SOCIO-ECONOMIC IMPACT OF BRUCELLOS IN CATTLE AT BANADIR REGION, SOMALIA.

Dr: Abdullahi Mohamed Hussein (Gaduudow) **2019**

Abstract: Brucellosis is a highly contagious zoonotic and devastating disease that affects households‟ potential to improve their well-being through trade in livestock and livestock commodities. Despite the disease being endemic in Somalia, there is inadequate information, on its socio-economic impact. Therefore, a cross-sectional study was conducted in Banadir region, Somalia to determine the impact of brucellosis on socio-economic wellbeing of cattle farmers at household and livestock exporters. The specific objectives of the study were to investigate the Socio economic impact of Brucellosis at households; and to identify their impacts on livestock exporters. Structured questionnaires and key informant interviews were used to collect both quantitative and qualitative data in this research.The study population is comprised of households, livestock exporters, and the estimated target population was 40 people. Therefore the sample of the study was 40 respondents drawn from the estimated target population. The data are code and analyses by using Statistical Package for Social Sciences (SPSS) computer software Version 22.0. All costs and monetary losses were in households was due to abortions accounting for 32,400,000 Sh.SO equivalents to USD 1,350. Animals were exposed to. Losses due to discarded milk from infected herds at household level (3,360,000equivalent to USD 140). Similar results have been reported in Sudan by Angara et al. (2016) who estimated the quantity of milk lost due to brucellosis to be Sudanese Pounds (SDG) 30,302,212.2 (Equivalent to USD 6,587.4). This study has established that brucellosis is an important livestock production constraint that results in farmers losing a significant amount of income due to losses and costs attributed to the disease such as abortions, milk loss, and costs of vaccination, livestock mortality and trade barrier.

Key words: Brucella, cattle, Mogadisho-somalia

1. Introduction

Brucellosis is a highly contagious zoonotic bacterial disease of public health, wildlife and livestock importance (Glynn and Lynn, 2008). The disease is caused by ten species of the Genus: Brucella and distributed worldwide (Corbel et al., 1997). Susceptibility to brucellosis varies among individual animals. It depends on the animals' natural resistance, age, sex, level of immunity and environmental stress (Ahmed, 2009). The etiologic agent of brucellosis is

small, aerobic Gram-negative rods of the genus Brucella. To date, ten species are recognized within the genus Brucella. The genus Brucella consist of six classic species which include; B. melitensis, B. abortus, B. suis, B. ovis, B. neotomae and B. canis. The B. melitensis biovars (bvs) 1-3 (mainly isolated from sheep and goats), B. abortus bvs 1-6 and 9 (from cattle and other bovidae), B. suis bvs 1- 3 (from pigs), bvs.4 (from reindeer) and bvs.5 (from small rodents), B. canis (from dogs), B. ovis (from sheep) and B. neotomae (from desert wood rats). ccording to data from OIE for 2004, Cameroon, Ethiopia, Kenya, Nigeria, Tanzania, and Uganda reported the existence of human cases of brucellosis, while in 2003 similar reports indicated that Ghana, Togo, and Chad are probably also endemic according to sero epidemiological studies (Schelling et al., 2003).

Somalia is a country which around 60 % of the GDP of the country and 90 % of the export earnings comes from livestock, in addition to that since there is no fully functioning government and the public health and zoonosis department is not established yet plus lack of recent baseline information of disease, this study (Socio-economic Impact of Brucellosis at household level and small enterprise in Banadir region) becomes very valuable and necessary.

2: MATERIALS AND METHODS

A cross-sectional study was carried out to determine Socio-economic Impact of Brucellosis at household level and small enterprise in Banadir region, Somalia. The cross-sectional design was chose because of collecting data at a single point in time is economical in terms of time, financial resources and nature of the study objectives (Kothari, 2004).

