Associations between PRRS farm status and productive parameters in Spanish sow farms

D. Torrents[1*], J. Miranda[1], A. Puigredon[1], A. Ramirez[2], D. Linhares[2]

*Presenting author: daniel.torrents@hipra.com.

1 Laboratorios HIPRA S.A, Amer (Girona), Spain [2] Iowa State University, Ames, IA

INTRODUCTION

PRRS is an endemic swine disease causing significant productive and economic loses in pig farms. Spain is one of the main global pig producers. However, data on the impact of PRRS virus (PRRSV) infection on Spanish, or other European pig farms are still scarce. Likewise, there is a lack of systematic and periodic monitoring of PRRSV in Europe, which limits the knowledge on PRRS incidence or prevalence over time. The aim of this study was to establish, for the first time, a systematic monitoring system for PRRS in Spanish sow farms, to classify farms according the PRRS status using terminology currently adopted in the US swine industry (1). Furthermore, we investigated associations between PRRS status of breeding herds, and selected production parameters, allowing the characterization, for the first time, of production and economic impact of PRRSV infection under Spanish field conditions.

MATERIALS AND METHODS

Between Feb to Mar 2017, 40 breeding herds (total of 93,800 sows) belonging to one large integrated group located in Spain enrolled voluntarily in a one-year program for the PRRSV monitoring project. The PRRSV systematic monitoring project was designed based on the AASV guidelines. More specifically, study farms adopted a diagnostic monitoring protocol, which consisted of monthly individual due-to-wean blood testing of 30 piglets. Serum from individual blood were pooled (5 pools of 6), and tested for PRRSV RNA by RT-PCR (2). Positive pools were then tested to obtain the PRRS ORF-5 sequence by Sanger method. Farms were classified as: Negative (N), Provisional negative (PN), Positive Unstable (PU) and Positive Stable (PS). Farms were considered N when all ELISA test were negative and no clinical evidence of PRRS were observed. Starting under the assumption that all positive farms were PU, farms reached PS status after 4 consecutive negative PCR test for all tested pools. When at least one pool was PCR-positive, farms are kept in the PU status. For the evaluation of production data, weekly data were gathered from each farm including the following weekly parameters: average born alive per litter, average of stillbirths and mummies per litter, average of total born per litter, and total pigs weaned per week .

RESULTS AND DISCUSSION

At the beginning of the study, in Feb, 5 farms (12.5%) were classified as N, and remained N all along the study period. From Feb 2017 until Dec 2017, after 10 consecutive monthly samplings (Fig 1), 4 farms (10.0%) have been classified as PS for the whole study period, and 9 (22.5 %) as PU for the whole study period as well. Twenty-two farms (55 %) presented alternating status, 8 farms shifting from PS to PU, 2 farms from PU to PS, 12 farms showed a double shifting of the PRRS status, 9 farms from PU to PS to PU, and 3 farms from PS to PU to PS. All farms classified as PU during the whole study period presented different patterns of alternating positive and negative results. This was in agreement with data from literature (3), demonstrating intermittent pattern of PRRS RNA detection by RT-PCR in herds undergoing PRRSV control.

Percentage of PS farms (Fig 2) constantly increased from Mar (40%) to Jun (69%) but later it constantly decreased again from Jul to Oct (29%). In order to elucidate the possible causes of this decrease in the percentage of PS farms, epidemiologic investigations will be performed.

Figure 1. Results of PCR of positive farms from Feb to Dec 2017.
P: PCR positive; N: PCR negative; N*: 4 consecutive PCR negative results

