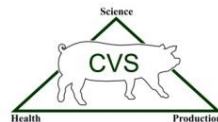


PEDv webinar

December 4, 2014

Carthage Veterinary Service, Ltd.



Happy Holidays!



Confirmed Positive Premises

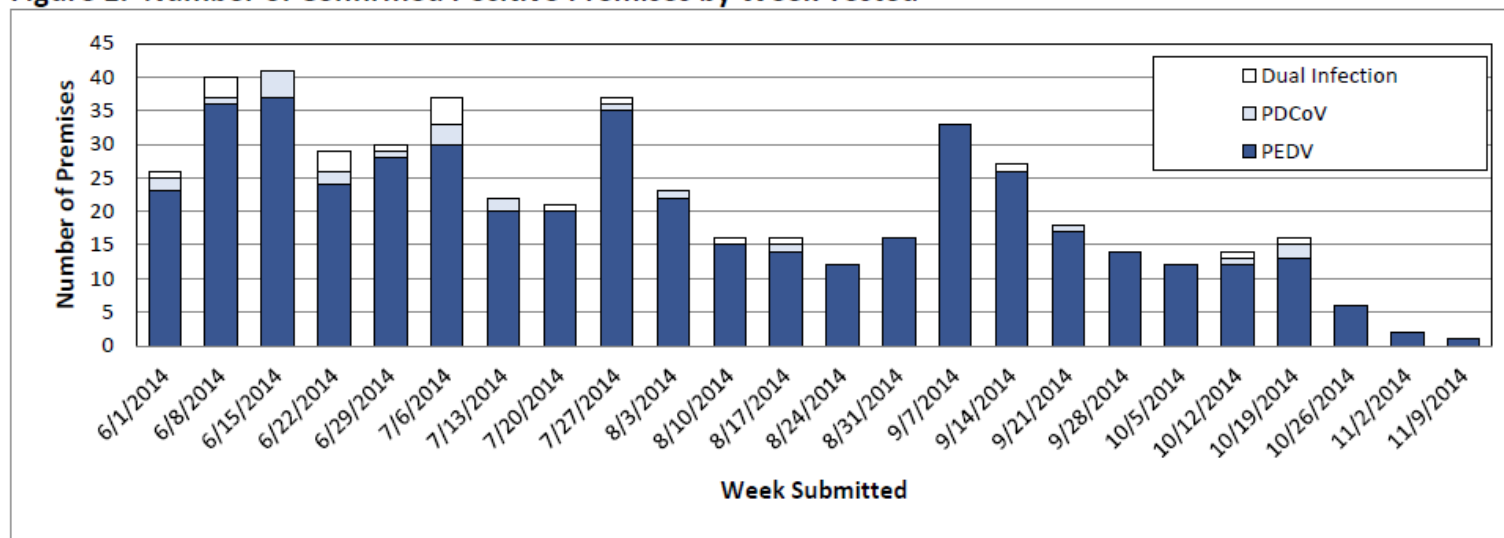
Table 1. Confirmed Positive Premises This Week and Cumulative since June 5, 2014

NEW THIS WEEK (NOVEMBER 9 – NOVEMBER 15, 2014)	PEDV	PDCOV	DUAL INFECTION ^a
New Confirmed Positive Premises This Week	8	0	1
New Presumptive Positive Premises This Week	8	0	0
CURRENT PREMISES WITH SECD POSITIVE STATUS ^b	PEDV	PDCOV	DUAL INFECTION ^a
Total Premises with Confirmed Positive Status This Week	474	20	19
CUMULATIVE SINCE JUNE 5, 2014	PEDV	PDCOV	DUAL INFECTION ^a
Confirmed Positive Premises	476	22	19
Presumptive Positive Premises	314	23	23
Confirmed Positive Premises that have Attained Negative Status (i.e., premises that changed from positive to negative status)	2	2	0

^aDual infection indicates premises with both PEDV and PDCoV

^bCumulative data includes current premises with positive status and premises that were positive but have acquired negative status

Figure 1. Number of Confirmed Positive Premises by Week Tested



Map 1. PEDV: Cumulative Confirmed and Presumptive PEDV Positive Premises since June 5, 2014

