

Office Of The State Veterinarian



James Comer, Commissioner

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National Institute for Animal Agriculture

March 24, 2015

Bovine Viral Diarrhea

- Worldwide prevalent viral disease of cattle
- 60 – 80 % exposure rate
- Endemic in Kentucky
- Huge economic impact
- Numerous manifestations
- A manageable disease
- Prevalence: 60 – 80% seropositive in adults
 1. Vaccination
 2. Exposure
 - a.) PI is the major reservoir of BVDV
 - b.) Virus shed in all body fluids

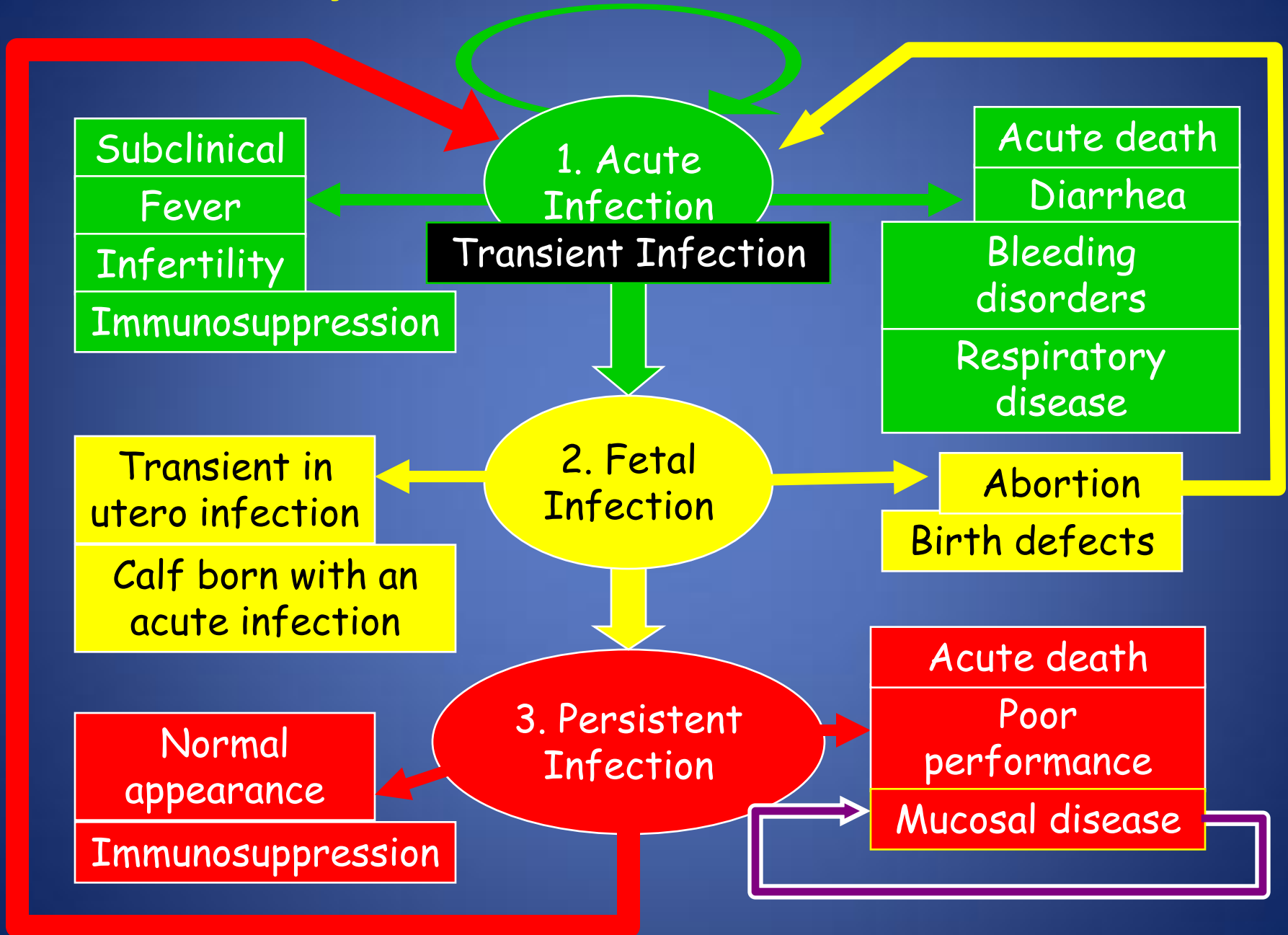
How Does BVD Impact You?

- Stocker and feedlot operations
 - Respiratory disease (pneumonia, “shipping fever”, Bovine Respiratory Disease Complex/BRD)
 - Reduced feed conversion
 - Reduced weight gain
 - Increased days on feed
 - Etc.

