

2012. D. C. Kemboi, H.W.Chege¹, L.C. Beboral¹, N. Maingi¹, P.N. Nyaga¹, P.G. Mbuthia¹, L.W. Njagi¹, and J. Githinji². Seasonal Newcastle disease antibody titre levels in village chickens of Mbeere District, Kenya

Abstract

Free-range poultry keeping is the most common type of poultry production system in Kenya. These birds, however, have low production levels, compared to their exotic counterparts. Diseases are reported to be the main constraint to poultry production, especially Newcastle disease (ND) which causes mortalities as high as 100% (Njagi *et al.*, 2010). Studies by Kasiiti (2000) and Njagi *et al.*, (2010) showed that the ND virus (NDV) is present in healthy village chicken and that hens that survive outbreaks or have antibodies from previous exposure to Newcastle disease may maintain the virus endemicity in the village chicken. Thus, carrier chicken, village poultry population dynamics, other poultry species, wild birds and heterogeneity of the virus are some of the risk factors that have been associated with the maintenance of NDV (Awan *et al.*, 2004; Njagi, *et al.*, 2010). Management practices, including confinement, mode of disposal of poultry waste and carcasses and recovery rates of chicken from disease outbreaks also favour maintenance of virus in village populations (Njagi *et al.*, 2010). Nyaga *et al.* (1985) indicated that Newcastle disease outbreaks are reported during the cold and dry periods of the year with peaks in April, June-July and September-November periods meaning that antibody titres to NDV virus can be found in birds all year round. It is hypothesised that season does not affect the immune response to NDV in village chicken in Mbeere District, Kenya. The aim of the study was therefore to determine the prevalence of antibodies to NDV in naturally exposed, non- vaccinated multi-age village chickens in the wet and dry seasons in Mbeere District. The objective of this study was to determine Newcastle disease antibody titres in village chickens in Mbeere District during dry and wet seasons. Birds were purchased from farms in Mbeere district in Eastern province. Forty eight apparently healthy chickens (24 birds each in dry and wet season) consisting of 7 chicks, 8 growers and 9 adults (wet season) and 9 chicks, 8 growers and 7 adults (dry season) were purposively randomly sampled. The wet season was in November while the dry season (Fig 7) was in March. The chicks were less than 2 months old; growers were between 2 to 8 months; and adults, above 8 months of age (Sabuni, 2009). All birds were labelled and transported in cages to Kabete, University of Nairobi campus for sampling. Collected serum samples were tested for NDV specific antibody by hemagglutination inhibition (HI) test while cloacal and oropharangeal swabs were processed for NDV isolation. (OIE, 2000). Overall 100% and 95.8% of the birds in the wet season and dry season respectively had specific antibody titers against NDV (>1:8). There was a significant higher titre during the wet (GMT 65.85) than the dry (GMT 31.08) season. Chicks and adult birds had a significant higher titre ($P < 0.05$) in the wet than dry season while growers had a marginal higher titre in the dry than wet season but was not statistically significant. There was a decrease of on the number of birds with protective NDV antibody titre (24-27) from 100% in the wet season to 83% in the dry season with only growers maintaining a 100% protective NDV antibody titre. No virus was isolated from swabs and tissues of the birds.