IDENTIFICATION OF FOOT AND MOUTH DISEASE RISK AREAS USING A MULTI-CRITERIA ANALYSIS APPROACH

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Foot and Mouth disease (FMD) is a global disease which affects cloven-hooved livestock and wildlife. This contagious viral disease has been struggled over for decades leading to various measures to control, eradicate and prevent it by National Official Veterinary Services worldwide. Nowadays, due to human and financial resources scarcity, risk areas identification may be set as a priority to FMD target surveillance. In our study, a knowledge-driven spatial model was built to identify risk areas for FMD occurrence and to evaluate FMD surveillance performance in Rio Grande do Sul State, Brazil. To this purpose, Multi-criteria Decision Analysis was used as a tool to seek multiple and conflicting criteria, resulting in a preferred course of action. Thirteen South American experts analyzed 18 variables of the model associated with FMD introduction and dissemination pathways in Rio Grande do Sul. As a result, FMD high risk areas were mainly identified in the international borders and in central region of the State. A final model accuracy was obtained after contrasted to historical FMD outbreaks. The current FMD surveillance performance was assessed and recommendations are made to improve surveillance activities in critical areas.

KEYWORDS: Rio Grande do Sul State; FMD; Knowledge-driven risk mapping; MCDA; Animal Health.