
PREVALENCE OF CLINICAL CBPP AMONG CATTLE SLAUGHTERED IN NAMUTUMBA
T/C ABATTOIR

By

LUKOOYA IVAN

BU/UP/2019/2615

Email: lukooyaivan@gmail.com

0785741934/0702767492

SUPERVISOR'S NAME: DR. OMADANG LEONARD

A DISSERTATION SUBMITTED TO THE FACULTY OF AGRICULTURE AND ANIMAL
SCIENCES IN PARTIAL FULLFILMENT OF THE REQUIREMENTS FOR AWARD OF THE
DEGREE OF BACHELOR OF ANIMAL PRODUCTION AND MANAGEMENT OF BUSITEMA
UNIVERSITY

NOVEMBER, 2022

DECLARATION

I LUKOOYA IVAN hereby declare that the work presented in this booklet is from my own mental and physical effort. It has never been presented before to any institution of learning for any academic award or publication.

APPROVAL

This is to affirm that the dissertation report has been produced under my supervision and meets the standards of BUSITEMA UNIVERSITY

I LUKOOYA IVAN hereby recommend its submission

SIGNATURE.....

DATE.....

SUPERVISOR; DR OMAGANG LEONARD

SIGNATURE.....

DATE...

DEDICATION

This work is dedicated to my lovely mother Mrs. Namwebya Mary and Matama Dorothy for their endless support, love and prayers which have motivated me throughout this study.

ACKNOWLEDGEMENTS

I extend my gratitude to my supervisor Dr. OMADANG LEONARD for guiding me thought out when working with this piece of work and who has been there encouraging and guiding me throughout .May God abundantly blessed you.

Table of Contents

ABSTRACT.....	i
APPROVAL.....	iv
DECLARATION.....	v
DEDICATION.....	vi
ACKNOWLEDGEMENTS.....	vii
LIST OF ABBREVIATIONS.....	viii
LIST OF TABLES.....	ix
1.0 CHAPTER ONE: INTRODUCTION.....	1
1.1 BACK GROUND.....	1
1.2 PROBLEM STATEMENT.....	2
1.3 GENERAL OBJECTIVE.....	2
1.4 SPECIFIC OBJECTIVES.....	2
1.5 RESEARCH QUESTIONS.....	2
1.6 JUSTIFICATION.....	3
1.7 SIGNIFICANCE.....	3
1.8 SCOPE.....	3
2.0 CHAPTER TWO: LITERATURE REVIEW.....	4
2.1 Etiology.....	4
2.2 Epidemiology.....	4
2.2.1 Host range.....	4
2.2.2 Transmission.....	4
2.2.3 Morbidity.....	5
2.2.4 Mortality.....	5
2.3 Pathogenesis.....	5
2.4 Clinical signs.....	6
2.4.1 Hyper acute.....	6
2.4.2 Acute form.....	6
2.4.3 Sub-acute and chronic forms.....	6
2.6 Differential diagnosis.....	7

2.7 Prevention and control.....	8
2.8 Treatment.....	8
2.9 Vaccination.....	8
2.10 Risk factors of CBPP.....	9
2.10.1 Host Related Factors.....	9
2.10.2. Pathogen Related Factor.....	9
2.10.3. Management Related Factor.....	9
3.0 CHAPTER THREE: MATERIALS AND METHODS.....	11
3.1 Study area and population.....	11
3.2 study design.....	11
3.3 Research approach.....	11
3.4 Determination of the prevalence of CBPP.....	11
3.5 Sample size determination for determining the prevalence.....	12
3.6.1 Determination of the risk factors of CBPP among cattle in Namutumba District.....	12
3.6.2 Method of questionnaire data collection.....	12
3.7 Data management analysis and data presentation.....	13
3.8 Ethical consideration.....	13
3.9 Environmental consideration.....	13
3.10 Anticipated problems.....	13
CHAPTER FOUR: RESULTS AND DISCUSSIONS.....	14
4.1 RESULTS.....	14
4.2 DISCUSSION.....	15
CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS.....	17
5.1. CONCLUSION.....	17
5.2 RECOMMENDATIONS.....	18
REFERENCES.....	18

