Impact of an integrated diagnostic network on strengthening passive surveillance in Mato Grosso, Brazil

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Passive surveillance is a fundamental component of animal health systems, playing a key role in the early detection of diseases of sanitary and economic importance. However, responses to suspected animal diseases are often limited to ruling out officially controlled diseases, with limited capacity to address the broader needs of livestock producers. In this context, the Instituto de Defesa Agropecuária do Estado de Mato Grosso (INDEA-MT), Brazil, implemented an Integrated Diagnostic Network for livestock producers as an institutional strategy that brings together the Official Veterinary Service, academic and research institutions (Universidade Federal de Mato Grosso – UFMT), and the production sector (Fundo Emergencial de Saúde Animal de Mato Grosso – FESA-MT). This approach aims to expand diagnostic capacity, improve service resolutiveness, and strengthen passive surveillance. An evaluation of the Integrated Diagnostic Network was conducted through a structured questionnaire applied to livestock producers assisted by the official veterinary service. The study included producers who reported suspected diseases and received differential diagnoses in 2024 and 2025. A total of 45 valid responses were obtained, representing approximately 85% of eligible producers across different regions of the state. Indicators assessed included the contribution of diagnosis to decision-making, reduction of production losses, perception of service quality, confidence in the service, and response time. Quantitative and qualitative analyses were performed to assess the impact of the intervention. The results demonstrated a high impact of diagnostic support on herd health management. A total of 93.4% of producers reported that the diagnosis helped or greatly helped decision-making regarding animal management or treatment. Similarly, 91.1% reported a reduction in economic losses, and an equivalent proportion indicated decreased herd losses, including mortality, reduced productivity, and disease progression. The importance of diagnostic information was highlighted by 86.7% of respondents, who considered it very or extremely important for production management. Service evaluation showed high satisfaction levels, with 97.8% of producers rating the service as satisfactory or very satisfactory. All respondents (100%) reported confidence and technical reliability in the service, as well as willingness to seek assistance again in the event of new disease suspicions. The Net Promoter Score (NPS) reached 93.3, indicating an internationally recognized level of excellence. In terms of operational efficiency, 84.4% of producers rated response time as fast or very fast. Qualitative findings reinforced the perception of service resolutiveness, highlighting reduced uncertainty, improved decision-making confidence, and practical application of technical recommendations in herd management. The Integrated Diagnostic Network improved the resolutiveness of the official veterinary service and strengthened passive surveillance by enhancing the system's capacity to detect and respond to animal health events. Increased producer confidence and perceived usefulness of the service contribute directly to greater engagement and voluntary reporting of disease suspicions, thereby increasing surveillance sensitivity. This approach represents a shift from a system focused on ruling out officially controlled diseases to a problem-solving model that addresses producers' needs. The integration of diagnostic support with field activities enhances the effectiveness of surveillance systems and supports early detection of diseases of sanitary and economic importance.

Keywords: Passive surveillance, Diagnostic network, Animal health services, Farmer engagement, Surveillance system evaluation.