

# A successful vaccine trial to control wildebeest-associated Malignant Catarrhal Fever in cattle

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# Background – Malignant catarrhal fever (MCF)

- Alcelaphine herpesvirus -1
- Carriers – wildebeest
- Risk period - wildebeest calving
- 100% cattle mortality
- No treatment
- Control – avoidance, migration, removal



# Background - Vaccine

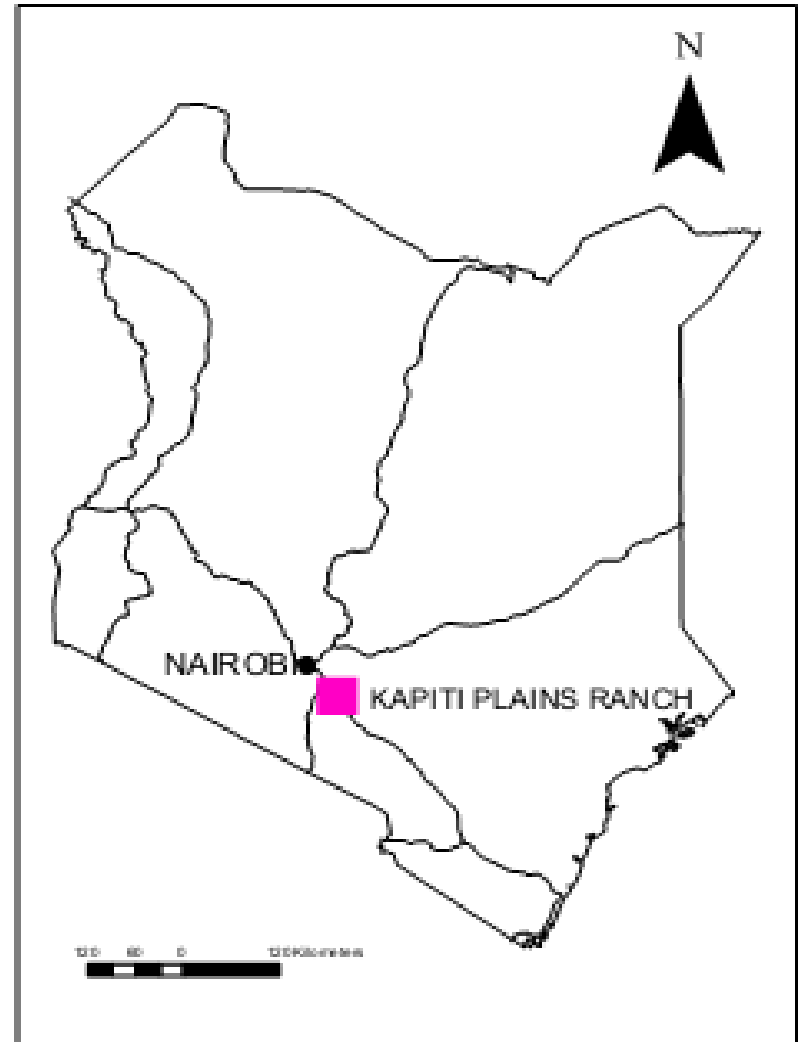
- Attenuated live virus (AIHV C500)
  - Moredun Research Institute, Scotland
- First field trials – Tanzania (2011-2012)
  - 2 x randomised placebo blind trial (100)
  - 58% efficacy for control of clinical MCF
  - No estimation for controlling mortality

