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Prevalence of leptospira serovar hardjo and epidemiological modeling of infections in small holder dairy cattle in the northern and southern highland of Tanzania

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Problem Statement: Leptospirosis causes a serious fever and abortion in humans and the dairy industry respectively. Small Holder Dairy Farmers (SHDF) are among the group ranked at higher risk of contracting leptospirosis during milking, feeding, cleaning animal waste, disposing of aborted or placental materials. In recent years, the Northern and Southern Highland Zones of Tanzania become the foremost raising dairy cattle and milk-producing core areas. Despite many studies that have reported leptospirosis in various hosts yet the epidemiology of leptospirosis in dairy cattle especially in SHDF is not well studied. We conducted this study to explore the epidemiology of leptospirosis in small holder dairy cattle.

Methods: We carried out a cross-sectional study among small holder dairy cattle in Tanzania. Only 2045 dairy cattle were sampled for serological testing. We further interviewed farmers to get epidemiological information for predictive risk factors. The sera were tested for antibodies against leptospira hardjo serovars.

Results: 13.1% of total animals showed seropositive and higher seropositive showed in Iringa 32.02% and Tanga 18.93% region. Considering multivariate analysis, animal age (OR=1.292, 1.124-1.485, 95% CI), herds size (OR=1.425, 1.215-1.671, 95% CI) were statistically significant to leptospirosis in cattle and the years of experience farmers in managing animals (OR=1.194, 1.407-1.407, 95% CI). Keeping dairy cattle in Iringa and Tanga regions likely in a position of animal fond with leptospirosis at (OR=4.267, 1.72-10.573, 95% CI) and (OR=2.205, 0.968-5.022, 95% CI) respectively.

Conclusion: The consequences of leptospirosis may be higher as the disease continues spreading and it is likely to cross to dairy farmers. As the test method used is limited to one serovar detection, it is important to typify the most common serovars circulating in cattle for appropriate vaccine of use to reduce risks.

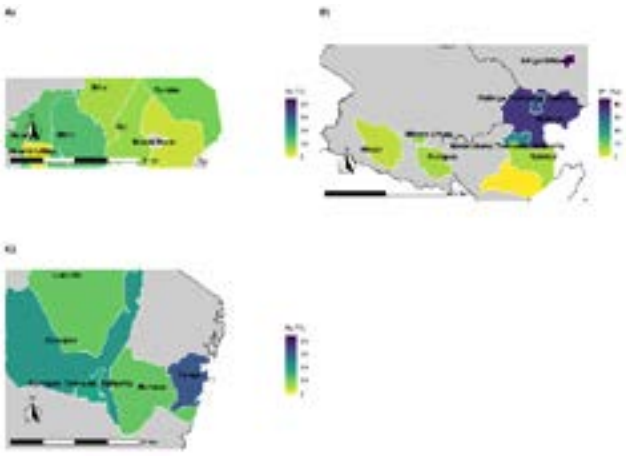

Figure: Map showing the spatial distribution of Leptospira serovar Hardjo seropositive from high raising dairy cattle regions. A) Districts of Arusha and Kilimanjaro Regions, B) Districts of Mbeya, Iringa and Njombe Region and C) Districts of Tanga Region

Biography

Shabani Kiyabo Motto is a master candidate at Nelson Mandela African Institution of Science and Technology (NM-AIST) and Livestock Research Officer (LRO) at Tanzania Veterinary Laboratory Agency (Central Veterinary Laboratory) Department of Microbiology (Molecular Section) in Dar es Salaam since 2016. His role is to promote animal health and welfare through animal disease diagnosis, surveillance of infectious and neglected tropical diseases, vector and food borne disease control to improve livestock production and enhance food safety and security for better human wellbeing. At the moment, Shabani is researching the epidemiology of leptospirosis infections in small holder dairy cattle in highly raising farming system in the northern and southern highland of Tanzania.

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