

IMPACT OF WEATHER ON FOOT AND MOUTH DISEASE IN CATTLE IN THE NORTH CENTRAL PROVINCE OF SRI LANKA

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Rainfall, temperature and relative humidity are key weather factors influencing disease occurrences in farm animals. Foot and mouth disease (FMD) frequently affects cattle herds in the dry and intermediate zones of Sri Lanka, leading to significant economic and livestock management challenges. Therefore, the current study aimed to assess the relationship between weather patterns and FMD outbreaks in the North Central Province (NCP) of Sri Lanka. Data were collected from 10 and 5 veterinary regions (VRs) in the *Anuradhapura* and *Polonnaruwa* districts respectively covering the years 2014 to 2024. Records on FMD cases, cattle population and fatalities due to FMD were obtained from the veterinary surgeon's offices of each VR, while relevant weather data were collected from the Meteorological Department of Sri Lanka. The study tested the correlation between weather elements and disease incidents to identify the possible interactions between each weather element and the FMD using the Spearman Rho correlation test using SPSS software. The results showed that there was no correlation between the weather elements and disease occurrence. However, when considering the year as a factor there was a partial negative correlation with the number of cases reported (-0.243 correlation coefficient and $p < 0.05$) and fatalities due to FMD (-0.207 correlation coefficient and $p < 0.05$). Also, the total number of FMD cases reported was partially positively correlated with the total monthly rainfall. Thus, it can be concluded that when monthly rainfall was high the number of FMD cases reported was high confirming a known fact that the FMD prevalence is higher among cattle herds during the northeast monsoon rainy season in the *Anuradhapura* and *Polonnaruwa* districts which need to be further confirmed with consistent data.

Keywords: Cattle population, Correlation analysis, Disease outbreaks, Rainfall patterns, Veterinary regions