

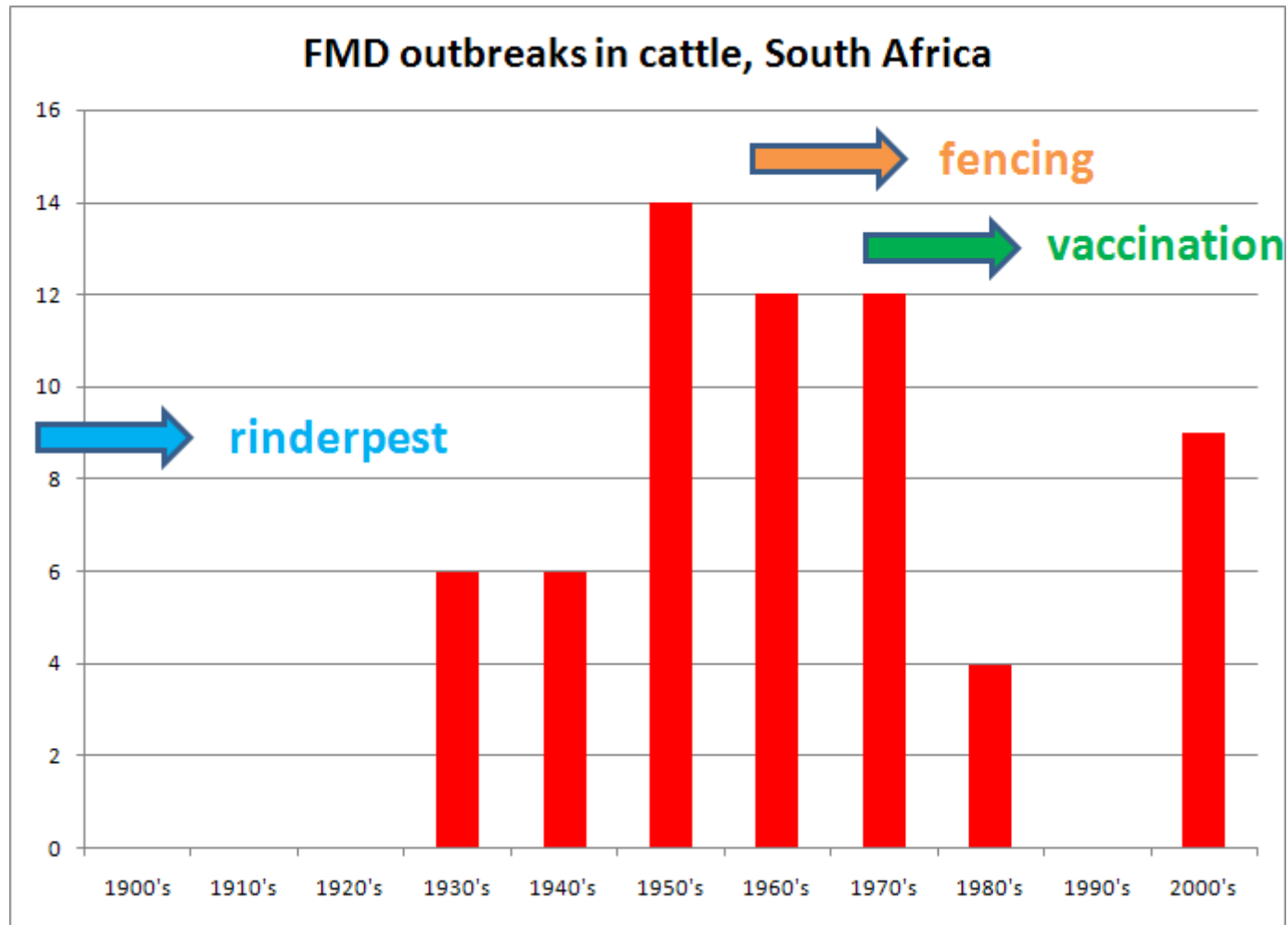


**RECENT
FOOT-AND-MOUTH DISEASE
OUTBREAKS IN MPUMALANGA**

Dr Ben J A du Plessis
Deputy Director, Animal Health Services,
Ehlanzeni South district, Mpumalanga province
Global Foot-and-Mouth Disease Research Alliance workshop
17 April 2012, Hazyview

