ABSTRACT

In Rwanda, the most prevalent livestock farming activity carried out to improve livelihoods in rural areas is poultry farming. The most common bird species raised for egg and meat production is indigenous chicken (IC). Despite its economic significance, the improvement programs in Rwanda have given IC little attention. There is, therefore, little documentation on their production and disease resistance performance. This study aimed at evaluating the growth performance and immunologic response of IC against Newcastle disease vaccine in four gene pools in Rwanda. One hundred eighty-nine (189) IC from four gene pools were kept on-station using a completely randomized design. Thereafter, the IC were vaccinated with a live commercial Newcastle disease virus. Data on body weight were collected weekly for 20 weeks whereas serum samples were collected after 35 days. Antibody responses were determined using indirect ELISA. Analysis of variance was performed using the SAS Generalised Linear Model procedure. Growth patterns were modelled using the logistic function. Results revealed a highly significant difference ($P<0.001$) for growth performance and antibody response to Newcastle disease vaccine among the four gene pools. Gene pool A was the heaviest (1.6 kg) in the period of 20 weeks and gene pool C expressed the highest immune response (8,161 antibody titres) for Newcastle disease vaccine ($P<0.001$). The results indicated that the selection of gene pool A in breeding could yield IC with good growth performance trait whilst gene pool C could be selected for its higher immunity against Newcastle disease virus.

Keywords

Body weight, indigenous chicken, antibody, Newcastle disease