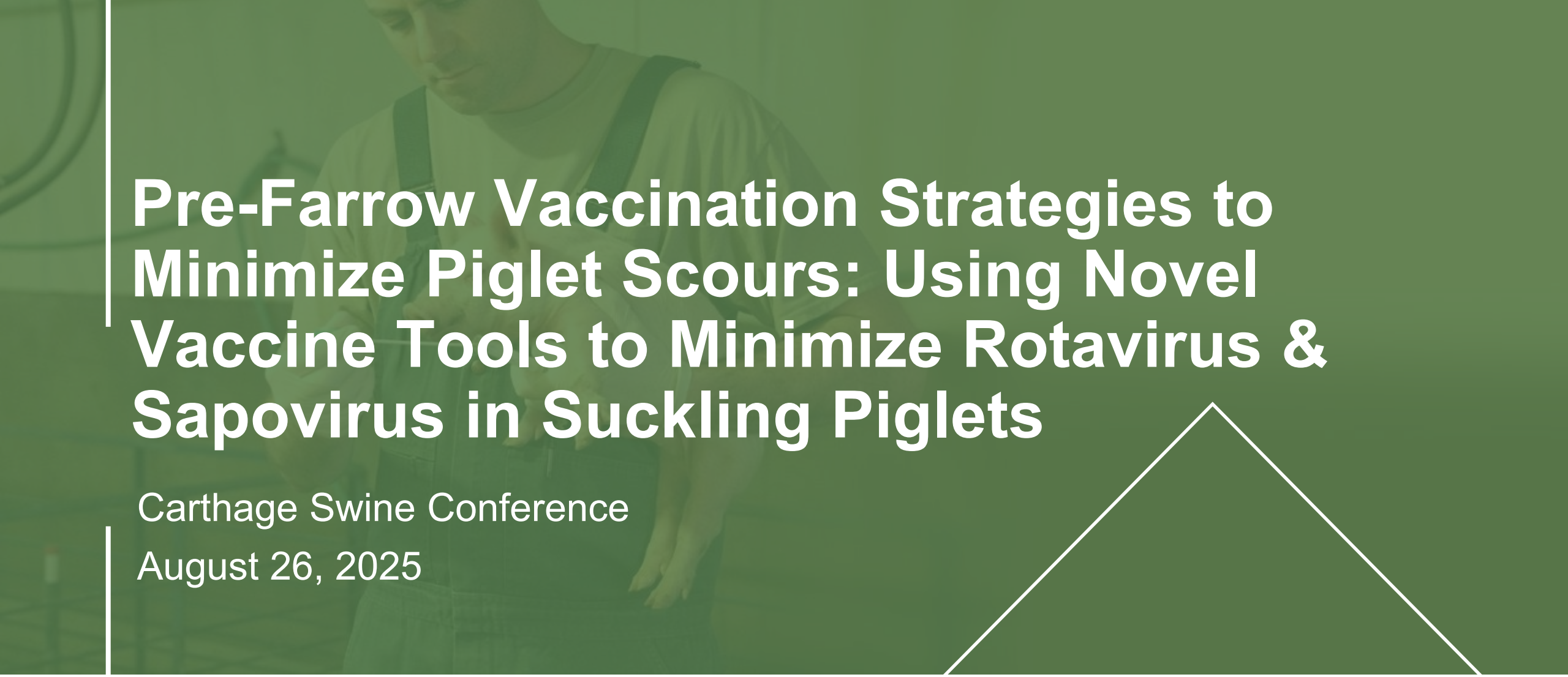

Pre-Farrow Vaccination Strategies to Minimize Piglet Scours: Using Novel Vaccine Tools to Minimize Rotavirus & Sapovirus in Suckling Piglets

Carthage Swine Conference

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Roberto Carranco

Manager, Professional Swine Management

CARTHAGE VETERINARY SERVICE

Smoky Hills Genetics

- 6000 Sow, Breed to Wean Farm
- Central Kansas
- Purebred Farm: All Large White
- PRRS/PED/Deltacoronavirus Naïve: Healthy Farm
- Excellent Breeding Performance
- Biggest Opportunity: PWM & Rejects
- Root Cause of PWM & Rejects:
  - **<u>Piglet Scours</u>**

