# Implementation of the 5 Steps-Process platform for PRRS control in a farm in Spain

E. Sánchez[1], T. Fernández[1]. S. Figueras[2], I. Hernández-Caravaca[2], V. Rodriguez-Vega[2]
[1]Inga Food, Almendralejo, Spain; [2]Boehringer Ingelheim España, S.A. Spain

2018 BARCELONA / SPAIN
ESPHM 10th EUROPEAN SYMPOSIUM OF PORCINE HEALTH MANAGEMENT

## INTRODUCTION

Porcine Reproductive and Respiratory syndrome (PRRS) is one of the most damaging diseases in the swine industry, having negative effects typically affecting breeding herd reproductive parameters as well as pig productivity parameters[1]. Costs in Europe are estimated between 100 € and 200 € per sow per year and 5 € to10 € per pig per year[2]. Controlling the infection is key to keep the systems producing at target levels[3] and involves sow herd stabilization as well as an active pig protection. This is a summary of a large field trial designed to evaluate the impact of the 5 Step Process platform[4] on control of heterologous PRRSV in a commercial farm, assessed by animal performance.

## MATERIALS AND METHODS

The study has been conducted in a PRRS positive 750 sow farrow-to-feeder farm located in the central region of Spain. The 5 step process considers defining goals, determining the status at the starting point, assessing system constraints, and developing, implementing and monitoring solutions. Two resident field virus clusters were found at the beginning of the program with a phylogenetic heterology of the strains between 13,6 % and 15.5 %. 200 gilts entered the farm before closing it (week -1) and then two mass vaccinations (week 0 and week 3) of sows and gilts were done 3 weeks apart injecting intramuscularly 2 ml of Reprocyc PRRS EU®. The rest of the pigs older than 14 days were administered 1 ml IM of PRRSFLEX EU®. Since then, every weekly piglet batch was vaccinated on a regular basis at weaning (21 days), the McRebel protocol was implemented, and a sow and gilts quarterly vaccination was set up. This study analyses the reproductive parameters before and after implementation of the 5 Steps Process platform. Therefore, to analyze the productive parameters we compare them before and after achieving stability. For the statistical process control (SPC chart) analyzing method, the Minitab.17.1.0 software (2013 Minitab Inc.) was used.

## RESULTS

Results of the means of the reproductive data in both periods are summarized in table 1.

**Table 1. Results of reproductive parameters before and after the implementation of the 5 Steps-Process**

| | Before | After | Difference | p value |
|---|---|---|---|---|
| **Return to oestrus rate** | 5.28 | 5.14 | -0.14 | p=0,409 |
| **Abortion rate** | 2.79 | 2.19 | -0.6 | p=0,711 |
| **WOI** | 6.379 | 6.141 | -0.238 | p=0,331 |
| **Total born** | 12.05 | 12.929 | 0.879 | p=<0,0001 |
| **Born alive** | 110.36 | 11.782 | 0.746 | p=<0,0001 |
| **Still born** | 1.021 | 1.141 | 0.12 | p=<0,005 |
| **Mummification rate** | 0.157 | 0.1706 | 0.0136 | p=0,549 |
| **Preweaning mortality** | 10.24 | 10.82 | 0.58 | p=0,407 |
| **Piglets weaned/litter** | 9.893 | 10.488 | 0.595 | p=<0,0001 |
| **Piglets weaned/sow/year** | 23.371 | 25.131 | 1.76 | p<0,001 |
| **Nursery mortality rate** | 4.82 | 3.65 | -1.17 | p=0,409 |

