

Research Application Summary

Developing capacity for implementing innovative PPR control strategies based on the epidemiology and socio-economic aspects of the disease in the East African region

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Abstract

Major losses in sheep and goats have been incurred from *Peste des petit ruminants* (PPR), a relatively new disease in East Africa. It first appeared in Eastern Uganda but has since spread to most of Kenya and Northern Tanzania. Small ruminants are the source of income for most pastoralists in East Africa. In this study the epidemiology of PPR including risk factors, prevalence, and socio-economic effects will be analyzed using participatory tools in Turkana, Kenya and Longido in Tanzania.

Key words: PPR control strategies capacity development

Résumé

Les pertes importantes chez les ovins et les caprins ont été exposés à partir *Peste des petits ruminants* (PPR), une maladie relativement nouvelle en Afrique orientale. Sa première apparition dans l'Est de l'Ouganda, mais s'est depuis étendue presque partout au Kenya et au nord de la Tanzanie. Les petits ruminants sont une source de revenu pour la plupart des pasteurs en Afrique orientale. Dans cette étude, l'épidémiologie de PPR, y compris les facteurs de risque, la prévalence et les effets socio-économiques seront analysées à l'aide d'outils participatifs dans les Turkana au Kenya et à Longido en Tanzanie.

Mots clés: Contrôle des capacités de stratégies de développement PPR

Background

Livestock keeping is the main source of livelihood for most pastoral households found in arid and semi-arid (ASAL) areas of East Africa which are characterized by extreme climatic features of drought, flooding, low investments, fragile ecosystems and poverty levels approaching 65%. *Peste des petit ruminants* (PPR) is a relatively new highly contagious and infectious fatal disease of sheep and goats that has caused devastating losses in the East African region since it was first

reported in 2007 in the Turkana (Kenya) and Karamajong areas (Uganda). Despite intensive vaccination, quarantine and public awareness campaigns, the disease continues to spread southwards. It is therefore very important that human capacity trained on innovative strategies towards PPR control is developed. This project combines research and developing capacity at M.Sc. and PhD levels for management of livestock diseases.

Literature Summary

Peste des petit ruminants (PPR) was first described in Cote d'Ivoire, West Africa by Gargadenec and Lalanne in 1942. The disease is caused by *PPR* virus which has only one serotype with four distinct lineages (Barret et al., 1993). *Peste des petit ruminants* is found in Asia and Africa. *PPR* is transmitted by contacts between infected animals in the febrile stage and susceptible animals (Gopilo, 2005). In general goats are more susceptible than sheep, with sheep undergoing a milder form of the disease (Lefevre and Diallo, 1990). The *PPR* disease epidemics can cause mortality rates as high as 90% in native sheep and goat populations. The disease is ranked by communities among the top ten diseases of small ruminants (Diallo, 2006). Recovered animals and vaccinated animals develop life-long immunity. Lambs and kids from recovered and vaccinated mothers have protective maternal antibodies that persist for 3 to 4 months. There are considerable differences in the epidemiologic pattern of the disease in different ecological systems and geographical areas (Gopilo, 2005). Control of the *PPR* is through livestock movement control and immunization of the susceptible flocks with *PPRV* homologous vaccine made from strain Nigeria *PPRV* 75/1 LK6 Vero 70. An economic analysis for assessing benefits of vaccination against *PPR* in Niger revealed that the program was highly beneficial (Diallo, 2006).

Study Description

In one of the new project currently being funded by the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), the epidemiology of *PPR* including risk factors, prevalence, and socio-economic effects will be analyzed using participatory tools in Turkana District in Kenya and Longido in Tanzania. The virus characteristics and disease description will be done in Sokoine University, Tanzania. Conventional and community disease control strategies will be analyzed leading to development of innovative strategies. In order to determine how these activities will be undertaken, an inception meeting was held on 26 March 2010 in Nairobi. A total of 17 persons

participated, four each from Tanzania and Turkana (Kenya), one from the Food and Agricultural Organisation (FAO) and eight from University of Nairobi. The geographical areas have already been agreed as Turkana in Kenya and Longido in Tanzania by the stakeholders. The participatory checklist for disease search and socio-economic impact has been developed.

Research Application

The PPR disease in East Africa is not well understood since there are very limited studies that have been carried out in an attempt to elucidate the status of the disease in the region. Pastoralists incur direct losses when animals die in waves following epizootic outbreaks. Losses are also incurred from losses in growth and body condition, lost trade opportunities as often, it takes many years to replace lost stock. Losses are also incurred in trade when livestock movements are interrupted and also from vaccination and other social costs. This study is aimed at informing policy development in regard to control, prevention and eventual eradication of the disease. Further insights from the study will inform rehabilitation of affected communities so that they can regain meaningful livelihood through pastoralism. There are fears that the disease may spread further down to Southern African states.

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