



# PEDV IN THE USA - AN UPDATE

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Dr. Barry Kerkaert  
Pipestone Veterinary Services  
Pipestone Minnesota, USA

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# Data and information source acknowledgement

- Dr. Bob Morrison
  - University of Minnesota
  - Pipestone Applied Research Team (PAR)
    - Dr. Scott Dee, Director
  - Pipestone Swine Veterinary Staff
- Dr. Luke Minion
  - Dr. Barry Kerkaert
  - Dr. Adam Schelkopf
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  - Dr. Todd Williams
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  - Dr. Cameron Schmitt
  - Dr. Bryan Myers
  - Dr. Gordon Spronk
  - Dr. Spencer Wayne
  - Dr. Joel Nerem
  - Dr. Emily McDowell
  - Dr. GF Kennedy

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# PEDV

- Porcine Epidemic Diarrhea Virus (PEDv)
- Identified in USA in April, 2013
  - Corona virus family
  - Similar to TGE virus
- Only infectious in swine
- First observed in England in 1971
- Asian epidemics of the virus in the 80's, continued into 90's and 2000's
  - China – big increase in 2008 to 2013
- USA virus sequence is 96.5 to 99.9% similar  
(Marthaler et al, 2013)

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# PEDV Clinical Signs

- PEDV replicates in the epithelial cells of the small intestine
- Incubation period: 1-2 days
- Shedding in feces: 7-11 days (up to 35 days)
- Profuse, watery diarrhea
  - Dehydration, anorexia, vomiting, poor nutritional absorption
- High morbidity, low mortality in growing swine
- Devastating impact on sow farm
  - High morbidity and high mortality in piglets less than one week of age

# Litters less than 1 week old



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# PEDV in USA

- Milestone dates:
  - April, 2013 – first detection in USA
  - January 2014 – “new” PEDV detected in USA
  - February 14, 2014- first detected in Canada
    - Now
      - At least 63 infected farms
      - 4 Provinces infected
  - February, 2014 –SDCV; deltacoronavirus detected in Ohio
  - Countries recently infected
    - Canada,
    - Columbia,
    - the Dominican Republic,
    - Japan,
    - Mexico
    - and the U.S

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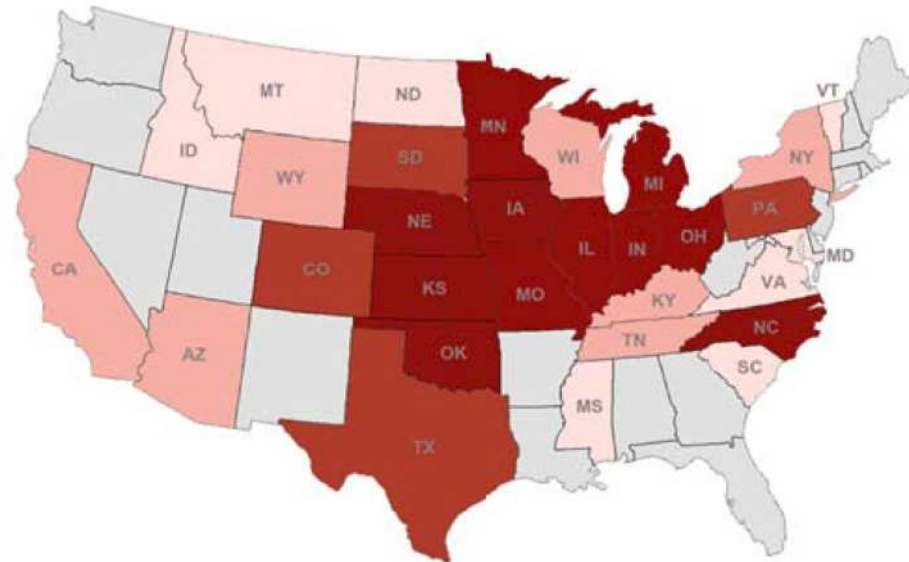
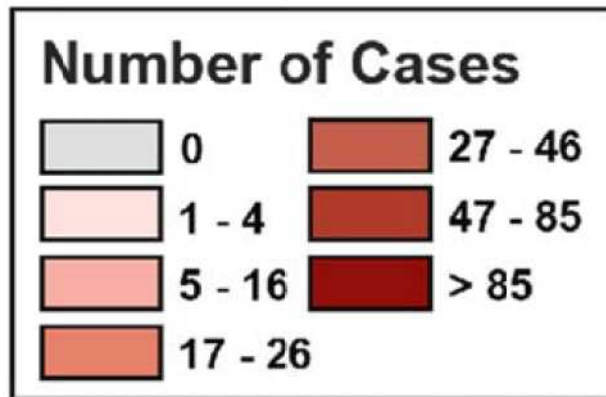
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# Swine Health Monitoring Project – U of MN (*D. Goede*)

## Porcine Epidemic Diarrhea Virus Reporting

Collated by APHIS, VS, NVSL, National Animal Health Laboratory Network & Univ of MN VDL. Reporting Laboratories include: ISU, KSU, OH Department of Agriculture ADDL, SDSU, Univ of MN, Univ. of GA, NE VDC, Purdue, MSU. Data through 5/17/2014