LIST OF ABBREVIATIONS

AU/IBAR	African Union-Inter African Bureau for Animal Resources.
FAO	Food and Agriculture Organization
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
CBPP	Contagious Bovine Pleuropneumonia
UBOS	Uganda Bureau of Statistics
MFPED	Ministry of Finance, Planning and Economic Development
TLU	Total Livestock Unit
MmSC	Mycoplasma Mycoides Mycoides Small Colony
OIE	Office Internationale Epizootics
PARC	Pan African Rinderpest Campaign
Dr	Doctor
T/C	Town council

ABSTRACT

Contagious bovine pleuropneumonia (CBPP) is an important infectious disease of respiratory system of cattle, caused by *Mycoplasma mycoides* subspecies *mycoides*. A cross sectional study was conducted in different districts of Amudat, Butaleja, Katakwi and Namutumba to determine the prevalence of CBPP. A study of CBPP was conducted from October up December 2022, using postmortem examination of slaughtered animals. A total of 100 slaughtered animals were examined at post mortem and were recorded during a period of one month. Of the 100 animals examined, 10(10%) were positive and 90(90%) were negative for CBPP respectively. According to place of origin the prevalence was highest of 50%, 22.2%, 12.9% and 4.1% from Amudat, Butaleja, Katakwi and Namutumba district respectively and the rest of the districts (origins) never registered any prevalence of CBPP. Associated risk factors that were evaluated include age, gender, cattle breed, grazing systems and water sources and significant at ($P < 0.05$). Male animals had the highest CBPP prevalence rate (72%) compared to Female (28%). According to age, animals aged 3 and 2 years had a higher CBPP prevalence rate than animals aged 1 and 4 years had lower prevalence. With breed, the highest rate of CBPP prevalence was observed in local breeds as compared to the rest of breeds. The results of this study confirm that CBPP is endemic in the areas that serve the Namutumba town council abattoir although the prevalence levels vary as shown by the research findings. A major recommendation to be drawn from this study is to further conduct CBPP epidemiological and risk factor studies in the catchment area of Namutumba abattoir whose findings will guide in the refining of the appropriate intervention methods to be applied.

1.0 CHAPTER ONE: INTRODUCTION

1.1 BACK GROUND

Contagious bovine pleuropneumonia (CBPP) is an infectious and contagious respiratory disease of cattle (Bednarek & Regalla, 2004), it is a bacterial disease caused by mycoplasma mycoides and affects majorly the respiratory system characterized by pneumonia and serofibrinous pleurisy (OIE, 2009). It is characterized mainly with cough dyspnea unilateral lesions and large volumes of yellow fluid in the chest cavity and its transmission is through direct contact between infected and susceptible health animal (Amanfu, 2019). The disease affects all ages of cattle and the commonly affected organs are the lungs but for young ones, they develop joint swellings. Lesions in the lungs of cattle at postmortem are easy to detect and adequate for surveillance (Francis et al., 2018). The disease is mainly present in the Southern, Western and Eastern parts of Africa where it affects the livelihoods and food security of the people. Its estimated that losses upto the tune of US\$2 billion have been recorded in 27 countries of the continent (Abdela & Yune, 2017). Pan African program for the control of epizootics (PACE) mentions CBPP as the second most important Trans-boundary disease in Africa (Muindi et al., 2015). In Uganda, CBPP was mainly reported in Karamoja, Northern and Central regions between 1956 and 1974. But due to the political turmoil and insurgency that hit these regions in late 1980's and 1990's to some extent stretching back to 1975, led to complete breakdown in surveillance systems in Uganda, and hence extensive illegal cattle movement in the country. This culminated to the spread of CBPP from Karamoja region where it was endemic to other regions of Uganda (Khaitisa, 2011). By 2011, CBPP had spread and was reported all over the country (Khaitisa, 2011). CBPP as a notifiable disease and therefore needs eradication and control through surveillance system (Clemmons et al., 2021). Status of current CBPP prevalence is not known due to the absence of active surveillance and disease outbreaks reporting.

