

12th – 14th April 2010 Melbourne FMD International Symposium and Workshop

Assessment of the efficacy of FMD
vaccine by serology

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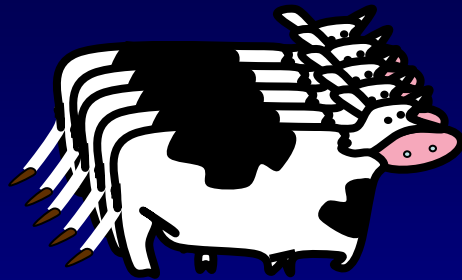
Objectives

- **Investigation the possibility of assessing the vaccine efficacy by serology to avoid using animals and live virus.**
- **Investigation the correlation of r_1 value determination with protection status.**

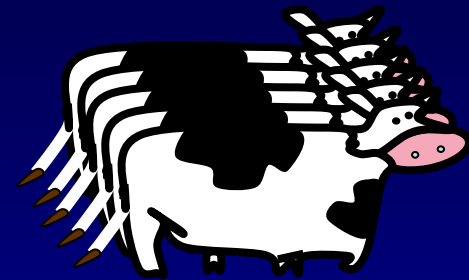


Two O1 Manisa potency tests in 2007 and 2008

- Hetrologous challenge with O Iran 34/2006 in Pirbright in 2007
- Homologous challenge with O Manisa in Lelysted in 2008



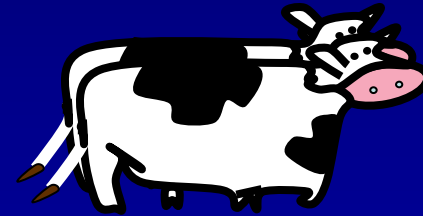
1 bovine dose volume-2ml



1/4 bovine dose volume-0.5ml



1/16 bovine dose volume-0.125ml



Unvaccinated controls



Two O1 Manisa potency tests in 2007 and 2008

Temperatures and clinical signs of FMD were monitored daily following challenge over the 8 day period of observation.

Clotted blood were collected weekly until termination of the experiment.

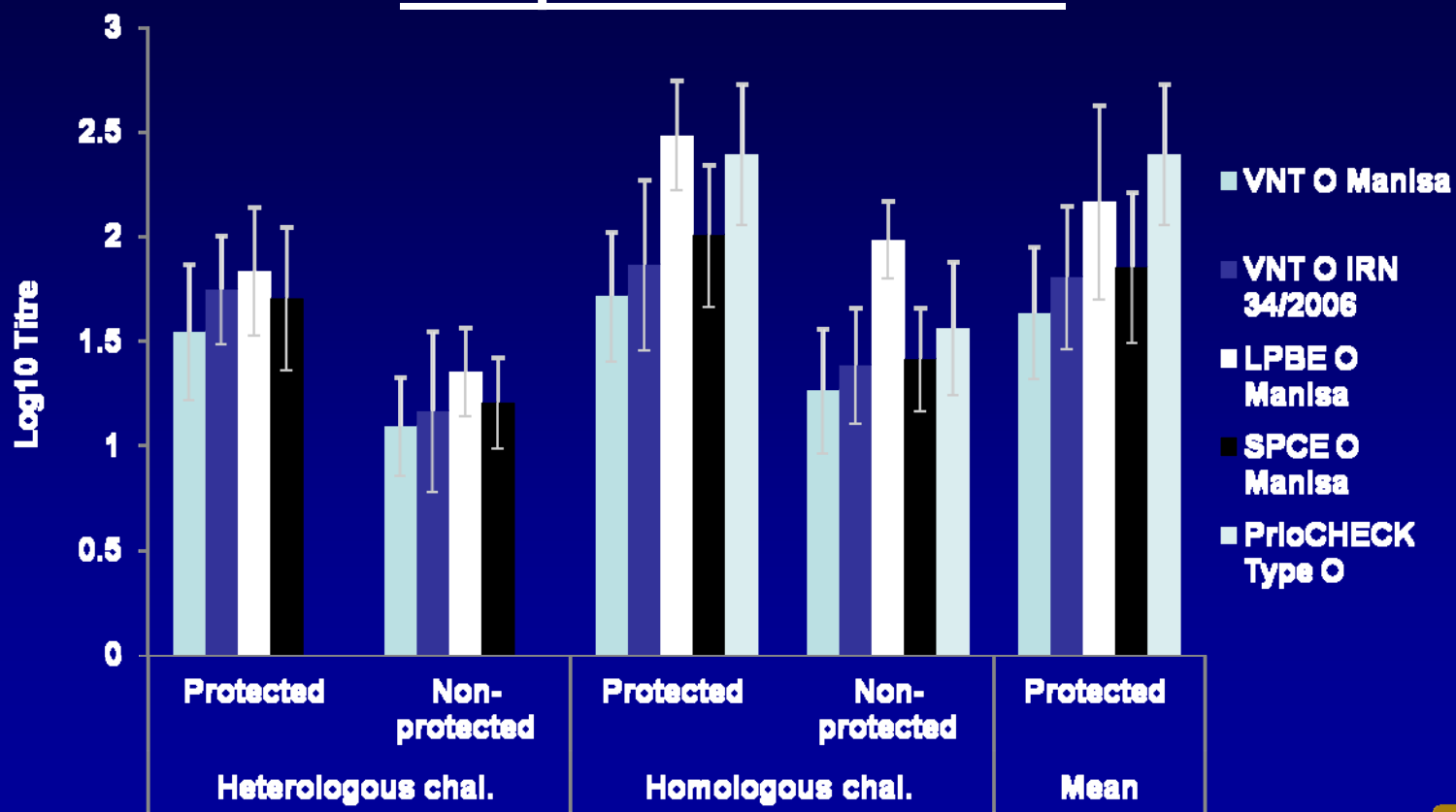
At 29dpv/8dpc observed all animals for clinical signs of FMD for final reading.