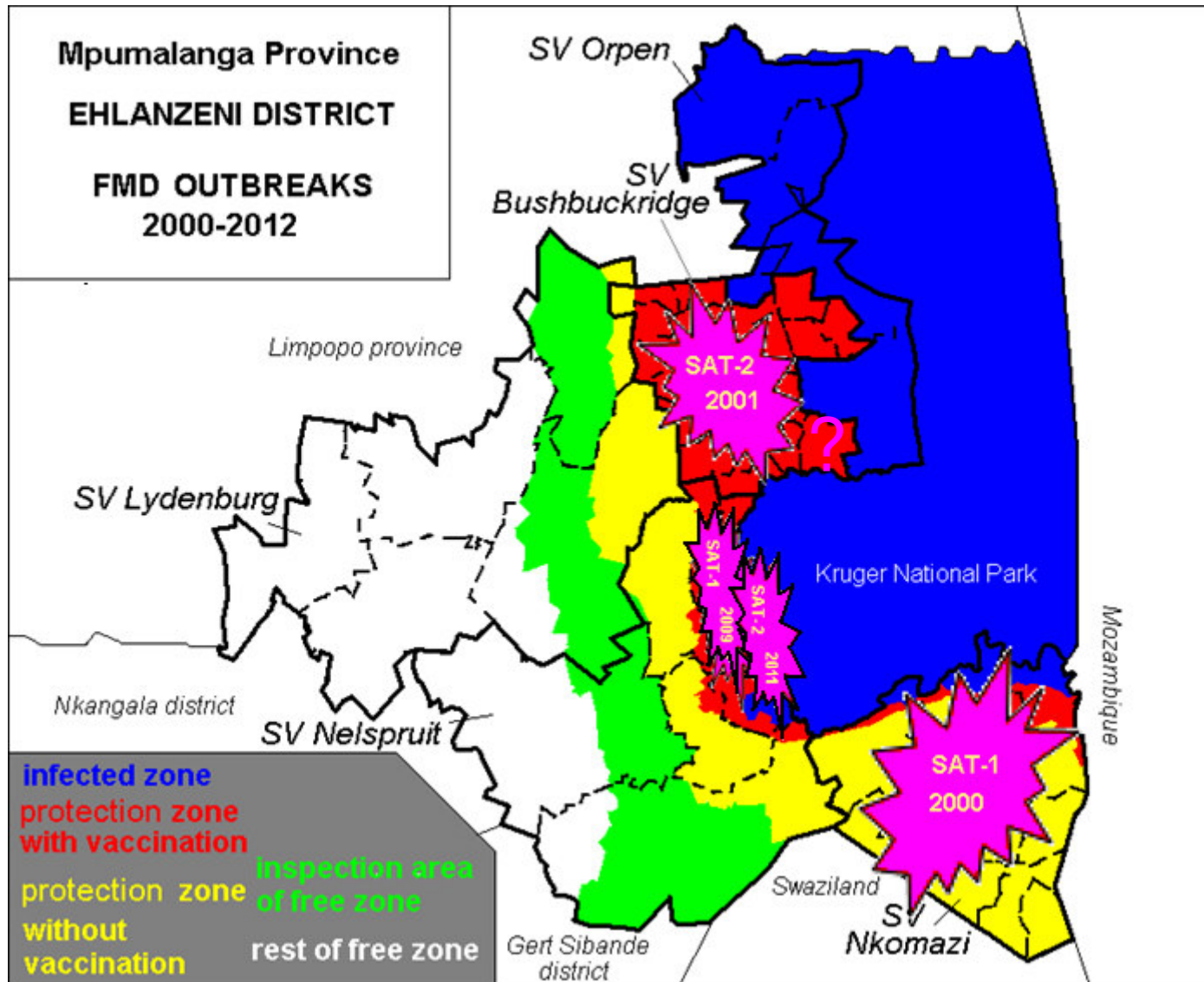
FMD IN MPUMALANGA

Historical outbreaks in cattle



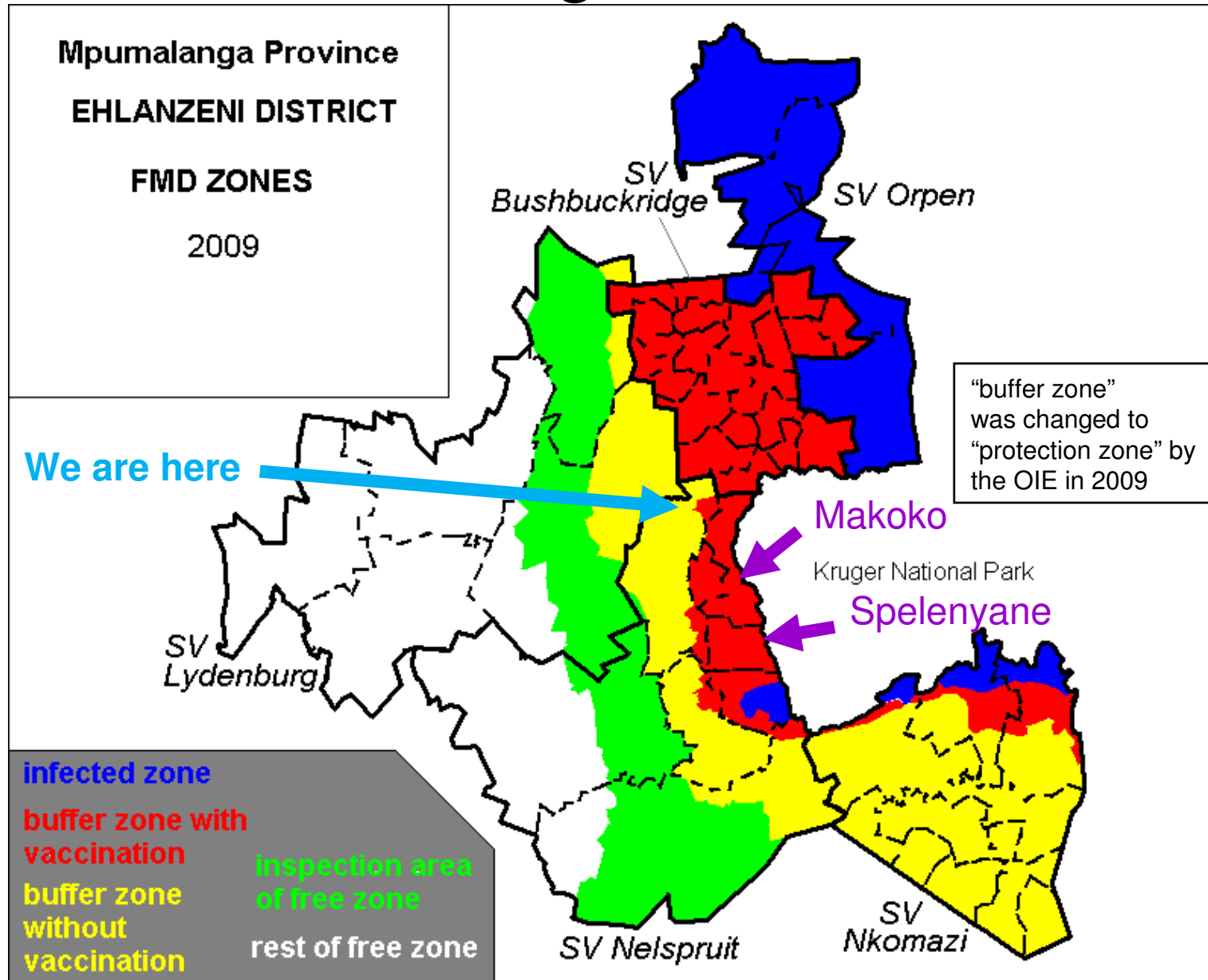
FMD IN MPUMALANGA

Recent epidemics in cattle



FMD IN MPUMALANGA

Background



FMD IN MPUMALANGA

Predisposing factors



FMD IN MPUMALANGA

Predisposing factors



FMD IN MPUMALANGA

Predisposing factors

Veterinary
fence
condition



FMD IN MPUMALANGA

Predisposing factors

Veterinary
fence
condition



FMD IN MPUMALANGA

Predisposing factors

Veterinary
fence
condition



Image © 2012 GeoEye
© 2012 Google
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Google earth

