Laryngeal sampling to assess *Mycoplasma hyopneumoniae* infection dynamic according to the acclimation process

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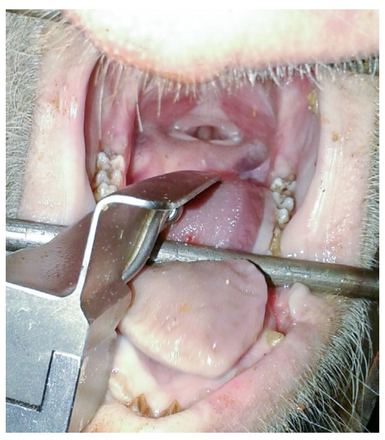
INTRODUCTION

Mycoplasma hyopneumoniae is one of the key contributors to Porcine Respiratory Disease Complex (PRDC). Control of PRDC will not be achieved until a proper acclimation program of the gilts to *M. hyo* before entering the breeding herd is implemented[1,2]. *M. hyo* vaccines can control clinical disease but cannot prevent infection so that acclimation is a critical process of the Infection Chain™ concept.
Laryngeal swabs showed the highest sensitivity for early detection of *M. hyo* compared to other sample methods[3].
This study documents the use of laryngeal swabs as a monitoring tool to assess the pathogen dynamic in a gilt flow with or without acclimation program.

MATERIALS AND METHODS

This case study was documented in a *M. hyo* positive system in the central region of Spain. A single *M. hyo* positive multiplication herd sends 12 weeks of age gilts to two continuous flow gilt development units (GDU A and GDU B). Each unit provides gilts to its own sow farm.
In GDU A, ten seeders animals (22 weeks of age) are placed with the incoming gilts two weeks after arrival in a 1 to 10 ratio. In addition, the seeders are moved among pens every 3 weeks to increase the probability of mycoplasma infection. The final goal of this acclimation protocol is to promote early exposure during the acclimation process. In GDU B, no physical contact between different age animals is actively promoted.
In order to understand the infection dynamics in each GDU, 30 laryngeal swabs were collected at 14, 20 and 30 weeks of age as a cross-sectional profile.
To determine the presence of *M. hyo* real-time PCR (cador®, Qiagen GmbH) in pools of 3 samples was used[5].

Figure 1: Laryngeal swab taken from a gilt



RESULTS

Percentage of PCR positive gilts in GDU A is shown in figure 2. No positive animal was detected at 14 weeks, but 6 weeks after placement of seeders 100% of PCR positive pools were found. At 30 weeks of age, 40% of the gilts could be detected shedding. Percentage of PCR positive pools in GDU B is shown in figure 3. In this case, first positive gilts were detected at 20 weeks of age in 70% of the pools. At 30 weeks of age 100% were positive.

Figure 2: Laryngeal swabs sampled from gilts of the GDU A by weeks of age

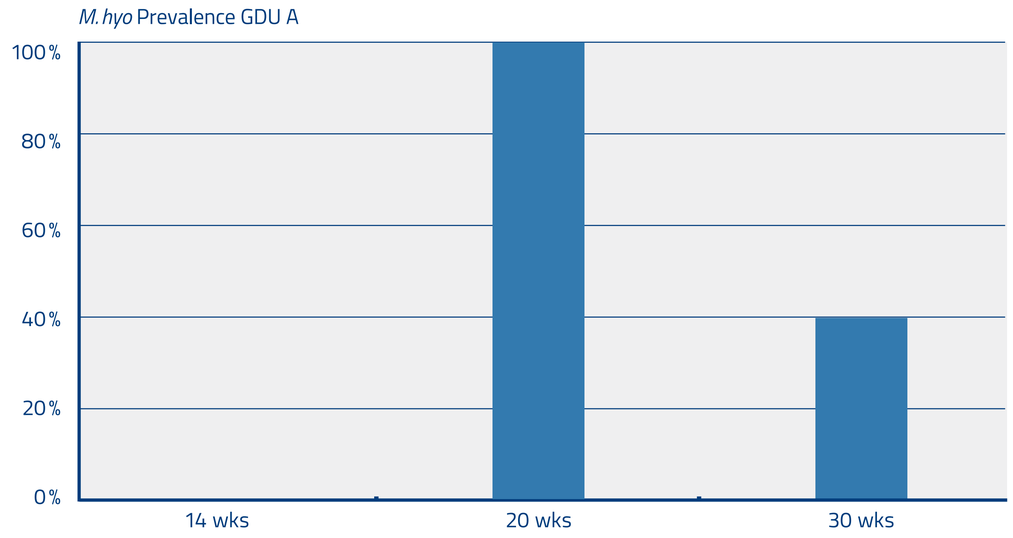
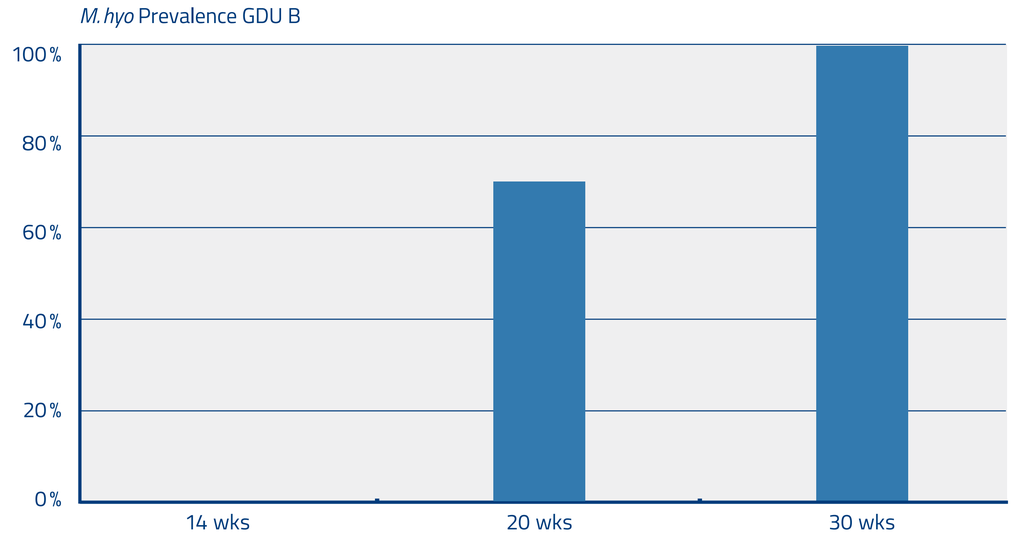


Figure 3: Laryngeal swabs sampled from gilts of the GDU B by weeks of age



DISCUSSION AND CONCLUSION

A proper gilt acclimation program is an integral part of systematic *M. hyo* control particularly in herds receiving naïve replacement gilts. Laryngeal swabs are a good tool to assess differences between the infection status in populations[4], which in this case was used to evaluate acclamation systems. Properly acclimated gilts in GDU A achieved early exposure and consequently had reduced the shedding before entering the sow unit. This will not be the case of the gilts from GDU B, where natural exposure is taking place late and subsequently shedding around first farrow, which could contribute to an unstable status to mycoplasma of the receiver sow farm. Avoiding active shedding of replacement gilts during the first pregnancy is the final goal of the gilt acclimation concept[1,2,6].

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