The use of processing fluids compared to serum for determination the PRRS type 1 status of neonatal piglets on a commercial Dutch farm

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INTRODUCTION

For diagnosing early (vertical) PRRS-infections, a lot of piglets have to be bled. Bleeding new born piglets is stressful and time consuming which can only be done by well-trained people like vets. Recent findings from the US indicate the possibility of using processing fluids (PF) for diagnosing early PRRS-type 2 infections[1,2]. Objective of this study is to compare PRRS-type 1 detection in serum and processing fluids of neonatal piglets during a field outbreak on a Dutch farm.

MATERIALS AND METHODS

A 600 sow breeding farm with a recent PRRS-type 1 outbreak in the Netherlands was selected to compare the PRRS status of neonatal piglets by using PF and serum. Per week batch 30 piglets were bled by vena puncture at 2 - 4 days of life. In the same batches PF was collected. To collect PF, the testicles were put on a polyester 0.5 cm mesh grid. Samples were analyzed by PCR for the presence of PRRS-virus. For serum PCR analysis, 5 samples were pooled. PF was tested as one sample per week batch. When positive, the ORF5 sequence was analyzed.

RESULTS

In total 4 out of 4 weekly batches, serum was positive for PRRS type 1 (Ct 31.0-36.2). In 3 out of 4 weekly batches, PRRS type 1 could be detected in PF (Ct 31.4-34.3). Due to the relative high ct values, sequencing was not always successful unfortunately.

Figure 1. PRRS Dendrogram of the involved PRRS-strain in comparison to the Lelystadvirus.

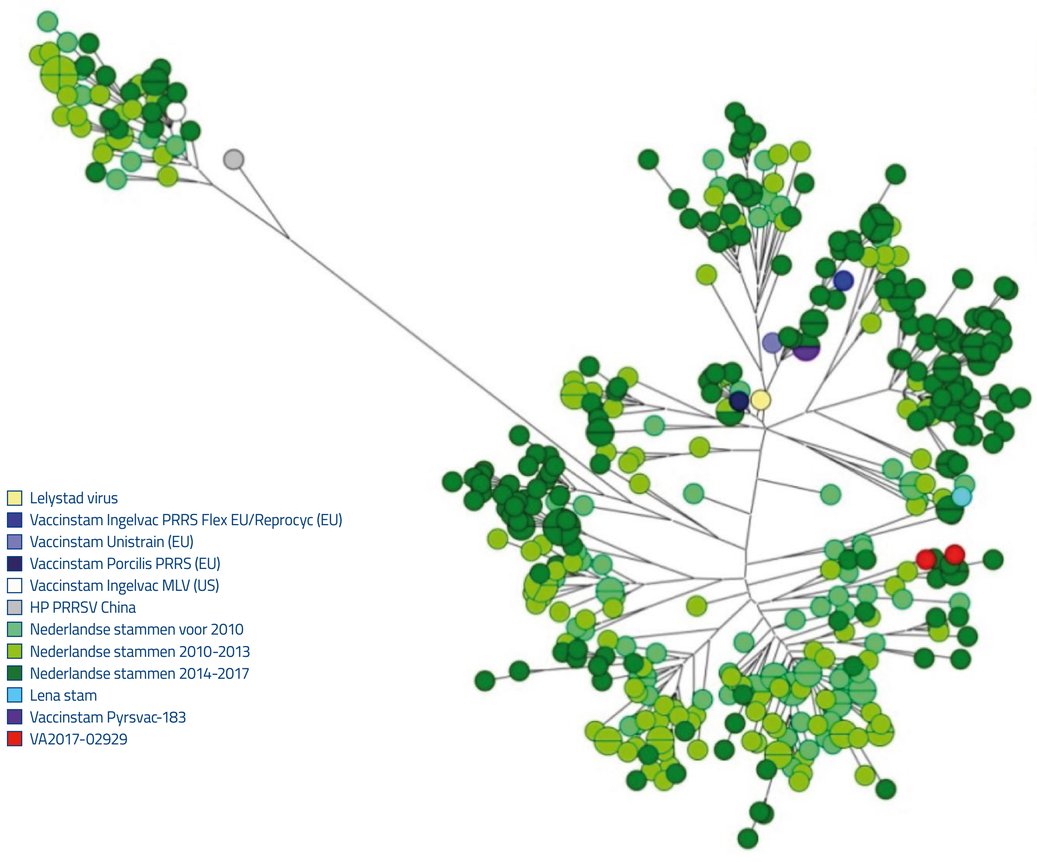

Table 1. ORF 5 and ORF 7 Sequence results at the beginning of the outbreak

Amervac		ACRO		Lelystad	
Sequence homolgy	lab	**Sequence homolgy**	lab	**Sequence homolgy**	lab
93 %	ORF 5 IVD	90 %	4	94 %	ORF 7 IVD
				>2 % difference	ORF 5 Deventer

Table 2. Comparison of the PRRS-PCR analysis of 4 different week batches of newborn piglets by either pooling 30 serum samples (6 x pool of 5) or by the individual analysis of processing fluids (PF). Serum was found positive when at least one pool was positive.

Comparison of PF and serum PRRS PCR		serum	
		pos	**neg**
PF	pos	3	0
	neg	1	0

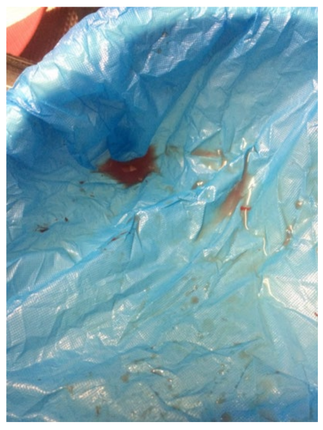

Figure 2. Collection of processing fluids. Per batch of piglets approximately 5 ml of processing fluid could be collected.

CONCLUSION AND DISCUSSION

The use of PF for detecting PRRS in neonatal piglets is proven to be possible for PRRS-type 1 strains. However, not all PF samples were positive were serum was. The collection of PF by stockmen was easy and time efficient. In addition less PCR testing was used. With the use of PF, weekly farrowing batches can be monitored for PRRS status, saving time and money due to lesser amounts of PCR testing. More research is needed to predict the exact sensitivity and specificity of testing processing fluids in comparison with serum testing.

REFERENCES

1. *Linhares 2017, BISA GOLD September 2017*
2. *Carles Vilalta, Juan Sanhueza, Montse Torremorell, Bob Morrison 2017, Leman Conference sept. 2017; Use of processing fluids for PRRSV diagnostics*

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