Imagery Date: 5/26/2010 2004

25°21'33.41" S 31°16'30.89" E elev 431 m

Eye alt 1.60 km

FMD IN MPUMALANGA

Predisposing factors

Veterinary
fence
condition



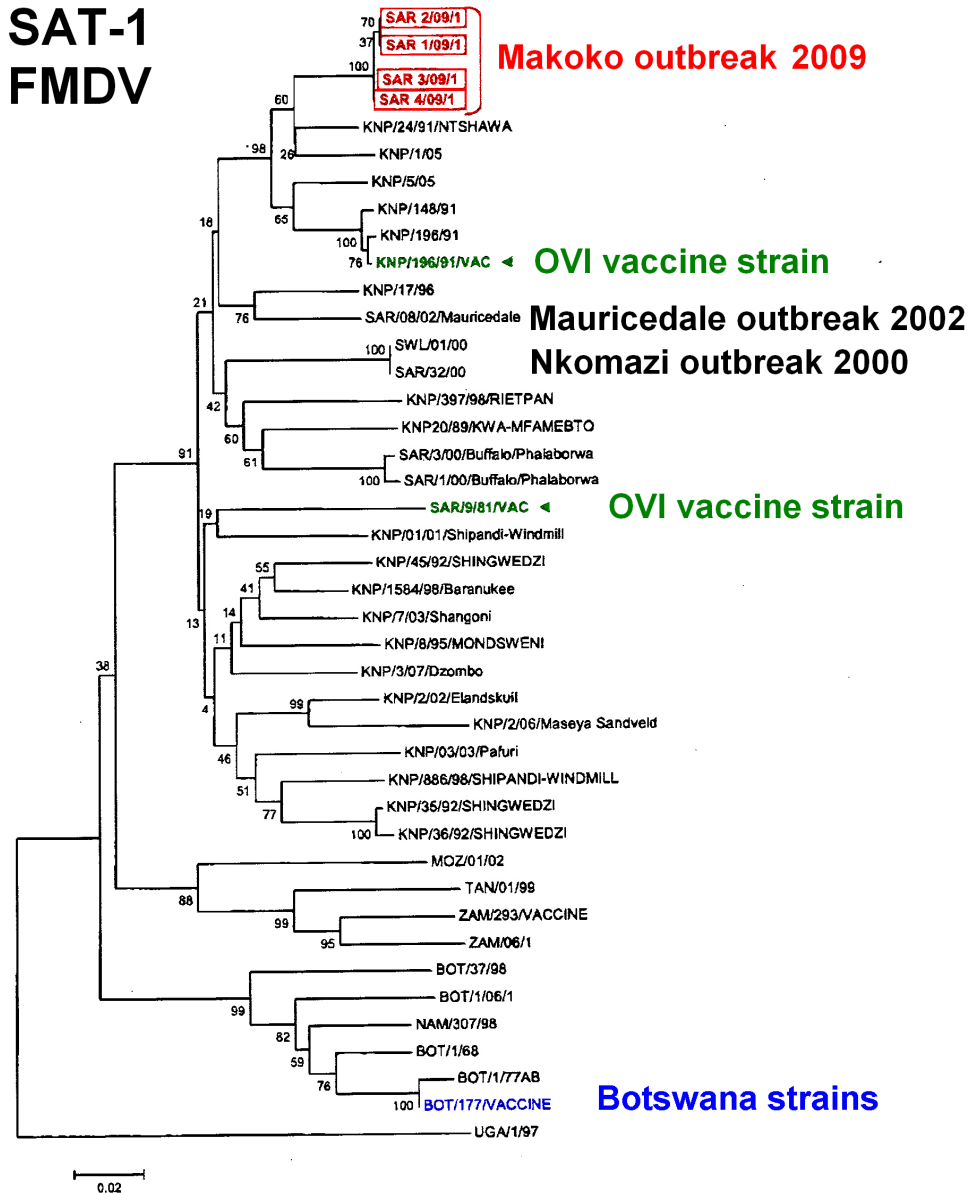
FMD IN MPUMALANGA

Predisposing factors

Vaccine
protectivity



SAT-1
FMDV



FMD IN MPUMALANGA

Predisposing factors

Vaccine
protectivity

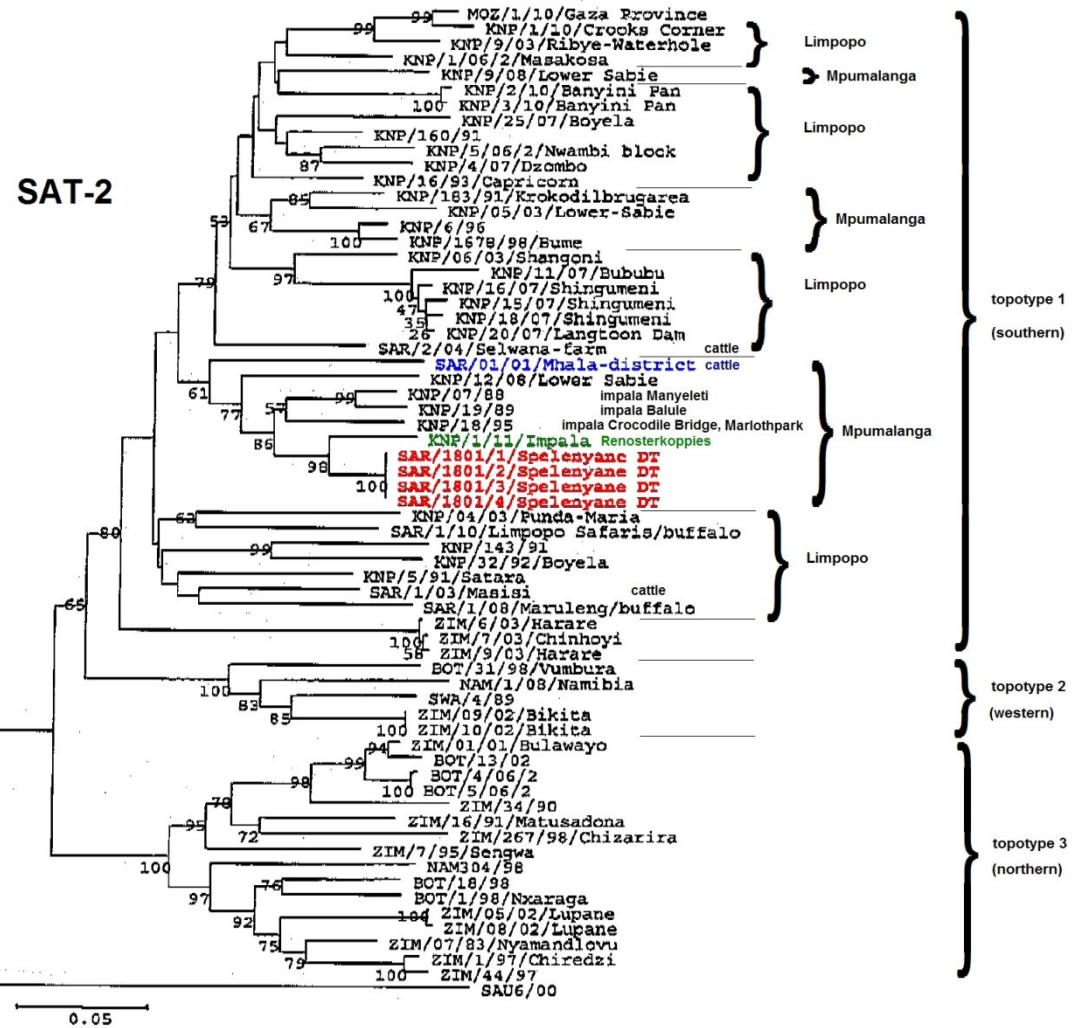
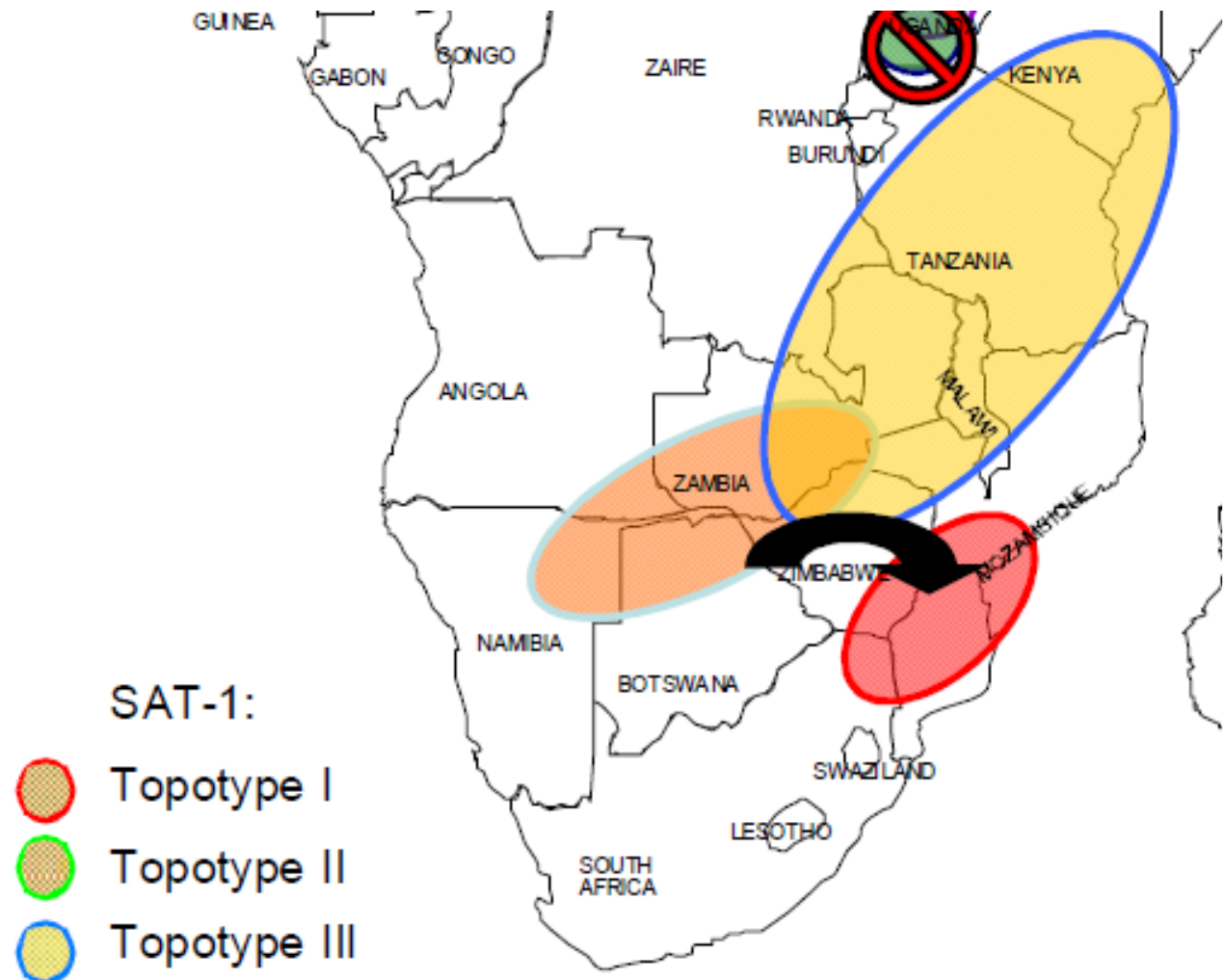


Fig 1. Neighbor joining tree depicting the SAT 2 outbreak strain characterised from cattle at the Spelenyane Diptank, Mpumalanga Province (indicated in bold). The current outbreak strains clusters with a SAT 2 strain characterised from impala at Renosterkoppies, Kruger National Park in January 2011. Based on partial ID sequencing, the current outbreak strain differs by 6% from the strain isolated and characterised from impala in the KNP.