Impact On You (cont.)

- Cow-Calf Operations
 - All that plus reproductive effects
 - Decreased conception rate
 - Abortion / Stillborn
 - Weak calves
 - Congenital defects
 - PI Calves – “Virus Machines”

Three Clinical Syndromes Associated With BVDV Infections



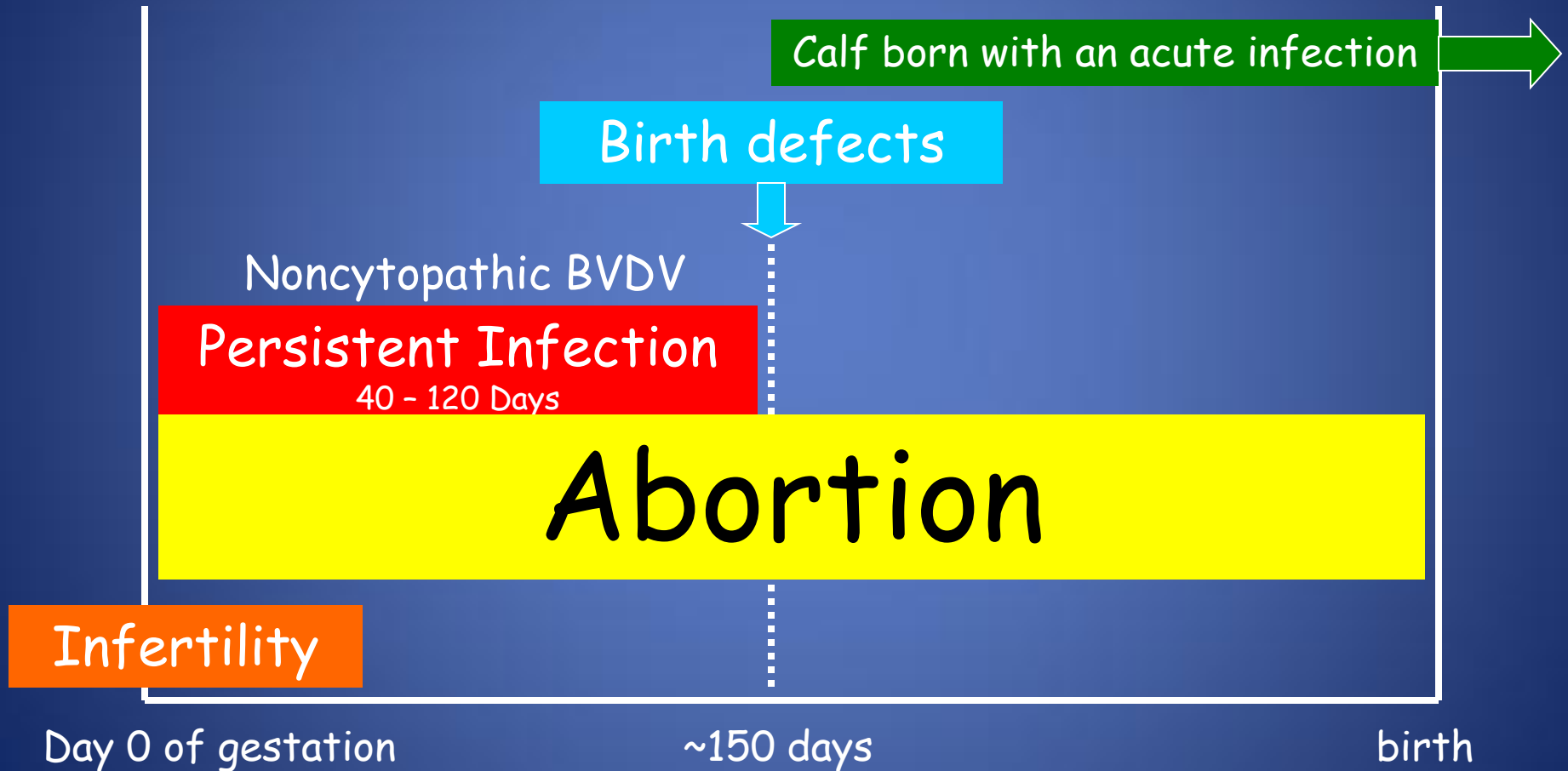
Acute / Transient Infection

- Subclinical
- Fever
- Infertility
- Immunosuppression
- Acute Death
- Diarrhea
- Bleeding disorders
- Respiratory disease

Fetal Infection

- Transient in utero infection
- Calf born with an acute infection
- Abortion
- Birth defects
- Persistent Infection