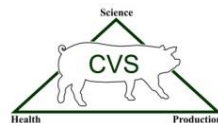
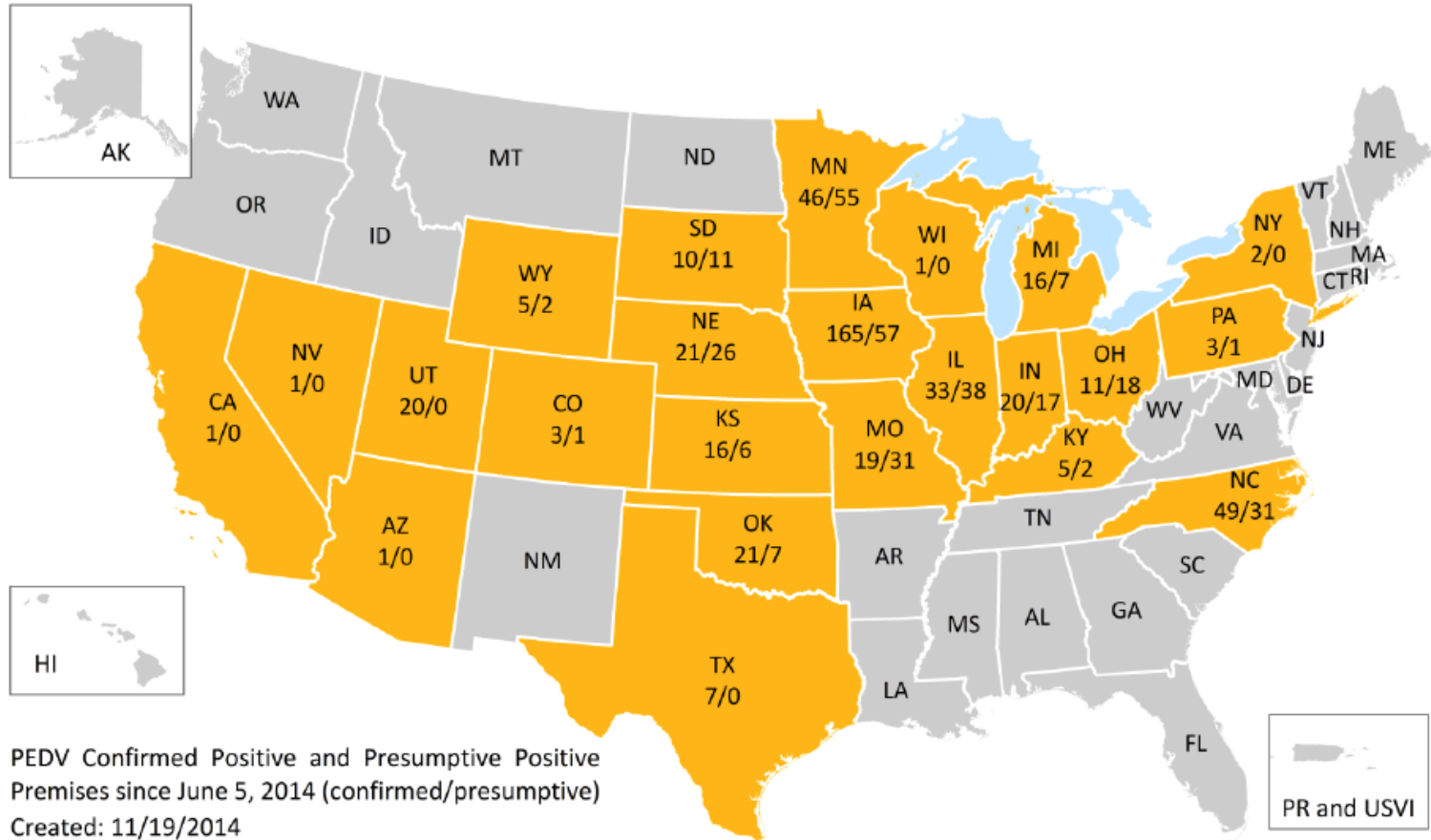


Chart 1 - PED Cumulative Incidence / weekly and cumulative
Beginning July 1 for years 2012-2015

