

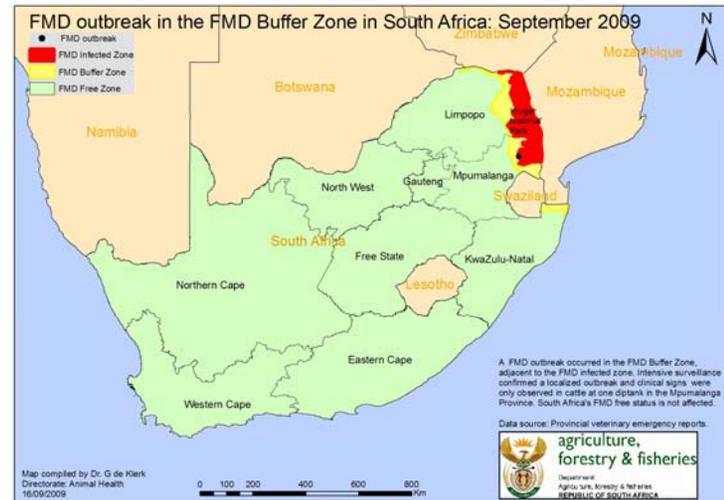
FMD OUTBREAK NSIKAZI 2009



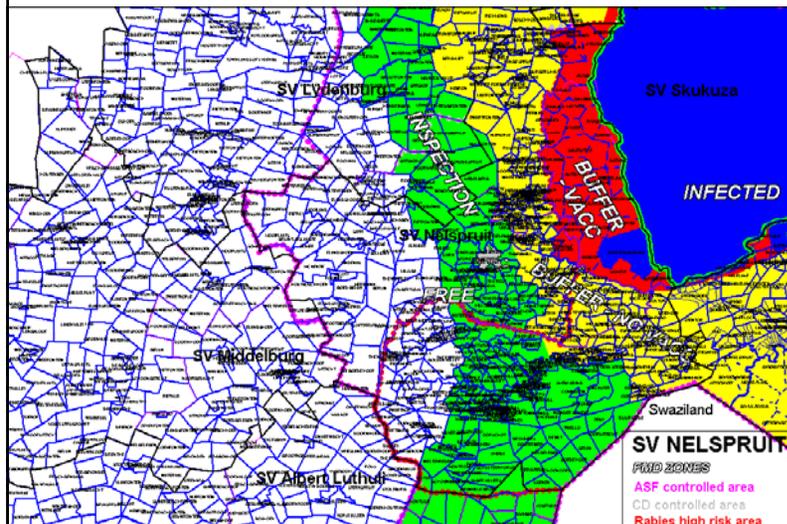
Presented by:
B Reininghaus
Mpumalanga Veterinary Services

Based on materials from:
BJA Du Plessis
Mpumalanga Veterinary Services

FMD Outbreak Nsikazi 2009



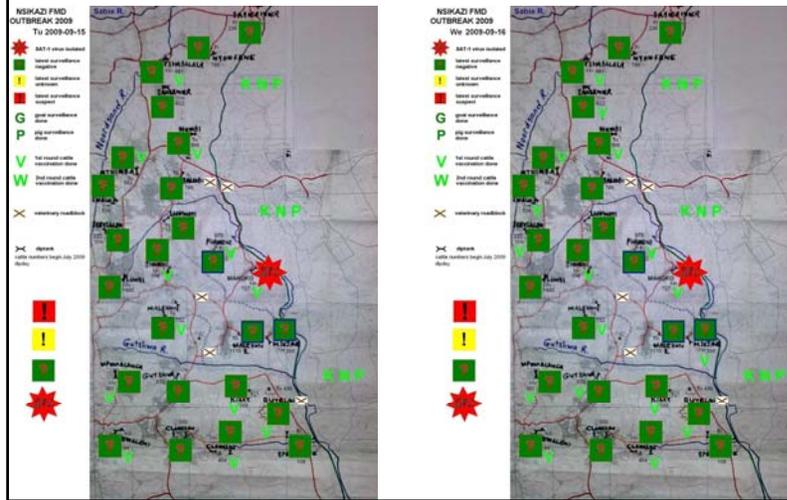
FMD Outbreak Nsikazi 2009



FMD Outbreak Nsikazi 2009- Background 1

- Nsikazi communal grazing area
- adjacent and west of KNP
- boundary of 69 km along the Selati railway line
- veterinary fence erected in 1960, repaired 2001 after flood damage
- 17 300 cattle (end of Aug 2009), 32 Diptanks/inspection points
- **BZ with Vaccination:** weekly cattle inspections (together with cattle dipping); movement restrictions; FMD Vaccination of cattle and F-branding; monthly small stock inspection

