

**Socioeconomic impact of Newcastle disease vaccination of village poultry on community free-range poultry farmers in Iganga district**

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**Abstract**

This research is aimed at establishing the socioeconomic impact of Newcastle disease vaccination on community free-range poultry keepers in Eastern Uganda. In the baseline survey it was realised that majority of the farmers had lost poultry; some up to 100% due to the disease. They did not know much regarding its control and prevention. Among the major challenges faced by the poultry keepers were lack of access and the high cost of vaccines, lack of knowledge regarding vaccination and limited extension services in the villages. In a follow up survey yet to be conducted, the study will assess the impact of the vaccination programme as well as poultry keepers' willingness to pay for vaccination in a bid to ensure sustainability.

Key words: Indigenous chicken, poultry keepers, rural households

**Résumé**

Cette recherche vise à établir l'impact socio-économique de la vaccination contre la maladie de Newcastle sur les éleveurs communautaires des volailles fermières dans l'Est de l'Ouganda. Dans l'enquête de base, il a été constaté que la majorité des agriculteurs avaient perdu la volaille, certains jusqu'à 100% à cause de la maladie. Ils avaient une connaissance assez maigre au sujet de son contrôle et de sa prévention. Parmi les défis majeurs auxquels sont confrontés les éleveurs de volailles, on peut citer le manque d'accès aux vaccins et leur coût élevé, le manque de connaissance sur la vaccination et les services de vulgarisation limités dans les villages. Dans une enquête de suivi devant être faite, nous évaluerons l'impact du programme de vaccination ainsi que la volonté des éleveurs de volailles à payer pour la vaccination dans le but d'assurer la durabilité.

Mots clés: poulet indigène, éleveurs de volaille, ménages ruraux

**Background**

In developing countries, many rural households keep poultry in their farmyard (Udo *et al.*, 2006). The village poultry production systems of Africa are mainly based on the scavenging indigenous chicken found in virtually all villages and households

(Awuni *et al.*, 2006). In Uganda the majority of people live in rural areas where there are a few opportunities for employment. Most therefore practice subsistence farming which unfortunately hardly meets their food requirements. . Despite the economic shortfalls of rural areas, there exist potential for harvesting and utilising the existing resources for improved productivity for better living standards. Among the resources available are the indigenous chickens (Ssewanyana *et al.*, 2006). In many of the poorest rural households, indigenous chickens are the only livestock that the household owns, and are the main or only source of cash and/or savings for essentials and household emergencies (Bagnol, 2001). Indigenous chickens have, however, low productivity of meat and eggs. The cause of this low productivity is a result of mainly two factors: first is their inherently low genetic potential for those traits; secondly, the high mortalities due to Newcastle Disease (Ssewanyana *et al.*, 2006). Newcastle disease (ND) was revealed to be the major constraint inhibiting rural chicken development (Udo *et al.*, 2006).

## Literature Summary

Village poultry are still very important in third world countries like Uganda. Village poultry constitute an important component of the agricultural and household economy in these countries, a contribution that goes beyond direct food production for the fast growing human population as well as employment and income generation for resource-poor small farmers, especially women (Guèye 2002a). They also serve as a means of capital accumulation and as a barter product in societies where there is no circulation of currency. Furthermore, they are closely linked to the religious and socio-cultural lives of several million resource-poor farmers for whom poultry ownership ensures varying degrees of sustainable farming and economic stability. Additionally, village poultry have medicinal and environmental functions. Therefore, the overall contribution provided by village poultry at household, community and country levels is generally underestimated since the multitude of roles played by poultry in third world countries are generally ignored, in part because they are extremely difficult to assess (Guèye, 2002b).

However, the high incidence of diseases is one of the major constraints to smallholder poultry production systems. Newcastle disease, the most serious epizootic poultry disease in most poor countries, occurs every year and kills on average 70 to 80% of the unvaccinated rural family poultry flocks (Guèye 2002b). It is a highly contagious disease of the respiratory and nervous

systems, mostly affecting chickens, but sometimes also affecting other poultry species, such as guinea fowls, ducks and turkeys among others. It often devastates unvaccinated village poultry flocks in periodic out-breaks (Spradbrow, 1996). Newcastle disease is the one disease which is well known by most village poultry-keeping farmers. They often can even predict the period in which it generally occurs, although they do not usually know the cause. In many local communities, village poultry-keeping farmers have names for the disease in their local languages/dialects. They are at least usually well aware of the virulence of Newcastle disease. In chickens, the disease frequently leaves no survivors in unvaccinated flocks (Guèye, 2002).

