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ECONOMIC BENEFIT OF AN INCREASE IN PIGLETS WEANED AFTER ACHIEVING PRRS STABILITY IN A LARGE INTEGRATED PIG PRODUCTION SYSTEM IN EUROPE

Torrents[1], D.; Miranda[1],J.; Pedrazuela[1],R.; Ramirez[2],A.; and Linhares[2],D.
[1]HIPRA, Amer (Girona), Spain. / [2]Iowa State University, Ames, IA, USA.
Corresponding author (daniel.torrents@hipra.com)

BACKGROUND & OBJECTIVES

PRRS is an endemic swine disease causing significant productive and economic loses in pig farms. PRRS instability in breeding herds can affect productivity reducing the number of piglets weaned due to the reduction in piglets born alive and the increase in pre-weaning mortality (1). Estimating the economic impact of the productive enhancement due to the achievement of PRRS stability in breeding herds can provide key information in order to evaluate the real impact of PRRS circulation and the cost-profit of the implementation of PRRS control programs and strategies. The aim of this study was to evaluate the economic benefits of achieving PRRS stability in PRRS positive unstable breeding herds due to the improvement of the number of weaned piglets (WP)

MATERIALS AND METHODS

In a one-year PRRS monitoring program established in a large integrated pig production system in Europe including 35 breeding herds (78,680 sows), weekly PRRS status and productive data were recorded (2). Previously in this monitoring program and using a generalized linear model, a difference of 26.2 weekly WP per 1000 sows (WPTHS) between PRRS stable weeks (SW) (n=1215) and PRRS unstable weeks (UW) (n=782) was estimated (1). Based on this difference, and using a partial-budgeting model (Figure 1), we estimated the total economic benefit of one-year PRRS stability achievement in this large production system in Europe. For this, firstly, the total increase of one-year WP in the whole system due to PRRS stability achievement was estimated by the summation of the farm's individual WP increases estimation, regarding the number of SW and sow's population of each farm. Next, the total increase of pigs-to-market for this period due to PRRS stability was estimated applying a 6% wean-to-finish mortality rate (WTFMR) on the total estimated increase of WP, according to the average WTFMR reported in the group for the study period. Finally, the total economic benefit due to PRRS stability achievement was calculated regarding the difference between the market price average in Spain (1.25€) (3) and the estimated cost of production in this system (0.95€) per Kg of live pig reported during the study period and the average pig's live bodyweight at market (107Kg).

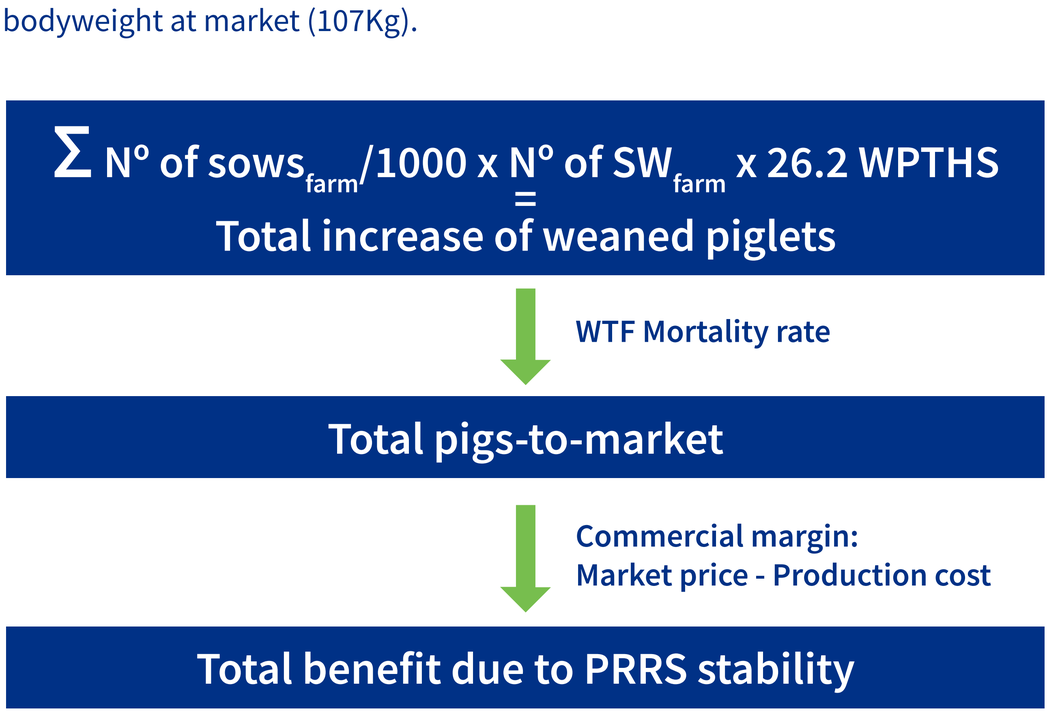

Figure 1. Chart of the estimation of Total Economic Benefit due to PRRS stability.

RESULTS

Taking into account the increase of 26.2 WPTHS per SW and the number of PRRS SW in each breeding farm during the study period we estimated a total increase of 70,048 WP per year due to PRRS stability (Table 1). According a 6% WTFMR observed in the group, we estimated a total increase of 65,845 pigs to market. Finally, according to the pig market profitability (32.1€/pig =107 Kg/market pig x (1.25€ market price/Kg – 0.95 production cost/ Kg)) during the study period, we estimated a 2.1 M€ of economic benefit due to PRRS stability achievement.

Table 1. Total weaned piglets (WP) increase due to PRRS stability.

Farm Code	SW	Sows (x1000)	WP Increase*	Farm Code	SW	Sows (x1000)	WP Increase*
230	55	3.5	5,044	**868**	0	1.5	0
359	55	3.3	4,755	**355**	0	2.4	0
772	55	3.9	5,620	**138**	36	0.55	519
449	46	3.3	3,977	**232**	54	2.3	3,254
450	22	0.62	357	**243**	46	2.4	2,892
830	46	3.5	4,218	**145**	0	2.8	0
127	0	1.1	0	**174**	50	3	3,930
54	29	0.55	418	**159**	36	3	2,830
74	22	1	576	**147**	36	2.6	2,452
40	18	3	1,415	**417**	55	2.9	4,179
58	0	3	0	**419**	55	2.9	4,179
125	0	3.5	0	**857**	55	2	2,882
682	32	2.8	2,348	**136**	55	1.1	1,585
281	55	2.8	4,035	**137**	36	0.8	755
383	55	2.6	3,747	**747**	55	0.95	1,369
332	55	1.2	1,729	**128**	26	0.55	375
45	0	1.2	0	**92**	31	0.75	609
351	0	3.5	0			**Total**	**70,048**

** WP Increase = Stable weeks (SW) x Sows (x1000) x 26.2)*

DISCUSSION & CONCLUSION

For the swine integrated group in this study, and under the Spanish market conditions for 2017-2018, achievement of PRRS stability provided a gross benefit of 2.1M€ for the whole group, based on the WP increase due to PRRS stability. Estimating the economic benefit of PRRS stability is a key point to consider in the design of control strategies and the evaluation of the return to investment of the actions implemented to stabilize breeding herds such biosecurity reinforcement measures and breeder's vaccination. Despite more accurate estimation of economic benefits can be performed using more complex models including multiple factors, these gross estimations easy to get can provide reliable and valuable indicators in order to make managers and workers awake of the benefits they can get with the investment in PRRS control measures.

REFERENCES

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