FMD Outbreak Nsikazi 2009



Phameni 18092009



Phameni 25092009



FMD Outbreak Nsikazi 2009

- **Prevalence of infection** (preliminary estimations, based on clinical and serological surveillance; Sept 2009):

Makoko diptank:

64% (481 cases);

last fresh lesions: 28/09/09

Phameni diptank:

29% (273 cases);

last fresh lesions: 02/10/2009

Clinically affected herds at both diptanks include those vaccinated completely in both previous years !

FMD Outbreak Nsikazi 2009- **Epidem. Investigation**

Risk Factors:

- Permeable waterways (cattle and buffalo)
- Two buffalo shot in vicinity May 2009 (of group with total of three ?)
- Isolated SAT1 Virus almost identical with such previously isolated in African buffalo in vicinity within KNP
- Declining of protective AB level in cattle vaccinated with BVI "Aphrovax" (extrapolated as 33% after 5 months of last vaccination/May 2009)

Previous Vaccination coverage:

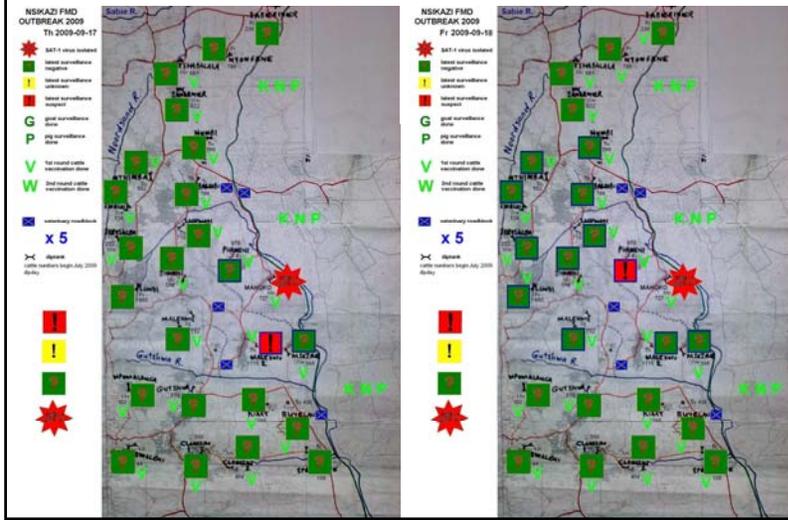
Makoko May 2009: 88% (reported); 60 % (audited)

Makoko Oct 2008: 63 % (audited)

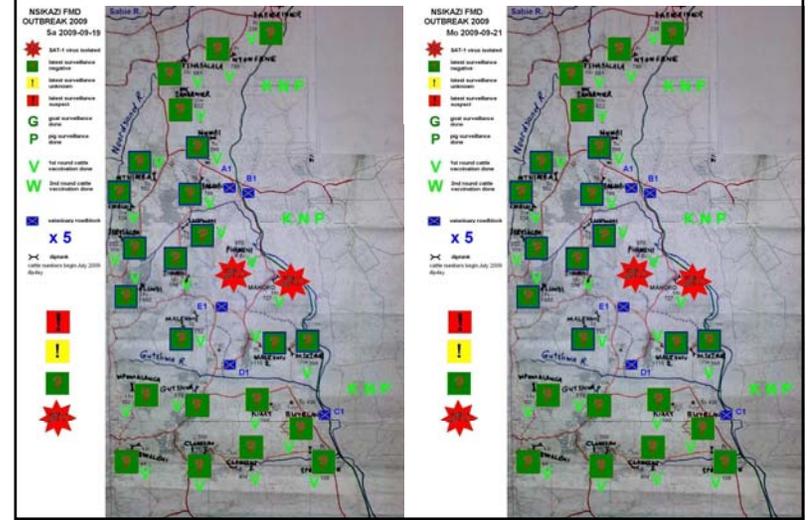
Phameni May 2009: 80% (reported)

