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## A comparison of injection site lesions in nursery pigs vaccinated with combination Porcine circovirus type 2-*Mycoplasma hyopneumoniae* vaccine products

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### Introduction

Combination vaccines are advantageous since they reduce the number of injections required. The objective of this study was to compare injection site lesions in pigs vaccinated with USDA approved combination products to pigs injected with saline.

### Materials and Methods

The study was conducted in a commercial nursery facility located in the Midwest. All injections administered at the sow farm were given in the left side of the neck. Pigs (n=69) were palpated at weaning (3 wks of age= d-1), to verify pig's necks were free of lesions. Pigs were randomly assigned to one of three treatments and randomly assigned to pens. All treatments were present in each pen (12 barrows and 11 gilts/pen). Treatments consisted of: 1) Saline injection, 2 ml IM, on d 0 and 21; 2) Ingelvac® CircoFLEX-MycoFLEX® (FLEX; Boehringer Ingelheim Vetmedica, Inc.), 2 ml IM, on d 0; and 3) Circumvent® PCV M, (Merck Animal Health), 2 ml IM, on d 0 and 21. Pigs were evaluated for injection site lesions on d 1, 2, 3, 7, 14, 21, 22, 23, 28, 35, and 41. All evaluations were conducted by an observer blinded to treatment. If a palpable lesion was identified, the length and width of the lesion was measured with a vernier caliper. On d 41, all pigs were transported to the Iowa State Diagnostic Laboratory, euthanized, and evaluated for gross and histological lesions. If a lesion was grossly identified, the right side of the neck was serially sliced to observe for gross visual signs of inflammation and samples were taken for histological examination and confirmation.

### Results

The percent of pigs identified with injection site lesions is shown in Table 1. The average area of

the injection site lesions in pigs vaccinated with Circumvent PCV M was 4619 mm<sup>2</sup> and ranged from 320 to 11,186 mm<sup>2</sup>. The number of gross and histopath lesions are shown in table 2.

**Table 1. Number of pigs with injection site lesions and post-mortum lesions**

Day	Treatment			P-value <sup>1</sup>
	Saline	FLEX	PCV M	
d 1	0/23	0/23	0/23	-
d 2	0/23	0/23	0/23	-
d 3	0/23	0/23	0/23	-
d 7	0/23	0/23	0/23	-
d 14	0/23 <sup>a</sup>	0/23 <sup>a</sup>	8/23 <sup>b</sup>	0.0001
d 21	1/23	0/23	1/23	0.60
d 22	1/23 <sup>a</sup>	0/23 <sup>a</sup>	7/23 <sup>b</sup>	0.002
d 23	0/23 <sup>a</sup>	0/23 <sup>a</sup>	9/23 <sup>b</sup>	<0.0001
d 28	1/23 <sup>a</sup>	1/23 <sup>a</sup>	16/23 <sup>b</sup>	<0.0001
d 35	0/23 <sup>a</sup>	0/23 <sup>a</sup>	10/22 <sup>b</sup>	<0.0001
d 41	0/23 <sup>a</sup>	0/23 <sup>a</sup>	3/22 <sup>b</sup>	<0.0001
Gross	1/23 <sup>a</sup>	0/23 <sup>a</sup>	15/22 <sup>b</sup>	<0.0001
Histopath <sup>2</sup>	1/1 <sup>a</sup>	0/0 <sup>a</sup>	15/15 <sup>b</sup>	<0.0001

<sup>1</sup>Fisher's exact test; Rows with different superscripts differ, P<0.05.

<sup>2</sup>All lesions confirmed to be granulomatous

### Conclusions and Discussion

Combination vaccine products appear to differ in their tissue reactivity. Under the conditions of this study, injection site lesions in Circumvent PCV M vaccinated pigs differed from FLEX and saline injected pigs on study days 14, 22, 23, 28, 35 and 41. Post-mortem evaluation detected a greater prevalence in injection site lesions than antemortem palpations in pigs vaccinated with PCV M on d 41. Vaccinating pigs with FLEX was no more reactive than saline.