This study concerned some among the household heads and managers of enterprise. The target population would be 40 while total of 36 is a sample size that divided in two parts. Therefore sampled groups of respondents in each in brackets were: household heads and exporters.

Sampling Procedure Four districts, (*Hodan,Hiliwaa, Wadajir and Dayniile*) were purposively selected because of their livestock production system, which was mainly traditional and also the history of brucellosis in cattle herds and exporters whose their Cattle reject due to brucella Seropositivity .The study would be utilized questionnaires. Questionnaires were randomly administered to the respondents in the selected wards. 12 household heads, and 11 exporters are considering. Questions were asked and recorded in English. For the respondents who cannot read and write, questions were be interpreted in the local languages (Somali).

3: Costs and Losses due to Brucellosis at Household Level

It was observed that losses due to mortality among brucella suspected cattle were 33.3% and the loss was estimated at 31,200,000 sh.so equivalent to USD 1,300. Moreover, 75% of infected cows had experienced abortions attributed to brucellosis. The monetary losses due to abortions were estimated to be 32,400,000 sh.so equivalents to (USD 1,350. An estimated 280 litres of milk was discarded due to suspected brucellosis infection in cattle herds. The total monetary value of milk discarded by the households per year was estimated to be 3,360,000 sh.som. Equivalent to USD 140. It was also revealed that 100% of livestock farmers in the area did not vaccinate their livestock against brucellosis due to either lack of money to buy the vaccines and poor access to livestock services.

Estimated annual economic losses and costs incurred due to brucellosis at house holds

Indicators	**Quantity Unitcost (shilling somalia)**	**Monetary value(sh.somali)**	**USDEquivalen**
Losses due to mortality among cattle	cows in 4 HHS 7,800,000	31,200,000	1,300.
Aborted cows	9 cows in 9HHS 3,600,000	32,400,000	1,350
Milk lost	280litres 12,000	3,360,000	140
Prolonged intercalving perio	9 cows in HHS 3,600,000	32,400,000	1,350
Total		**99,360,00**	**4,140**

4: Costs and Losses due to Brucellosis at animal exporters

It was observed that losses due to rejected among brucella seropositive cattle was 76% and the loss were estimated at46, 800,000,000 sh.so equivalents to USD 1,950,000 Moreover, 80% of infected cows had sold to the local market. The monetary losses due to sell was estimated to be 1,728,000,000 Sh.So equivalent to USD 72,000. 20% of exporters keep and treat their animals. The monitory losses were estimated 720,000,000 Sh.Som equivalents to USD 30,000.

Estimated annual economic losses and costs incurred due to brucellosis at exporters

Indicators	**Quantity**	**Unit cost (sh.so)**	**Monetary value(sh.so)**	**USDEquivalent**
Losses due to reject	6000	7,800,000	46, 800,000,000	1,950,000
Loss due to sold local market	4,800	360,000	1,728,000,000	72,000
Losses due to keep and treatment	1200	600,000	720,000,000	30,000
Total			49,248,000,000	102,000

5: Conclusion and Recommendations

This study has established that brucellosis is an important livestock production constraint that results in farmers losing a significant amount of income due to losses and costs attributed to the disease such as abortions, milk loss, costs of vaccination, livestock mortality and trade barrier. In order to reduce the impact of brucellosis on livestock and improve the socio economic well-being of farmers and exporters in Banadir region, the following recommendation are made

1. Government should put in place measures to control brucellosis and other zoonoses in order to prevent farmers from losses and costs they incurred in preventing and controlling of disease
2. Government should improve livestock health services delivery in order to eliminate/reduce brucellosis related losses by investing more in livestock health facilities to maximize livestock production and improve well-being levels of households

Areas for Further Research

Based on the findings of this study, it is worth suggesting that further studies can be conducted in the areas such as the impact of brucellosis on humans to determine how cattle farmers have been affected as well as the their animals by the presence of brucellosis. Further research should also include other types of livestock other than cattle and to establish their contribution towards household well-being.

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