Phameni Oct 2009: 58% (reported)

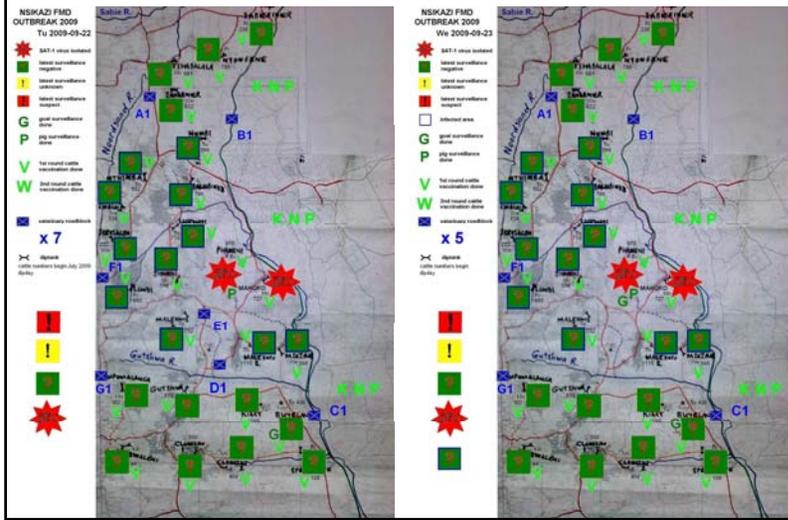
FMD Outbreak Nsikazi 2009



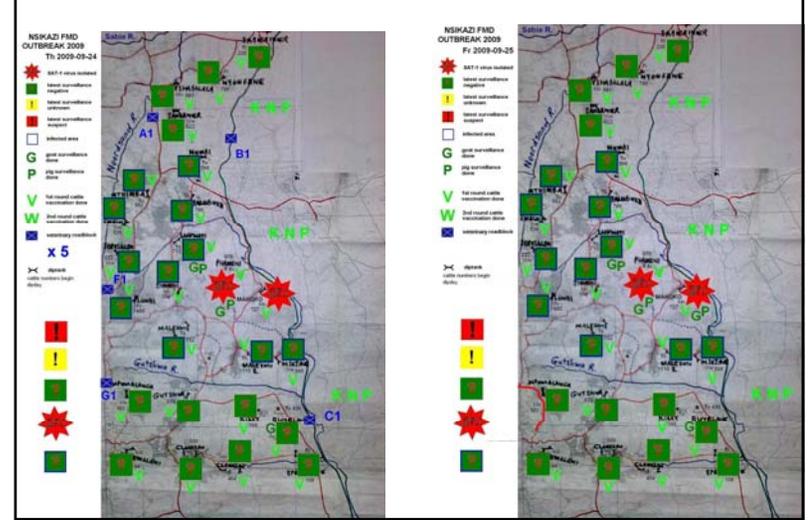
FMD Outbreak Nsikazi 2009

