

## **Small Scale Livestock Farmers' Disincentives for Animal Disease Prevention and How Incentives Can be Improved: A Case of Uganda**

**Juliet Biira<sup>1</sup>**

<sup>1</sup>University of Copenhagen, Department of Food and Resource Economics.  
Corresponding email: jbi@ifro.ku.dk

**ABSTRACT:** Small scale livestock farmers in Uganda are faced with animal disease as one of the major production constraints. There are low levels of disease prevention and this could be partially attributed to the fact that small scale producers do not have the right incentives to prevent animal disease. In this paper we use existing literature to highlight the disincentives that exist among small scale farmers to not prevent animal disease and solutions that could improve their incentives. Among others we note that farmers have low incentives to prevent animal diseases due to the nature of their production systems, keeping livestock as part of a diversification strategy, lack of financial incentives and the weak institutional structures in place. As possible solutions, we suggest the use of the new tripartite cooperative model to implement incentives such as a quality based payment scheme and use social monitoring to ensure compliance, compartmentalization, product differentiation and certification aiming at local and regional markets.

**Keywords:** Livestock, disease prevention, incentives, Uganda

### **INTRODUCTION**

#### **Background**

In Uganda, animal diseases are the major constraint to animal production and trade, (Uganda Programme for Trade Opportunities & Policy -UPTOP, 2006), (Nalubwama *et al.*, 2011). Several studies have focused on viability and assessment of disease control strategies, availability and provision of veterinary services (eg (McDermott *et al.*, 1999). To our knowledge, there has only been one study (by Rich and Perry 2011) on small scale farmers' disincentives and solutions to improve incentives. They look at incentives for stakeholders in agriculture to prevent livestock disease in developing countries through the value chain lens. The difference here is the focus on only farmers to motivate disease prevention at farm level.

### **METHODOLOGY**

A discussion of disincentives and possible solutions to improve incentives is derived from a narrative literature review. Existing peer reviewed papers and reports are used in the discussion.

### **DISCUSSION**

#### **Disincentives for animal disease prevention Production systems.**

Livestock keeping in Uganda is dominated by small scale farmers but their production systems do vary according to agro ecological zones and human population densities. Small scale livestock farming systems in Uganda can be categorized into three classes: pastoral and nomadic / semi nomadic system, mixed crop livestock production or intensive dairy, poultry and pig farming. (Nalubwama *et al.*, 2011).

Pastoralism is the most prevalent and efficient low cost livestock production system in arid and semi - arid parts of Uganda. Under pastoralism, the issue of trans- boundary animal diseases is important as livestock keepers move with their animals during the dry season and utilize communal

grazing and watering points, (Ministry of Agriculture, Animal Industry and Fisheries 2010).

Furthermore, there is disease risk from wildlife. Most pastoralists herd their animals at boundaries with wildlife that are a reservoir or host of several animal diseases that could introduce disease to their animals unless they have fencing, which most cannot afford, (Kock *et al.*, 2002). This is a disincentive for disease prevention as pastoralists have limited control over wildlife movement.

### **Informal marketing**

Sub Saharan Africa's livestock and livestock product market is majorly characterized by an informal marketing structure and could most likely remain so, with most of the livestock products are sold to low income local consumers. (McDermott *et al.*, 2010), (Perry and Dijkman, 2010). In the meat sector for most developing countries, meat is still sold in traditional markets or at meat stalls. Meat regulations are in place in order to provide safe meat to consumers but implementation varies, (FAO, 2011). The predominance of low quality products in the informal market in Uganda can be attributed to the fact that consumers have a low per capita consumption of livestock products, low incomes, and low purchasing power and are not sensitized about eating quality food, (UPTOP, 2006). The informal market makes traceability and inspection impossible and doesn't provide incentives for farmers to prevent animal diseases.

### **Financial disincentives.**

Price signals are an important source of information to producers as they drive behavior of actors, (Rich and Perry, 2011). In a comparison of incentives in the Ugandan Nile Perch market versus the livestock product market, it can be seen that that the Nile Perch market has financial incentives from high prices obtained from export to the high value EU market, (Jaffe *et al.* 2006). These financial incentives have led to investment in hygiene and higher quality but are much weaker in the livestock sector as there is no high quality market for Ugandan livestock products and livestock product prices are not incentivizing farmers to prevent disease, (UPTOP, 2006).