Lankester et al (2016) Vaccine

<http://dx.doi.org/10.1016/j.vaccine.2015.12.009>

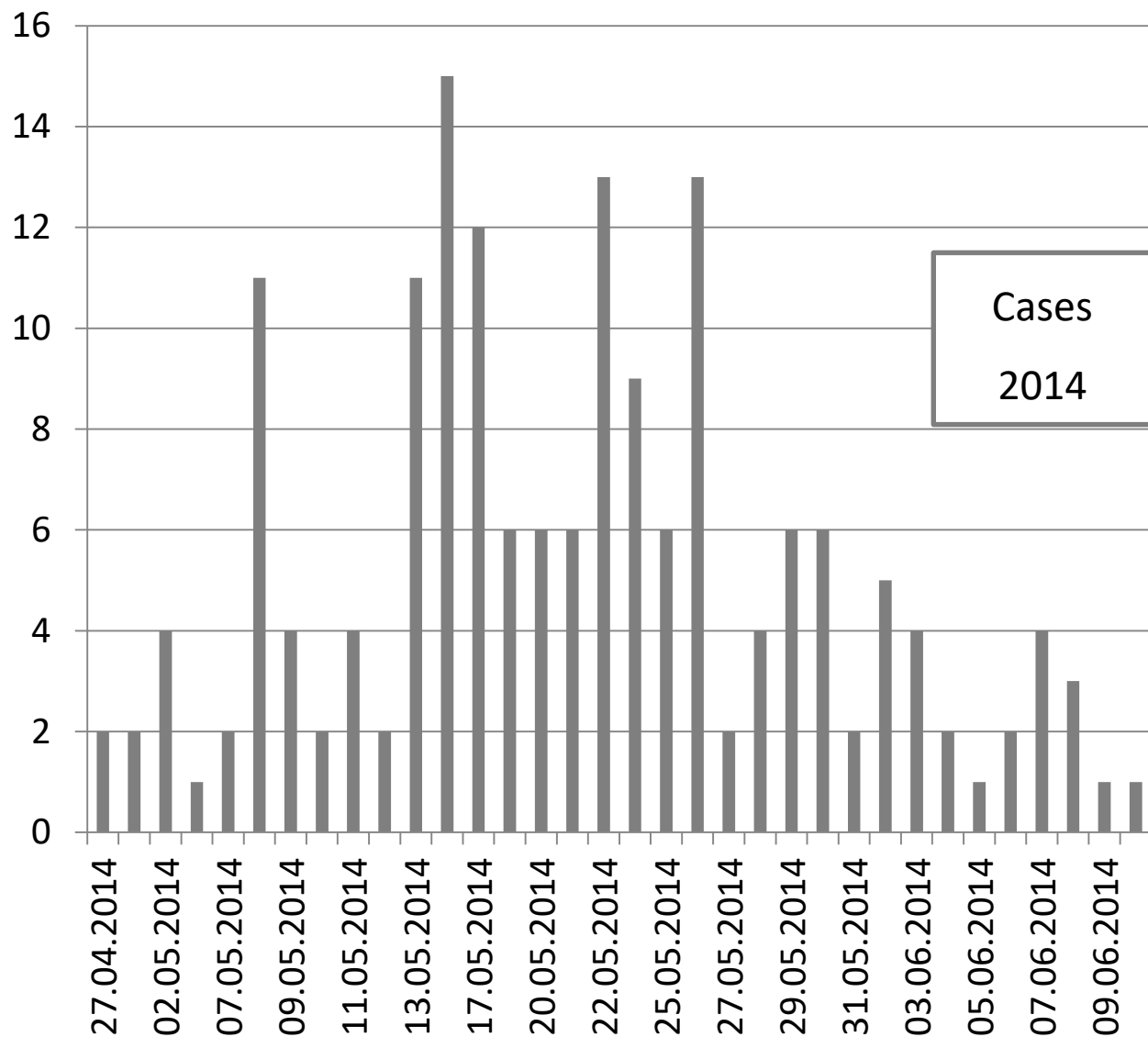
# Background - Study site

- Kapiti Plains Ranch
- 33000 acres
- 2000-2500 cattle
- Wildebeest, hartebeest, zebra, giraffe, gazelles, lions, hyenas, leopards, cheetahs



# MCF at Kapiti 2014-2017

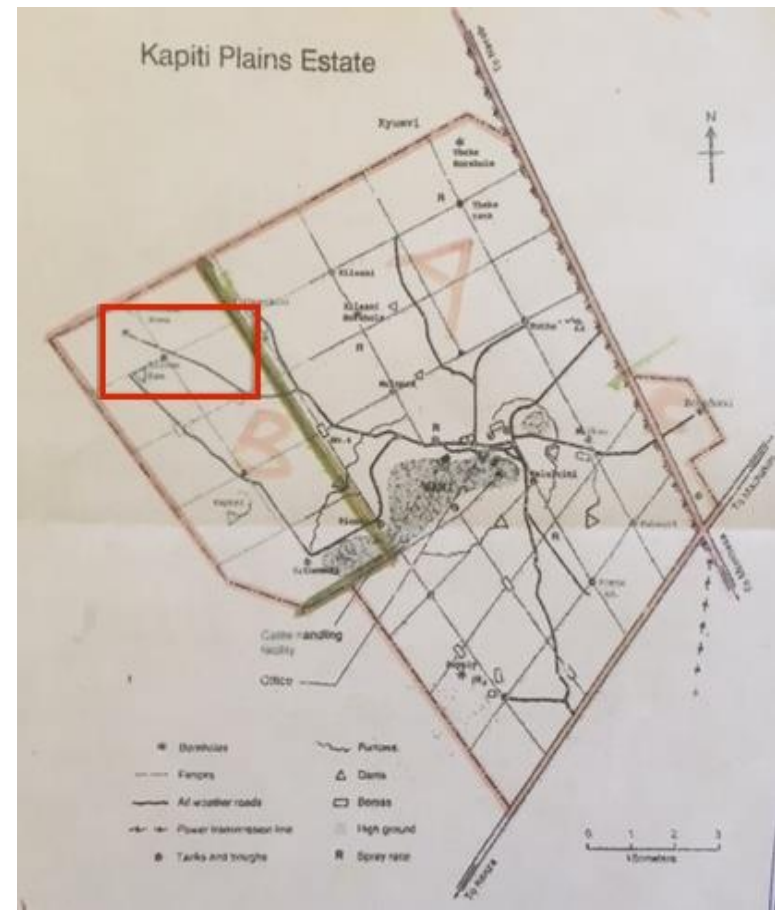
Year	Cases/Incidence
2014	215/1975 11%
2015	78/2106 4%
2016	32/2069 2%
2017	162/1592 10%



