Title: Enhancing Indigenous Village and Smallholder Commercial Chicken Productivity through use of Effective Gumboro Disease Vaccination Regimes and Immune Stimulants in Kenya

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**Purpose**

To improve the livelihoods of smallholder farmers rearing indigenous village, commercial layer and broiler chicken flocks by controlling Infectious bursal disease (Gumboro) through effective vaccine application.

**Project Summary**

Gumboro disease, also known as infectious bursal disease (IBD), is a viral disease of chicken causing high mortalities and severe losses in both commercial and village chickens worldwide; is endemic in Kenya. Studies in Kenya and elsewhere have shown IBD outbreaks occurring in vaccinated layers and broilers and antibody titers below protective levels perhaps due to immunosuppression after use of recommended vaccination regimes. There is no documented vaccination regime for indigenous village chicken in Kenya. This project will address the gaps here-in identified through the following objectives: determine Gumboro disease (GD) status in smallholder chicken flocks; determine efficacy and do on-farm validation of immune-stimulants enhanced vaccines; train students, build capacity and document knowledge, attitudes and practices of value chain actors on Gumboro disease control to improve smallholder poultry productivity through effective interventions and control measures. The project activities will include: 1). an inception workshop held to identify poultry value chain actors in the study area; 2). a cross-sectional study carried out to determine knowledge, attitudes, practices and risk factors for Gumboro disease occurrence and control measures in indigenous village chicken, ducks and turkeys using focus group discussions and a structured questionnaire administered to farmers and traders; 3). IBD prevalence study of households with non-vaccinated birds where blood will be collected and sera separated for the determination of antibodies to IBD in village chicken, ducks and turkeys using ELISA; 4) preparation and use of a local vaccine using local infectious bursal disease virus (IBDV) strains and testing its efficacy and that of an imported IBD vaccine in a controlled set up with and without immune stimulants; 5) A vaccination regime for indigenous village chicken will be determined by vaccinating using imported and local vaccine strains to assess humoral and cell mediated immunity to determine an appropriate vaccination regime; 6). On-farm vaccination of indigenous village chickens with GD vaccine in selected smallholder farms will be carried out. The project’s outcome will be improved livelihoods for smallholder farmers and trained manpower in Gumboro disease control i.e. two (2) MSc. students, four (4) undergraduate interns and poultry value chain actors. The University of Nairobi will work in collaboration with Government of Kenya Ministry of Agriculture, Livestock and Fisheries, State Department of Veterinary Services and smallholder poultry farmers and traders in Embu County.
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<th><strong>Country and Specific Location(s)</strong></th>
<th>Kenya: Embu County</th>
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| **Participating Institutions**     | University of Nairobi  
                               | Ministry of Agriculture, Livestock and Fisheries, State Department of Veterinary Services (Government of Kenya) |
| **Start Date**                     | 1st July, 2015      |
| **End Date**                       | 30th July, 2017     |
| **Budget**                         | USD 59,830          |

Key words: Gumboro, vaccination regime, Smallholder farmers, immunosuppression
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Lucy Wanjiru Njagi is an avian scientist at the University of Nairobi with roles in teaching, research and outreach. Her areas of specialisation as a senior lecturer in the Department of Veterinary Pathology, Microbiology and Parasitology are in Avian Medicine, Veterinary Virology and Veterinary Pathology. Within the Department, she is a course co-ordinator for various undergraduate and MSc. course units. She also coordinates the departmental Poultry Diagnostic Services. She is a member of several Departmental, Faculty and College committees. Nationally, she is a member of the Veterinary Vaccine Technical Committee and a former member of Ministerial task force for reviewing Animal welfare policy. Dr. Njagi is a holder of a Bachelor of Veterinary Medicine (BVM), MSc. and PhD from University of Nairobi. She has been involved in various research projects mainly on poultry. She has also supervised various postgraduate students both at MSc. and PhD. levels. Currently she is supervising 1 MSc. and 2 PhD. students in various projects related to poultry and fish. Dr. Njagi is passionate about poultry diseases and has been involved in diverse poultry projects from which she has published articles in many refereed journals, presented several papers in conferences and co-authored a book on poultry diseases in Africa.

Selected Publications


Selected Funded Projects
• 2015-2017: Enhancing indigenous village and smallholder commercial chicken productivity through use of effective Gumboro disease vaccination regimes and immune stimulants in Kenya. Funded by RUFORUM. Call ID RU/CGS/GRG/21/07/14. Grant Amount: $59,830. **Principal Investigator**

• 2014-2016: Capacity Building for Training and Research in Aquatic and Environmental Health in Eastern and Southern Africa (TRAHESA). Funded by NORHED. Grant amount: NOK 13,748,854. **Collaborator**

• 2011 –2014: Controlling infectious bursal disease through development of local vaccines and establishing effective vaccination program. Funded by Science, Technology and Innovations (ST&I). Grant amount: KShs. 2.5 Million. **Principal Investigator**

• 2010- 2012: Enhancing village chicken productivity through parasite management for effective Newcastle disease vaccination in Kenya. Funded by RUFORUM. Call ID RU/CGS/GRG/15/11/09. Grant Amount: USD 59,984. **Collaborator**

• 2009- 2012: Enhancement of sustainable livestock productivity and marketing through control of Rift valley fever virus in Eastern Africa. Funded by RUFORUM. Call ID RU/CFP/CGS/TADS/09/19. Grant Amount: USD 59,539. **Collaborator**