### **Profit maximization is not the major production objective.**

Optimizing behavior of small scale farmers may run contrary to economic principles, (Rich and Perry, 2011) and this could be attributed to the fact that small scale farmers do have different economic objectives and are not exclusively concerned about simple profit maximization, (McDermott *et al.*, 1999), (UPTOP, 2006). Livestock keeping is often a part of a diversification strategy and livestock is reared for several purposes such as home milk consumption, emergency financial purposes, prestige, bride wealth, and other social activities and a social status indicator, (Perry, 2002), (UPTOP, 2006). This means small scale farmers' investment in bio-security measures is limited, as they do not expect to obtain monetary returns that offset costs incurred in disease prevention measures thus reducing their incentive for livestock disease prevention. For those keeping animals for example for prestige, it could be more important to have large numbers of animals irrespective of their productivity or herd health status.

### **Public disincentives and institutional structure.**

As noted by Rich and Perry (2011), developing countries such as Uganda are often characterized by institutional environments with little enforcement of rules and regulations, low compliance and low trust of government institutions. Many national institutions have focused more on responding to disease crises rather than on prevention of disease and disease containment, (Raney *et al.*, 2009).

For Uganda in particular, the lack of set standards considering the consumers' ability to pay, predominance of the informal markets and institutional capacities or there lack of has led to the private sector, donors and NGOs being the primary driving forces in most livestock initiatives. "There are weak internal control systems and overall, Uganda has only limited private and public sector capacity to promote good practices for agri-food safety and agricultural health", (Jaffe *et al.*

2006 pg 23). The weak institutional structure, governance and low trust in government institutions provide weak incentives for small scale farmers to prevent livestock diseases.

### **Ways to improve incentives**

#### **Utilizing cooperative marketing.**

In the Ugandan livestock industry especially the dairy sector, farmers have been organized at the producer level in cooperatives and are registered with the government. Under the new cooperative model- the tripartite cooperative model, “the agricultural cooperatives focus on promoting cooperatives as viable, financially independent organisations with proper management and increased member participation and empowerment”, (Kwapong 2013 pp 7). The fact that the farmers are organized as groups could be a starting point for improving incentives and enforcing livestock disease prevention compliance. However as already known in classic economic theory, working in groups could be characterized by free riding and moral hazard but this could be avoided or reduced by the social capital in the cooperative. Cooperative marketing not only relies on social capital, it also breeds social capital. A strength of the cooperative lies in its ability to build and maintain trust among members and leaders, proper management and strong membership and member loyalty among others, (Kwapong and Korugyendo, 2010), these elements of trust and social capital, fear of social sanctions on trust breach are important for contract monitoring and enforcement, (Catelo and Costales, 2008).

#### **Quality based payment schemes.**

A possible way to improve incentives for livestock health prevention could be through payment schemes under which farmers with better quality products are rewarded for their efforts. This could be particularly important in the prevention of endemic diseases for example mastitis. The current payment schemes in both the formal and informal sector are the payment according to volume. However, a move from payment according to volume to payment according to quality needs to be gradual and is possible as long as it is endorsed by group members. An example of a successful payment scheme is one from Mongolia. (Draaiyer *et al.*, 2009) provide guidance on how payment schemes can be made for farmer groups dealing with milk. They acknowledge the use of penalties or bonuses but argue that if there is high level of trust among the farmer group, penalties might not be necessary.

#### **Use of compartments.**

Compartmentalization is an aspect that enables countries trade in disease free products even though the whole country does not have a disease free status for a specific disease. Animal products from this subpopulation can be certified safe even if the rest of the country is not disease free, (Raney *et al.*, 2009). Included in the principles of compartmentalization is among others: surveillance, reporting mechanisms and bio-security which involve cooperation between the industry and veterinary providers, (OIE, 2010), (Ratananakorn and Wilson, 2011). Bio-security plans should be made in collaboration with those who implement them and should not be too complex for them to understand. This calls for involvement of small scale farmers that are involved in implementation of bio-security on their farms, (Ratananakorn and Wilson, 2011)). The cooperative set up could also be vital in the startup and implementation phase.

#### **Product differentiation and certification.**

Although the livestock market is largely characterized by an informal market, there is a small market for certified value added products marketed through the formal marketing systems, (Perry and Dijkman, 2010). (McDermott *et al.*, 2010). There is growing demand for niche products in urban centers, supermarkets and export trade. The target to a niche market (which could be domestic, regional or international) could focus on production of organic products, welfare

enhanced products, fair trade products or products with a low carbon print. Small holder farmers could have a better opportunity at targeting domestic and regional markets than international markets in relation to 1 For details on principles and procedures of establishing a compartment, see (OIE 2010), (Ratananakorn and Wilson 2011).

3 standards and requirements, (Perry and Dijkman, 2010) and the fact that most of the developing countries are net importers of meat products. For a more detailed view on how (not) exporting livestock products will alleviate (not) poverty in Africa, see (Perry and Dijkman, 2010). This will depend on the competitiveness of the product, the country's capacity to supply these products and the institutional set up to be able to do export.

