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**Foot-and-mouth virus detection in asymptomatic dairy cows without FMD outbreak**

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**Abstract:**

**Background/Objective:** Foot-and-mouth disease (FMD) is a highly contagious viral disease in cattle and is the most economically important animal disease worldwide. Monitoring the FMD virus in farms is useful management for the prevention of the FMD outbreak. A recent publication indicated collection samples from nasal swabs can be used for monitoring FMD in symptomatic cows. Therefore, the objectives of this study were to determine the FMD virus in asymptomatic dairy cattle using nasal swab samples during the absence of an FMD outbreak.

**Methods:** The study was conducted during December 2020 to June 2021 using 185 asymptomatic signs of FMD dairy cattle in Chiang Mai Province, Thailand. Nasal mucosal swabs were used to collect samples from randomly selected cows, which were subsequently tested for the presence of FMD viruses using the real-time RT-PCR technique.

**Results:** The results demonstrated that 4.9% of dairy cattle tested positive for the FMD virus. Eight samples (9.6%) were found in two dairy farms in Mae-on, while one sample (1.2%) was found on just one farm in Chai-Prakan district. Interestingly, both farms in Mae-on experienced an outbreak of FMD after being detected for six months. This indicated that the FMD virus detected in asymptomatic cattle could be related to the eventual outbreak of FMD. The outbreak demonstrates the presence of the virus in the environment.

**Conclusion:** In conclusion, nasal swab collection can be used to monitor FMD levels. Further investigation is needed to determine whether the FMD virus presented in asymptomatic FMD cattle could be the cause of the subsequent FMD outbreak or not.

**Keywords:** Cattle, Foot-and-mouth disease, nasal swab, real-time rt-PCR assay