### Updated Number of Positive Lab Accessions by State



STATE CASES	IA	OK	MN	IN	CO	KS	OH	NY	WI	MD	CA	SC	MT	ND	VT
	2002	388	1123	367	83	260	313	5	15	1	11	2	1	1	1
	PA	MI	KY	IL	MO	SD	NC	TX	TN	NE	WY	ID	AZ	MS	VA
	86	165	16	696	183	80	629	79	13	119	9	4	5	1	1



# Swine Health Monitoring Project – U of MN *(D. Goede)*

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

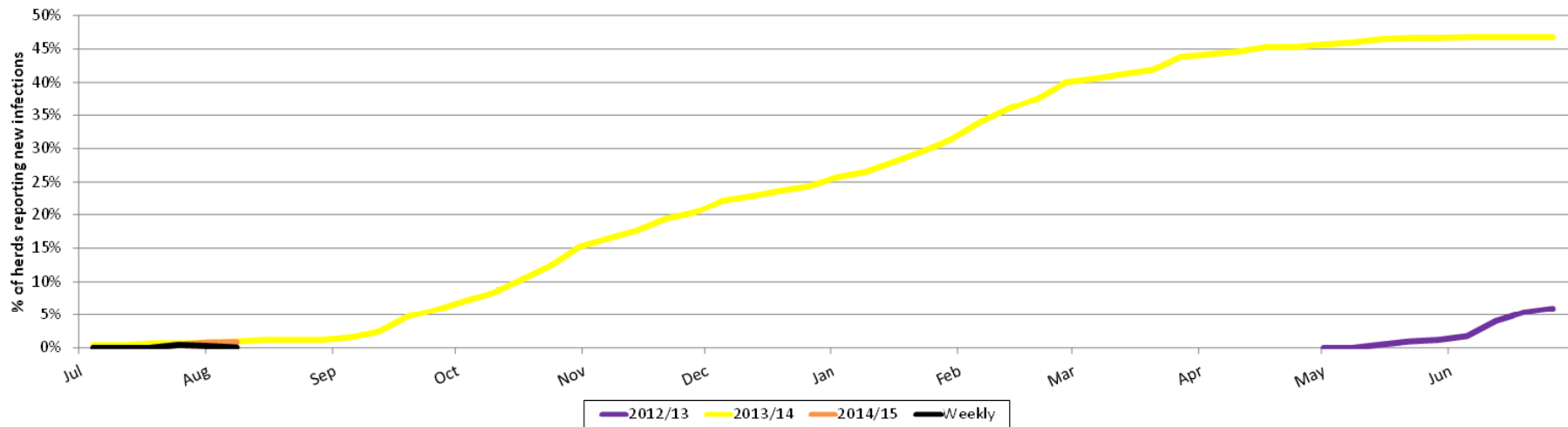
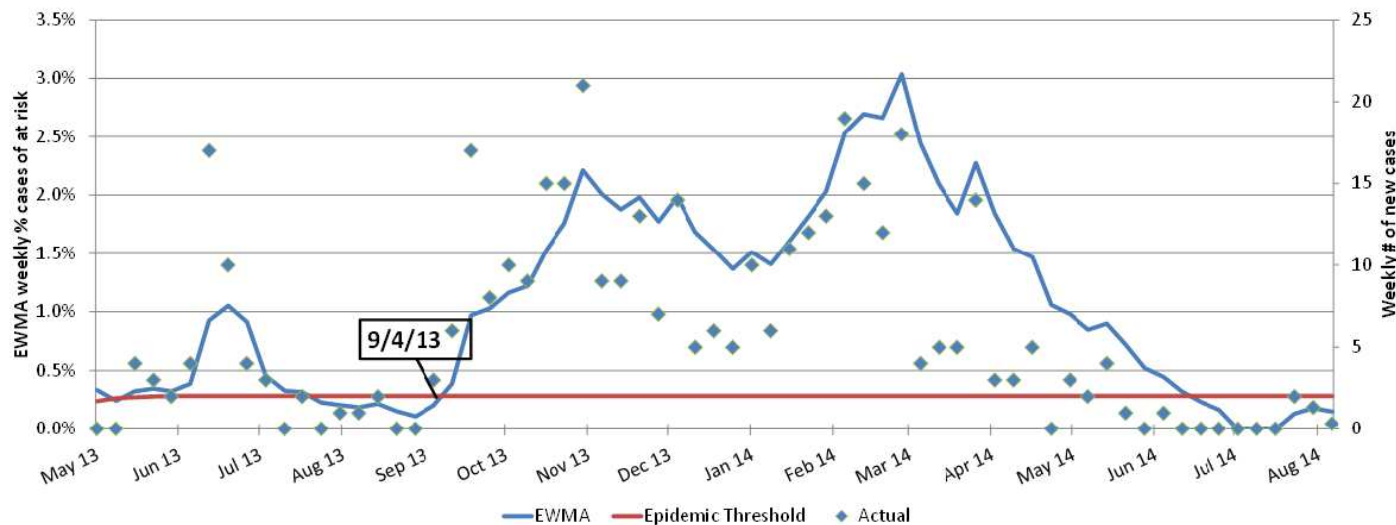


