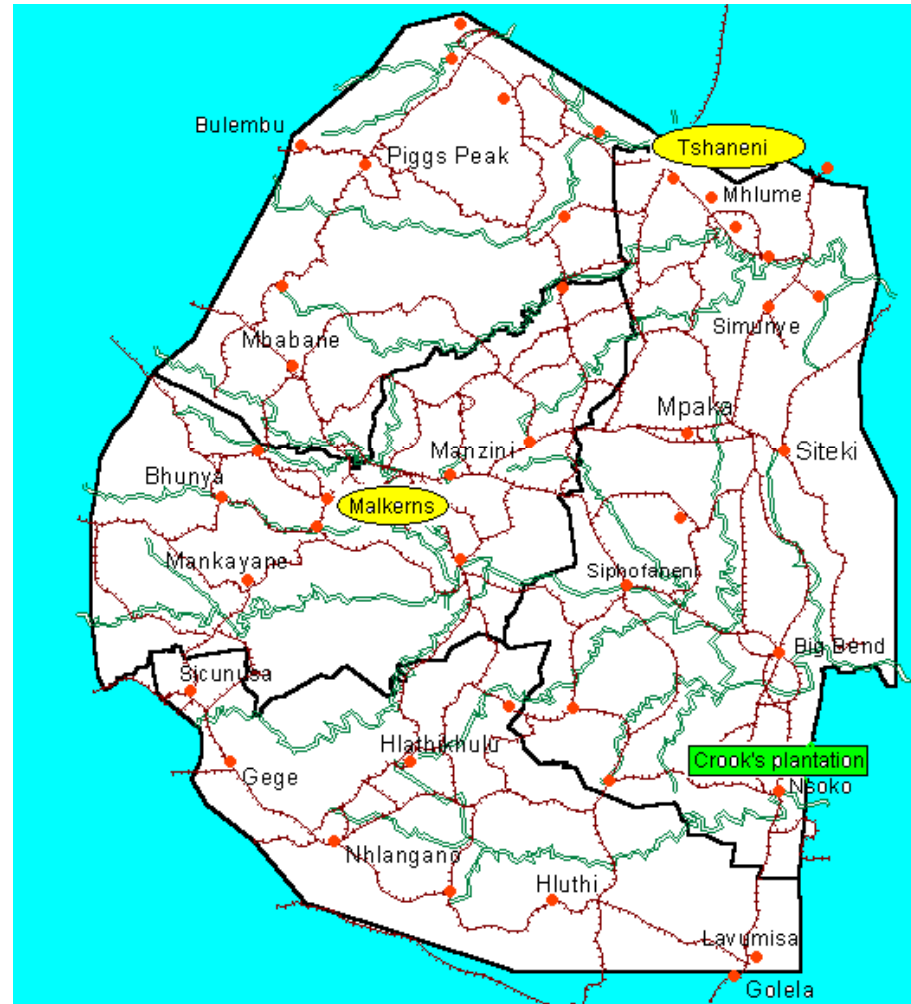
- In both cases farmers advised by external vets - Not informed of national herd health status
- Suspicion of the disease and subsequent decision to vaccinate not reported to local vet authorities
- In one case external vet brought vaccine
- In other case a local supplier imported vaccine without proper authorisation

Issues pertaining to vaccine use (cont)

- Serology tests not able to differentiate vaccinated from naturally infected animals
- Live RVF vaccine causes clinical symptoms particularly abortions
- Live vaccine suspected to spread within herd by mosquitoes and biting flies



Swaziland



Questions that needed addressing

- Does Swaziland have natural RVF infection or is it reaction to live vaccines?
- What is the source of infection?
- Is the main vector (*Aedes*) present and active in the affected areas at this time of year?
- Why is the outbreak subtle?
- Extent of human infection in suspect outbreak areas?
- Investigations and analysis carried out with the assistance of and in collaboration with CDC-Kenya team



Animal health response

- Clinical surveillance (case search)
- Serological surveillance in outbreak area and suspicious farms/diptanks
- Strict quarantine measures in place
- Vaccination generally prohibited
- Although vaccination was an option in outbreak area, it was however decided against



Public health response

- Planned studies to establish vector ecology (Malaria unit)
- Establish exposure of people at risk (serological survey)
- Public education (safe handling of food-milk, meat, etc)
- Rapid assessment of public health facilities
- Development of case management plan
- Laboratory testing plan
- Development of surveillance plan (humans)



Facts about Swaziland outbreak

- Despite some serological reactions in animals, RVF virus could not be isolated in all samples taken (*courtesy of CDC-Kenya*)
- **Disease** showed a mild clinical picture
- High risk farm workers tested negative to both IgG and IgM (*courtesy of CDC-Kenya*)
- Suspicious farms all had vaccination history

Conclusion

- There was no active RVF infection in Swaziland
- Quarantine lifted **August 2009**
- Subsequent and ongoing surveillance have not revealed suspicious reports
- > 80% samples from abortion cases in ruminants +ve for Brucellosis (*B.abortus*)



Acknowledgements

Swaziland would like to thank CDC-Kenya for the assistance provided in investigating the suspected RVF outbreak

