

Wednesday 5/21/2025

Paper Discussion : Chevalier, V., Rakotondrafara, T., Jourdan, M., Heraud, J. M., Andriamanivo, H. R., Durand, B., ... & Rakotondravao, R. (2011). An unexpected recurrent transmission of Rift Valley fever virus in cattle in a temperate and mountainous area of Madagascar. *PLoS Neglected Tropical Diseases*, 5(12), e1423.

1. What is the researcher's research question? *C'est quoi la question de recherche ?*
 - a. What are the factors which influence the prevalence of antibodies against RVFV in cattle in Anjozorobe district? What factors predict the transmission of RVFV?
 - b. Factors: age, location of night pen, minimum distance from pen to nearest water source and forest, nearest water point type, adding individuals to herd
 - c. *Factors we would add* : vector abundance
2. What model did the researchers use? If you were to write this model in R code, how would you write it? *Quel modèle utilisent-ils les auteurs ? Si vous deviez écrire ce modèle dans R, comment l'écririez-vous ?*
 - a. Hypothesis: The prevalence of antibodies against RVFV is influenced by age, distance, ... etc.
 - i. Smaller distance to water source is associated with higher RVFV seroprevalence.
 - b. Response Variable: Individual Seropositivity for RVFV
 - c. Predictor Variables: Age, Distance Night Pen to Water, Distance Night Pen to Forest, Type of Water Point, Herd Replacement, Breeder
 - d. Distribution: Binomial
 - e. Link: Logit
 - f. R Code:
 - i. `glmer(individual_status ~ age + distance_water + distance_forest + water_type + replacement + (1 | breeder), family = "binomial", link = "logit", data = data)`

WHAT IF...

- g. Response Variable: Percent of herd that is seropositive for RVFV
- h. Predictor Variables: Age, Distance Night Pen to Water, Distance Night Pen to Forest, Type of Water Point, Herd Replacement, Breeder
- i. Distribution: Normal
- j. Link: Identity

WHAT IF...

- a. Response Variable: Number of cows seropositive for RVFV
- b. Predictor Variables: Age, Distance Night Pen to Water, Distance Night Pen to Forest, Type of Water Point, Herd Replacement, Breeder
- c. Distribution: Poisson
- d. Link: Log

3. What are the main findings of the paper? *Quelles sont les principales conclusions de l'article ?*
 - a. Seroprevalence was 28%.
 - b. Seropositivity is significantly associated with age and minimum distance to water point. Seropositivity is negatively correlated with distance to water. Seropositivity is positively correlated with age.
 - c. Water point type was not significantly associated with seropositivity.
 - d. Minimum distance to the forest was not significantly associated with seropositivity.
 - e. Replacement was significantly positively associated with seropositivity.
4. What does Figure 2 show? *Qu'est-ce que Figure 2 démontre ?*
 - a. X-axis = age (years)
 - b. Y-axis (left) = number of individuals
 - c. Y-axis (right) = seroprevalence
 - d. Seroprevalence increases with age.