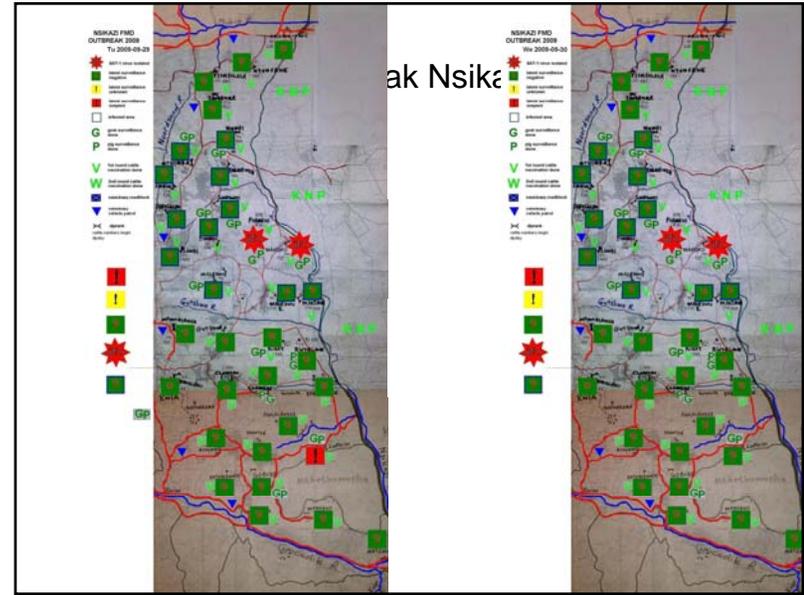
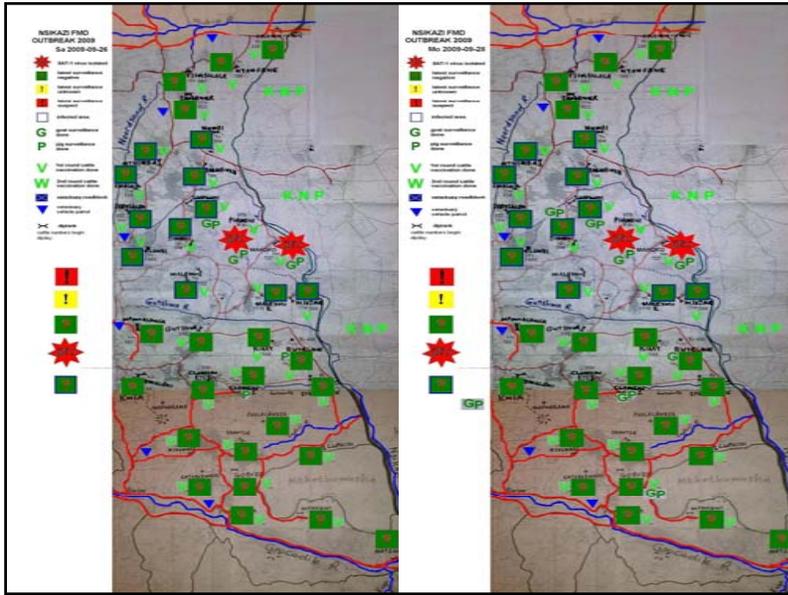


FMD Outbreak Nsikazi 2009

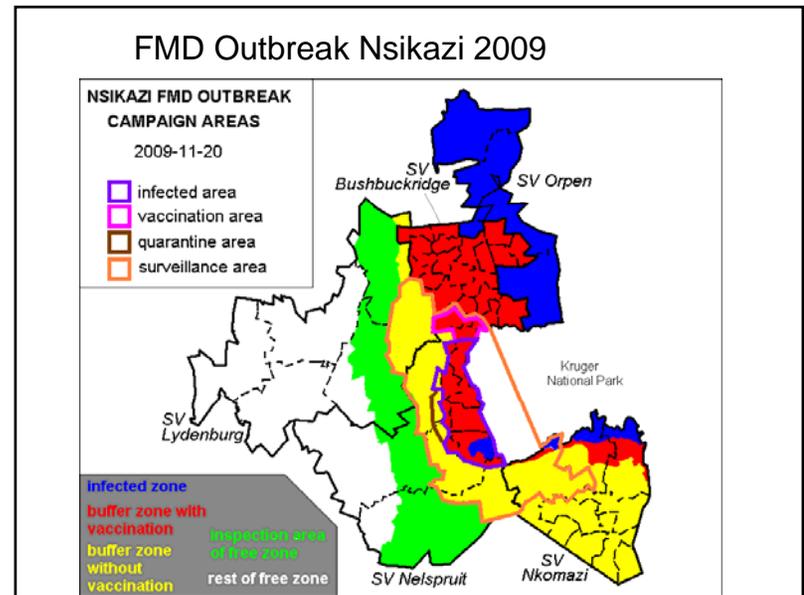
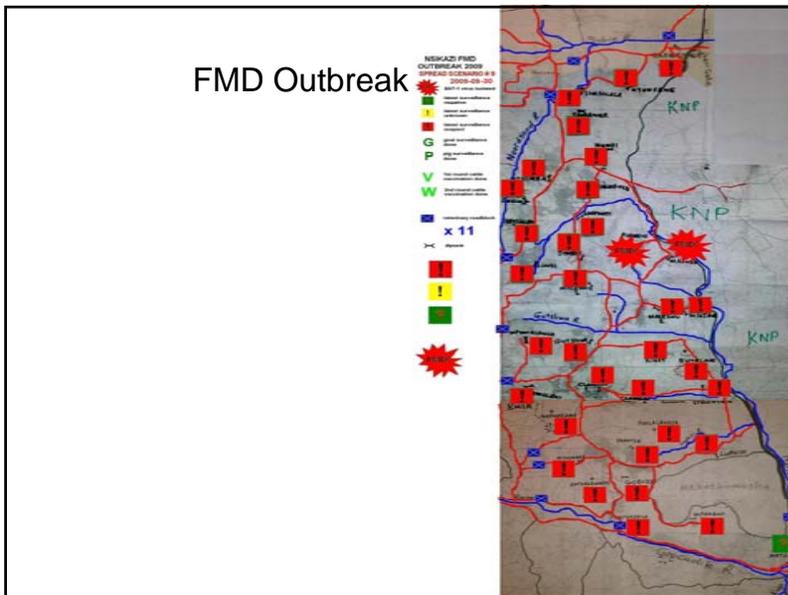


