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Comparative Efficacy of RespiSure[®] vs M+Pac[®] in a Field Study

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Background

The primary objective of this study was to compare the efficacy and effect on performance of two commercially available *M.*

hyopneumoniae vaccines, RespiSure[®] (Pfizer Inc.) and M+Pac[®] (Schering-Plough).

Material and Methods

Four hundred, 2-week-old, *M. hyopneumoniae* seronegative pigs were assigned to one of three treatments according to a generalized block design based on body weight and pen location. At 3 (Day 0) and 5 weeks of age (Day 14), pigs were vaccinated IM: T01 = saline (N=60); T02 = RespiSure[®] (N=170); T03 = M+Pac[®] (N=170). Blood samples for *M. hyopneumoniae*, PRRSV, SIV and PCV serology were collected at key time points from one randomly selected pig/pen.

On Day 42, pigs were challenged intratracheally with 10 mL of a 1:100 dilution of *M.*

hyopneumoniae lung homogenate, containing a derivative of *M. hyopneumoniae* strain 11 (Dr. Eileen Thacker, Iowa State University, Ames, IA). On Day 70, two pigs per pen, randomly selected at the start of the study, were euthanized and necropsied for evaluation of lungs for *M. hyopneumoniae* lesions.

Pigs were weighed on Day -4 (arrival at farm), Day 41 (challenge), 70 (necropsy) and Day 134 (slaughter) for calculation of average daily gain (ADG). On Days 0, 27, 41, 70 and 134, feed was weighed by pen for the calculation of feed consumption.

On Day 134 (slaughter), sort loss was calculated based on the number of pigs with a close-out weight < 230 pounds and/or a physical lesion, such as umbilical or scrotal hernia.

All data were statistically analyzed using SAS. The significance level was set at $P \leq 0.05$.

Results and Discussion

Lung lesions and sort loss are summarized in Table 1 and 2, respectively.

Table 1. *M. hyopneumoniae* lung lesion scores

Treatment	N	LSM	% Reduction
Placebo	12	20.1 ^a	NA
RespiSure [®]	34	1.5 ^b	92.4
M+Pac [®]	35	5.9 ^c	70.4

^{a,b,c} $P \leq 0.01$

Table 2. Sort loss per pen at slaughter

Treatment	N	% Sort Loss		
		Overall	<230#	Physical
Placebo	6	25.0	25.0	2.2
RespiSure [®]	17	17.6	13.6	1.4
M+Pac [®]	17	27.3	24.8	1.1

*Mean; $P > 0.05$

The overall ADG was higher in vaccinated than control pigs ($P \leq 0.05$) and was not different between vaccine groups. Feed intake tended to be higher in RespiSure[®] pigs ($P > 0.05$). By Day 70, 33.3% T01 and 100% of T02 and T03 pigs were seropositive for *M. hyopneumoniae*. Pigs remained negative for PRRSV and maternal immunity for H1N1, H3N2 and PCV declined, indicating lack of any intercurrent infection.

Overall, RespiSure[®] was more efficacious than M+Pac[®] against an experimental *M. hyopneumoniae* challenge as indicated by the significantly fewer lung lesions in the RespiSure[®] than M+Pac[®] vaccinated pigs. In addition, vaccination with either vaccine improved the ADG compared to the ADG in placebo pigs and fewer RespiSure[®] than placebo and M+Pac[®] pigs were penalized at the time of slaughter for a close-out weight below 230#.

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