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Epidemiological survey of tick-borne infection among pastured Korean indigenous cattle in Republic of KoreaJi-Hyoung Ryu¹, Du-Gyeong Han¹, Suhee Kim², C Y Choe², Y H Jung², J G Yoo², J H Kang³, S H Jung³, D H Yu⁴, K S Choi¹, H C Kim⁵, B K Park⁶, J S Chae⁷, John Hwa Lee³ and J Park³¹Kyungpook National University, South Korea²National Institute of Animal Science, South Korea³Chonbuk National University, South Korea⁴Gyeongsang National University, South Korea⁵Kangwon National University, South Korea⁶Chonnam National University, South Korea⁷Seoul National University, South Korea

Statement of the Problem: A traditional Korean indigenous breed (Hanwoo cattle) is one of the most economically important species in Republic of Korea (Korea). A pasturing system in the mountainous areas is being considered in Korea to meet persistent demand for Hanwoo production, reduction of production costs, and improvement of animal welfare. However, higher exposure to ticks and the consequent risk of tick-borne disease in mountainous areas are major concerns. Thus, the objective of the present study is to investigate prevalent tick-transmitted infections in mountain-grazing Hanwoo cattle to ensure a safer mountain grazing system in Korea.

Methodology & Theoretical Orientation: The study was conducted on Hanwoo cattle from 2014 to 2015 on three farms in the following, geographically distinct, locations in Korea: Hoengseong (Gangwon province), Jeongeup (Jeolla province) and Jeju Island. The cattle were either maintained indoors or placed on grassy mountains from April to October. The infection rates of tick-borne pathogens were compared between housed and pastured cattle. Blood samples were collected from the cattle for DNA extraction. Polymerase chain reaction (PCR) was used to screen for *Theileria*, *Anaplasma* and *Rickettsia* spp.

Findings: Before pasturing in the spring, the rates of infection with tick-borne pathogens were 4.0%, 30.6% and 25% in the farms of Hoengseong, Jeongeup, and Jeju Island, respectively. In the comparison of infection rate with tick-borne pathogens between housed and pastured cattle, the infection rate among the housed cattle was 17.6%, whereas that among the pastured cattle was 56.6%. Among the cattle that were positive for tick-borne pathogens, the percentage of *Theileria*-positive cattle was over 90.0% in both housed and pastured cattle. In addition, *Anaplasma* spp. was detected considerably more often among pastured cattle (30.0%) than among housed cattle (2.3%).

Conclusion & Significance: Cattle that grazed in the mountainous areas showed a greater prevalence of tick-borne infections compared to that in non-grazing cattle. *Theileria* spp. is a widespread tick-borne pathogen in Korea. This study suggests the necessity for preventive strategies against tick-borne pathogens in mountainous areas of Korea. Geographical outbreaks of tick-borne diseases should be monitored in grazing cattle of Korea.

Biography

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