PUBLICATION

Establishment of diagnostic laboratory for mycoplasma diseases of livestock at Ilorin University with particular reference to CBPP and CCPP

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Themes

Animal health

Contagious bovine (CBPP) and caprine pleuropneumonia (CCPP) are OIE-listed diseases because of the socio-economic impact they have mainly on smaller holdings often on marginal land in Asia and Africa.

Contributors

SEBI-Livestock Evidence Synthesis

Despite some successful attempts in Nigeria at controlling CBPP in the 1970s there is substantial evidence that the disease is endemic in many parts of the country. CCPP, on the other hand, has been suspected based on clinical and pathological signs but has not been confirmed by laboratory tests. Furthermore, there have been no surveys to show its distribution in the country. Following the purchase of equipment, test kits and reagents and refurbishment and training, a mycoplasma laboratory was established and commissioned in July 2020 by the Vice Chancellor of the University of Ilorin, Kwara state, western Nigeria. A commercial competitive ELISA for the serological detection of the causative agent of CBPP, Mycoplasma mycoides subsp mycoides, was used to screen abattoirs in the state. Between 6 and 135 samples were taken from each; the percentage of positive sera varied between 0 and 13.5%. However, where more than 40 samples were taken seroprevalence was shown to be between approximately 7 and 14%. Later, 10 cattle were chosen from each of four abattoirs with high seroprevalence for more detailed examination. CBPP-positive cattle (4/10) were found at Ilorin East based on clinical, gross pathological, cultural and serological criterion. M. m. mycoides was isolated and identified using specific staining in diagnostic medium. Cattle from the other three abattoirs were clinically and pathologically negative but some were seropositive and yielded mycoplasmas but these were not considered specific for M m mycoides. Confirmation of the Identity of isolates is on-going using growth inhibition tests. In parallel, 10 goats were examined for CCPP at each of these abattoirs. Again, while confirmation is still being carried out on isolates, goats examined at two abattoirs were positive for CCPP based on clinical, pathological and laboratory tests. M. c. capripneumoniae was identified based on specific staining in diagnostic medium which represents the first isolation of M c. capripneumoniae in Nigeria. Culture-positive goats were also seropositive suggesting CCPP is widespread in Kwara state though number of goats examined was small. A serological survey using the cELISA of over 300 goats kept extensively gave an average seroprevalence of 4.4%. Finally, the cELISA was used to identify various risk factors

associated with CBPP infection in cattle herds in Kwara state. Herd size was the most significant factor with herds greater than 100 more likely to have a higher percentage of positive cattle. Evidence was seen that some breeds, White Fulani and Adamwa Gudaly, were more susceptible to CBPP though not significantly. Cattle gender and seasonality were not significantly linked to susceptibility.

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