Reproductive Consequences Of Acute (Transient) BVDV Infections In Cows & Heifers

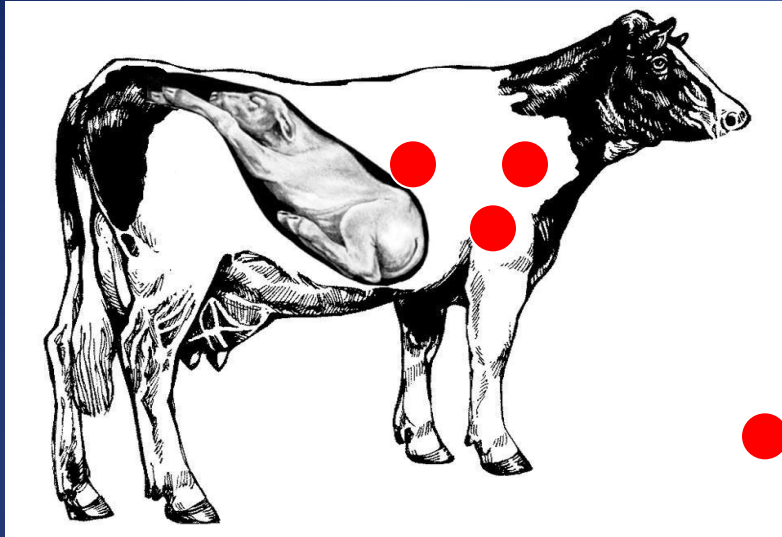


Persistent Infection - PI

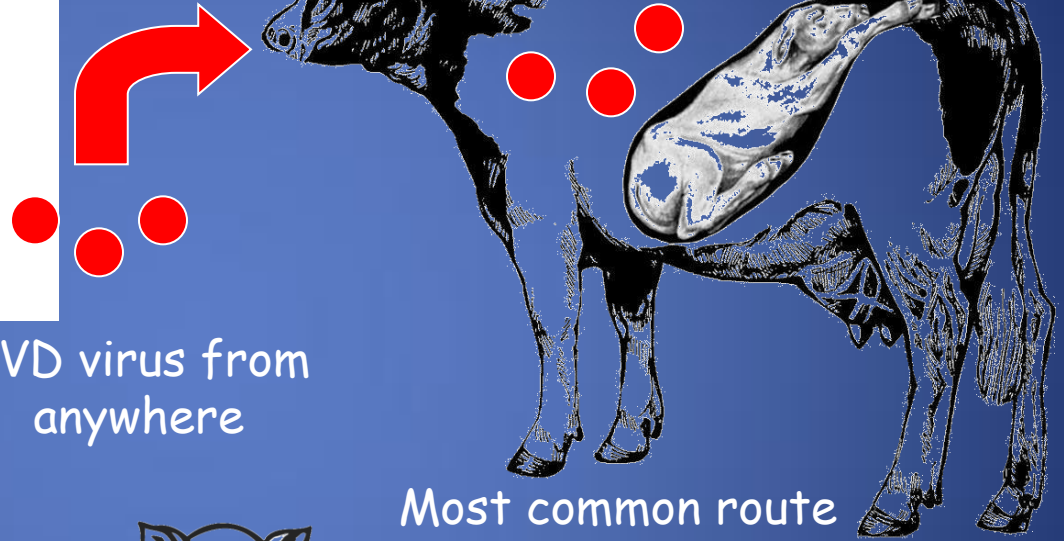
- Normal appearance
- Immunosuppression
- Poor performance
- Mucosal disease
- Acute death

Two Routes To Produce A BVD-PI Calf

Pregnant BVD-PI female



Pregnant female (non-PI) infected with BVD virus during first half of gestation

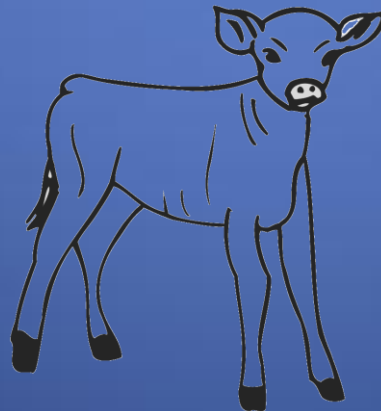
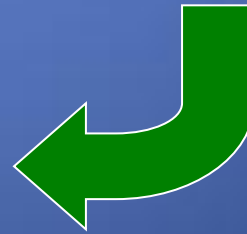


BVD virus from anywhere

Least common route
(less than 10%)



Most common route
(over 90%)