# Vaccine trial - Methods

January-August 2016

- Randomised placebo blind
- 146 animals
- Attenuated live virus  
(AIHV C500) + Emulsigen
- 2 doses - day 0 and 28
- Vaccine reactions
- Grazed with wildebeest  
from March 2016 (day 56)



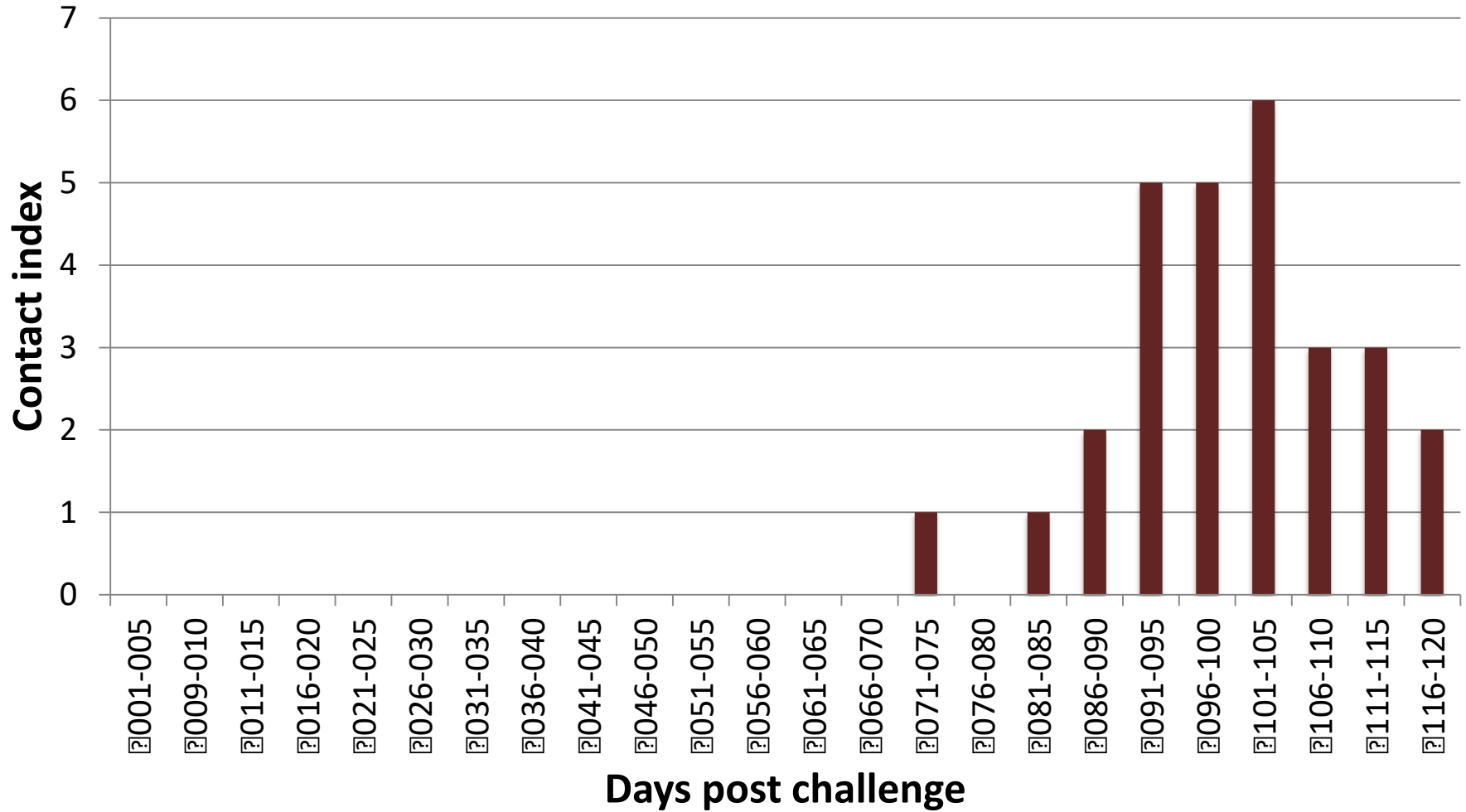
# Vaccine trial – Case definition

- Clinical signs assessed daily
- Temperature every 2 days
- Sampling every 2 weeks  
(whole blood, serum)
- Terminal samples  
(blood, serum, tissues)
- Indirect ELISA
- Nested PCR
- Histopathology



# Results – outbreak

Cases 2016





# Results – Vaccine trial

- 21/72 cases in placebo group (29.2%; 95%CI 19.9-40.7%)
- 4/71 cases in vaccinated group (5.6%; 95%CI 2.3-13.6%)
- Vaccine efficacy 80.8% (95%CI 78.0-83.6%)

## Challenges

- Low numbers of wildebeest
- Predation of study animals

# Next steps

- Market scoping
- Safety
- Risk mapping

