THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY (NM-AIST)

OFFICE OF THE DEAN
SCHOOL OF LIFE SCIENCES AND BIO-ENGINEERING (LiSBE)

Our Ref: BA. 320/452/01 **Date:** 21st February, 2025

TO: The Public

REF: ANNOUNCEMENT OF VIVA VOCE EXAMINATION OF A PHD SCHOLAR IN LIFE SCIENCES (FOOD AND NUTRITIONAL SCIENCES, MR. GEORGE PETER SEMANGO (REG. NO.: P221/T16)

Please, refer to the heading above,

The **School of Life Sciences and Bio-Engineering** of the **Nelson Mandela African Institution of Science and Technology (NM-AIST),** wishes to announce the VIVA-VOCE Examination of **MR. GEORGE PETER SEMANGO**, a PhD Scholar enrolled in the programme of PhD in Life Sciences

Mode of Study: Coursework and Dissertation

The **VIVA VOCE** examination is scheduled on:

Tuesday, 11th March, 2025 from 9:00 am to 12:00 am

Research Title: "EPIMIOLOGY OF NEOSPORA CANINUM INFECTION AND ECONOMIC IMPACT OF LIVESTOCK ABORTIGENIC AGENTS: A CASE STUDY OF NORTHERN TANZANIA"

Abstract

Livestock abortions are a major cause of economic losses globally. However, the economic losses are greatly underestimated in LMICs including Tanzania due to the inadequate reporting system of abortion events. These involve the community using real-time livestock owner reports. Livestock abortigenic pathogens, including N. caninum, receive little attention in Tanzania. We conducted a seroprevalence survey on N. caninum in northern Tanzania. Questionnaire data were collected from 360 households.

Household coordinates were used to extract satellite derived environmental data from open-access sources. Sera were tested for the presence of N. caninum antibodies using an indirect ELISA. Risk factors for individual-level seropositivity were identified with logistic regression using Bayesian model averaging (BMA). The relationship between herd-level seroprevalence and abortion rates was assessed using negative binomial regression. Additionally, we established a near real-time mobile phone-based surveillance platform in northern Tanzanian. Livestock owners reported abortions initiated an investigation and collection of questionnaire data. This data coupled with data from control households and national-level ministry data were used to calculate the direct economic impact of abortions. Finally, a review of the literature on surveillance systems and ruminant abortions in Africa and Asia was conducted. The seroprevalence of N. caninum exposure after adjustment for diagnostic test performance was 21.5% [95% Credibility Interval (CrI) 17.9–25.4]. The most important predictors of seropositivity selected by BMA were age greater than 18 months [Odds ratio (OR) = 2.17, 95% CrI 1.45–3.26], the local cattle population density (OR = 0.69, 95% CrI 0.41–1.00), household use of restricted grazing (OR = 0.72, 95% CrI 0.25–1.16), and an increasing percentage cover of shrub or forest land in the environment surrounding a household (OR = 1.37, 1.00–2.14). There was a positive relationship between herd-level N. caninum seroprevalence and the reported within-herd abortion rate (Incidence Rate Ratio = 1.03, 95% CrI 1.00–1.06). Furthermore, we estimate abortions lead to annual gross and net losses of about TZS 600 billion and TZS 300 billion, respectively. Lastly, literature review revealed infectious abortigenic agents in Africa and Asia including bacteria, viruses, fungi and parasites are prevalent.

Yours Sincerely,

Prof. Ernest Mbega
Dean

Academia for Society and Industry
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