FMD IN MPUMALANGA

Predisposing factors

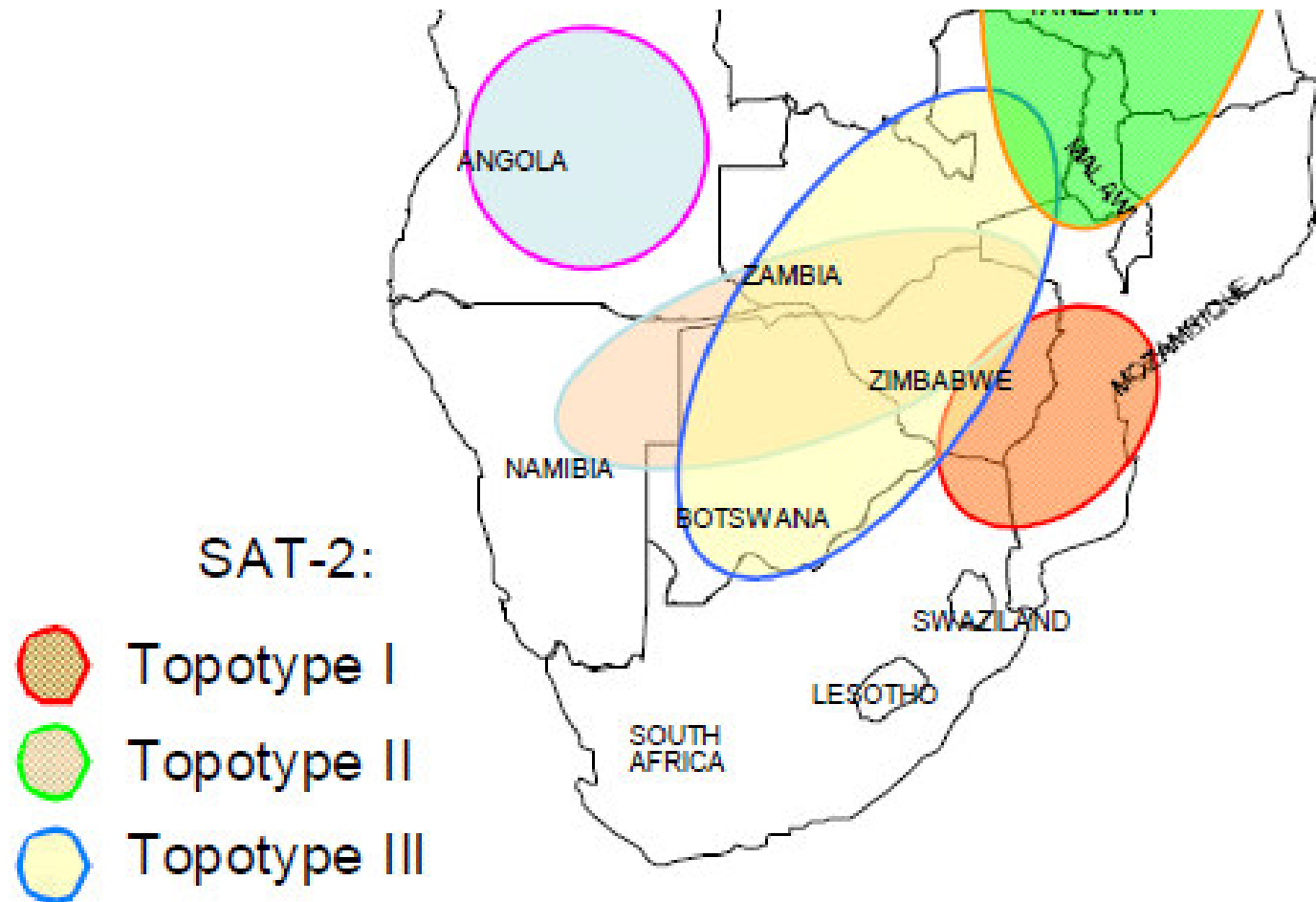
Vaccine
protectivity



FMD IN MPUMALANGA

Predisposing factors

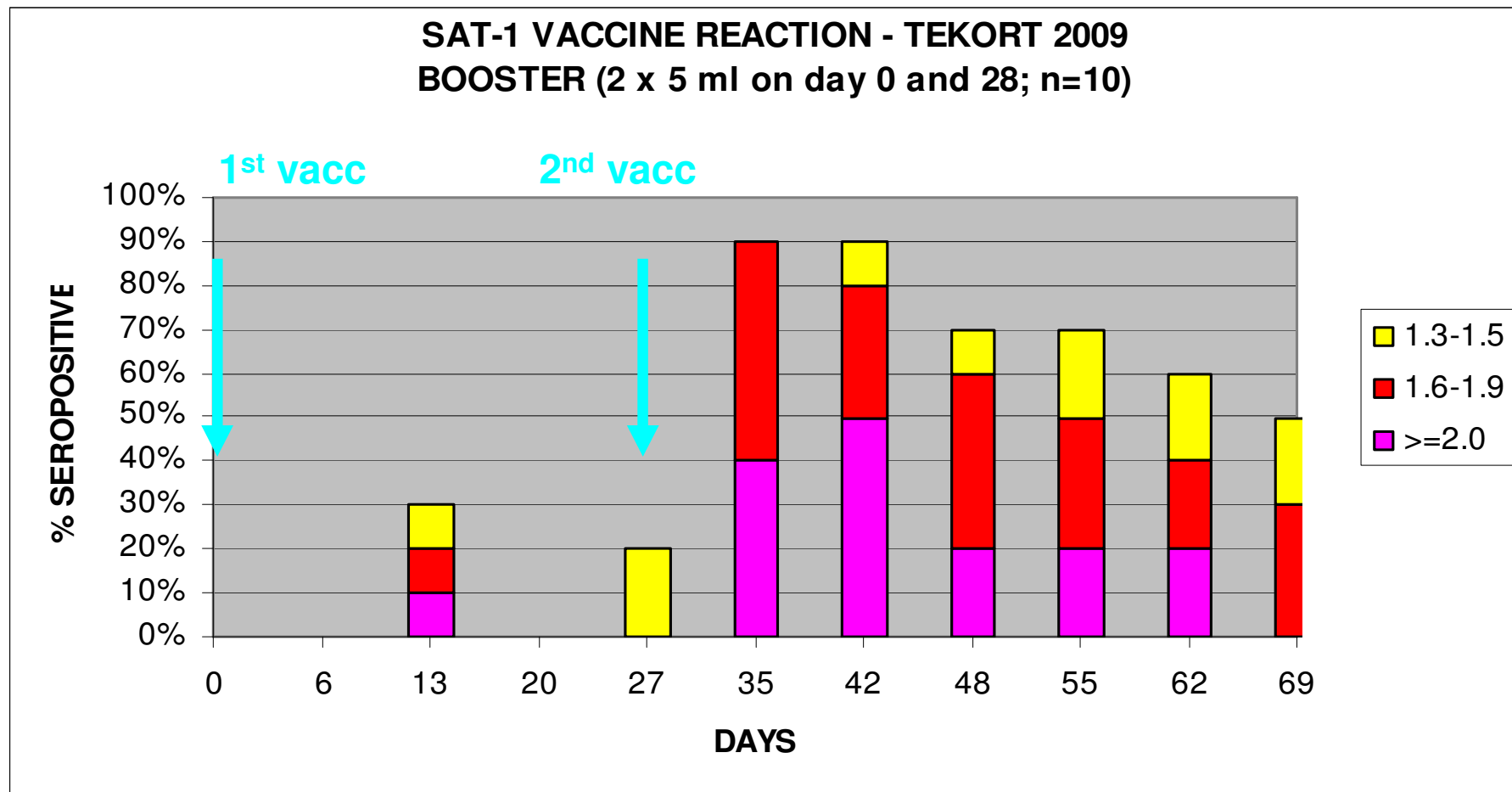
Vaccine
protectivity



FMD IN MPUMALANGA

Predisposing factors

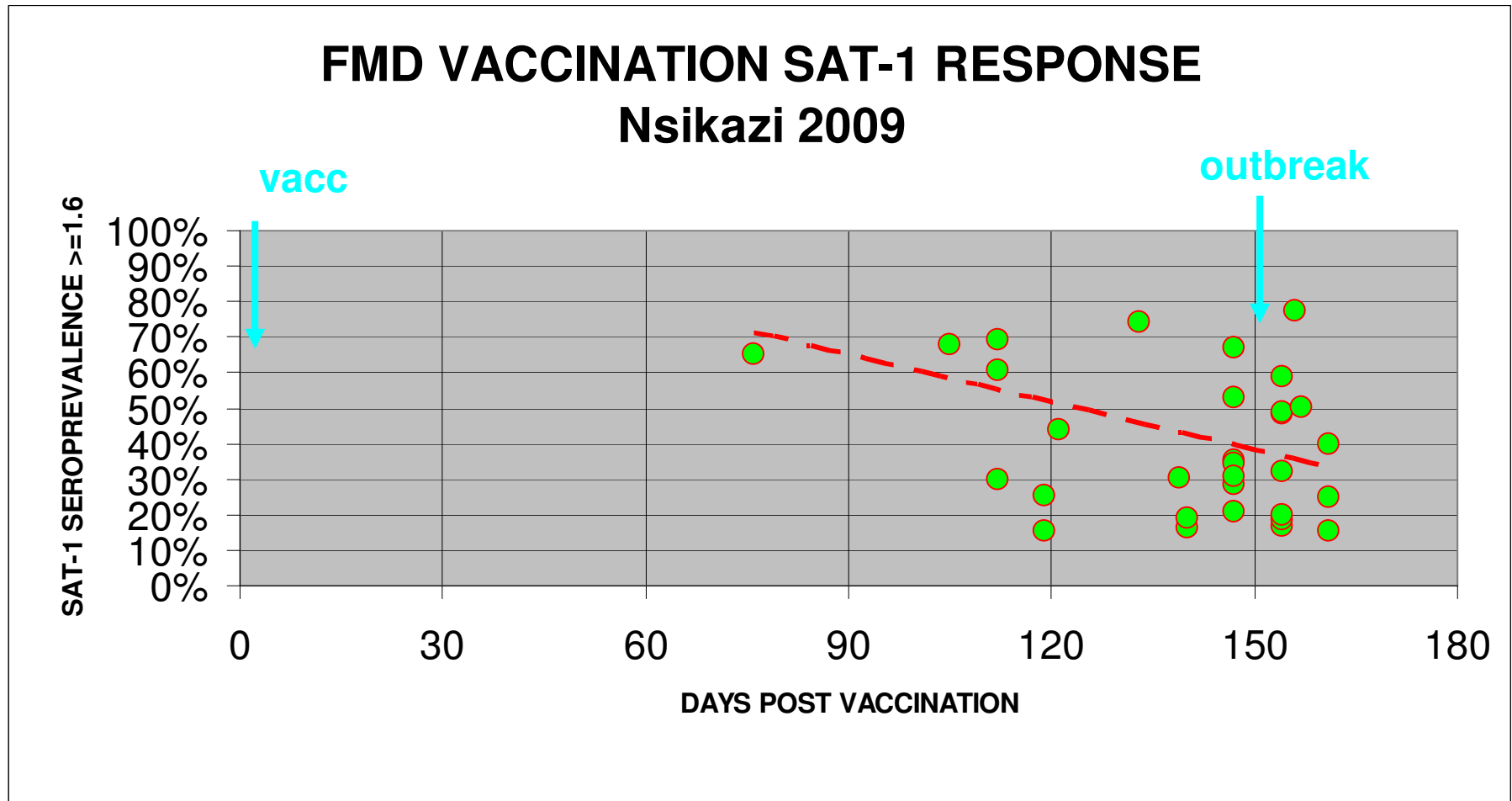
Vaccine
protectivity



FMD IN MPUMALANGA

Predisposing factors

Vaccine
protectivity

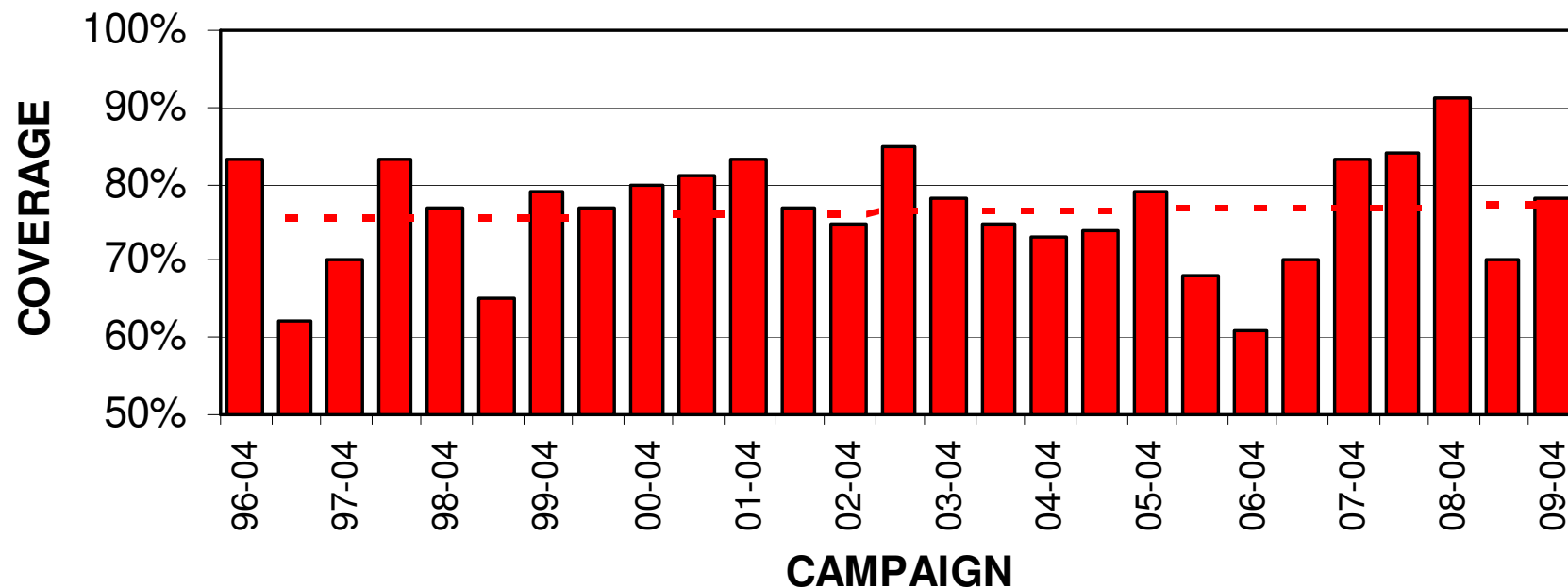


FMD IN MPUMALANGA

Predisposing factors

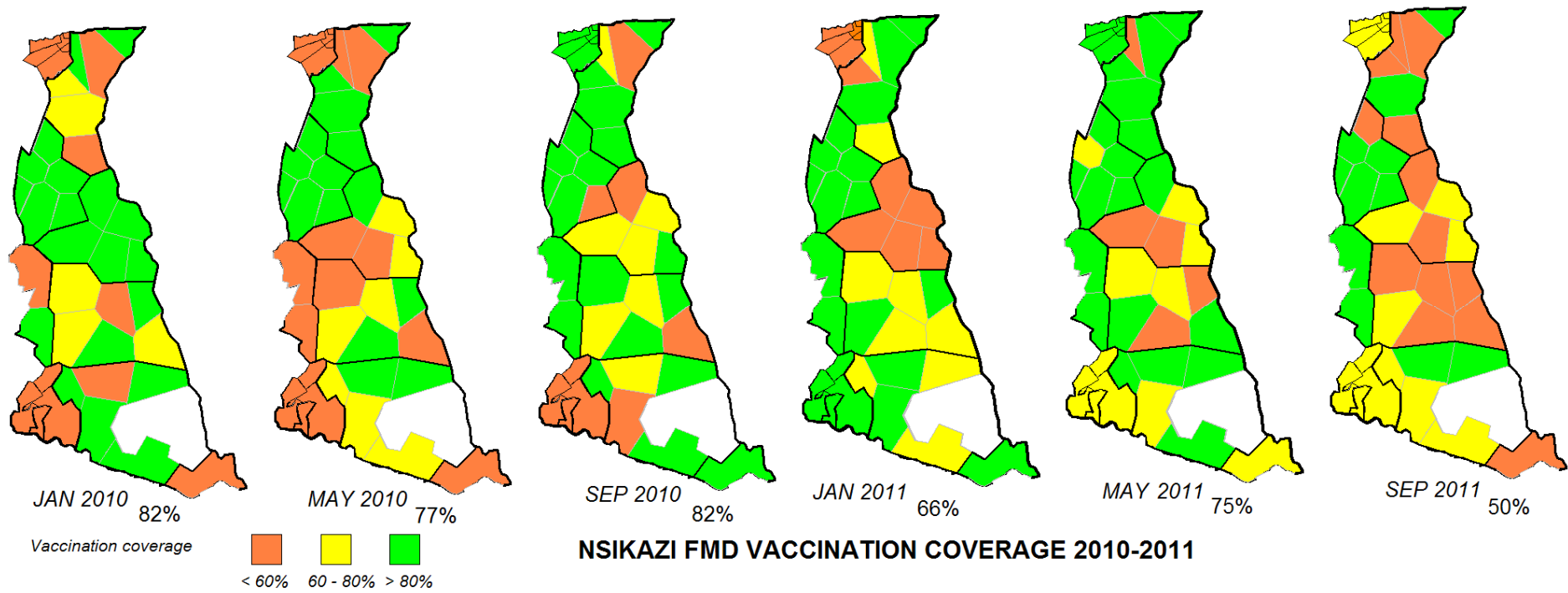
Vaccine
protectivity

**SV NEL ROUTINE FMD CATTLE VACCINATION COVERAGE
1996 - 2009**



FMD IN MPUMALANGA

Predisposing factors



NSIKAZI FMD OUTBREAK 2009

Chronology of events - MAKOKO

11 May 2009 Routine FMD vaccinations at Makoko 68%

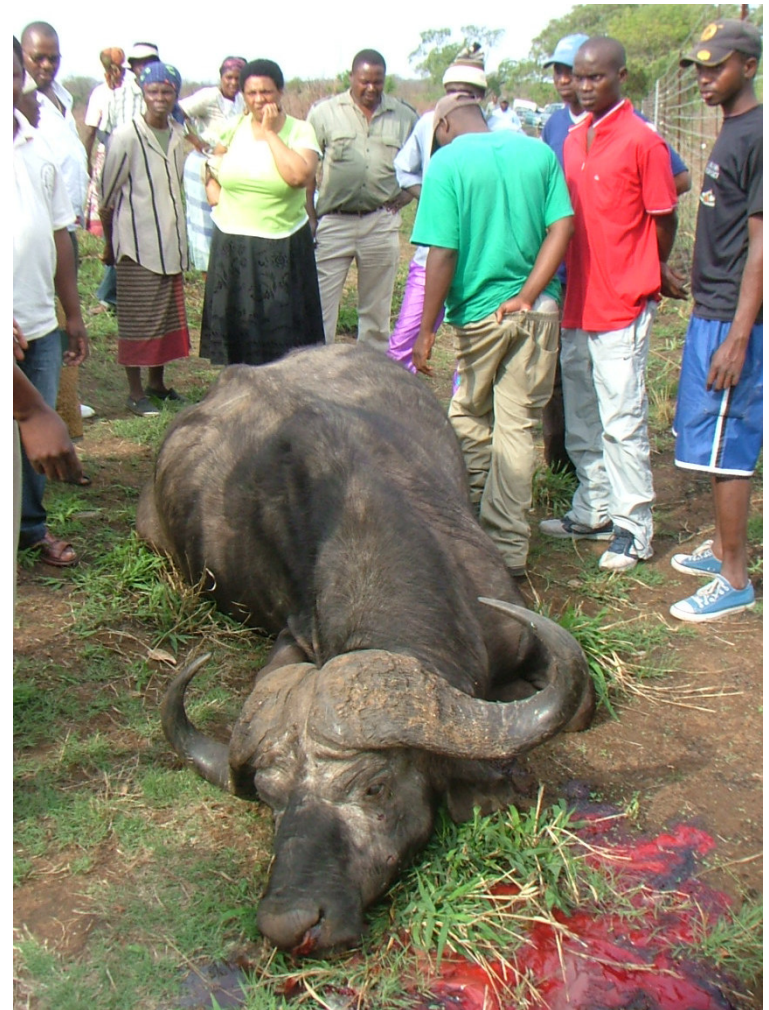


NSIKAZI FMD OUTBREAK 2009

Chronology of events

11 May 2009 Routine FMD vaccinations at Makoko 68%

