Use of an alternative transport liquid for PRRSV monitoring in a gilt development unit

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Background & Objectives

Acclimatization of gilts is crucial to control PRRSV by immunization and stabilization of them before entering in the breeding herd. Count with an accurate and systematic sampling method is key during this process. The use of oral fluids (OF) represents a practical, convenient and cost-effective sampling for PRRSV monitoring[1]. However, PRRSV detection by RT-qPCR in OF samples is challenging, due to the denature of the virus during transit. For this reason, alternative transport methods such as transport liquid have been proposed[2]. The objective of this trial was to analyse the performance of a transport liquid (TL) for shipping OF samples in a PRRSV monitoring project for gilts.

Materials & Methods

Between October and December 2020, a Gilt Development Unit (GDU) in Italy was enrolled in a PRRSV monitoring project. PRRS-naïve gilts arrived at the GDU with 90 day of age and they were vaccinated with UNISTRAIN® PRRS at the arrival time. Then, gilts stayed in the GDU until two weeks before farrowing when they were moved to the commercial farms. Each batch of gilts was sampled weekly using 1 cotton rope per pen and paired OF samples (mixed and unmixed with TL) were submitted to HIPRA DIAGNOS laboratory in Spain. Samples were tested by ORF7 RT-qPCR for PRRSV detection and ORF5 sequencing for PRRSV characterization. Results were obtained within the same week and used to organize movement of gilts from the GDU to the commercial farms of the company.

Results

As shown in table 1, up to 8/48 (16%) and 10/48 (21%) samples were ORF7 RT-qPCR positive after being unmixed and mixed with TL, respectively. A total of 40/48 samples (83%) showed the same results when comparing both methodologies. However, 3/48 (6%) of the samples were positive unmixed and negative mixed and 5/48 (10%) the other way around. In addition, 6/8 (75%) and 7/10 (70%) samples were successfully sequenced after being unmixed and mixed, respectively.

Discussion & Conclusion

Comparable sensitivity was demonstrated for ORF7 RT-qPCR and ORF5 sequencing for PRRSV when OF samples were unmixed or mixed with TL. All-in-all, TL ensures good preservation of PRRS virus in OF samples and represents a good alternative, as sampling is faster, easier and samples can be shipped at room temperature.

References

1. Henao-Diaz *et al.*, 2021, Preventive Veterinary Medicine 188 (2021) 105250
2. Valls *et al.*, 2021, EAVLD Virtual Meeting

Table 1. Positive (red) and negative (green) results of the ORF7 RT-qPCR of the oral fluid samples mixed or unmixed with transport liquid. It is indicated for each sample whether ORF5 could be sequenced.

Oral fluid sample	Unmixed with TL (fresh sample)	Mixed with TL
1	ORF5	
2	ORF5	ORF5
3		ORF5
4		
5	ORF5	
6	ORF5	
7		
8		
9		
10		
11		
12		
13		ORF5
14		ORF5
15		
16		
17		ORF5
18		
19		
20		
21		
22		
23	ORF5	
24	ORF5	
25		
26		
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28		ORF5
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