Impact of vaccinating sows against Atrophic Rhinitis on the lesion score observed on the snouts of pigs

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Introduction

Atophic Rhinitis can lead to reduced daily gain, poor body condition and variable growth, due to difficulty in eating. It may also increase the risk of infection by respiratory diseases. Vaccination of sows against Atrophic Rhinitis aims to protect piglets by passive immunity transmitted via the colostrum. The prevalence and intensity of Atrophic Rhinitis is often assessed by scoring nasal lesions (1). The objective of this study was to compare the rhinitis lesions scored on the snouts of pigs according the vaccine status of their mother.

Materials and Methods

Two batches (283 pigs) from one experimental farrow-to-finish farm were used. The farm has vaccinated against Atrophic Rhinitis for many years, and has a level of rhinitis lesions in the low to medium range.
Four groups of pigs were defined according to the vaccine status of the sows / gilt:

- Group 1: pigs born from unvaccinated gilts (n=30);
- Group 2: pigs born from unvaccinated sows (n=124);
- Group 3: pigs born from vaccinated gilts (n=33);
- Group 4: pigs born from vaccinated sows (n=96).

In the first batch, all gilts and sows were vaccinated, according to a classical vaccine program with Porcilis® AR-T DF: Gilts received 2 injections in quarantine (4 weeks apart), then all pregnant gilts and sows were also vaccinated 3 weeks before each farrowing. In the second batch, the gilts were never vaccinated, and the sows' vaccination was stopped before the two last farrowings.

The Atrophic Rhinitis lesions of all pigs born in the two batches were scored directly after slaughter (or if the pig died before getting to slaughter age). The severity of atrophic rhinitis lesions was scored on computer tomography images of snout sections obtained at the first upper premolars (figure 1). The lesion scores were graded by an experienced operator, according to the IFIP reference method (scored 0 to 20):each turbinate atrophy was scored 0 to 4 and the nasal septum deviation was scored 0, 1, 2 or 4 (2).
The average lesion scores in each group were calculated. For the statistical analysis we used the non-parametric test (Wilcoxon signed rank test) to compare the four groups and after to compare the groups two per two.

Results

25% of snouts had no Atrophic Rhinitis lesion for the vaccinated sows against 7% for the unvaccinated sows. The average lesion scores of pigs born from unvaccinated sows or gilts were higher than those born from vaccinated sows or gilts (see table 1). There was no difference between the lesion scores of pigs born from vaccinated gilts and those of pigs born from vaccinated sows. The average lesion scores of pigs born from unvaccinated gilts are significantly higher than those born from unvaccinated sows.

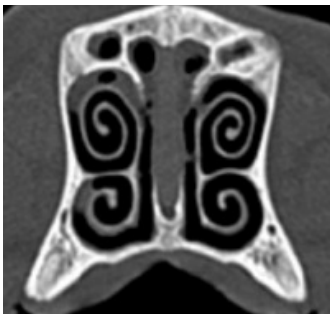

Figure 1. Computer tomography images on snout section obtained at the first upper premolars

Table 1. Average scores of Atrophic Rhinitis lesions for pigs born from unvaccinated or vaccinated sows or gilts.

Group	N	Mean	Statistics*
1)Pigs born from unvaccinated gilts	30	4.83	a
2)Pigs born from unvaccinated sows	124	3.84	b
3)Pigs born from vaccinated gilts	33	2.88	c
4)Pigs born from vaccinated sows	96	2.95	c

*Non-parametric test: Wilcoxon signed rank test

Conclusions and Discussion

Vaccination of gilts and sows against atrophic rhinitis transmits passive immunity to piglets via the colostrum. Stopping vaccination in a farm with a known risk of Atrophic Rhinitis increases the atrophic rhinitis lesions (groups 1 and 2 vs 3 and 4). Pigs born from gilts that have never been vaccinated have more severe lesions (group 1). Pigs from sows that received the first doses of vaccine, but did not receive the pre-farrowing dose(s) also had increased lesions compared to pigs from fully vaccinated sows (group 2 *vs.* group 4). This underlines the need to complete vaccination courses for maximal protection.

References

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