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Evaluation of African Swine Fever Virus Contamination on Humans, Equipment, and Transportation Vehicles Before Farm Entry Using Gauze Swab Technique

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Introduction: African swine fever (ASF) is a severe disease that has caused high mortality rates in swine with no available vaccine. The prevention, control, and eradication of ASF rely on appropriate surveillance and strict sanitary measures. Biosecurity systems are crucial for preventing the introduction of diseases into farms. This study aimed to evaluate the presence of ASF virus (ASFV) on humans, equipment, and transportation vehicles arriving from outside before entering the farm.

Methods: From January 11, 2022, to December 31, 2022, 11,321 samples were collected from 24 swine farms. The samples were classified into two categories: 6,846 samples from humans and equipment, and 4,475 samples from vehicles. All samples were tested for ASFV using real-time PCR.

Results: The overall incidence rate of ASFV-positive samples was 0.09% (10/11,321). Of these, 9 positive samples were detected in humans and equipment, while 1 positive sample was found in vehicles. A comparative analysis of the incidence of positive samples among humans, equipment, and transportation vehicles revealed a significantly higher incidence among humans and equipment than transportation vehicles (t-test 0.0048, $P < 0.005$).

Conclusion: This study highlights the importance of pre-farm entry screening to identify potential sources of contamination from external sources. The results suggest that humans and equipment are more likely to be contaminated ASFV than transportation vehicles, which undergo regular cleanliness control measures. While PCR testing can detect the presence of ASFV, it cannot distinguish between live and dead virus particles. Therefore, further investigation is necessary to determine the viability of the detected virus. These findings underscore the need for continued infection screening to detect and evaluate the presence of live pathogens that can cause disease.