13 May 2009 Two stray buffalo shot near Phameni



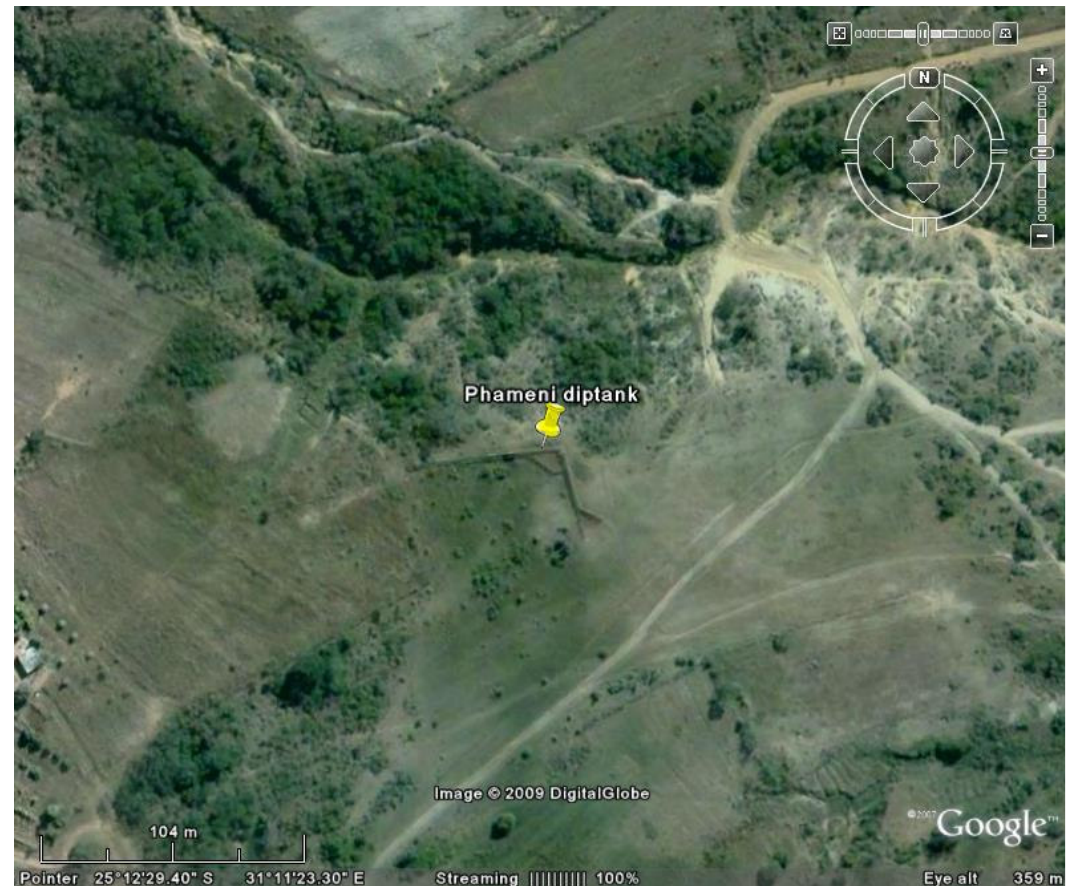
NSIKAZI FMD OUTBREAK 2009

Chronology of events

11 May 2009 Routine FMD vaccinations at Makoko 68%

13 May 2009 Two stray buffalo shot near Phameni

22-29 May 2009 Routine FMD vaccinations at Phameni 80%



NSIKAZI FMD OUTBREAK 2009

Chronology

- 11 May 2009 Routine FMD vaccination
- 13 May 2009 Two stray buffalo
- 22-29 May 2009 Routine FMD vaccination
- 31 Aug 2009 First retrospective FMD suspect clinical signs at Makoko



NSIKAZI FMD OUTBREAK 2009

Chronology of events

- 11 May 2009 Routine vaccinations at Makoko 68%
- 13 May 2009 Two stray buffalo shot near Phameni
- 22-29 May 2009 Routine vaccinations at Phameni 80%
- 31 Aug 2009 First suspect clinical signs at Makoko

- 6 Sep 2009 Mouth lesions reported at Makoko
- 7 Sep 2009 FMD clinically diagnosed at Makoko