The objective of this study was therefore to determine the prevalence of CBPP and risk factors of CBPP.

1.2 PROBLEM STATEMENT

CBPP is widely spread in most parts of Uganda (Khaitisa, 2011). Uncontrolled animal

The government has to be applying rules and regulations on the monitoring and prevention strategy of this wisely crushed disease of cattle.

The farmers should be aware about CBPP disease particularly the economic importance, transmission methods, and controlling techniques of the disease through veterinary extension education and possible means like media

Veterinary officer should keep an eye on suitable anticipation and regulator measures of the disease such as quarantine infected animals and prophylaxis via strict vaccination with treatment of symptomatic animals should be started to stop further spread of the disease in the area and to save the loss of economy due to CBPP disease.

Thus, it is necessary to carry out careful herd management and control of animal movement within a community are good warranty

REFERENCES

- Abdela, N., & Yune, N. (2017). Seroprevalence and distribution of contagious bovine pleuropneumonia in Ethiopia: Update and critical analysis of 20 years (1996-2016) reports. In *Frontiers in Veterinary Science* (Vol. 4, Issue JUN). Frontiers Media S.A. <https://doi.org/10.3389/fvets.2017.00100>
- Alhaji, N. B., Ankeli, P. I., Ikpa, L. T., & Babalobi, O. O. (2020). <p>Contagious Bovine Pleuropneumonia: Challenges and Prospects Regarding Diagnosis and Control Strategies in Africa</p>. *Veterinary Medicine: Research and Reports, Volume 11*, 71–85. <https://doi.org/10.2147/vmrr.s180025>
- Amanfu, W. (2019). Contagious bovine pleuropneumonia. *Transboundary Animal Diseases in Sahelian Africa and Connected Regions, November*, 423–437. https://doi.org/10.1007/978-3-030-25385-1_20
- Animales, R. (2000). of a Domestic Cattle Herd in a Contagious-Bovine-Pleuropneumonia Infected Area. *Reproduction, 24*.

- Anjum, A., Aslam, A., Akhtar, R., Yaqub, T., Naseer, J., Mushtaq, A., Munir, M. A., & Khan, A. U. (2021). Seroprevalence of contagious bovine pleuropneumonia in cattle of Punjab, Pakistan and assessment of risk factors. *Indian Journal of Animal Research*, *55*(1), 101–104. <https://doi.org/10.18805/ijar.B-1130>
- Bednarek, D., & Regalla, J. (2004). Contagious bovine pleuropneumonia. *Medycyna Weterynaryjna*, *60*(2), 137–142. <https://doi.org/10.1111/j.1751-0813.1968.tb09025.x>
- Brown C. & Torres A., E. (2008). (2008). Aetiology Epidemiology Diagnosis Prevention and Control References. *The Veterinary Clinics of North America. Equine Practice*, 1–4.
- CBPP_FAD PREP_EE_Feb2017. (2017). *Contagious Bovine Pleuropneumonia Standard Operating Procedures : 1 . Overview of Etiology and Ecology*. 14.
- Clemmons, E. A., Alfson, K. J., & Dutton, J. W. (2021). Transboundary animal diseases, an overview of 17 diseases with potential for global spread and serious consequences. *Animals*, *11*(7), 1–58. <https://doi.org/10.3390/ani11072039>
- Hayet, S., Sujan, K. M., Mustari, A., & Miah, M. A. (2021). Hemato-biochemical profile of turkey birds selected from Sherpur district of Bangladesh. *Int. J. Adv. Res. Biol. Sci*, *8*(6), 1–5. <https://doi.org/10.22192/ijarbs>
- Jing, Z., Magona, J. W., Sakurai, T., Thekiso, O. M. M., Otim, C. P., Sugimoto, C., & Inoue, N. (2009). A field study to estimate the prevalence of bovine African trypanosomosis in Butaleja district, Uganda. *Journal of Veterinary Medical Science*, *71*(4), 525–527. <https://doi.org/10.1292/jvms.71.525>
- Kairu-Wanyoike, S. W., Kiara, H., Heffernan, C., Kaitibie, S., Gitau, G. K., McKeever, D., & Taylor, N. M. (2014). Control of contagious bovine pleuropneumonia: Knowledge, attitudes, perceptions and practices in Narok district of Kenya. *Preventive Veterinary Medicine*, *115*(3–4), 143–156. <https://doi.org/10.1016/j.prevetmed.2014.03.029>
- Kamran, K., Ali, A., Villagra, C., Siddiqui, S., Alouffi, A. S., & Iqbal, A. (2021). A cross-