PWM & Scour Challenge

- PWM is biggest limitation to hitting performance targets
- 16.6% for 26 week average despite many intervention strategies attempted
- Scours in 2-4 day old piglets biggest opportunity (~70% of litters affected
- Scours in 12-20 day old piglets also opportunity (~15% of litters affected)

Weekly Management - Week 19 (19578-19584)

	Target	Act. Wk.	4 Wk	4 Wk ±	8 Wk	8 Wk ±	16 Wk	16 Wk ±	26 Wk	26 Wk ±
SERVICE PERFORMANCE										
Total Services	311	335	333.3	89.0	333.4	179.0	329.3	293.0	329.3	475.0
Number repeat services	19	18	10.3	(35.0)	9.4	(77.0)	10.7	(133.0)	9.8	(238.0)
Matings per service	2.1	2.0	2.0	(0.1)	1.9	(0.1)	2.0	(0.1)	2.0	(0.1)
Heat Not Served (unmated)	66.0	17.0	30.8	(141.0)	43.4	(181.0)	43.6	(359.0)	51.6	(374.0)
Age at first service	205.0	217.3	215.7	10.7	212.4	7.4	211.5	6.5	211.8	6.8
Weaning-1st service interval	6.3	5.5	6.1	(0.2)	5.7	(0.6)	5.7	(0.6)	6.0	(0.3)
Percent of served bred by 7 days	92.5	94.3	90.9	(1.6)	92.7	0.2	93.0	0.5	92.5	(0.0)
% Conception Rate at 6 weeks	94.0	92.5	92.6	(1.4)	93.5	(0.5)	93.6	(0.4)	93.8	(0.2)
FARROWING PERFORMANCE										
Farrowings	280	261	288.3	33.0	295.5	124.0	294.4	230.0	291.5	300.0
Avg parity farrowed	3.6	3.6	3.5	(0.1)	3.4	(0.2)	3.4	(0.2)	3.4	(0.2)
Totalborn	4,396	4,246	4,810.8	1,659.0	4,951.5	4,444.0	4,925.3	8,469.0	4,793.2	10,326.0
Total born per farrow	15.7	16.3	16.7	1.0	16.7	1.0	16.7	1.0	16.4	0.7
Liveborn	4,035	3,724	4,160.8	503.0	4,313.8	2,230.0	4,316.4	4,503.0	4,200.3	4,297.0
Liveborn per farrow	14.4	14.3	14.4	0.0	14.6	0.2	14.7	0.3	14.4	(0.0)
Stillborn per farrow	1.0	1.6	1.8	0.8	1.7	0.7	1.6	0.6	1.6	0.6
Mummies per farrow	0.3	0.4	0.4	0.1	0.4	0.1	0.4	0.1	0.4	0.1
Farrowing rate	90.0	86.1	89.8	(0.2)	90.5	0.5	90.3	0.3	89.1	(0.9)
Avg gestation length	116.0	116.4	116.4	0.4	116.4	0.4	116.4	0.4	116.3	0.3
Abortions	6.0	5.0	4.5	(6.0)	3.8	(18.0)	3.4	(41.0)	4.0	(52.0)
Litters / mated female / year	2.45	2.51	2.49	0.04	2.47	0.02	2.47	0.02	2.46	0.01
WEANING PERFORMANCE										
Litters weaned	272	290	286.3	57.0	298.8	214.0	285.2	211.0	280.9	231.0
Pigs weaned in period	3,430	3,512	3,539.5	438.0	3,666.6	1,893.0	3,531.6	1,625.0	3,449.8	514.0
Pigs weaned per weaning	12.4	12.1	12.4	(0.0)	12.3	(0.1)	12.4	(0.0)	12.3	(0.1)
Pigs weaned per farrow	12.3	11.9	12.2	(0.0)	12.2	(0.1)	12.1	(0.1)	11.9	(0.3)
Average weaning age	22.5	21.7	21.5	(1.0)	21.3	(1.2)	21.6	(0.9)	21.5	(1.0)
Recorded preweaned deaths	605	503	627.0	88.0	683.0	524.0	695.0	1,454.0	695.4	2,350.0
Dead in Percent (Piglets)	15.0	15.9	15.1	0.1	15.9	0.9	16.1	1.1	16.6	1.6
Weaned / mated female / year	30.00	28.11	28.33	(1.67)	29.41	(0.59)	28.59	(1.41)	28.10	(1.90)
POPULATION										
Avg total female inventory	6,600	6,727	6,832.3	232.3	6,943.4	343.4	7,023.9	423.9	7,079.4	479.4
Avg unmated female inventory	600	211	317.4	(282.6)	442.6	(157.4)	585.1	(14.9)	680.8	80.8
Avg mated female inventory	6,000	6,516	6,514.9	514.9	6,500.8	500.8	6,438.8	438.8	6,398.7	398.7
Average parity	2.6	2.6	2.6	(0.0)	2.5	(0.1)	2.4	(0.2)	2.3	(0.3)
Replacement rate	63.0	-	-	(63.0)	-	(63.0)	18.0	(45.0)	30.6	(32.4)
Females culled	52.0	74	39.5	(50.0)	40.3	(94.0)	38.3	(220.0)	41.4	(275.0)
Female deaths	12	11	15.8	15.0	17.5	44.0	19.7	123.0	18.9	179.0
Death rate	9.5	8.5	12.0	2.5	13.1	3.6	14.6	5.1	13.9	4.4
Avg NPD/mated female/year	30.00	25.38	28.86	(1.14)	30.76	0.76	30.82	0.82	33.20	3.20