NSIKAZI FMD OUTBREAK 2009

Immediate actions

- 7 Sep 2009 Veterinary operational committee meeting
- All movements prohibited from and within Nsikazi
- Directors informed
- Traditional authority informed
- Contaminated staff managed
- Surveillance and vaccination planned
- Forward tracing commenced

NSIKAZI FMD OUTBREAK 2009

Immediate actions

- 7 Sep 2009 All movements prohibited from and within Nsikazi
Directors informed
Traditional authority informed
Contaminated staff managed
Surveillance and vaccination planned
Forward tracing commenced
- 8 Sep 2009 Veterinary roadblocks planned

NSIKAZI FMD OUTBREAK 2009

Control actions

9 Sep 2009 Five veterinary roadblocks (VRB) established



NSIKAZI FMD OUTBREAK 2009

Control actions

9 Sep 2009 Five veterinary roadblocks (VRB) established



NSIKAZI FMD O



NSIKAZI FMD OUTBREAK 2009

Control actions

9 Sep 20



NSIKAZI FMD OUTBREAK 2009

Control actions

9 Sep 2009 Five veterinary roadblocks (VRB) established
Surveillance intensified



NSIKAZI FMD OUTBREAK 2009

Control actions

9-25 Sep 2009 Seven veterinary roadblocks (VRB) established
Surveillance intensified
Veterinary officials detached

26 Sep 2009 to 12 Feb 2010

Five veterinary vehicle
patrols deployed



NSIKAZI FMD OUTBREAK 2009

Control actions

11 Sep 2009

First round cattle vaccination commenced
84% coverage achieved (3 weeks)

2 Oct 2009

Second round cattle vaccination commenced

76% coverage achieved

4 Jan 2010

Third round cattle vaccination commenced

73% coverage achieved



NSIKAZI FMD OUTBREAK 2009

Disease events

18 Sep 2009 FMD clinically diagnosed at Phameni
19 Sep 2009 FMD SAT-1 virus isolated



NSIKAZI FMD OUTBREAK 2009

Civil events



NSIKAZI FMD OUTBREAK 2009

Control actions

22 Sep 2009

Goat and pig surveillance and
goat vaccination commenced



NSIKAZI FMD OUTBREAK 2009

Control actions

29 Sep 2009

Cattle feeding started



NSIKAZI FMD OUTBREAK 2009

Control actions

29 Sep 2009

Cattle feeding started



NSIKAZI FMD OUTBREAK 2009

Disease events

30 Sep 2009

3 Oct 2009

Positive NSP results in pigs at Makoko

Positive NSP results in goats at Clauclau 1








NSIKAZI FMD OUTBREAK

Disease events

NSIKAZI FMD
OUTBREAK
situation on
2010-01-23

CATTLE:


-  SAT-1 virus isolated
-  PCR positive
-  NSP positive
-  NSP weak positive
-  negative


GOATS:

-  NSP positive

PIGS:

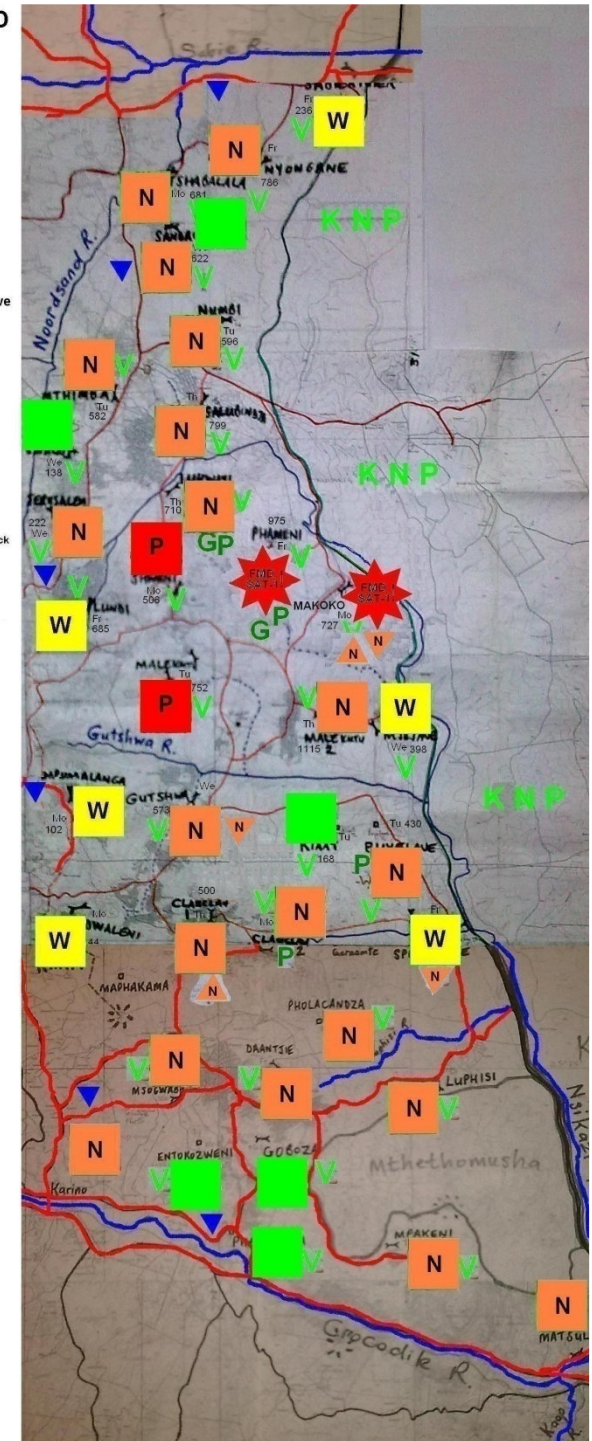
-  NSP positive

 veterinary roadblock

 veterinary vehicle patrol

 dip tank

cattle numbers begin
dipday



Control actions

May 2010

Fourth round of cattle vaccination

58% coverage achieved

14 May 2010

Revoked campaign movement control
protocol

= termination of campaign of 8 months

NSIKAZI FMD OUTBREAK 2009

End result

Containment and eradication of FMD from infected area

FMD IN MPUMALANGA

Some lesions





























03/01/2012









Chronology of events - SPELENYANE

Sep-Nov 2011

Routine FMD vaccinations at Luphisi 84%

Nov 2011

Routine FMD vaccinations, Spelenyane 21%

Nov-Dec 2011

Routine FMD vaccinations at Buyelane 37%

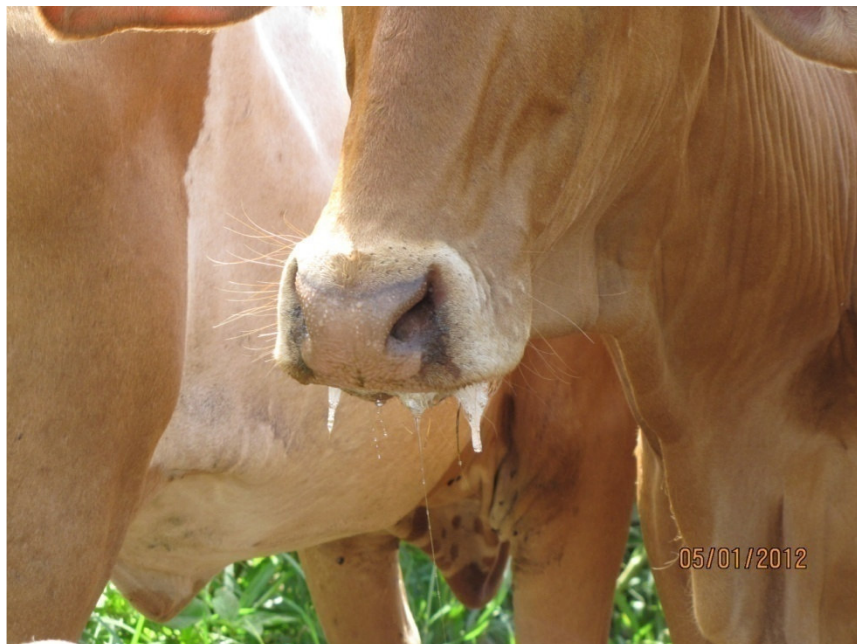


NSIKAZI FMD OUTBREAK 2011

Chronology of events

Sep-Nov 2011 Routine FMD vaccinations at Luphisi 84%
Nov 2011 Routine FMD vaccinations, Spelenyane 21%
Nov-Dec 2011 Routine FMD vaccinations at Buyelane 37%

29 Dec 2011 Spelenyane farmer reports
salivation, limping and not eating to AHT



NSIKAZI FMD OUTBREAK 2011

Chronology of events

29 Dec 2011 Spelenyane farmer reports

30 Dec 2011 AHT suspects FMD
and informed CoAHT



Chronology of events

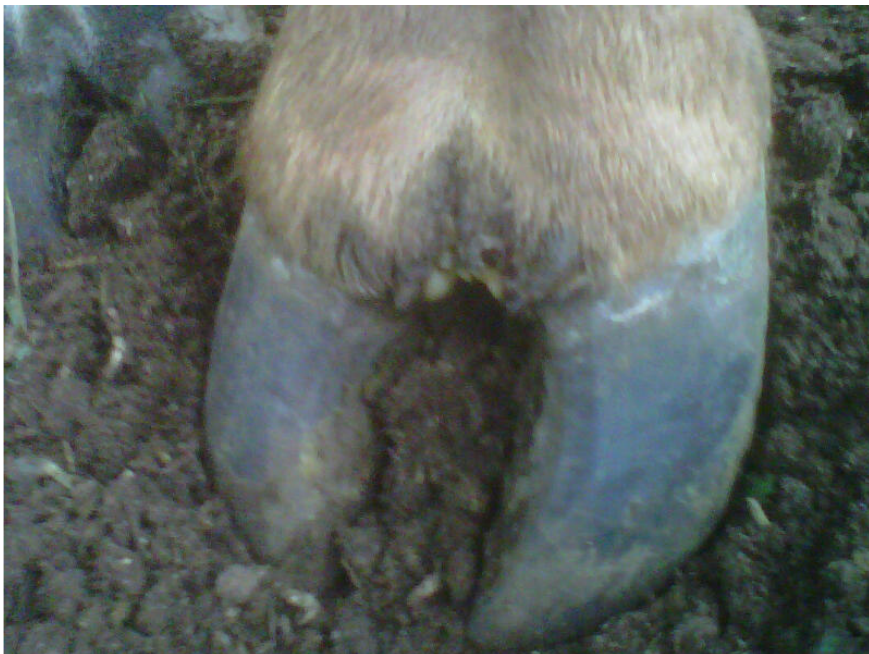
- 29 Dec 2011 Spelenyane farmer reports
- 30 Dec 2011 AHT suspects FMD and informed CoAHT
- 30 Dec 2011 CoAHT suspects FMD and informed SV



