

(42) **Bebora L.C**, Maingi N, Nyaga P.N, Mbuthia P.G, Gor C.O, Njagi L.W. and Githinji J.M. (2010): Enhancing village chicken productivity through parasite management for effective Newcastle disease vaccination in Kenya. . Paper presented at the 2nd RUFORUM Biennial Capacity Building Conference, held in Entebbe, Uganda, 20-24th September 2010. Conference program page2

Abstract

Newcastle disease (ND) is documented among the most important diseases of poultry in the world, causing devastating losses in both commercial and village chickens. It is capable of causing mortality rates of up to 100% of the flock and, as a viral disease, can only be effectively controlled through vaccination. The disease is endemic in village chickens in Eastern province of Kenya. On the other hand, parasites, which have a tendency of causing stress to the birds through nutrient consumption, blood sucking, and irritation, have been isolated at high levels from chickens from this area. Knowing that stress is associated with immune-suppression, it is important to establish the extent at which parasite burdens influence the effectiveness of ND vaccine; we hypothesize that the presence of internal and external parasites lowers ND vaccination response in village chickens. This study will, therefore, address the identified knowledge gaps with the aim of improving ND and parasite control in village chicken production. It will determine the extent at which external and internal parasite burdens influence vaccination response to ND in the productivity of village chickens, and will include establishment of: (1) productivity and socio-economic parameters, (2) seasonal parasite burdens, (3) effect of endoparasites and ectoparasites on ND vaccine response. The research will be done in two agro-ecological zones in Eastern province, will be field-based and will involve the farmers and other stakeholders, with continuous feedback through various fora. Before start of the study, inception and stakeholder workshop will be held to map out research gaps and approach. Data collection on socio-economic and indigenous knowledge on chicken productivity, disease recognition and control will be collected through farmer-group discussions and filling-in of questionnaires. Parasite isolation and identification will be done through examination of fecal samples (floatation technique; standard identification methods) and post-mortem examination of the birds. The birds' humoral and cell-mediated immunity to the ND vaccine will be determined using hemagglutination inhibition, macrophage migration inhibition, and skin reaction tests. Effect of worm burdens to ND vaccine effectivity will be done through selective treatments, vaccination and monitoring of respective immune responses; comparing them to the control groups. Once the results are processed, a protocol on seasonal control of parasites will be recommended, as the farmers are advised to vaccinate their birds against ND following the laid-down vaccination regime. This is expected to lead to effective ND vaccination, enhanced village chickens' productivity, and improved socio-economic status of the community.