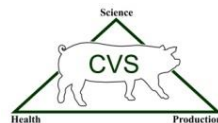
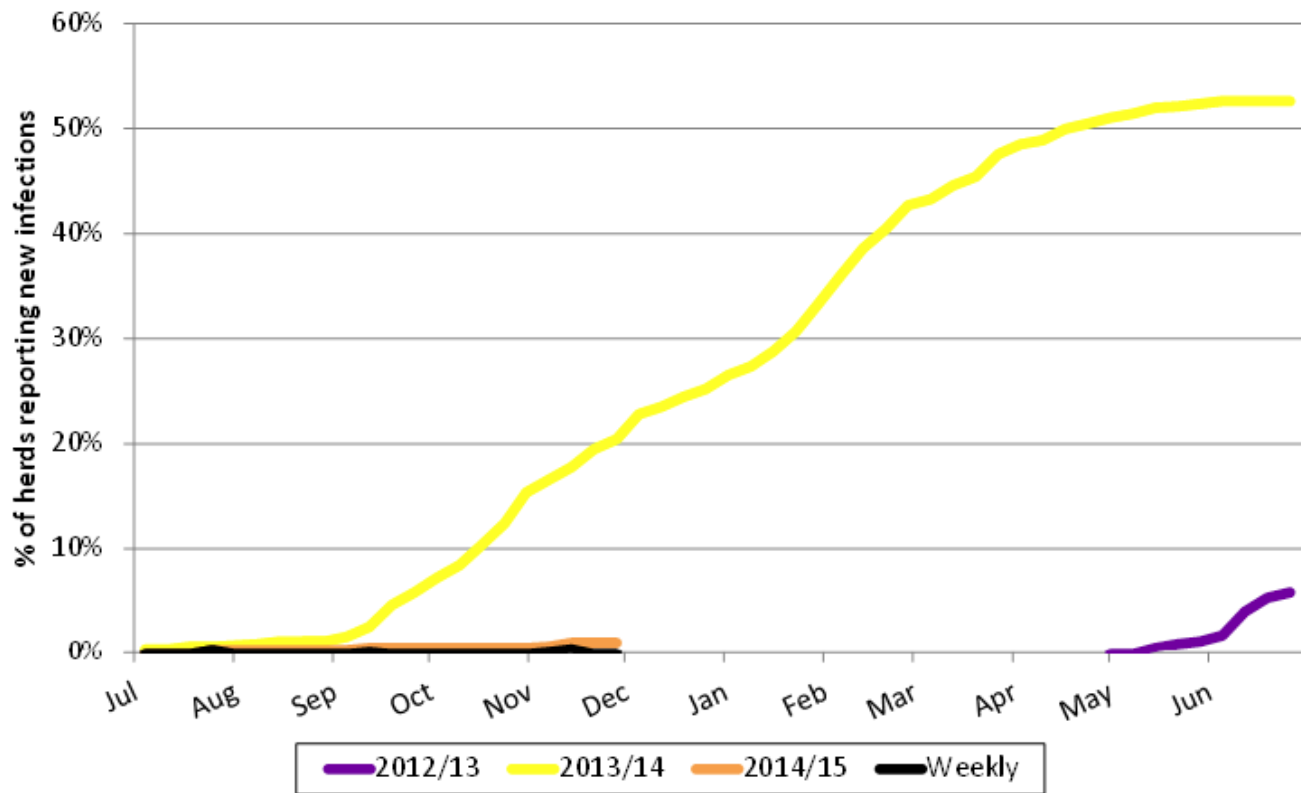