FMD Outbreak Nsikazi 2009



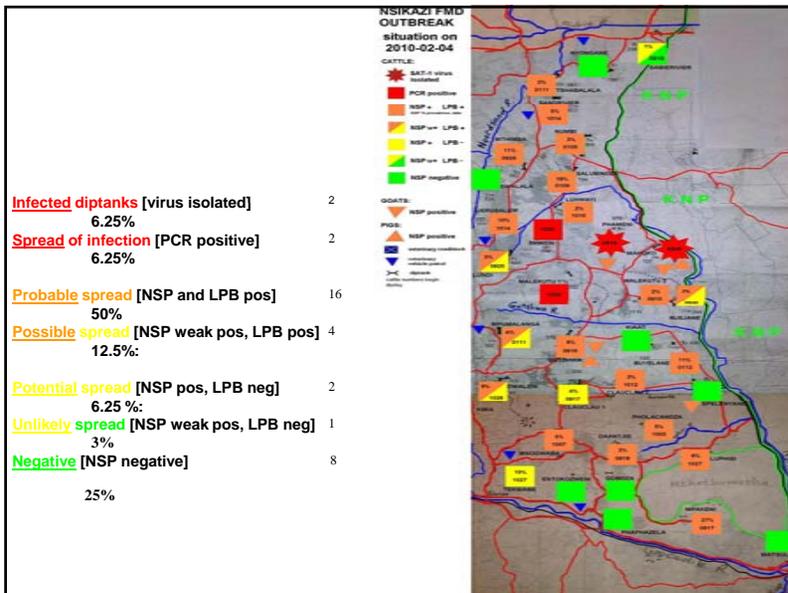
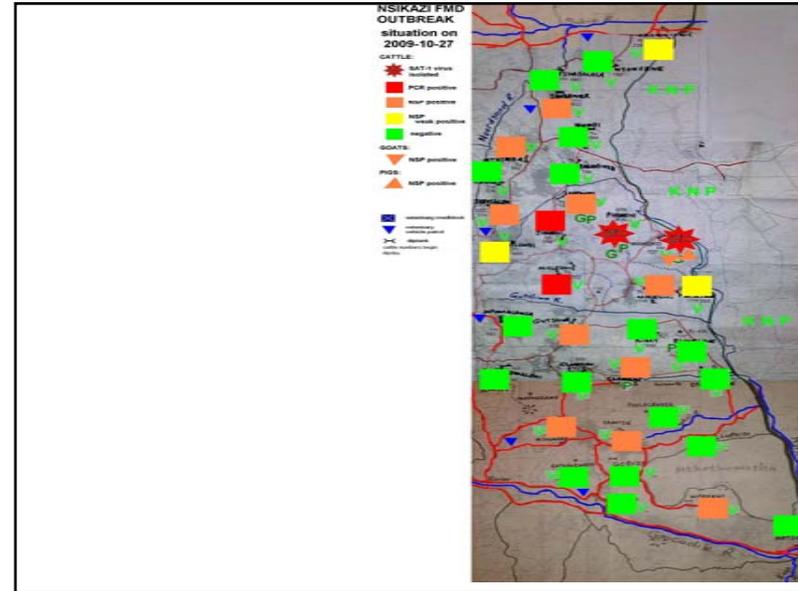