Chart 3 - PED EWMA Analysis for years 2013 - 2014



Number of sows	2,084,042
Number of farms	739

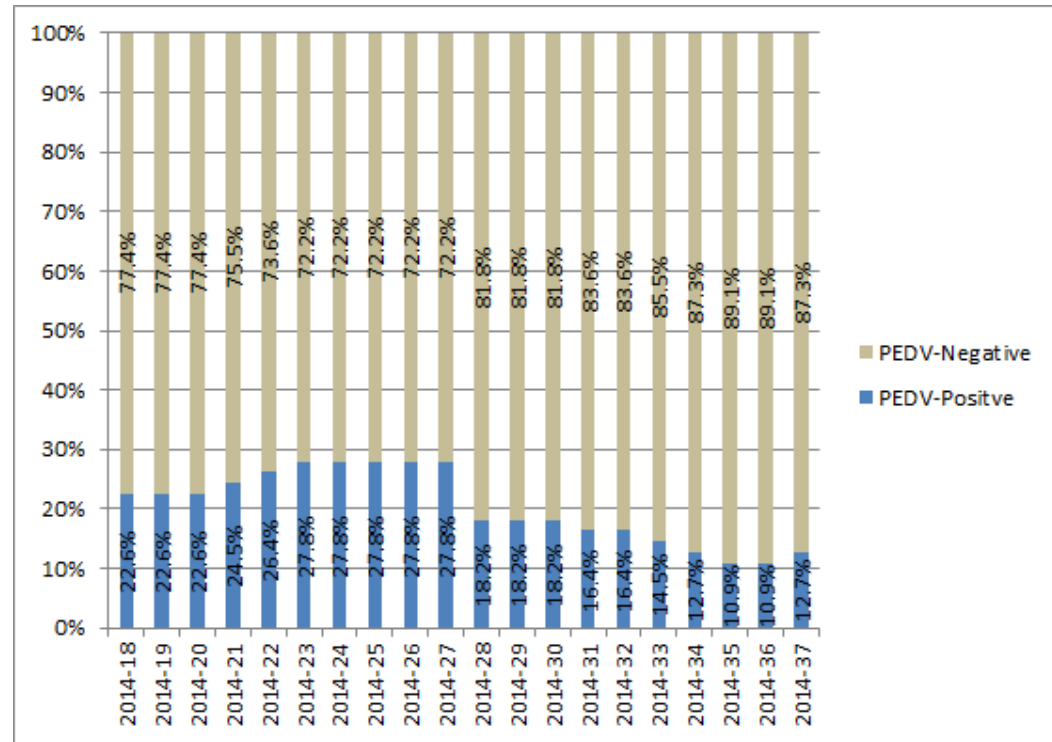
Classification Scheme	
1	Positive Unstable
2v	Positive Stable, Ongoing exposure
2	Positive Stable
3	Provisionally Negative
4	Negative

[SHMP@umn.edu](mailto:SHMP@umn.edu)