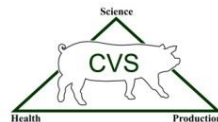
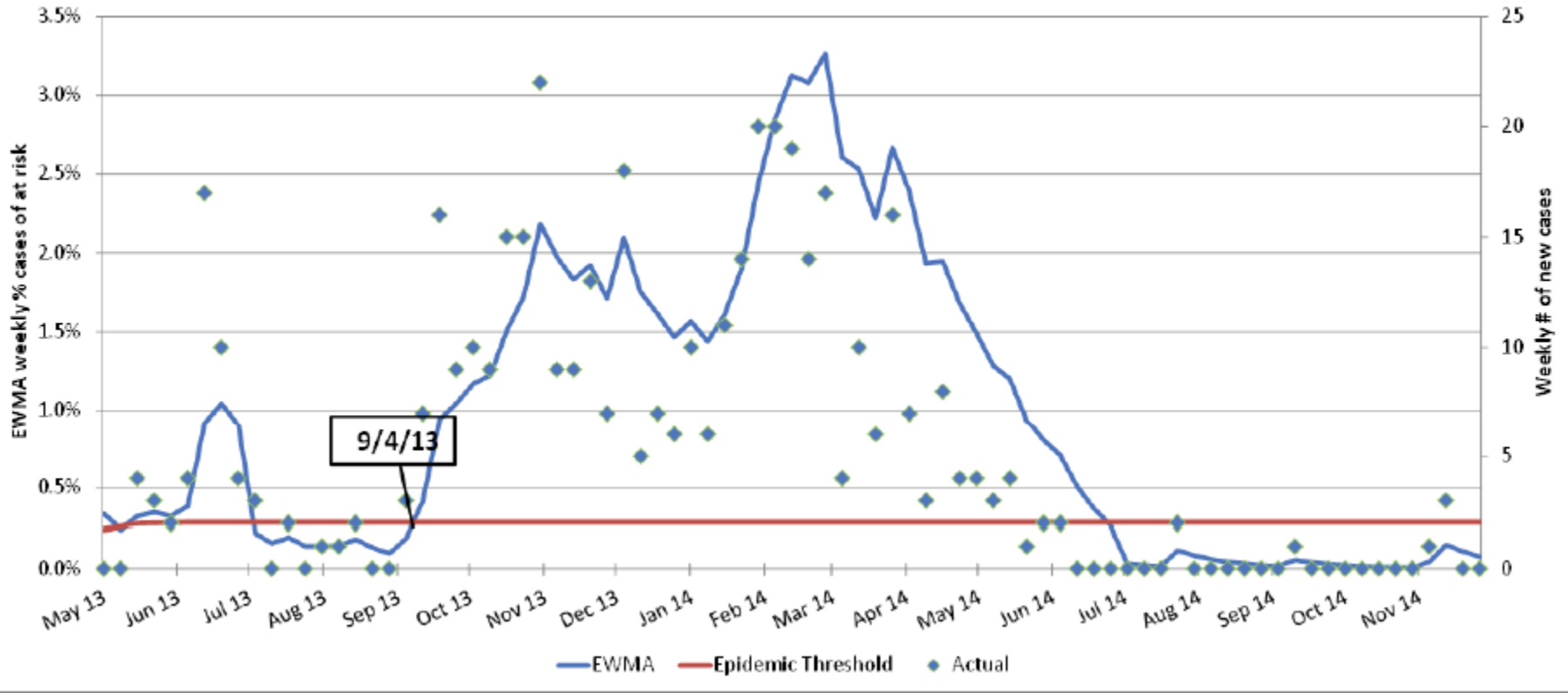


