

EFFECT OF BREEDING HERD PRRS STATUS ON PRODUCTIVITY

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INTRODUCTION

PRRS is an endemic swine disease causing significant productive and economic losses 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. 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 industry¹. Furthermore, we investigated associations between PRRS status of PRRS-positive breeding herds, and selected production parameters, allowing the characterization, for the first time, of production and economic impact of PRRSV under Spanish field conditions.

MATERIALS AND METHODS

Between February 2017 to March 2018, 40 breeding herds (total of 93,800 sows) belonging to one large integrated swine group located in Spain have been enrolled voluntarily in a one-year program for the PRRSV monitoring project based on the American Association of Swine Veterinarians guidelines. PRRS status of study farms were determined by a diagnostic monitoring protocol, which consisted of monthly individual due-to-wean blood testing of 30 piglets². For the evaluation of productive parameters and their association with the PRRS status, weekly Stable (ST) and Unstable (UN) PRRS-status for each positive-PRRS farm was established according results of the last test. At the same time weekly data from all PRRS-positive farms included in the study were collected throughout the entire monitoring period and the following weekly key performance indicators (KPI) were calculated: Abortions/1,000sows (ABTHS), born alive piglets rate (BAR), pre-weaning mortality rate (PWMR) and wean-piglets/1,000sows (WPTHs). Comparative statistical analysis of KPI between different PRRS status was performed by generalized linear mixed model using SAS 9.4 analytic software. PRRS status was included in the model as fixed effect meanwhile farm and genetics were included as random effects in the model.

RESULTS AND DISCUSSION

A total of 1,997 weekly data were analysed from 35 PRRS-positive farms. 782 weeks were classified as PRRS UN, meanwhile 1,215 weeks were considered ST. Statistical difference (Table 1) was observed between UN and ST in weekly BAR (+1.08%), PWMR (-0.95%) and WPTHs (+26.2 piglets) parameters.

	ABTHS	BAR (%)
Stable	0.84±1.14	91.61±0.78***
Unstable	0.78±1.20	90.53±0.78

	PWMR (%)	WPTHs
Stable	11.20±1.05**	533.95±21.57***
Unstable	12.15±1.05	507.74±21.38

Table 1. Weekly KPI estimated means ±SE for Stable and Unstable PRRS-status.
: $p < 0.005$; *: $p < 0.001$

However, no statistical difference was observed regarding weekly ABTHS. This lack of difference in abortions could be explained by the classification system of PRRS status in this project, which was based on monitoring sampling instead of clinical diagnostic. Thus, possible peaks of abortions due to a new PRRSV circulation in ST farms may have not been associated with viremia in suckling pigs, misclassifying farms as ST. On the other hand, farms presented lower PWMR and higher BAR and WPTHs during the periods of stability when compared with instability periods, arising the productive impact of PRRSV circulation in breeding herds. Taking into account annual basis, we could estimate a reduction of 1.36 wean piglets/sow/year due to PRRS instability.

PRRS-positive breeding herds had better productive performance during stability periods than during unstable weeks, being the reduction in the number of wean piglets the main productive effect of PRRS circulation. The estimated loses of wean piglets (1.36 piglets/sow/year) due to European PRRSV circulation would be slightly lower from recent estimations in US of North American PRRSV³. These results provide better understanding of the productive impact of European PRRSV circulation in breeding farms, reinforcing the efforts to stabilize and maintain stable the PRRS-positive farms, especially in high-density swine production areas where elimination of PRRS virus is costly and of low risk of long-term success.

REFERENCES

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