# Pipestone Weekly Health Status

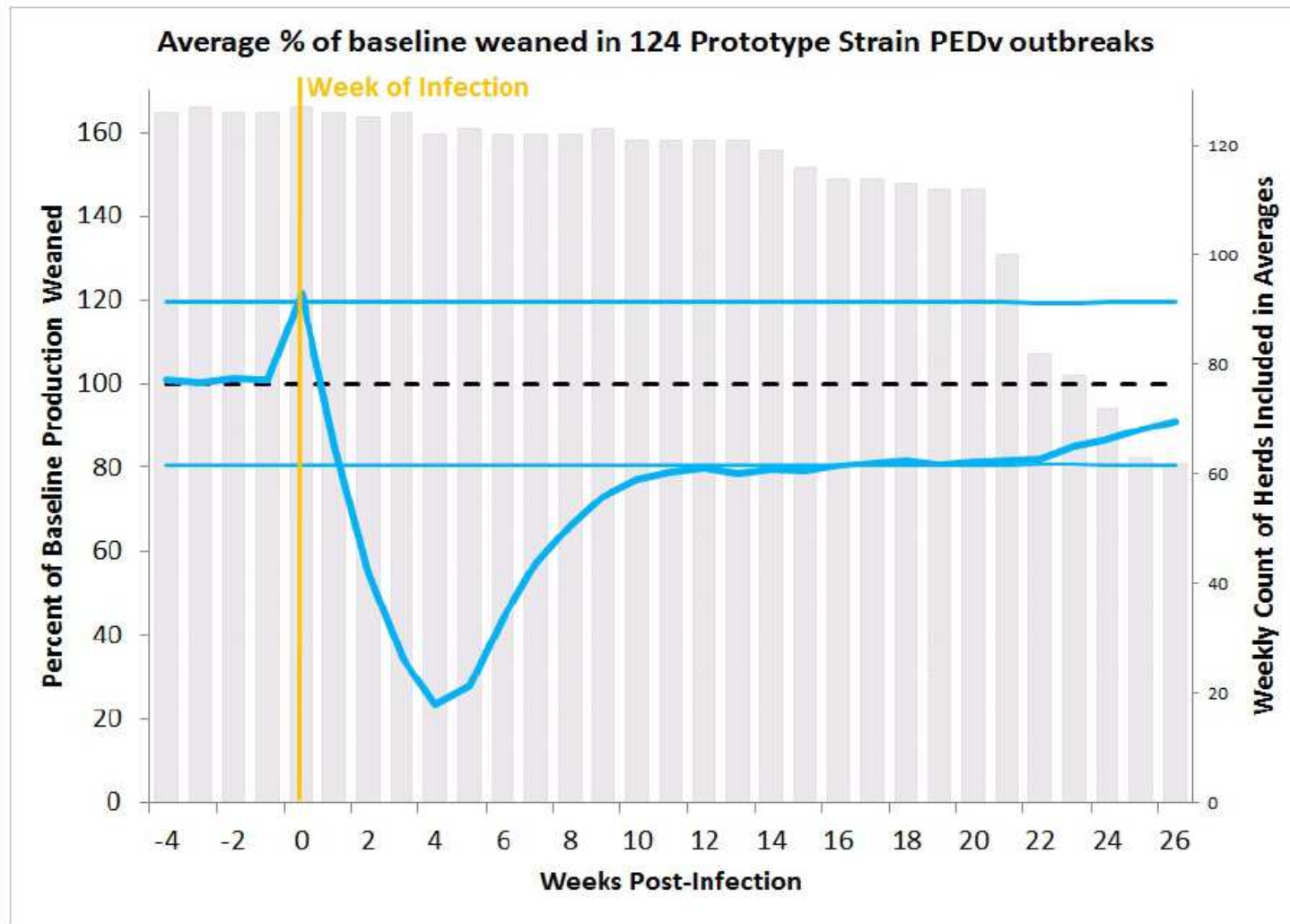
- Sept 20, 2014 report
  - To Date:
    - 18 sites PEDV +
    - 1 site PEDV and SDEV +
    - 1 site TGEV +
  - 11 sites PEDV elimination completed
  - Avg length of closure = 185 days
- Today
  - 7 sites in various stages of elimination protocols



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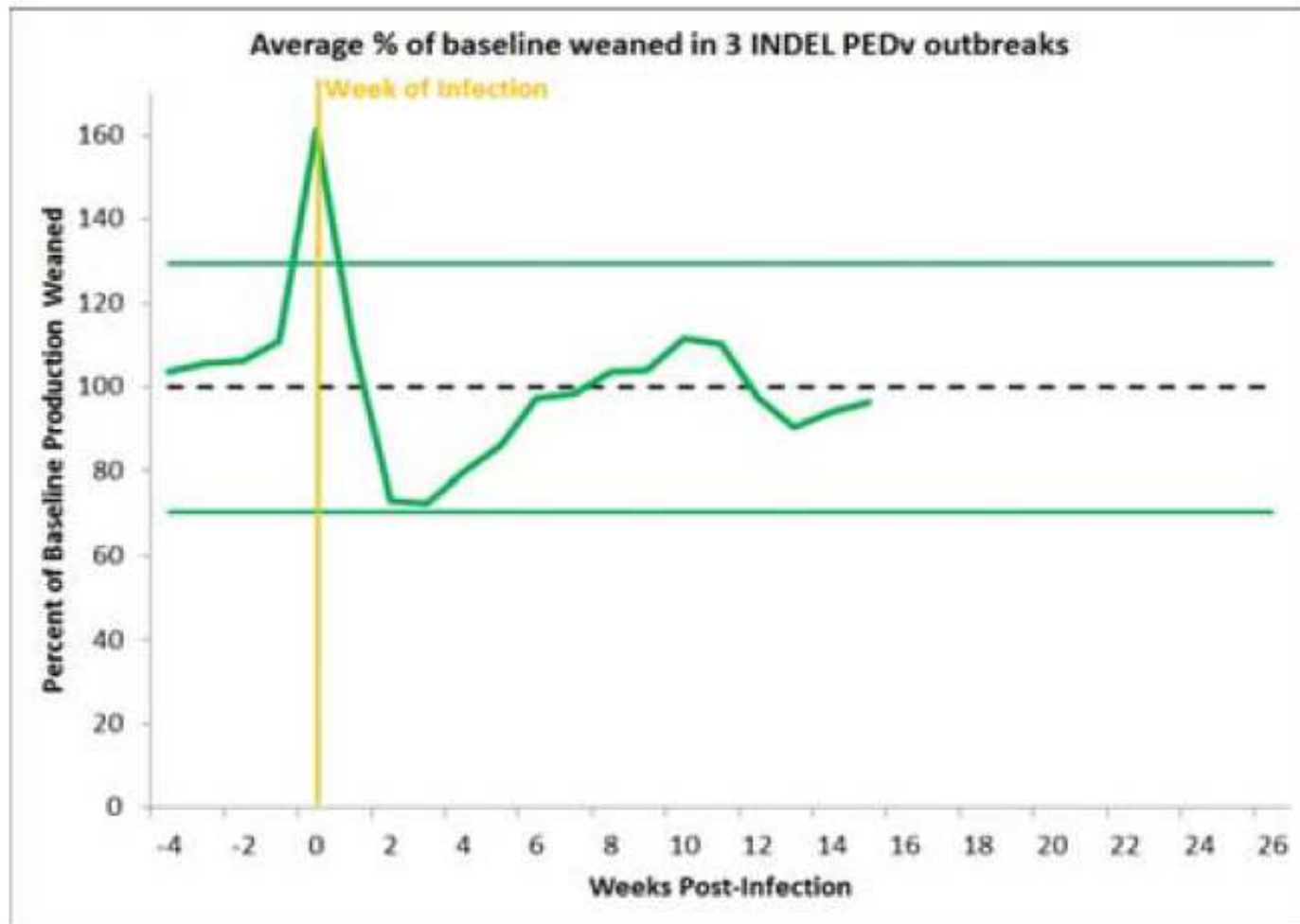
# Production Impact – Prototype strain