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FMD Outbreak Nsikazi 2009- Cattle Vacc and Surv. Inf Zone 7th Sep to 8th Oct

	Herd inspections	Total cattle	Cattle inspections	Cattle mouth exams	Cattle with lesions	Tissue samples collected	EDTA samples collected	Serum samples collected	Cattle vaccinated 1 st round
Total	4 548	17 486	46696	3 065	143	29	35	3 535	14 622
			56%	7%				8%	83%



FMD Outbreak Nsikazi 2009- Cattle Surv. Inf. zone

	Herd inspections	Total cattle	Cattle inspections	Cattle mouth exams	Cattle with lesions	Tissue samples collected	EDTA samples collected	Serum samples collected
Sep-09	2 942	17 872	30 706 ^a 57%	1 901 6%	134	25	28	2 405 8%
Oct-09		17 900	50 113 ^a 56%	4 817 10%	104	53	105	4 769 10%
Nov-09		18 060	37 738 ^a 52%	23 455 65%	111	23	18	429 1%
Dec-09		18 086	35 319 ^a 39%	4 162 12%	0	0	16	1 730 5%
Jan-10		18 312	38 439 52%	500 1%	1	0	0	1 605 4%
Total		18 312	192 315	34 835	350	101	167	10 938

FMD Outbreak Nsikazi 2009- Cattle Vacc. Inf. zone

Month	Cattle vaccinated 1 st round	Cattle vaccinated 2 nd round	Cattle vaccinated 3 rd round	Cattle F-branded (new or re-done)
Sep-09	13 537	0	0	40
Oct-09	1 219	12 597	0	1 342
Nov-09	0	906	0	1 581
Dec-09	0	160	0	3 026
Jan- 2010	0	0	13 045	
Total	84%	76%	71%	36%

FMD Outbreak Nsikazi 2009- Goat Surv. & Vacc. Inf. Zone
Sept 2009- Jan 2010

	Herd inspections	Total goats	Goat inspections	Goat mouth exams	Goats with lesions	Tissue samples collected	Blood samples collected	Serum samples collected	Goats vaccinated	Goats revaccinated
Total	3 440	2 460 ^b	34 152	228	20	22	18	1 779	6 603	252
									268%	10%

FMD Outbreak Nsikazi 2009- Pigs Surv. Inf. Zone
Sept 2009 - Jan 2010

Week and month	Herd inspections	Total pigs	Pig inspections	Pig mouth exams	Pigs with lesions	Tissue samples collected	EDTA samples collected	Serum samples collected
Total	2099	1 752 ^b	20 661	37	0	0	0	679
								3%

FMD Outbreak Nsikazi 2009-Cattle Surv. Surv. Zone
Sept 2009 - Jan 2010

	Total cattle	Cattle inspections	Cattle mouth exams	Cattle with lesions	Tissue samples collected	Blood samples collected	Serum samples collected	Cattle vaccinated (SV BBR)
Total	12 070	104 590	2 955	6	9	18	2 061	7 119

FMD Outbreak Nsikazi 2009- Infection in goats



FMD Outbreak Nsikazi 2009- Infection in goats

Probable spread [NSP and LPB pos] to:

MAKOKO (24 Sep):

9% goats in Makoko (25/273)

10% herds in MAKoko (4/39)

1/3 NSP pos (animal with SAT 1,2,3 over 2.0)

40/40 NSP positive

2/3 NSP pos

2/14 NSP positive (herd vaccinated on initial sampling)

PHAMENI (29 Oct):

2 / 4 NSP pos (

0.8% goats in Phameni (2/270)

3% of herds in Phameni (1/36)

