



## HERD HEALTH MANAGEMENT & ECONOMY

HHM-007

### **EVALUATION OF A NEWLY KIT, MULTIPLEX REAL-TIME RT-PCR METHOD FOR THE DETECTION OF SWINE CORONAVIRUSES (PEDV, TGEV AND SDCOV)**

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The coronaviruses, porcine epidemic diarrhea virus (PEDV), transmissible gastroenteritis virus (TGEV), and porcine delta coronavirus (PDCoV) are causative agents for gastrointestinal diseases in pigs. All three coronaviruses show similar initial clinical signs, but treatments and remediation may be different for each. Tests specific for each of these can advise the course followed, greatly aiding herd management. The Applied Biosystems™ VetMAX™ PEDV/TGEV/SDCoV Kit is an assay that detects and differentiates the three coronavirus species in a single reaction mix. This multiplex RT-qPCR assay uses a different fluorescent dye to identify each pathogen target genomic RNA, and includes controls to ensure the assay is working.

The VetMAX PEDV/TGEV/SDCoV Kit was developed using various types of environmental and related samples obtained from the field, and found to yield high specificity and sensitivity. To examine its performance relative to other solutions offered, we compared it to 2 other RT-qPCR kits prominently used in the market. We obtained environmental, oral fluid, and faecal samples infected with PEDV (N=15), TGEV (N=10), and SDCoV (N=14) from the animal health departments at the University of Minnesota and Iowa State University. RNA isolation was performed with the MagMAX™ CORE Nucleic Acid Purification kit, and negative, positive, and no template controls were included. RT-qPCR for all three assay kits were run on the 7500Fast System according to the manufacturer's recommendations. The RT-qPCR run time for the three kits was between 90 and 100 minutes. Data analysis was done using Auto Ct settings, a method that gave good results for each kit and provided a fair comparison. The VetMAX PEDV/TGEV/SDCoV Kit consistently showed comparable or better results to the other kits tested, with consistently lower C<sub>T</sub>'s compared to one of the kits and a higher signal versus baseline noise for the other.