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## Comparison of Commercial *Mycoplasma hyopneumoniae* (MHYO) Bacterins in Pigs after MHYO Challenge

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### Introduction

To evaluate differences between two 1-dose *Mycoplasma hyopneumoniae* (MHYO) vaccines, RespiSureONE®, and Ingelvac®MycroFLEX™, 120 freshly weaned pigs were enrolled into one of three treatment (vaccine) groups: T01: negative control; saline 1 mL IM; RSO: RespiSureONE®; 2 mL IM; myF: Ingelvac®MycroFLEX™; 1 mL IM. Pigs were challenged on Day 28 and comparisons were made 28 days post-challenge for respiratory tract pathology [lung lesion %], serology and weight gain.

### Materials and Methods

Weaned 3-week old MHYO negative (IDEXX S/P<0.30) pigs were blocked by weight and pen location and vaccinated on Day 0. The individual pig was the experimental unit and the study was conducted as a randomized complete block design. Pigs were challenged 28 days post-vaccination by intra-tracheal inoculation of 10 mL of a 10% crude porcine lung homogenate containing strain 232 a swine passage derivative of strain 11 (provided by Iowa State University). The study was conducted under an IACUC-approved animal use protocol.

### Results

The study was valid based on conventional MHYO challenge results: lung consolidation in non-vaccinated pigs was 6.5% (back-transformed least squares means [LSM]). This value was significantly higher ( $P \leq 0.0001$ ) compared to each vaccine group: RSO (LSM = 0.6%) and myF (LSM = 1.4%). Further, the percent lung consolidation in the RSO group was significantly lower than that in the myF group ( $P = 0.0451$ ). Only 2.6% of the RSO-vaccinated pigs had more than 5% consolidation, compared to nearly half the control pigs (47.5%) and 25.0% of the pigs in the myF group ( $P \leq 0.007$ ; Table 2). Four weeks post-vaccination, eighteen pigs (47%) in the RSO group were

seropositive for MHYO ( $\geq 0.30$  S/P). On Days 27 and 56 the S/P ratio in the RSO and myF groups was significantly higher ( $P \leq 0.05$ ) compared to controls, and RSO-vaccinated pigs had a significantly higher S/P ratio compared to the myF group (Table 3). Across groups and not different ( $P > 0.05$ ) the ADG over the study was 0.6 kg/pig/day.

**Table 1**

Group	LSM % Lesion	SE	Range
T01	6.5 <sup>a</sup>	1.3	0.3 - 54.3
RSO	0.6 <sup>b</sup>	0.15	0.0 - 5.65
myF	1.4 <sup>c</sup>	0.43	0.0 - 14.25

Superscripts (a, b, c) that differ within a column are significantly different ( $P \leq 0.05$ )

**Table 2**

LSM % Consolidation	Group		
	T01	RSO	myF
< 5%	52.5	97.4	75.0
$\geq 5\%$	47.5	2.6	25.0
Contrasts:			
T01 v RSO	0.0001		
RSO v myF	0.0070		
T01 v myF	0.0619		

**Table 3**

Group	Day: 27		Day: 56	
	S/P	% pigs pos	S/P	% pigs pos
T01	0.002 <sup>a</sup>	0.0	0.229 <sup>a</sup>	22.5
RSO	0.330 <sup>b</sup>	47.0	2.195 <sup>b</sup>	100.0
myF	0.015 <sup>c</sup>	0.0	0.826 <sup>c</sup>	90.0

Superscripts (a, b, c) that differ within a column are significantly different ( $P \leq 0.05$ )

### Conclusions

Compared to placebo controls and a competitor's product, pigs vaccinated with RespiSureONE had significantly less lung pathology following MHYO challenge, coupled with a marked serological response.

### References

1. Pfizer Animal Health study report 3121W-60-08-677