\* 124 Herds

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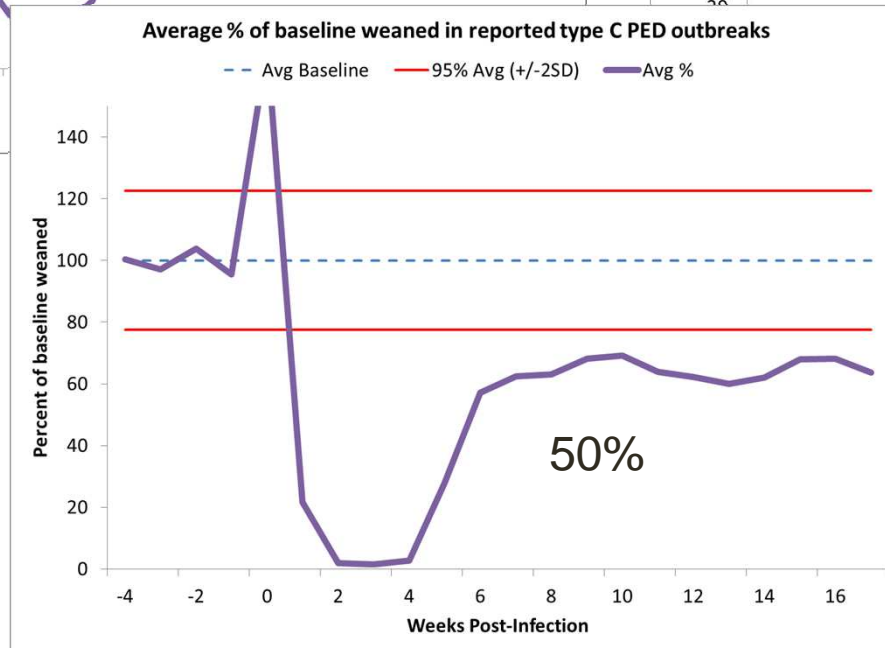
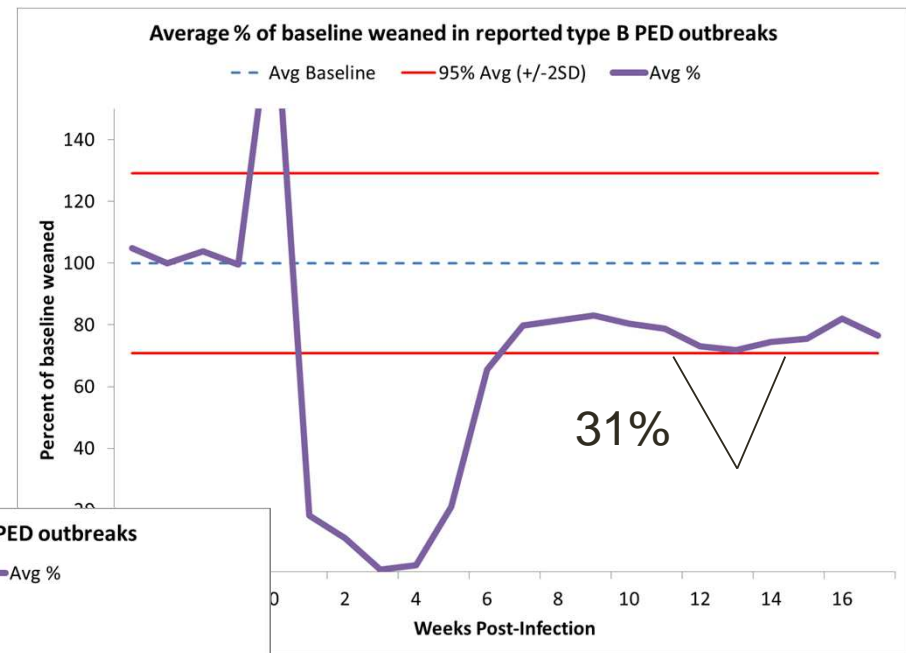
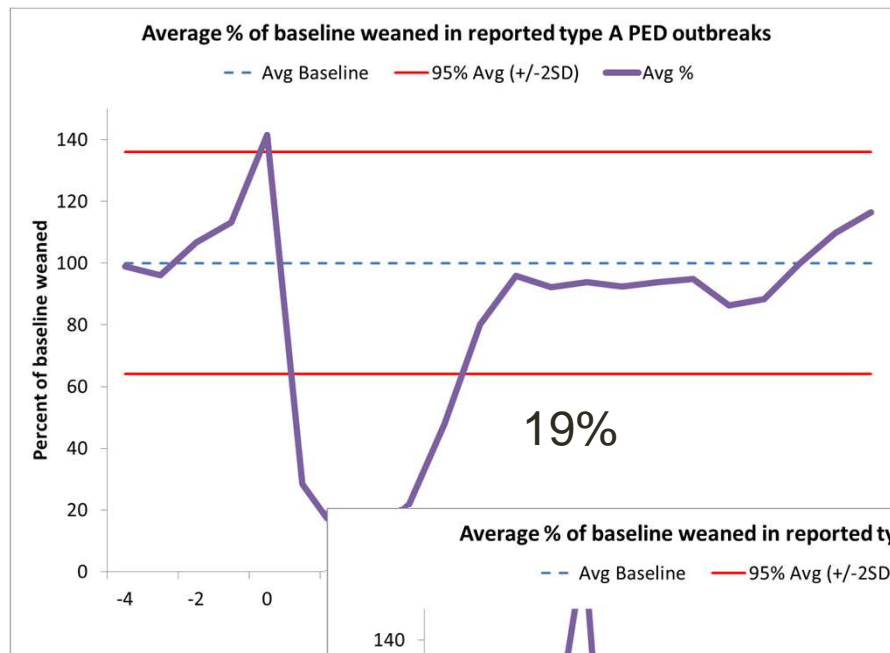
# Production Impact – Indel Strain