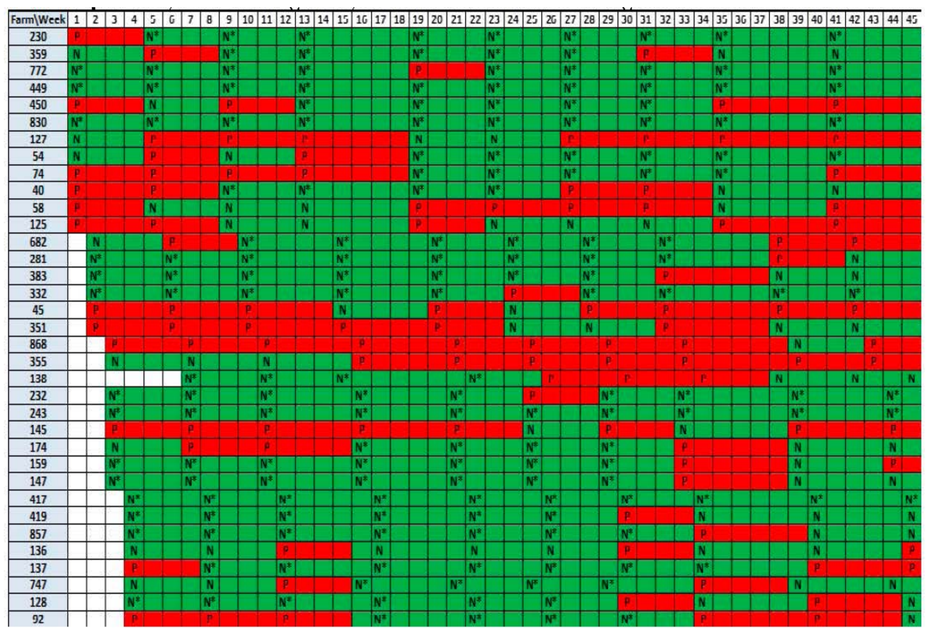
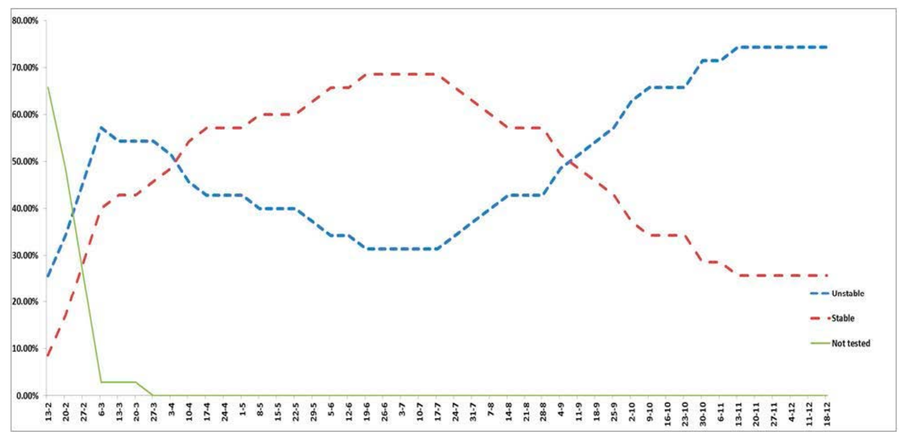


Figure 2. Percentage of PS and PU farms. Feb to Oct 2017



CONCLUSIONS

We have established for the first time in Spain the bases for a systematic PRRS monitoring protocol in accordance with the current US standards. Our data is preliminary as of the time of the printout of this poster but we will have complete data for all 40 farms by Mar 2017 allowing to have enough data to completely classify all enrolled farms and better understanding the dynamics of PRRS stability and correlate it with productive data. At that time will also have PRRS ORF-5 sequence information, which will better characterize the PRRSV strains currently circulating in these Spanish farms.

REFERENCES

1. Holkamp et al. Terminology for classifying swine herds by porcine reproductive and respiratory syndrome virus status. J Swine Health and Prod. 2011;19(1):44-56.
2. Martinez et al. Simultaneous detection and genotyping of porcine reproductive and respiratory syndrome virus (PRRSV) by real-time RT-PCR and amplicon melting curve analysis using SYBR Green. Res Vet Sci. 2008;185(1):184-93.
3. Linhares, DCL; Torremorell, M; Cano, JP; Morrison, RB. 2014. Comparison of time to PRRSv-stability and production losses between two exposure programs to control PRRSv in sow herds. Preventive Veterinary Medicine. 2014 Sep 1;116(1-2):111-9.

2018-0150