**Figure 1. Piglets weaned / litter before and after the implementation of the 5 Steps-Process**

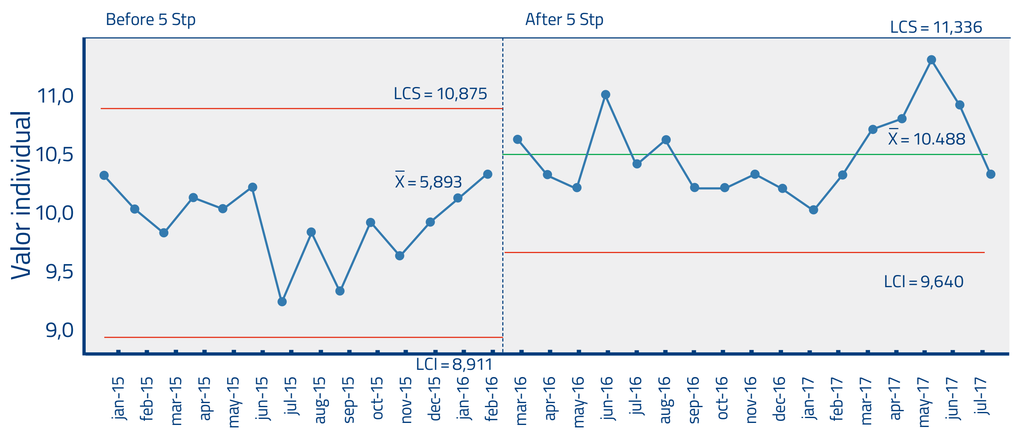



**Figure 2. Nursery mortality rate (MR) before and after the implementation of the 5 Stp Process**

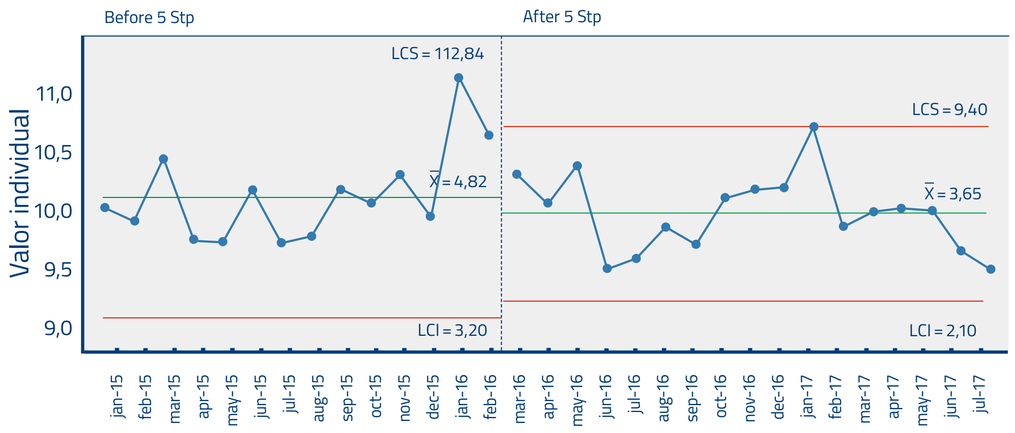
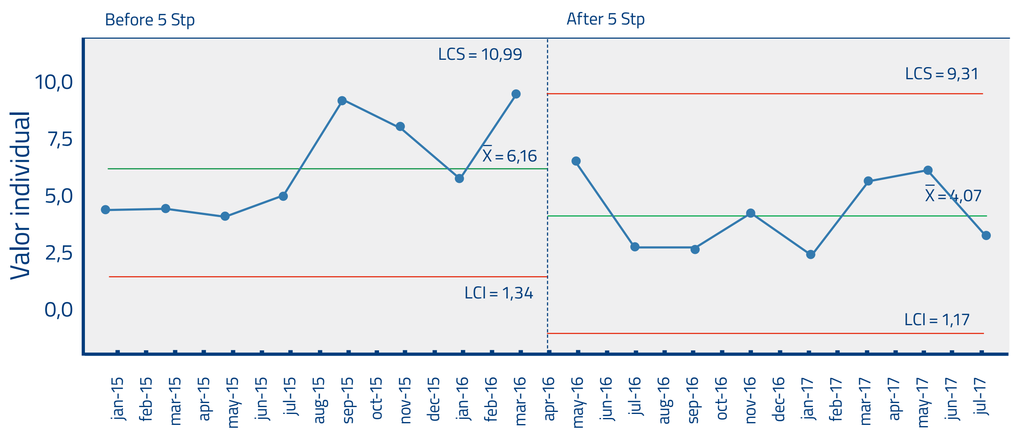



**Figure 3. Mortality rate (MR) in fattening before and after PRRS control implementation.**




## DISCUSSION AND CONCLUSION

The implementation of the 5 Step Process platform as well as the whole herd vaccination program implemented in this farm, had a significant positive impact on the reproductive and productive parameters. Regarding the financial impact the calculated return on investment was 12.1:1 for the intervention in sows and 6.0:1 for the intervention in pigs.

## REFERENCES

1. *Diaz, E. et al AASV 2011*
2. *De Paz, X. PRRS cost for the European swine industry. https://www.pig333.com/what_the_experts_say/prrs-cost-for-the-european-swine-industry_10069*
3. *Polson, D. et al. IPVS 2008*
4. *5 step process details explanations at https://www.prrs.com*