Newcastle is a viral disease that mainly attacks poultry amongst which chickens are the most susceptible hosts (Udo *et al.*, 2006). The virus is highly contagious and spreads in droppings and nasal discharge via direct contact, through the air, or on contaminated items such as bottoms of shoes, vehicles, food, or infected dishes and cages (Spradbrow, 1999). Tomo (2009) asserts that the usual source of virus is an infected chicken, and spread is usually attributed to the movement of chickens through chicken markets and traders. A chicken incubating Newcastle can introduce the virus to an isolated, fully susceptible flock, resulting in up to 100 % mortality.

Eradication of ND is unlikely and there are few poultry species which are resistant to the disease. Continual vaccination programs currently offer the only effective way of controlling ND (Udo *et al.*, 2006). Thus, chicken vaccination is one of the most important technical possibilities to improve village chicken production (Tomo, 2009). However, Spradbrow (1999) emphasized that before extensive vaccination is undertaken there is need for a cost-benefit analysis. Alders and Spradbrow (2001) assert that when working with village chickens, it is essential that benefit-cost analyses of all interventions be done so that any ND control strategies are cost-effective.

In most third world countries, Newcastle disease occurs every year and kills on average 70 to 80% of the unvaccinated rural poultry and no progress has been made in controlling it among free-range village flocks (Branckaert and Guèye 2000). Therefore, Newcastle disease control can appropriately be used as an entry-point for developing the village poultry sub-sector as a whole (Guèye 2002b). It is however extremely difficult to organise vaccination campaigns covering free-range birds, and

the main constraints are related to the characteristics of the husbandry systems practised namely; small flock sizes, multi-age birds, scattered flocks over a vast area and birds not usually housed (Guèye 2002).

### **Study Description**

This study is being conducted in Bulyansiime village in Iganga district in Eastern Uganda which was purposively selected because of its high level of poultry activity, limited participation in vaccination activities and high household density (UBOS, 2003). A baseline survey was conducted prior to any intervention to assess the poultry keepers' knowledge, attitudes and practices as far as Newcastle disease and control is concerned. The survey was followed by quarterly vaccinations

### **Research Application**

It was found that 90% of the respondents had some knowledge of Newcastle disease, 80.4% of which had lost chickens as a result of the disease. Furthermore, 38.3% had an idea about vaccination of which only 26.3% had actually vaccinated their birds some as far back as over a year. Majority use local remedies that they admitted-barely help. Among the challenges, 57.5% highlighted high cost of vaccines; 46.3% lack of access to vaccines; 35.4% limited extension services; 31.7% lack of vaccines; 28.8% mentioned long distance to vaccine sale point; 17% lack of knowledge about vaccination and disease control in general; 14.2% said vaccines are faulty whereas 5.8% feared vaccines would cause harm to the birds. Impact studies are planned after 12 months following vaccination.

In the course of the quarterly vaccinations and Focus group discussions conducted, the poultry keepers have continuously been sensitised about poultry diseases and their control and they are already realising the benefits of vaccination. For instance there has been a significant increase in the number of eggs laid, hatchability and flock numbers. Several positive changes have been recorded. Initially, many of the poultry keepers were hesitant to avail their birds for vaccination for fear of the vaccines causing harm. Overtime, they observed that those who had had their chickens vaccinated did not have complaints and they started availing their birds too. Furthermore, a good number of the poultry keepers do not rear the birds for commercial purposes hence they were not bothered about vaccination. However, through the vaccination program and the increased survival rate, some have begun to perceive poultry-keeping as a viable and profitable enterprise and they are keener on vaccination. Soon questionnaires are going to be administered to assess impact of

the program through a comparison of the baseline situation and after.

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