Antibody responses were analysed using VNT against O Manisa, VNT against O IRN 34/2006, LPBE and SPCE against O Manisa for both experiments; and PrioCHECK type O (Prionics) for homologous challenge trial.

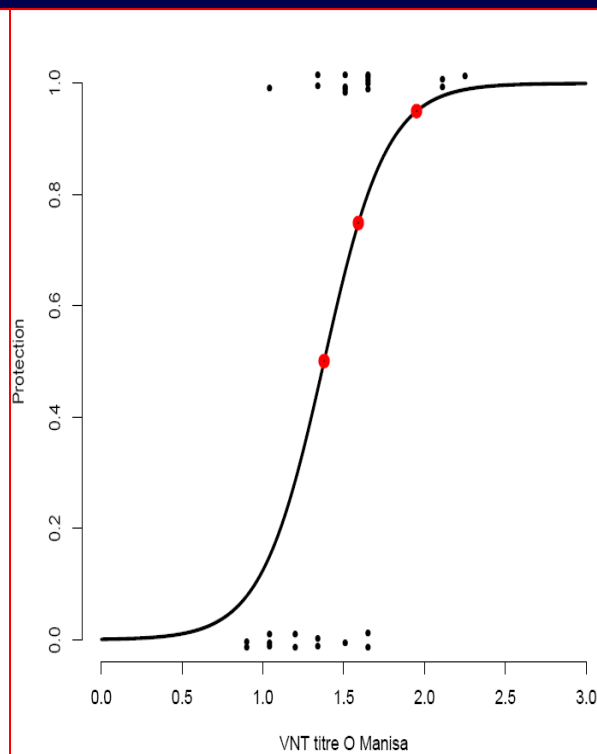
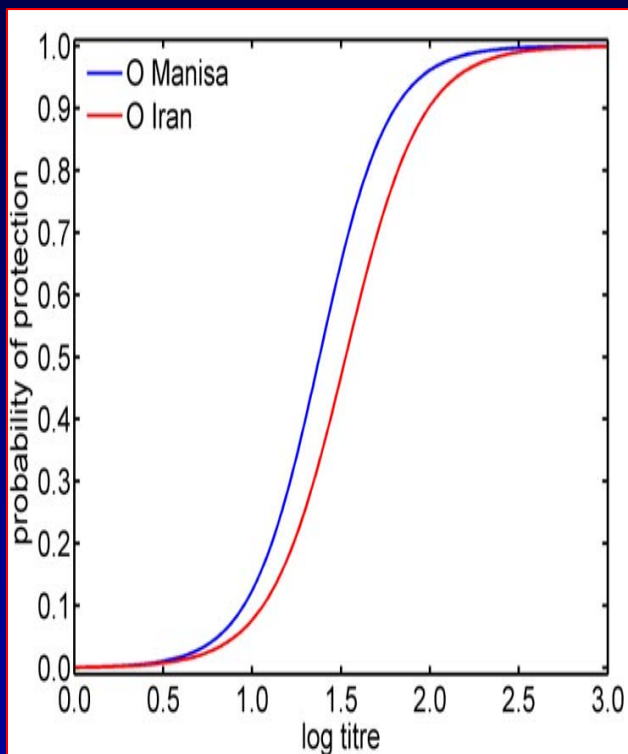
r_1 values were determined according to Rweyemamu (1984). $r_1 \geq 0.3$ is considered antigenically match between the vaccine strain and the field isolates.



