

Review Article

Ticks and tick-borne diseases: A call for comprehensive tick surveillance in India under One Health approach

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Due to ecological diversity and distribution of 106 tick species across fifteen agro-climatic zones, uniform tick control approach in India is neither feasible nor effective. Globally, the economic burden of tick-borne diseases is estimated at US \$14–19 billion annually, while in India the combined losses due to ticks and tick-borne diseases (TTBDs) is approximately 46199.31 million INR (US \$595.07 million) per annum. Therefore, there is an urgent need for region-specific data on tick species prevalence and diversity, tick-borne pathogens and patterns of acaricide resistance through a long-term coordinated, sustained TTBDs surveillance programme. The current challenges, ranging from insufficient data and delayed diagnosis to fragmented responses, underscore the critical need for a national, integrated and science-driven TTBDs surveillance network. This system would bridge the information gaps, support early warning systems and build national capacity for managing existing and emerging tick-borne threats. This would also help in the development of locally tailored tick management and disease prevention strategies. This review aims to present an updated overview of the current status of monitoring and surveillance of TTBDs in India. It discusses key challenges in the country and proposes establishing a national TTBD surveillance system by rationalising limited research funds available for vector control programme.

Keywords Acaricides; India; One health; Surveillance system; Tick and tick-borne diseases; Zoonoses