



Risk Factors Associated with Newcastle Disease Virus in Vaccinated Indigenous Chicken (*Gallus gallus domesticus*)

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Introduction

- Vaccination against Newcastle disease is a noble climate smart TIMPs to enhance resilience for improved poultry productivity (**Alders, 1999; KNBS, 2019; Dortmans et al., 2011; OIE 2020**)
- In Africa as a whole, there is limited data on the circulating genotypes (**Miguel et al., 2013; de Almeida et al., 2013**), as well as minimal information on the occurrence of the disease, its distribution, spread, and risk factors associated
- Understanding incidence and risks associated with Newcastle disease vaccination can enhance decision making by the farmers and policy makers for effective poultry vaccinating programmes

Study Objectives

Overall

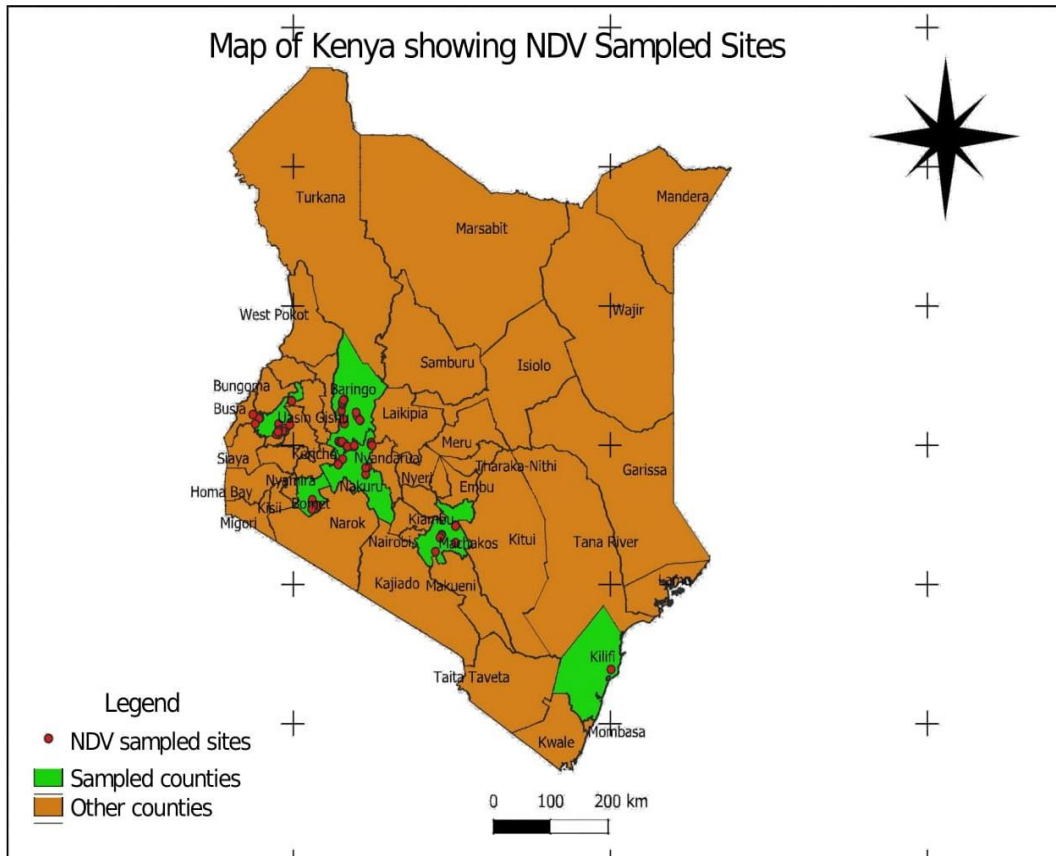
To assess incidence and risk factors associated with Newcastle disease in domestic indigenous chicken in six counties of Kenya

Specific

- To determine incidence of Newcastle disease in six counties lying within agro-ecological zone III and IV in Kenya
- To evaluate association between incidence of Newcastle disease and climatic conditions (temperature, rainfall, humidity, and wind speed) in study counties

Materials and Methods

1. Study Sites



AEZ III counties

- Kakamega
- Bomet
- Nakuru
- Baringo

AEZ IV counties

- Machakos
- Kilifi

Materials and Methods cont...