FMDV antibody titres from protected and non-protected animals



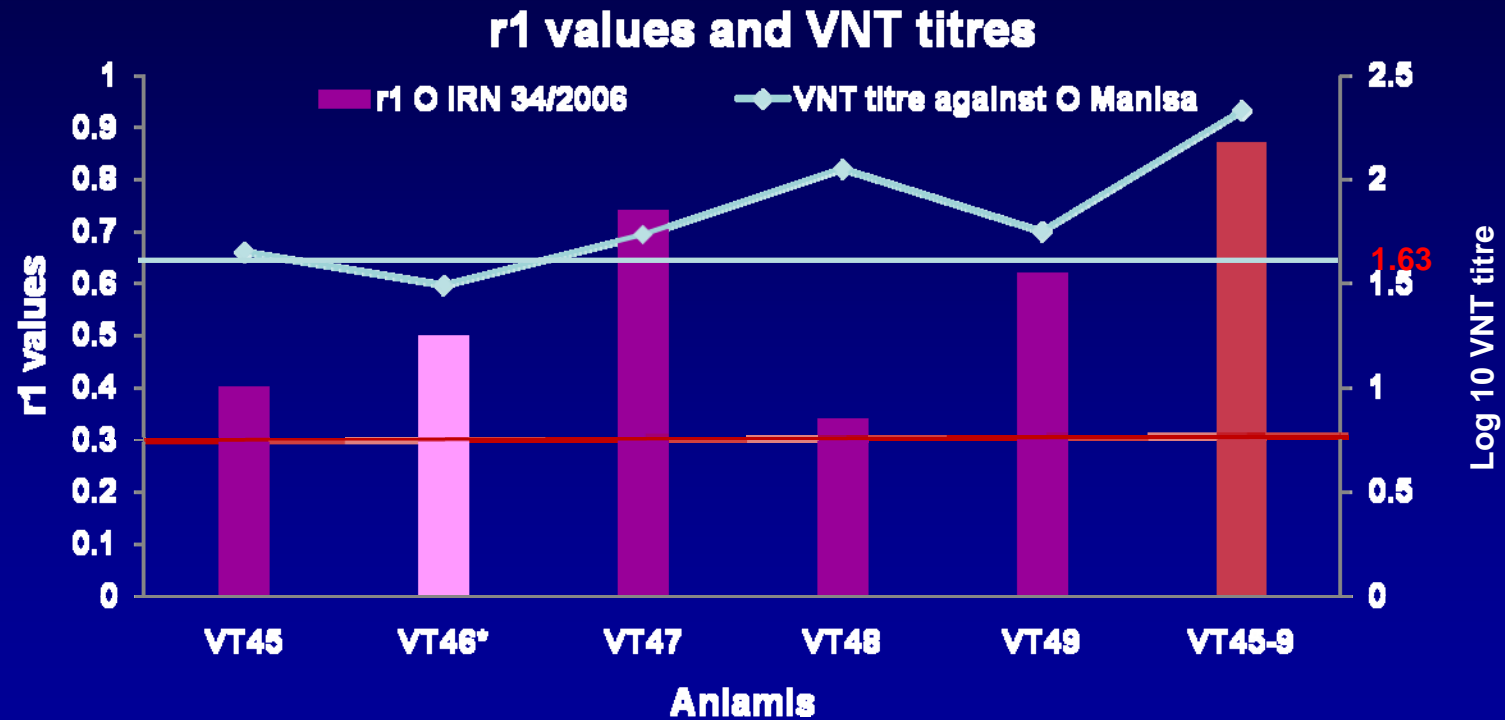
Logistic analysis for the relationship between VNT against O Manisa/O IRN 34/2006 and protection



VNT O Manisa titre	Probability of protection	95%CI
1.38	50%	1.023, 1.630
1.59	75%	1.409, 2.363
1.95	95%	1.674, 3.979



r1 values and VNT titres for animals received full dose vaccine in the heterologous challenge exp.



* *Animals developed clinical signs after challenge.*



Conclusions

- **Assessment of vaccine efficacy in vitro by serology can be possible by establishment of a reference antibody titre from 21dpv**
- **r1 values using sera VNT titre equal to or above 1.65 can predict the protection status.**
- **Further investigation and validation are undergoing.**



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THANK YOU