\* 3 Herds

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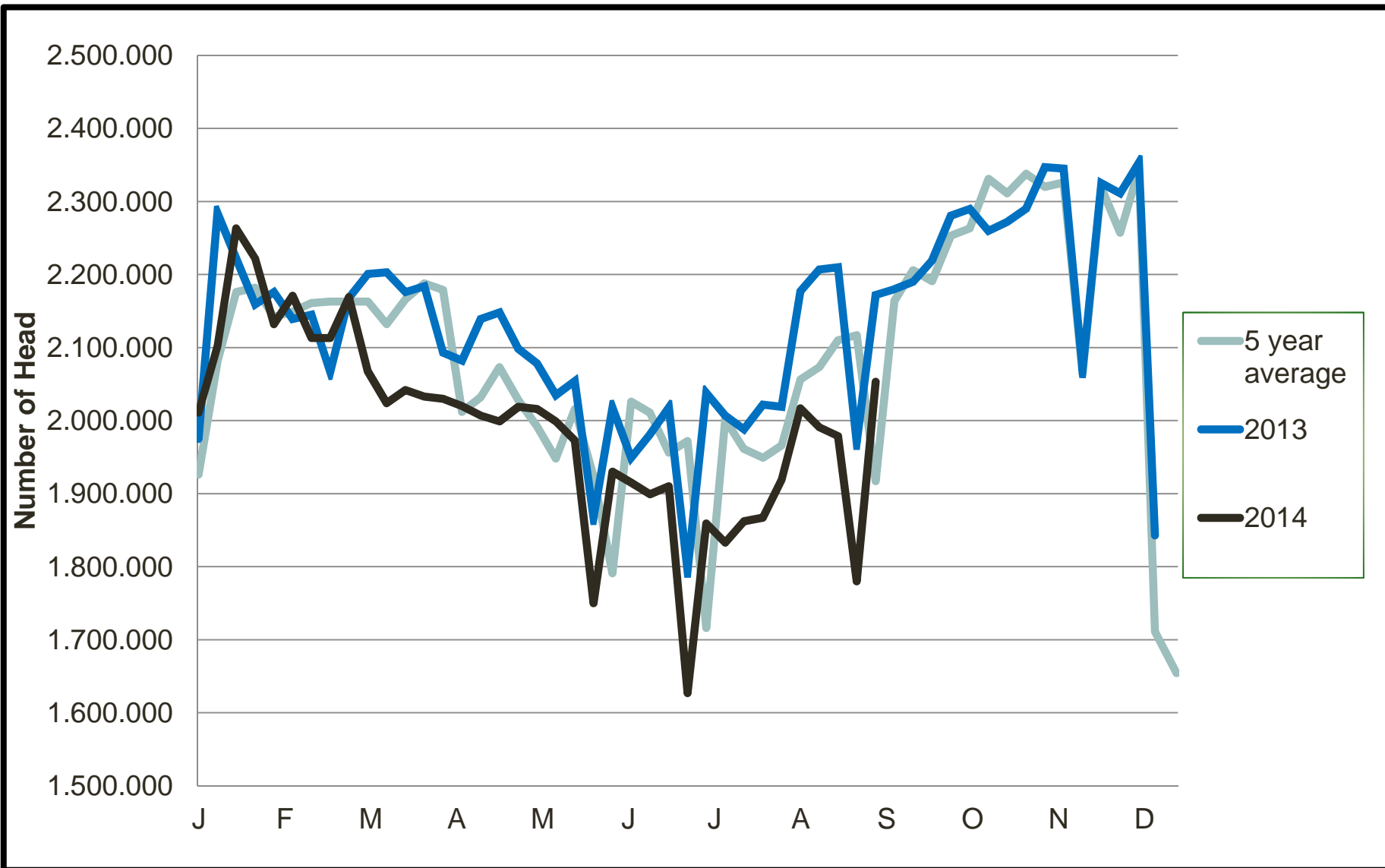
# Results: A, B, C Presentations