NSIKAZI FMD OUTBREAK 2011

Chronology of events

- 29 Dec 2011 Spelenyane farmer reports
- 30 Dec 2011 AHT suspects FMD and informed CoAHT
- 30 Dec 2011 CoAHT suspects FMD and informed SV
- 30 Dec 2011 SV diagnosed
FMD clinically



NSIKAZI FMD OUTBREAK 2011

Chronology of events

- 29 Dec 2011 Spelenyane farmer reports
- 30 Dec 2011 AHT suspects FMD and informed CoAHT
- 30 Dec 2011 CoAHT suspects FMD and informed SV
- 30 Dec 2011 SV diagnosed FMD clinically
- 30 Dec 2011 Serum, blood and tissue samples collected and dispatched



NSIKAZI FMD OUTBREAK 2011

Chronology of events

30 Dec 2011 Serum, blood and tissue samples collected and dispatched

31 Dec 2011 FMD confirmed by OVI TAD

TESTING FOR FMD: TAD 11/1800								
LAB NO	SAMPLE ID	MICROCHIP NO	AGE/DOB	SEX	SAT-1	SAT-2	SAT-3	NSP
51	P1	Paired with tissue sample	-	-	>2.2	>2.2	1.8	NEG
52	P2	Paired with tissue sample	-	-	2.2	>2.2	1.9	NEG
53	P3	Paired with tissue sample	-	-	>2.2	>2.2	>2.2	NEG
54	P4	Paired with tissue sample	-	-	>2.2	>2.2	1.8	NEG

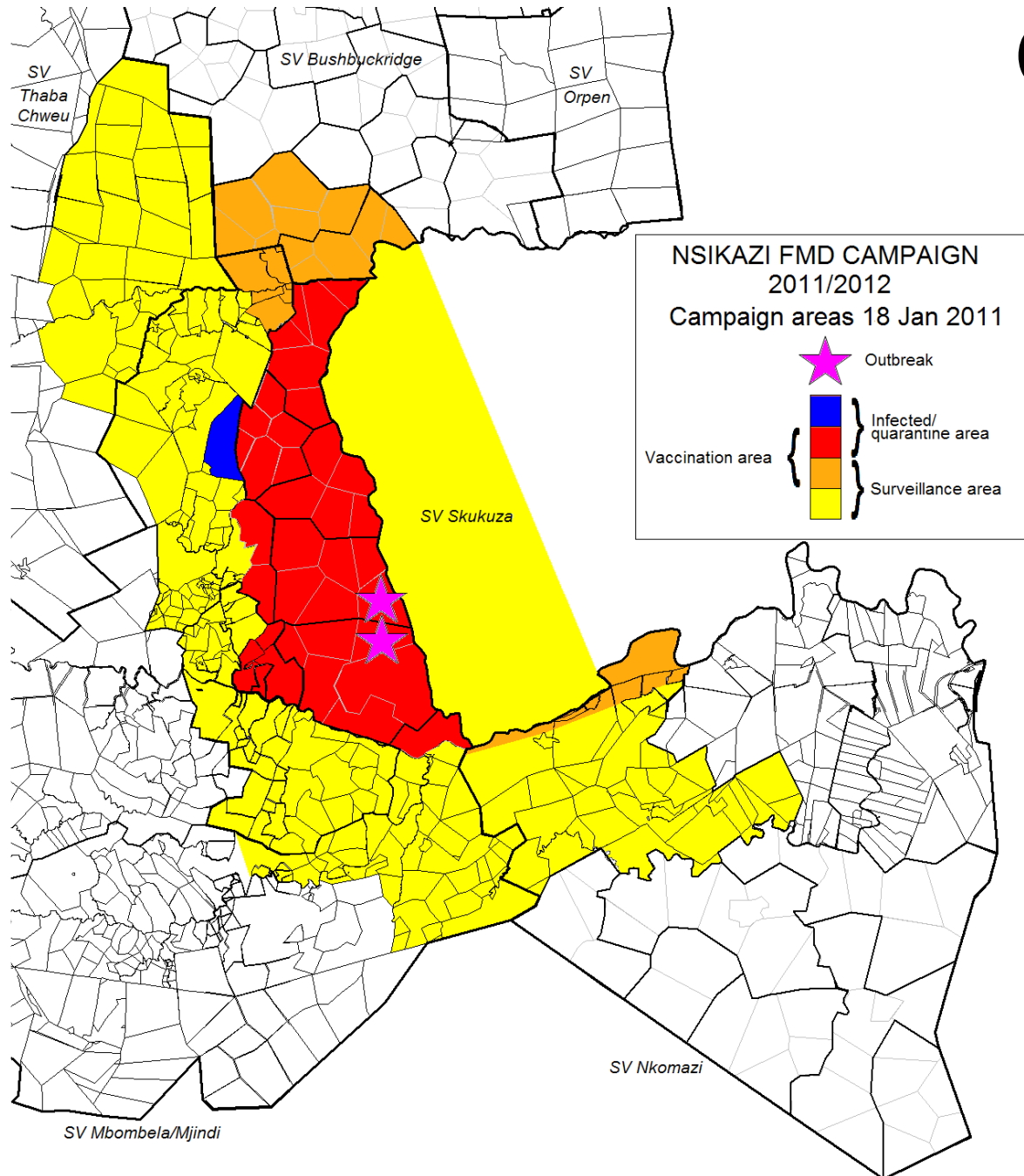
TESTING FOR FMD: TAD 11/1800 C									
LAB NO	SAMPLE ID		AGE	SEX	SAMPLE	PCR	Typing	VI	
1	1	Spelenyane	-	-	tissue	POS	-	neg	
2	2	Spelenyane			tissue	POS	SAT-2	POS	
3	3	Spelenyane			tissue	weak pos	SAT-2	POS	
4	4	Spelenyane			tissue	POS	SAT-2	POS	

Immediate actions

30 Dec 2011 Spelenyane farmers informed of suspicion
Movements restricted from Spelenyane
Deputy Directors and Directors informed
Samples dispatched to OVI TAD
Vaccine collected at OVI TAD
Traditional authority informed
Contaminated staff managed
All movements prohibited from and within Nsikazi
Surveillance and vaccination planned

NSIKAZI FMD OUTBREAK 2011

Campaign areas



NSIKAZI FMD OUTBREAK 2011

Disease events

10 Jan 2012

FMD clinically diagnosed at Luphisi



NSIKAZI FMD OUTBREAK 2011

Disease events

12 Jan 2012

FMD at Luphisi confirmed by OVI TAD

LAB NO	SAMPLE NO	TUBE NO	AGE/DOB	SEX	SAT-1	SAT-2	SAT-3	NSP
1	1	T1/10	-	-	>2.2	>2.2	>2.2	neg
28	28	T2/10	-	-	>2.2	>2.2	>2.2	neg
29	29	T3/10	-	-	>2.2	>2.2	>2.2	neg
30	30	T4/10	-	-	>2.2	>2.2	>2.2	POS
31	31	T5/10	-	-	>2.2	>2.2	>2.2	POS
32	32	T6/10	-	-	2.0	1.8	1.7	neg
33	33	T1/10	-	-	1.8	>2.2	<1.3	neg