Chart 4 - PED EWMA Analysis for years 2013 - 2014



**Chart 1 - PRRS cumulative Incidence / weekly and cumulative
Beginning July 1 for years 2009-2015**

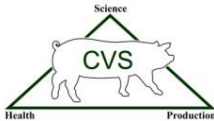
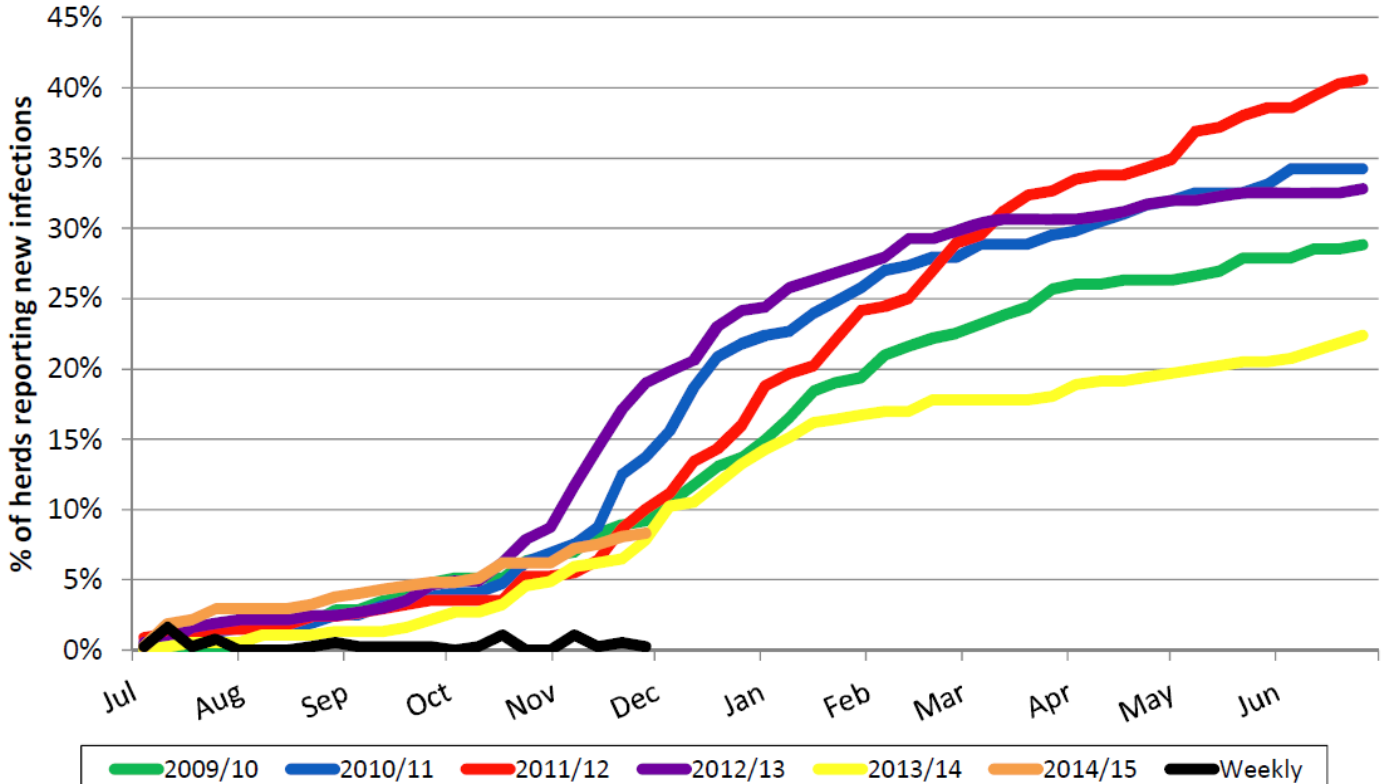
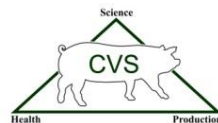
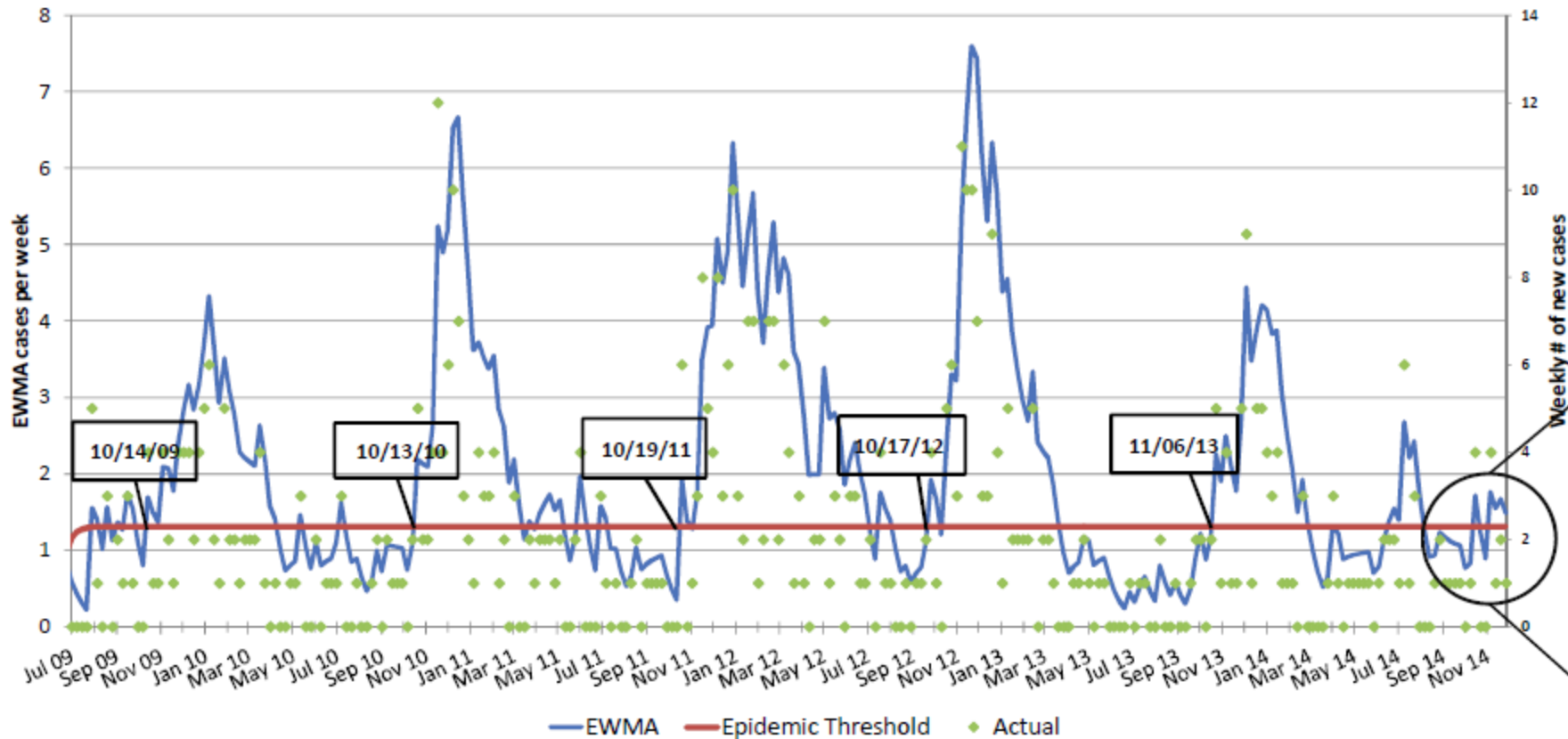