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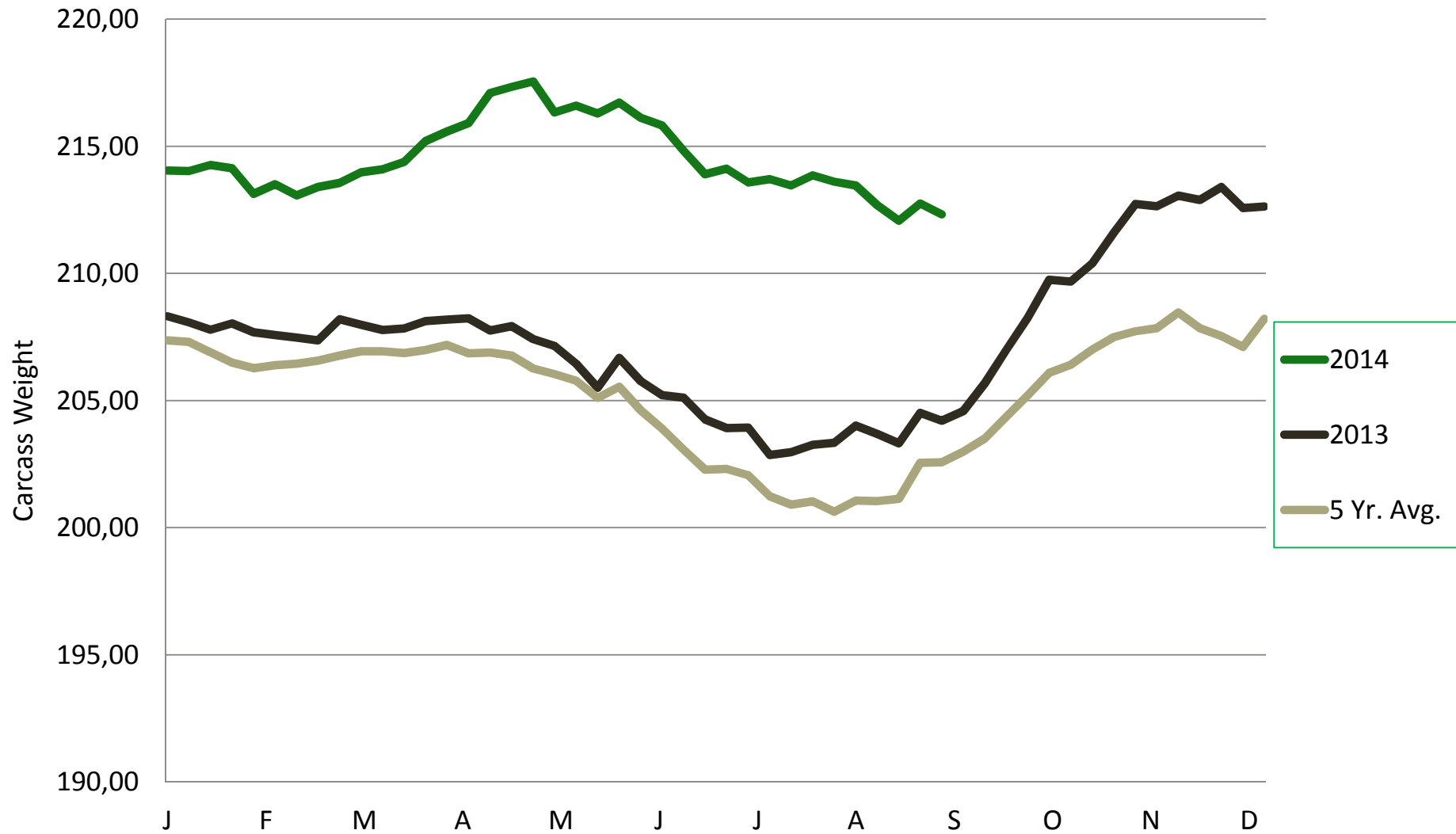