Week Number	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	52
Number of Services	335	331	331	336	325	337	335	337	338	333	338	322	296	327	321	327	334	328	327	328
Conception Rate / Prj, Farrow Rate	100.0	100.0	98.8	95.5	95.7	95.5	91.9	90.8	91.7	93.7	92.6	93.8	95.3	91.7	92.2	93.0	87.7	89.3	93.3	89.3
Expected Farrowings	335	331	327	321	311	322	308	306	310	312	313	302	282	300	296	304	293	293	305	293

Scour Diagnostics: April 2025

- Submitted scour samples from 2 day old and 12 day old scouring piglets, clinical signs very consistent with historical challenge
  - 2 Day Old Piglets: Rota C
  - 12 Day Old Piglets: Sapovirus

Molecular Diagnostic

PCR - Porcine rotavirus Applied Biosystems

Animal ID	Specimen	Target Agents	Ct / Result
Rm 3, SID #1	Feces	Rotavirus group A	>=36 / Negative
		Rotavirus group B	>=36 / Negative
		Rotavirus group C	15.2 / Positive
Rm 13, SID #2	Feces	Rotavirus group A	>=36 / Negative
		Rotavirus group B	>=36 / Negative
		Rotavirus group C	21.2 / Positive

PCR - Porcine sapovirus genogroup III

Animal ID	Specimen	ct / Result
Rm 3, SID #1	Feces	>=35 / Negative
Rm 13, SID #2	Feces	14.4 / Positive

Scour Diagnostics: April 2025

- Sequencing Requested to Compare to Available Vaccine Options:
  - Rota C: VP4 & VP7 Sequencing
  - Sapovirus: VP1 Sequencing

NGS Analysis

1) 2025036646-1, SID #1
NGS and bioinformatics analysis for Rota C VP4 VP7 were performed for Feces sample SID #1.
Complete vp4 and vp7 cds were assembled.
The sequence information, closest matching GenBank Accession # and the related isolates are shown in the following table:

Species	Gene	Length	GenBank#	%Identity	Isolate
RotaC	vp4	2199	AB905249	87.489	Porcine rotavirus C VP4 gene for viral protein 4, complete cds, strain: 93-Z4
RotaC	vp7	999	MG451761	90.161	Rotavirus C strain RVC/Pig-wt/USA/NC35/2012/G6P5 VP7 (VP7) gene, partial cds