Chart 5 - PRRS EWMA Analysis for years 2009 - 2014



Biosecurity

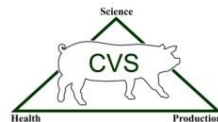
Infectivity of Swine Manure

- 30 barns sampled
 - 4 month
 - 13 of 15 PCR positive
 - 2 barns bioassay positive
 - Lower pH (7.4 versus 8.0)
 - High copper (50 mg/kg vs 40 mg/kg)
 - 6 month
 - 14 of 15 PCR positive
 - Bioassay negative
- Average ct value – 30

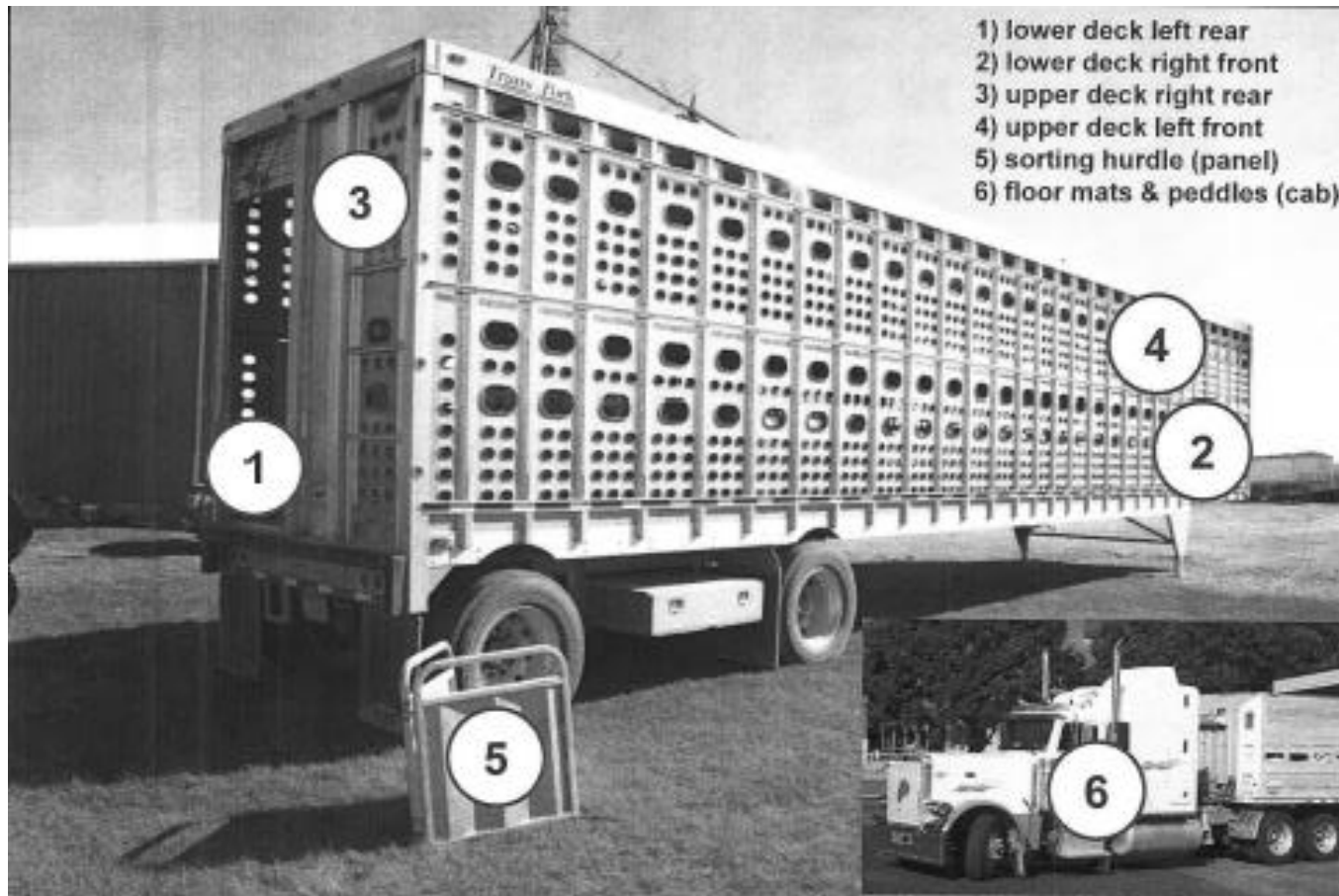


Transport Vehicle Decontamination Practices for PRRS

Phase	Summer	Winter
Period (3 months)	Jun – Aug 2010	Jan – Mar 2011
Sanitation Facilities	13	15
Geographical distribution	NC (2), PA, MI (2), IA (5), CO, MN, IL	OH (2), IA (4), MN (4), IL, NE (2), IN (2)
Transport vehicles	37	40
Environmental samples	536	558



6 Sample Collection Locations



Transport Vehicle Decontamination Practices for PRRS

Phase	Summer	Winter
# PCR positive/# samples	2/536	13/555
% PCR positive samples	0.37%	2.34%
# PCR positive/# vehicles	2/37	5/40
% PCR positive vehicles	5.4%	12.5%

Trailer Sanitation

Summary of 4 studies

1. Only two time/temperature combinations studied were 100% successful at eliminating the PED virus in dirty trailers:
 1. 71C (160F) for 10 minutes
 2. 20C (68F) for 1 week
2. Stalosan® F is ineffective at inactivating PEDV from contaminated hog trailers
3. Accel® (accelerated hydrogen peroxide) appears to effective at inactivating PEDV in presence of feces
4. A wider range of TADD configurations were found to be effective following wash and disinfection with Synergize®
 1. 20°C for 12h to 68°C for 10m
 2. Synergize® and wash alone were also effective o Underscores the importance and utility of wash and disinfection steps in trailer sanitation
 3. Environmental swabs could not differentiate infectious from non-infectious PEDV

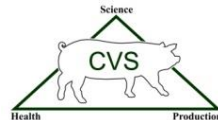
ISU PEDv – Study Design

- Protocol
 - Cold water wash
 - Detergent
 - Synergize disinfectant
 - 1:256 concentration (1/2 oz. to 1 gallon)
- Confirmed by bioassay
- Results:
 - Bioassay results – all treatments negative
 - PCR results with many positive samples



