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“Filling gaps and removing traps  
for sustainable resource management”

## The Role of Chicken Production Systems and Management Practices on Newcastle Disease Outbreaks in Kenya

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### Abstract

Newcastle disease (ND) is the most prevalent chicken disease in many developing countries including Kenya. It accounts for over 80 % of chicken mortality rates, depriving farmers of their source of livelihood. It is the main challenge for farmers especially those rearing indigenous chicken under the free-range system. This is due to the lack of uniformity in practices, favouring the introduction and spread of the disease. This is worsened by the lack of information about how management practices contribute to the spread of ND. In Kenya, there exists limited information on how chicken production systems and management practices influence ND outbreaks. The current study aimed at assessing the role of chicken production systems and management practices on the frequency of ND outbreaks in Kenya. A Focus group discussion (FGD) consisting of chicken farmers, traders and veterinary officers was conducted to get insights on the chicken value chain and ND. A three-stage sampling procedure was used to select 192 and 140 chicken farmers in Kakamega and Machakos counties of Kenya. A poisson regression model (PRM) was used to estimate the effects of production systems, management practices as well as farmer attributes on the frequency of ND outbreaks. Descriptive results highlight the low access to institutional and support services like extension, trainings and credit. From the PRM results, practices like flock size, type of housing, housing composition, biosecurity and vaccination as well as farmer attributes like ND awareness and extension access had significant effects on the frequency of ND outbreaks. Based on the results, Counties should implement programs to recruit and deploy extension officers to facilitate delivery of information and extension. Credit service providers need to create affordable services and packages that target small-scale farmers. There is need to create more awareness among chicken farmers on aspects like disease detection, disease response and mitigation measures. Farmers should be sensitized on the need to adopt better feeding practices as well as proper housing for chicken so as to reduce the likelihood of birds coming into contact with disease spreading pathogens. Country governments should also develop relevant to facilitate efficient and effective vaccine delivery.

**Keywords:** Biosecurity, newcastle disease, production systems, vaccination