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Thank you to **IDEXX Laboratories** for their financial support to reproduce the conference proceeding book.

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based on the original design by Dr. Robert Dunlop

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**Comparison of 1 and 2 dose vaccination regimens using three currently licensed
Mycoplasma hyopneumoniae vaccines in pigs**

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Introduction and Objectives

This study was performed as a randomized, negative-controlled, blinded laboratory trial to compare the efficacy of a recently licensed 1-dose M hyo vaccine (Ingelvac MycoFLEX[®], Boehringer Ingelheim Vetmedica, Inc.) compared with that of two commercially available vaccines (1 and 2 dose products).

Materials and Methods

Approximately 150 gestating gilts (all from a single breeding group week and previously M hyo-vaccinated) were blood sampled and screened on the Idexx HerdChek M hyo ELISA several weeks prior to farrowing. The 45 gilts with M hyo ELISA s/p ratios at or nearest to a s/p ratio of 0.70 (expected range of 0.40 to 1.0 s/p ratio) were identified and their piglets were included for the study. This range was used because it represents a typical sow herd M hyo serological distribution targeting the 50th to 75th percentile observed in the US swine industry.¹ Offspring were randomized at one week of age by sex using Excel. Pigs were weaned at 18 days of age and placed in growing pig facilities at the source farm/pre-challenge site until moved to the challenge site. Pigs were pre-medicated with tiamulin at the source/pre-challenge facility immediately prior to shipment to the challenge facility. the treatment group size (n = 50 per group) was derived from a power calculation using data from previous M hyo challenge studies and commercially available statistical software (Minitab[®] 14 for Windows[®]). A summary of the groups and treatments are shown in Table 1. All pigs were necropsied 28 days post-challenge and lung lesions scored using the standardized PigMON[®] protocol by two evaluators. In order to determine differences among treatment groups concerning the observed lung lesion scores multiple comparisons were conducted using pairwise Wilcoxon rank sum tests followed by a Bonferroni-Holm adjustment of the p-values to keep the overall significance level of 0.05.

Table 1. Study design

Group	Vaccine	Vaccination Regimen	Challenge (pig age)
1	NVC	NA	9 wks
2	RESPISURE [®] ONE (1 dose)	2 ml IM at 3 wks age	9 wks
3	Ingelvac MycoFLEX [®] (1 dose)	1 ml IM at 3 wks age	9 wks
4	RESPISURE [®] (2 dose)	2 ml IM at 7 days & 3 wks age	9 wks
5	NVNC	NA	NA

Results

Non-vaccinated challenged (NVC) pigs had significantly higher lung lesion scores than non-vaccinated non-challenged (NVNC) pigs validating the M hyo challenge model. RESPISURE[®] ONE scores were not significantly different from NVC scores. Ingelvac MycoFLEX[®] and RESPISURE[®] (2 dose) scores were significantly lower than NVC scores. NVNC scores were lower than all other groups (Table 2).

Table 2: Lung lesion scores

Group	Vaccination	Mean % Lung Lesion Scores	Median % Lung Lesion Scores	Median Comparison*
1	NVC	11.8	11.2	A
2	RESPISURE ONE (1 dose)	9.2	5.6	AB
3	Ingelvac MycoFLEX (1 dose)	6.7	3.5	BC
4	RESPISURE (2 dose)	4.9	1.9	C
5	NVNC	0.8	0.3	D

*Represents statistical significance of p <0.05 if letters are different.

Conclusions

Ingelvac MycoFLEX[®] provided significant protection against M hyo and was as effective as other well recognized commercial vaccines.

References

1. Unpublished data, BIVI.