Sample collection



Virus isolation

- RNA extraction from the allantoic fluid
- RT-qPCR targeting the matrix gene

Data was analyzed using SPSS[®] 2019 and chi-square and Fisher's exact tests used to test the independence of the variables at $P \leq 0.05$

Results

Basic Characteristics

- Average chicken/ HH = 10, Production system: Free range 71.9% , Vaccination rate: 25%

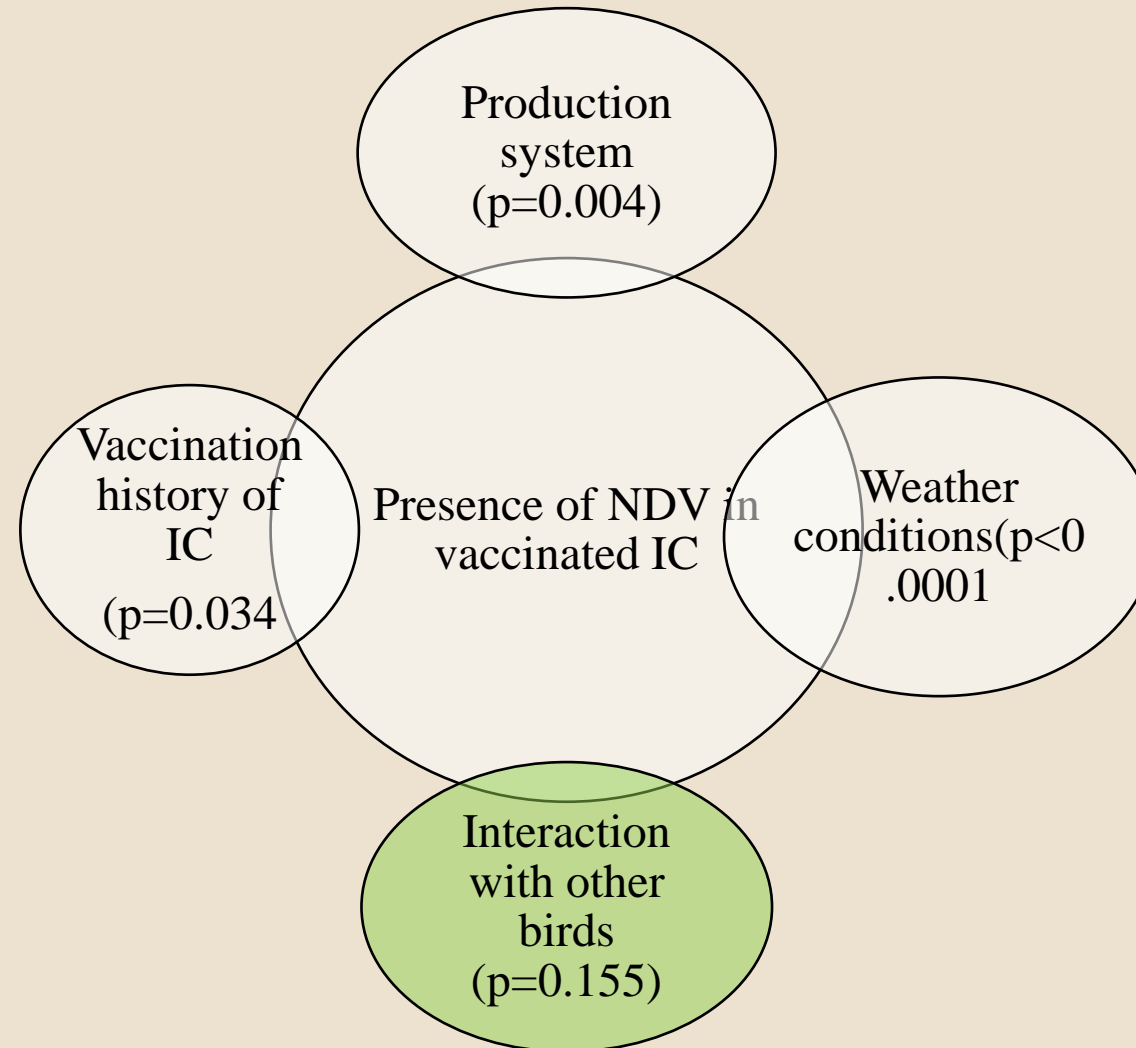
- **Virus detection**

Newcastle disease detected in pooled samples at 70.8% and was significant

($p < 0.05$)

Results and Discussions Cont.....

- Relationship between risk factors and the presence of NDV in vaccinated IC



Conclusion/Recommendation

- The present study indicated high prevalence of **70.8%** ($p < 0.05$) with **78.5%** ($p = 0.045$) of the disease in vaccinated Ics indicating possibility of an outbreak in study areas (**Fentie et al., 2014; Putri et al., 2017**)
- The incidence could be associated with extreme weather condition (**Njagi et al., 2010; Ogali et al., 2018; Ayala et al., 2020**)
- It is recommended that Newcastle vaccination is done in a timely manner to enhance resilience and increase productivity



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