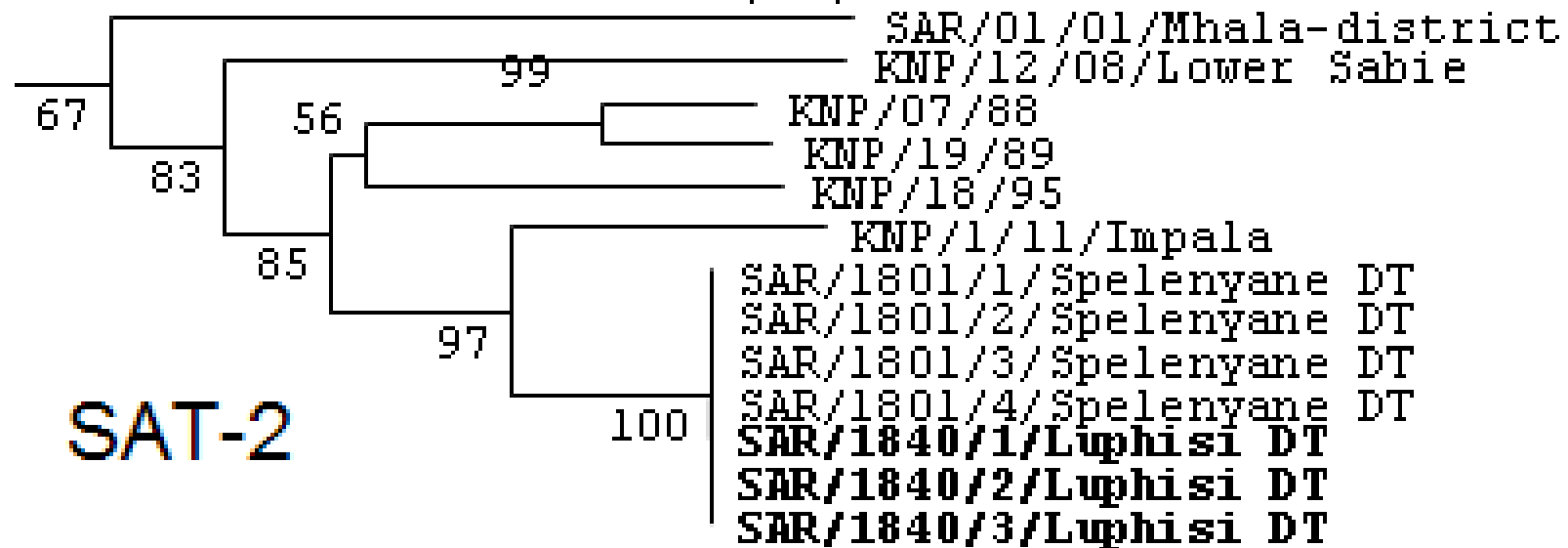
LAB NO	SAMPLE NO	STOCK CARD	AGE/DOB	SEX	SAMPLE	PCR	VI	Typing
1	T1	10	adult	-	pooled tissue	POS	POS	SAT-2
2	T2	10	adult	-	pooled tissue	weak POS	neg	-
3	T3	10	adult	-	pooled tissue	POS	POS	SAT-2
4	T4	10	adult	-	pooled tissue	neg	neg	-
5	T5	10	adult	-	pooled tissue	neg	neg	-
6	T6	10	adult	-	pooled tissue	POS	POS	SAT-2
1	T1	10	adult	-	EDTA blood	neg	-	
2	T2	10	adult	-	EDTA blood	neg	-	
3	T3	10	adult	-	EDTA blood	neg	-	
4	T4	10	adult	-	EDTA blood	neg	-	
5	T5	10	adult	-	EDTA blood	neg	-	
6	T6	10	adult	-	EDTA blood	neg	-	

NSIKAZI FMD OUTBREAK 2011

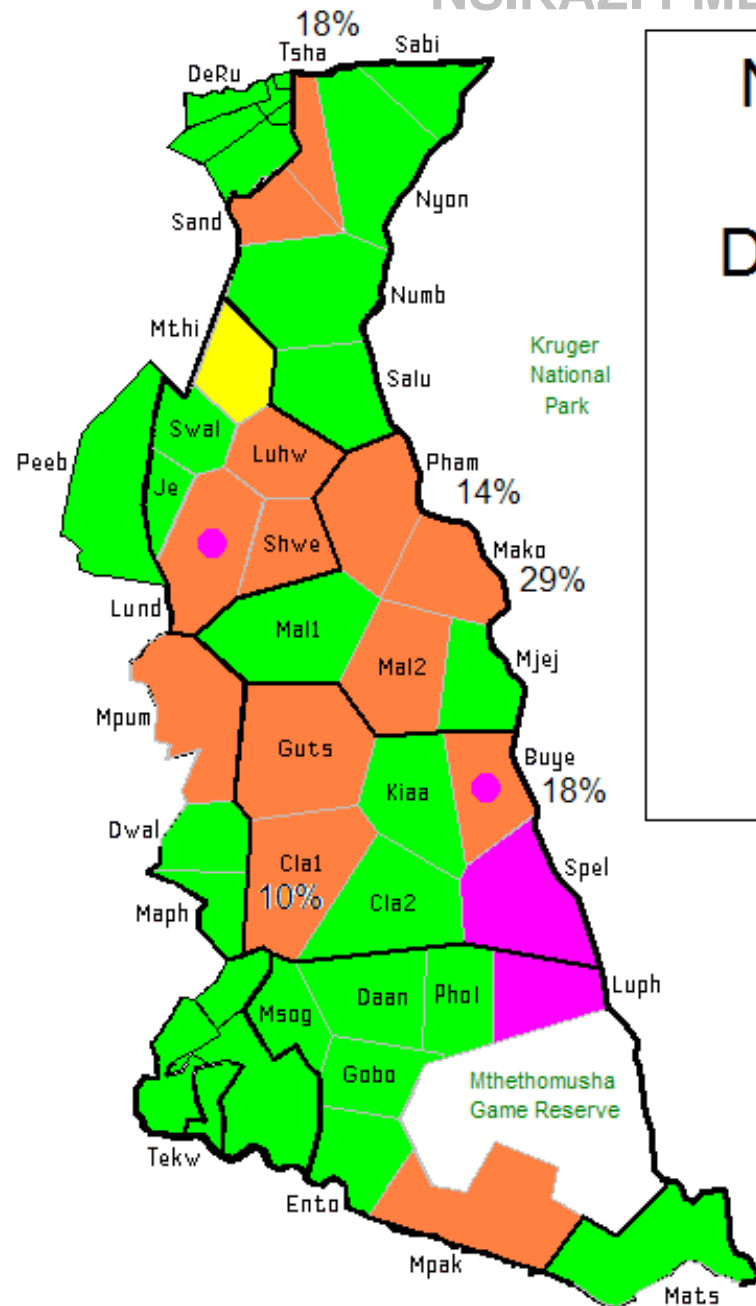
Disease events

12 Jan 2012

FMD at Luphisi confirmed by OVI TAD








NSIKAZI FMD OUTBREAK 2011



NSIKAZI FMD CAMPAIGN 2011/2012

Disease situation 10 Feb 2012

	infected / fresh lesions
	NSP positive
	not sampled
	NSP negative
	old lesions
%	NSP seroprevalence

NSIKAZI FMD OUTBREAK 2011

Control actions

3 Jan 2012 Intensified surveillance commenced
Vaccination commenced



NSIKAZI FMD OUTBREAK 2011

Control actions

3-27 Jan 2012

1st round cattle vaccination
75% coverage

30 Jan 2012

2nd round of cattle vaccination commenced
78% coverage

NSIKAZI FMD OUTBREAK 2011

Control actions

No movement control due to lack of staff and funds

NSIKAZI FMD OUTBREAK 2011

Environmental events



NSIKAZI FMD OUTBREAK 2011

Social events



NSIKAZI FMD OUTBREAK 2011

Planned actions

May 2012

Third round of cattle vaccination

29 June 2012

Termination of campaign

NSIKAZI FMD OUTBREAK 2011

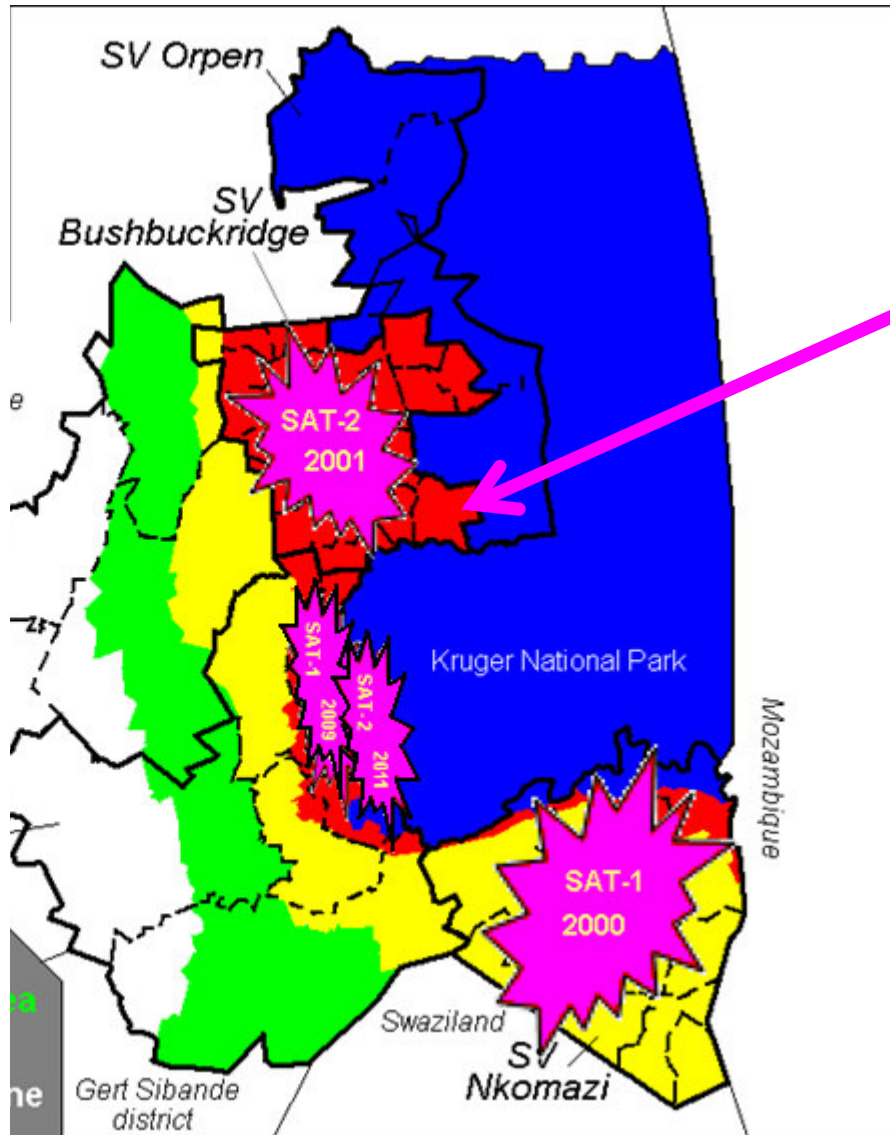
End result

Containment of FMD in infected area

(eradication from infected area underway)

BUSHBUCKRIDGE FMD OUTBREAK 2012?

Planned actions !



Huntingdon 15 April 2012





Acknowledgements:

- *Mpumalanga and Limpopo veterinary staff*
- *Nsikazi livestock farmers*
- *ARC OVI-TAD*



Thank you!