# Weekly Hog Slaughter



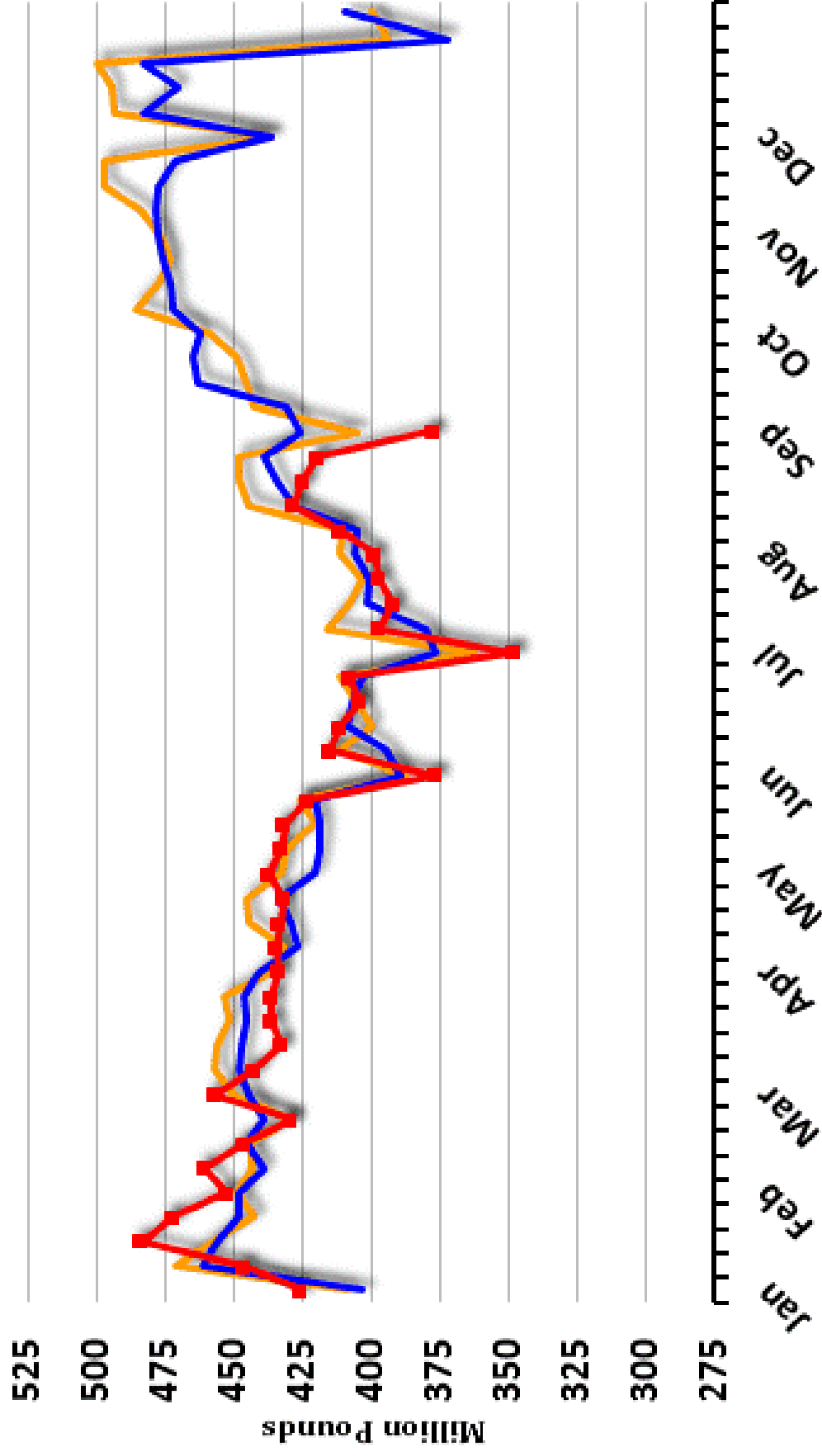


# Weekly Carcass Weights





## Weekly Pork Production Current vs. Previous vs. 5 Year Avg



— Previous Year — 5 Year Average — Current Year

Most Recent: 377 on 09/06



# SECD Federal Reporting Requirements

## 1. Mandatory Reporting of confirmed cases of PEDV, PDCoV

- Reporting required immediately following positive results
- Report to:
  - State animal health official or state veterinarian **or**
  - APHIS

## 2. Who needs to report:

- Everyone
  - Herd owners
  - Producers
  - Veterinarians
  - Laboratory personnel
  - Others with knowledge of the disease

## 3. Information to submit:

- Premise ID
- Date of sample collection
- Type of unit (sow, nursery, finisher)
- Test method used for diagnosis
- Diagnostic test results

## 4. Herd Management Plan must be written and include:

- Bio security of visitors and vehicles entering or exiting
- Monitoring employee bio security
- Period herd health observation
- Animal movement
- Cleaning and disinfection of facilities
- Diagnostic testing to monitor herd health status
- Maintenance of records on pig movement

***\*Herd owners failing to report or follow the herd management plans on positive farms may be subject to civil penalties including a hold on premises.***

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# Where from here?

- Live
- Learn
- Apply
- Get better!



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