Possible spread [NSP weak pos, LPB pos] to

Spelenyane (2 Oct): 2/62 nsp w-pos (one with pos lpbs; one with neg lpbs), 1/61 nsp pos (neg lpbs); follow up/re-sampling negative

Potential spread [NSP pos, LPB neg] to:

Gutshwa (30 Sep): 1/17 goats nsp pos); follow up/re-sampling negative (LPBs only)

FMD Outbreak Nsikazi 2009- Infections in pigs

• Probable spread [NSP and LPB pos] to:

Makoko (30 Sep):

0.75% pigs in Makoko (2/268)

1.3% herds in MAKoko (1/79)

2/? Animals in herd NSP pos

• Potential spread [NSP pos, LPB neg] to:

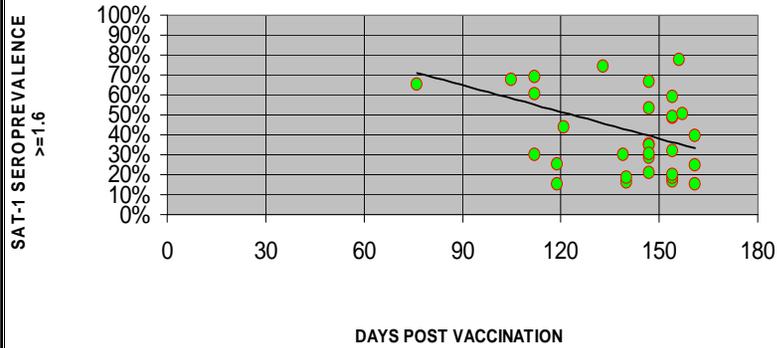
Clau clau 1 (2 Oct): (one animal out of group of 15; no re-sampling)

FMD Outbreak Nsikazi 2009-Luphisi 10112009



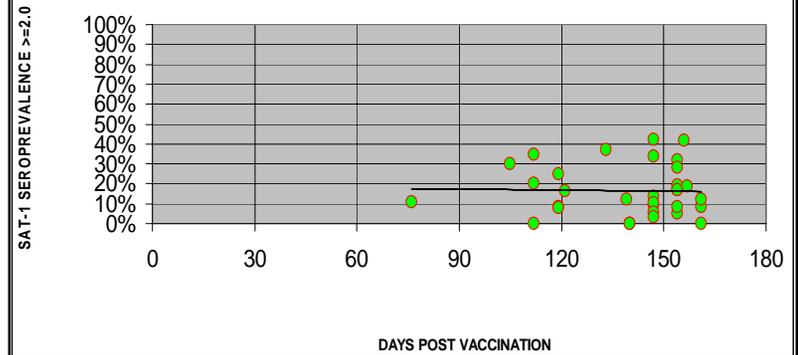
FMD Outbreak Nsikazi 2009: SAT1 Titers ≥ 1.6 in routinely/previously vaccinated cattle population

FMD VACCINATION SAT-1 RESPONSE
Nsikazi 2009

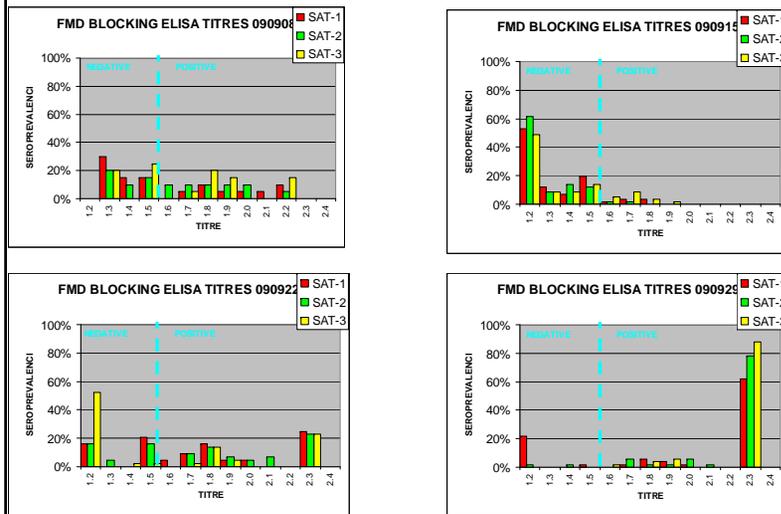


FMD Outbreak Nsikazi 2009: SAT1 Titers ≥ 2.0 in routinely/previously vaccinated cattle population