sectional study of hard ticks (acari: ixodidae) on horse farms to assess the risk factors associated with tick-borne diseases. *Zoonoses and Public Health*, 68(3), 247–262. <https://doi.org/10.1111/zph.12809>

Khaita, L. (2011). 1, 3,.

MAAIF and UBOS. (2009). The national livestock census: A summary report of the national livestock census. *Uganda Bureau Of Statistics, May*, 1–34.

Martin, K. (2016). *Determination of Mycoplasma Mycoides Subsp. Mycoides Components That Confer Protection Against Contagious Bovine Pleuropneumonia and Understanding of Immunological Responses.*

Molla, W., Jemberu, W. T., Mekonnen, S. A., Tuli, G., & Almaw, G. (2021). Seroprevalence and Risk Factors of Contagious Bovine Pleuropneumonia in Selected Districts of North Gondar Zone, Ethiopia. *Frontiers in Veterinary Science*, 8. <https://doi.org/10.3389/fvets.2021.626253>

Muindi, P., Waithanji, E. M., & Bukachi, S. A. (2015). *Gendered effects of Contagious Bovine Pleuropneumonia (CBPP) occurrence and control in a pastoral community in Ijara sub county, northeastern Kenya.*

Mulindwa, B., Ruhweza, S. P., Ayebazibwe, C., Mwiine, F. N., Muhanguzi, D., & Olaho-Mukani, W. (2011). Peste des Petits Ruminants serological survey in Karamoja sub region of Uganda by competitive ELISA. *Veterinary World*, 4(4), 149–152. <https://doi.org/10.5455/vetworld.2011.149-152>

Nielsen, S. S., Alvarez, J., Bicout, D. J., Calistri, P., Canali, E., Drewe, J. A., Garin-Bastuji, B., Gonzales Rojas, J. L., Gortázar, C., Herskin, M., Michel, V., Miranda Chueca, M. Á., Padalino, B., Pasquali, P., Spoolder, H., Ståhl, K., Velarde, A., Viltrop, A., Winckler, C., ... Roberts, H. C. (2022). Assessment of the control measures for category A diseases of Animal Health Law: Contagious Bovine Pleuropneumonia. *EFSA Journal*, 20(1), e07067. <https://doi.org/10.2903/j.efsa.2022.7067>

OIE. (2008). Contagious Bovine Pleuropneumonia. *OIE Terrestrial Manual, November*, 712–721. <https://doi.org/10.1079/9780851990125.0069>

- OIE. (2009). *1 After taxonomic revision of the Mycoplasma mycoides cluster by Manso-Silvan et al . (2009) the designations 'Small Colony (SC)' and Large Colony (LC) are no longer used. Mmm.*
- Tambi, N. E., Maina, W. O., & Ndi, C. (2006). *An estimation of the economic impact of contagious bovine pleuropneumonia in Africa. 25(3), 999–1012.*
- Uganda National Bureau of statistics. (2017). *The National Population and Housing Census 2014- Area specific Profiles Series, Kampala, Uganda. April.*
- Wade, A., Yaya, A., Dahiru El-Yuguda, A., Unger, H., Daniel, W., Simon Ikechukwu, E., & Oyeamechi Egwu, G. (2015). *The Prevalence of Contagious Bovine Pleuropneumonia in Cameroon: A Case Study Garoua Central Abattoir, Cameroun. J Vet Med Res, 2(4), 1029.*
- Wkh, H. R. I., Rq, R., & Dqg, H. (2001). *'Ldjqrwlf 7Hvwv Iru &Rqwdjlr xv %Rylqh 3Ohxursqh xprqld &%33. Test.*