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***Mycoplasma hyopneumoniae* Challenge and Outcome in a Comparison of RespiSureOne® and Ingelvac® MycoFlex™ Vaccination of Pigs: Pig Performance and Respiratory Pathology**

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INTRODUCTION

Mycoplasma hyopneumoniae (MHYO) is a respiratory pathogen of swine distributed worldwide¹. The 2006 USDA National Animal Health and Monitoring Survey reported that in US swine units the percentage of mortality due to respiratory problems was 44.2% and 61.1% in nursery and grow/finish pigs, respectively². Vaccination against MHYO reduces morbidity and respiratory pathology, potentially impacting weight gain. This study was conducted to determine if there are differences in gains and lung pathology, using RespiSureONE®, or Ingelvac®MycoFLEX™ as compared to a group of unvaccinated pigs⁴.

MATERIALS and METHODS

One-hundred-twenty (120), weaned pigs were weighed and blood sampled for MHYO serology. On the day of vaccination, pigs were 3 weeks of age and seronegative for MHYO (ELISA; S/P < 0.30; Vet Diag Lab, Iowa State University, Ames, IA;). The study was reviewed by an internal Ethical Review Board, and was conducted as a randomized complete block design with pigs blocked by weight and pen location. Treatments were administered on study Day 0 with pigs at 3–weeks of age and treatments were commingled in each pen.

T01 - saline 1 mL / pig , IM to 40 pigs; **T02** - RespiSureONE® (RSO) 2 mL / pig, IM to 39 pigs; and **T03** - Ingelvac®MycoFLEX™ (myF); 1 mL / pig, IM to 40 pigs. Four weeks after vaccination, pigs were challenged with an intra-tracheal administration of 10 mL of a 10% porcine MHYO lung homogenate LI37 2-5-04, containing strain 232 (a swine passage derivative of MHYO strain 11). Four weeks post-challenge, pigs were weighed and humanely euthanized for evaluation of lung pathology (consolidation, lesions compatible with MHYO).

RESULTS

Mean lung consolidation (MLC) was 6.5% in the unvaccinated controls which was significantly higher than either vaccinated group ($P = 0.0001$). MLC was significantly lower in the RSO group (0.6%; $P = 0.0451$) compared to 1.4% in the myF group. The percentage of respiratory tracts with 5% or less consolidation was 97.4% in the RSO group compared to 52.5% in the controls ($P = 0.0001$) and 75.0% in the myF group ($P = 0.007$). Forty-seven percent (47%) of RSO-vaccinated pigs were MHYO seropositive by four weeks post-vaccination, whereas none (0%) of the myF-vaccinated and controls had seroconverted. Mean body weights ranged from 7.2 to 7.3 kg at study start, and 42.2 to 43.0 kg at study end. Average weight gain across the three treatments was not significantly different (0.6 kg/pig/day; $P > 0.05$).

CONCLUSION

This study showed that vaccination against MHYO helps reduce lung pathology. Pigs vaccinated with RespiSureONE had a significantly lower mean lung consolidation, and a significantly higher number of respiratory tracts with 5% or less consolidation compared to controls and pigs vaccinated with Ingelvac MycoFLEX. No effect on performance was demonstrated .

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