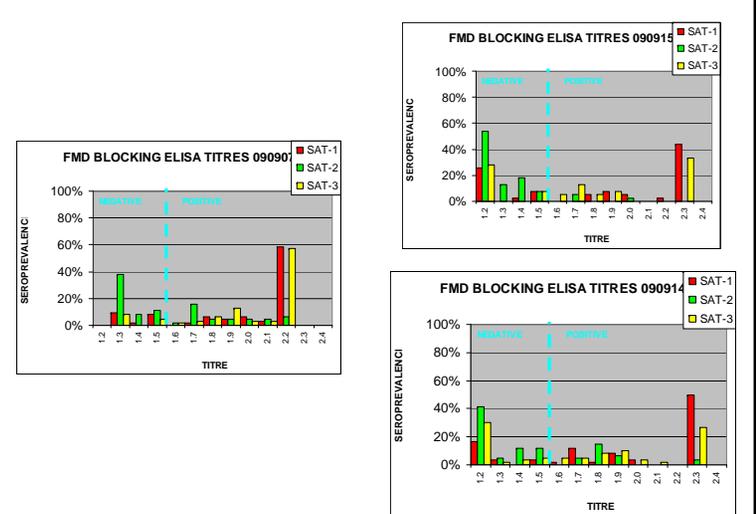
FMD VACCINATION SAT-1 RESPONSE
Nsikazi 2009



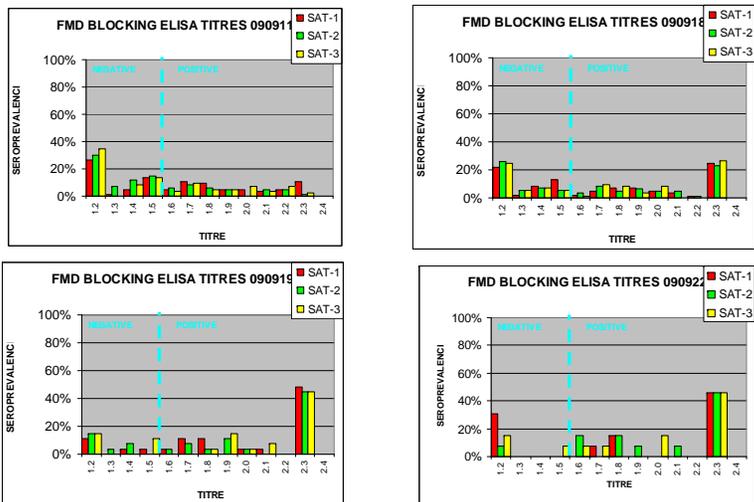
FMD Outbreak Nsikazi 2009- Serographs: Malekutu 1



FMD Outbreak Nsikazi 2009- Serographs: Makoko



FMD Outbreak Nsikazi 2009- Serographs: Phameni



FMD Outbreak Nsikazi 2009- Sum

- Preliminary cost calculation (Sept to Dec 09): R 15 million
- Outbreak caused by insufficient vaccination immunity in high risk area
- Need to overcome limitations of available vaccine by implementing 4-monthly vaccination intervals (practical challenges)
- Need for further vaccine development (strain specific, multi-vaccines ? etc.)
- Need to further address fencing situation (esp. problem zones like waterways)
- Need to strengthen primary animal health care in conjunction with and addition to regular animal disease inspections

FMD Outbreak Nsikazi 2009- Acknowledgements

- Dr BJA Du Plessis for providing data, graphs, tables etc.
- Dr E van Vollenhoven for providing summary tables, minutes etc.
- Dr G De Klerk for providing Disease maps
- SV Skukuza for logistical support
- OVI TAD for laboratory testing
- Whole FMD Nsikazi Management and Field Teams for their hard work and dedicated efforts !

FMD Outbreak Nsikazi 2009- T f y a