ISU PEDv – Results

Treatment	Post-wash	Post-disinfectant	Post-temperature	3 Days Post Inoculation	7 Days Post Inoculation
155°F – 10 min	Positive	Positive	3/4 (+)	Negative	Negative
150°F – 10 min	Positive	Positive	2/4 (+)	Negative	Negative
140°F – 20 min	Positive	Positive	3/4 (+)	Negative	Negative
120°F – 20 min	Positive	Positive	3/4 (+)	Negative	Negative
68°F – 12 hrs	Positive	Positive		Negative	Negative
Wash/Dis 60 min	Positive	Positive		Negative	Negative

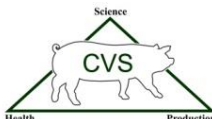


Feed Updates

- PEDv stability (Jones. KSU)
 - Matrix determines stability
 - More stable in meat and bone meal and SDP
 - Less stable in blood meal or complete diet

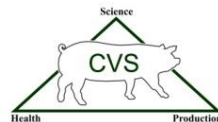
Table 2. Treatment main effects for feed matrix means for chemically treated PEDv inoculated feed matrices ¹

Item	Swine diet	Blood meal	Meat/bone meal	Spray dried animal plasma	SEM	<i>P</i> =
CT value ²	32.0 ^b	32.9 ^a	28.1 ^d	29.2 ^c	0.06	< 0.0001



Feed Updates

- Additives (Goyal. UM)
 - Nutraid, salt – no inactivation at 14 d
 - Acidifiers – may reduce survivability at 14 d
- Irradiation
- Heat
 - 284 degrees for 15 minutes (Goyal. UM)
- Medium chain fatty acids (Jones. KSU)
- Essential Oils (Jones. KSU)
- Formaldehyde (Jones. KSU)



Feed Updates

Table 1. Raw percentages of the findings for PEDv testing

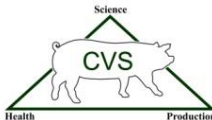
		Office floor	Mixer / cooler	Bulk ingredient pit	Ingredient delivery trucks	Feed transport truck foot pedals	Inside feed truck compartment
Samples							
	Total	100	99	100	74	101	100
PCR results							
	Positive, %	0.0	0.0	0.0	0.0	0.0	0.0
	Suspect, %	0.0	0.0	1.0	0.0	5.0	1.0
	Negative, %	100.0	100.0	99.0	100.0	95.0	99.0

Table 2. Raw percentages of the findings for Delta coronavirus testing

		Office floor	Mixer / cooler	Bulk ingredient pit	Ingredient delivery trucks	Feed transport truck foot pedals	Inside feed truck compartment
Samples							
	Total	100	99	100	74	101	100
PCR results							
	Positive, %	0.0	0.0	0.0	0.0	3.4	0.0
	Suspect, %	2.2	0.0	0.0	0.0	1.1	0.0
	Negative, %	97.8	100.0	100.0	100.0	95.5	100.0

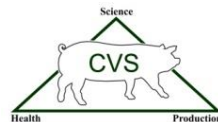
Sal CURB

- Sal-Curb (formaldehyde based) product used and has label claim for “control of salmonella in feed for 21 days”
 - No other label claims allowed
 - FDA and EPA regulated feed additive



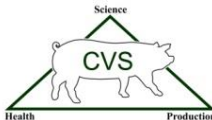
Sal CURB

- Product binds to amine groups
 - Consideration for synthetic amino acid supplementation
 - Efficacy of enzymes added-phytase
- Cost of Use:
 - ~\$5.50/ton of treated feed
 - Sow/GDU = 1.2 tons/sow/year
 - \$7/sow/year



Immunity

- Difficult is an understatement...
 - Antibody levels in sow blood don't necessarily correlate with milk
 - Antibody levels in milk don't necessarily correlate with clinical signs
- Questions
 - Are we measuring the right antibodies?
 - What is the right level of antibody?
 - Do the vaccines help?



Summary

- Infection incidence is decreased versus one year ago
- Pumping is a risk – at least for 4 months PI
- Review trailer sanitation studies – temperature, clean, disinfect
- Feed
 - Animal protein – still believe it is a risk but lower
 - Companies are decreasing variation in production
 - Holding at room temperature prior to shipping
 - Feed mills
 - Decontamination of feed

Don't quit pushing or become complacent!