### CONCLUSION

From the discussion above we note that disincentives could stem from the production systems such as pastoralism where disease control is more of a public good, and animals could be affected by wildlife as hosts or vectors of animal diseases. Livestock being part of a diversification strategy where they have to distribute the scarce resources among the existing enterprises, lack of financial incentives due to low quality products and low income consumers and informal marketing under which it is almost impossible to monitor the safety of products. Utilizing the new tripartite cooperative structure could be vital in providing incentives for animal disease prevention. The social capital and social monitoring embedded in cooperatives could help alleviate the issue of very costly monitoring. Another possibility could be using quality payment schemes, product differentiation and certification aimed more at the higher class domestic markets than international markets and sensitizing the population on importance of consuming better quality animal products to improve the incentives from the demand side. Implementing solutions to improve incentives needs the participation of farmers and building trust between farmers and government or non-government institutions.

### REFERENCES

- Catelo, M.A.O., Costales, A., 2008. Contract Farming and Other Market Institutions as Mechanisms for Integrating Smallholder Livestock Producers in The Growth and Development of The Livestock Sector in Developing Countries. FAO, Pro-Poor Livestock Policy Initiative, PPLPI Working Paper 45.
- Draaiyer, J., Dugdill, B., Bennett, A., Mounsey, J., 2009. Milk Testing and Payment Systems. Resource Book: A Practical Guide to Assist Milk Producer Groups. Milk Testing and Payment Systems. Resource Book: A Practical Guide to Assist Milk Producer Groups.
- FAO, 2011. <http://www.fao.org/ag/ags/agricultural-marketing-linkages/livestock-products-marketing/en/> accessed on 31st October 2011
- Jaffee S, Deeb T, O'Brien T, Strachan Y and Kiggundu R, 2006. Uganda Standards and Trade: Experience, Capacities, and Priorities, Paper prepared as part of the Diagnostic Trade Integration Study.
- Kock, R., Kebkiba, B., Heinonen, R., Bedane, B., 2002. Wildlife and pastoral society—Shifting paradigms in disease control. *Annals of the New York Academy of Sciences* 969, 24-33.
- Kwapong, N.A., 2013. Restructured Agricultural Cooperative Marketing System in Uganda: Study of The "Tripartite Cooperative Model".
- McDermott, J., Randolph, T., Staal, S., 1999. The Economics of Optimal Health and Productivity in Smallholder Livestock Systems in Developing Countries. *Revue scientifique et technique (International Office of Epizootics)* 18, 399-424.
- McDermott, J., Staal, S., Freeman, H., Herrero, M., Van de Steeg, J., 2010. Sustaining Intensification of Smallholder Livestock Systems in The Tropics. *Livestock Science* 130, 95-109.
- Ministry of Agriculture, Animal Industry and Fisheries ,2011. <http://www.agriculture.go.ug/index>.

- php?page=projects&id=38 accessed on 7th Nov 2011.
- Nalubwama, S.M., Mugisha, A., Vaarst, M., 2011. Organic Livestock Production in Uganda: Potentials, Challenges and Prospects. *Tropical Animal Health and Production* 43, 749-757.
- OIE. 2010. Zoning and Compartmentalization Chapter 4.3 in *Terrestrial animal Health Code*.
- Perry, B., Dijkman, J., 2010. Livestock Market Access and Poverty Reduction in Africa: The Trade Standards Enigma, FAO PPLPI Working Paper.
- Perry, B.D., 2002. Investing in Animal Health Research to Alleviate Poverty. ILRI (aka ILCA and ILRAD).
- Raney, T., Gerosa, S., Khwaja, Y., Skoet, J., Steinfeld, H., McLeod, A., Opio, C., Cluff, M., 2009. *The State of Food and Agriculture 2009: Livestock in The Balance*. Food and Agriculture Organization of the United Nations, Rome, Italy.
- Ratananakorn, L., Wilson, D., 2011. Zoning and Compartmentalisation as Risk Mitigation Measures: An Example from Poultry Production. *Revue Scientifique et Technique-OIE* 30, 297.
- Rich, K.M., Perry, B.D., 2011. The Economic and Poverty Impacts of Animal Diseases in Developing Countries: New Roles, New Demands for Economics and Epidemiology. *Preventive Veterinary Medicine* 101, 133-147.
- Uganda Programme for Trade Opportunities & Policy; 2006. *An Analysis of the Implications of Uganda's Livestock Policies for the Competitiveness of its Livestock and Livestock products in the Local and International Markets*.