

Socio-economic Aspects of Brucellosis in Kuku Dairy Scheme

By

TAMADOR ELKHANSAA ELNOUR ANGARA
Sudan University of Science and Technology-CVMAP, Department of Development Studies and Extension, Sudan



Kuku Dairy Scheme- Khartoum state- Sudan

Kuku Dairy Scheme located in Khartoum State contains 60% of cross-bred dairy cattle raised in Sudan. Animal population account to 10306 head , at risk people . 649 person



Sudan was proved to be endemic with brucellosis, both animal and human.

Background

Kuku Dairy Scheme located in Khartoum State contains 60% of cross-bred dairy cattle raised in Sudan. Animal population account to 10306 head , at risk people . 649 person

Sudan was proved to be endemic with brucellosis, both animal and human. **Brucellosis is prevailing in the scheme**; in some herds the prevalence rate amounted to 90%. Although a lot of studies was conducted regarding the disease, yet the socio-economic aspects of the disease was not tackled.



Bovine hygeama



Ruminant placentoma

Objectives

This work aims to highlight the socio-economics of this disease in the Kuku Scheme. Hence the importance of its control.

- Specific objectives are:
 - * To quantify the losses due to animal as well as human brucellosis over 11 years period (2004-2010).
 - * To know the social factors related to the disease.
 - * To know the producers attitude toward the control of the disease.

Methodology

KUKU model (Angara, 2005) in which the necessary epidemiological and economic data was utilized for the analysis. Data on herd composition, production parameters, and economic data need to compute the cost of the dairy; health sector and the burden of the disease on human population were included in the model.

Losses due to reduction of milk production. Losses due to infertility, for health sector sector: transport cost, Doctor Fees, laboratory fees and drug fees. For The burden of the disease: disability adjusted life years (DALYS) were calculated following (Fox-Rushby, 2002). The case was studied in two Scenarios. In the first one animal population was left to grow at the normal rate while in the other the number of animals was held constant. Microsoft excel was used in computations.

Results

In the baseline year (2004) the following results were obtained

Table-12: Knowledge about the disease

Knowledge	Knows about the disease	Doesn't know about the disease	Don't know	Have no dairy
Knowledge	55%	45%	4%	7%
Have no dairy	60%	7%	13%	20%



Table-13: Knowledge about economics of the disease

Knowledge	Has calculation	Have no dairy
Knowledge	53%	48%
Have no dairy	55%	7%



Table-14 Producers attitude to alternative control strategies

Alternative strategies	Alternative 1	Alternative 2	Alternative 3
%	95%	46%	98%



Table 2 Cost of Brucellosis in Health Sector

Descriptions	Cost (US\$)
Transport	216.02
Doctor fees	359.99
Lab fees	107.96
Drugs	181.818
Total	865.8



Table 1 Cost of the dairy sector

Description	Quantity	Value US\$	%
Milk lost (tons)	392.5	247274.4	92
Calves lost (head)	226	20367.6	8
Total loss (US\$)*		267642.0	100

Scenario 1

In this Scenario animal population grow at normal growth rate. Accordingly the cost of the disease over 11year period.

Table 3 Value of milk and calves lost due to Brucellosis in Kuku Dairy scheme

Description	Year 01 (2004)		Year 11 (2014)	
	Value US\$	%	Value US\$	%
Milk lost (Tons)	392.5	61.2%	1002.24	61.2%
Calves lost (Head)	226	13.2%	552.0	13.2%
Lab fees (US\$)	107.96	1.4%	107.96	1.4%
Drugs (US\$)	181.818	2.2%	181.818	2.2%
Total cost (US\$)	663.236	18.2%	1844.006	18.2%

Table-7 Cost of dairy sector (Comparison between the two scenarios)

Description	Scenario 1		Scenario 11	
	Year 01 (2004)	Year 11 (2014)	Year 01 (2004)	Year 11 (2014)
Milk lost (Tons)	392.5	1002.24	392.5	1002.24
Calves lost (Head)	226	552.0	226	552.0
Lab fees (US\$)	107.96	107.96	107.96	107.96
Drugs (US\$)	181.818	181.818	181.818	181.818
Total cost (US\$)	663.236	1844.006	663.236	1844.006

Table 4 Cost of Health sector (Comparison between the two scenarios)

Description	Scenario 1		Scenario 11	
	Year 01 (2004)	Year 11 (2014)	Year 01 (2004)	Year 11 (2014)
Transport cost (US\$)	216.02	216.02	216.02	216.02
Doctor fees (US\$)	359.99	359.99	359.99	359.99
Lab fees (US\$)	107.96	107.96	107.96	107.96
Drugs (US\$)	181.818	181.818	181.818	181.818
Total cost (US\$)	865.8	865.8	865.8	865.8

Table 5 Cost of Brucellosis in Health Sector

Description	Year 01 (2004)		Year 11 (2014)	
	Value US\$	%	Value US\$	%
Transport cost	216.02	24.9%	216.02	24.9%
Doctor fees	359.99	41.6%	359.99	41.6%
Lab fees	107.96	12.4%	107.96	12.4%
Drugs	181.818	21.0%	181.818	21.0%
Total cost (US\$)	865.8	100%	865.8	100%



Table-9 Social factors associated with brucellosis and its control

Factor	resident in the farm	infectious risk	direct contact with infected herd	consumption of raw milk
% of incorrect people	72%	43.2%	98%	45.5%



Table-10 Healthy years lost as a result of brucellosis

Quality weight	Scenario1	Scenario11
0.2	119.4	193.2

Table-6 Cost of Brucellosis in Health Sector

Description	Year 01 (2004)		Year 11 (2014)	
	Value US\$	%	Value US\$	%
Transport cost	216.02	24.9%	216.02	24.9%
Doctor fees	359.99	41.6%	359.99	41.6%
Lab fees	107.96	12.4%	107.96	12.4%
Drugs	181.818	21.0%	181.818	21.0%
Total cost (US\$)	865.8	100%	865.8	100%

Cost sharing of brucellosis between Dairy and Health Sectors. The total cost of brucellosis in both dairy and health sectors was found to be 565170.142US\$ over the eleven years 99.8 % was the cost of the dairy sector and 0.2% was the cost of health sector.

Table-9 Cost sharing of Brucellosis between Dairy and Health Sectors

Sector	Total cost (US\$)	%
Dairy Sector	562348.8	99.8
Health Sector	9983.5	0.2
Total	562358.3	100

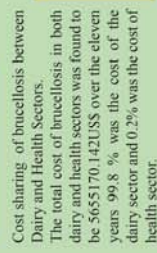


Table-11 Social factors associated with brucellosis and its control

Factor	resident in the farm	infectious risk	direct contact with infected herd	consumption of raw milk
% of incorrect people	72%	43.2%	98%	45.5%