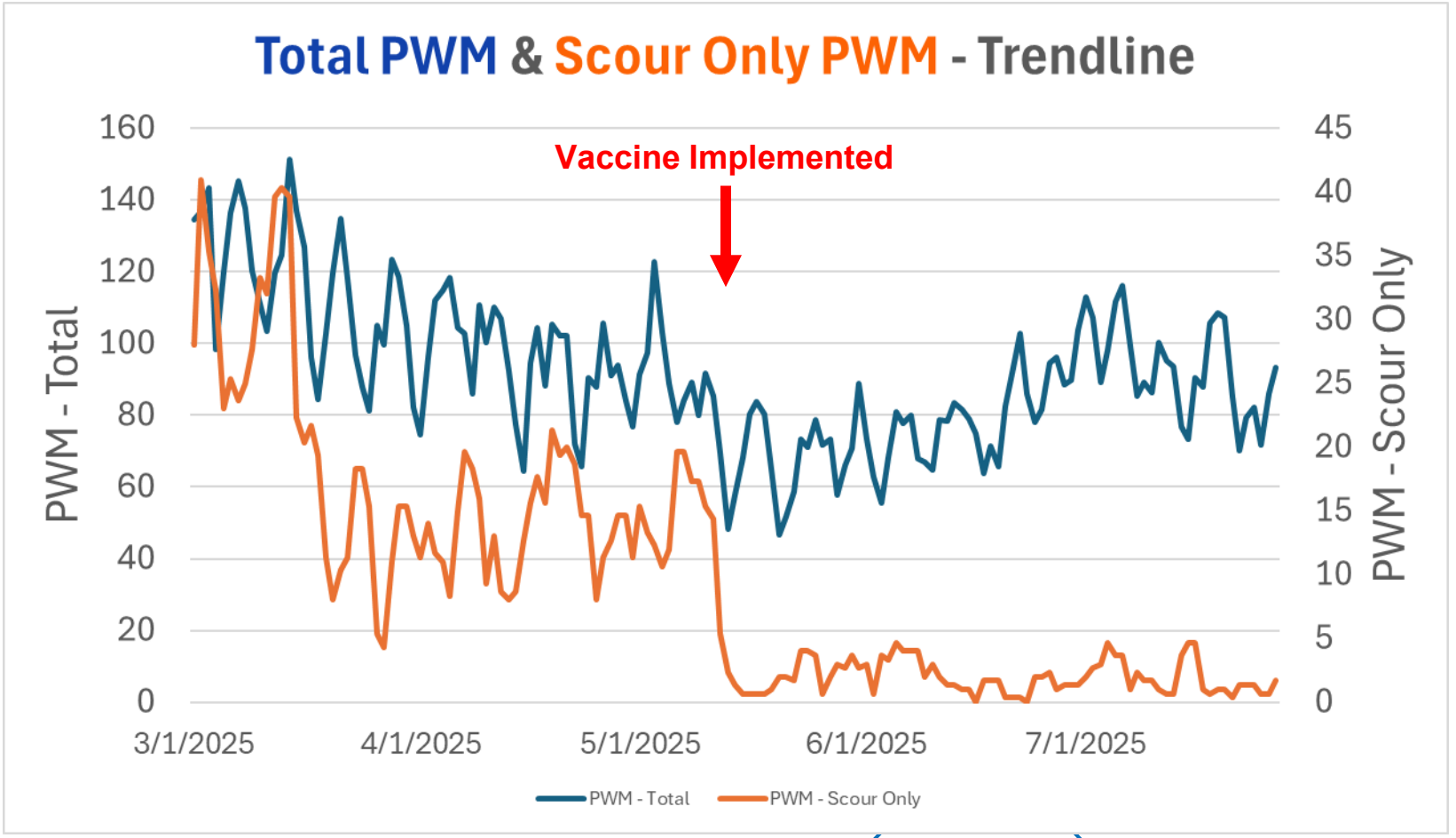
NGS and bioinformatics analysis for Sapovirus VP1 were performed for Feces sample SID #2.
Complete cds was assembled.
The sequence information, closest matching GenBank Accession # and the related isolates are shown in the following table:

Species	Gene	Length	GenBank#	%Identity	Isolate
Sapovirus	vp1	1632	MW316757	93.076	Porcine sapovirus strain SaV/GIII/USA/IA_4517-2/2019, partial genome

Identification of a Potential New Vaccine Opportunity

- Sequivity Rota/Sapo Combo
- Administered 4 & 1 Week Pre-Farrow to all Gilts & Sows

Impact to PWM:
Total PWM & Scour Only PWM



Impact to Farm Team Moral

Healthy pigs

LS

Smoky Hills Ger

To Julio Garcia Pimentel

Cc Clayton Johnson, DVM

5/13/2025

You replied to this message on 5/14/2025 12:10 AM.

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I would like to share with you some pigs around 4-6 days old. We are happy to see pigs with no scours the first days !!! I took the scale and pull the biggest pig from the picture and weight 6 pounds with only 5 days old, I don't know if the scale is wrong but those pigs are growing well.

Thank You!!!