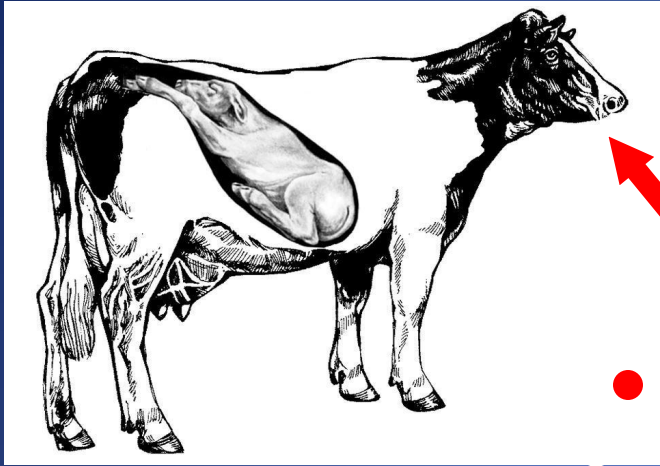
PI calf that will now constantly shed BVD virus

Facts

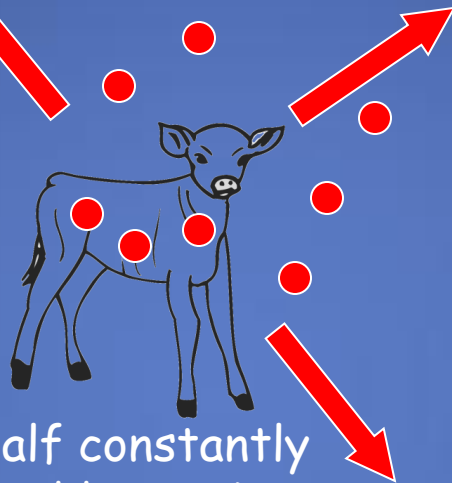
- PI calves are created during pregnancy
- Born a PI – always a PI
- Not born a PI – never a PI
- BVD poses no threat to human health and meat from PI animals is safe to eat

A BVD-PI Calf Infects Many Animals

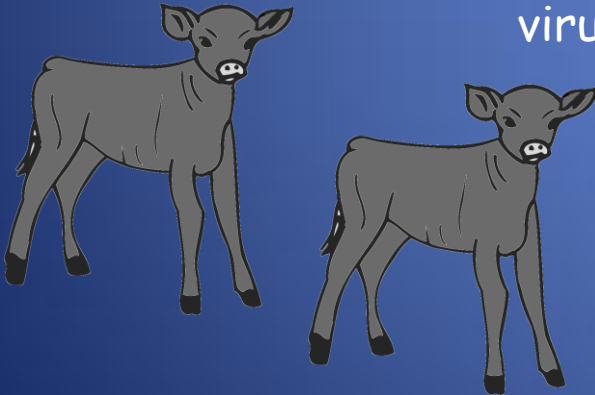
Cow and calf that may both develop acute infections. Cow may suffer from infertility.



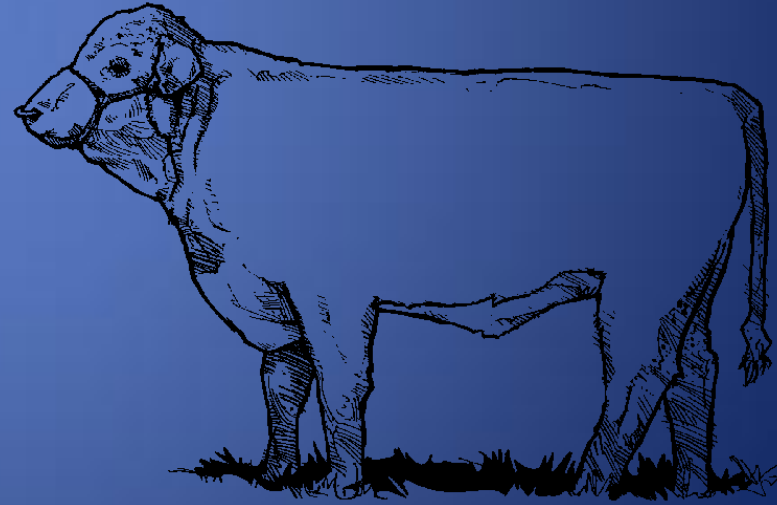
Pregnant female whose fetus may become infected.



PI calf constantly shedding BVD virus to herd mates



Calves exposed to PI calf may develop pneumonia, diarrhea, etc.



Herd bull may become acutely infected and then expose cows while breeding.

Control Points

- Work with a veterinarian on management program
- Test herd additions
- Isolate – minimum 2 weeks
- Test herd for current status (baseline)
- Control
 1. Detect and remove PI's
 2. Biosecurity – prevent BVD introduction
 3. Herd management plan (include vaccination)

Animals Recommended For Testing

- All calves
- Any cow or heifer of breeding age that did not have a calf tested for any reason; this includes replacement heifers
- All bulls
- Any herd addition (herd additions would ideally be tested prior to introduction to the herd)

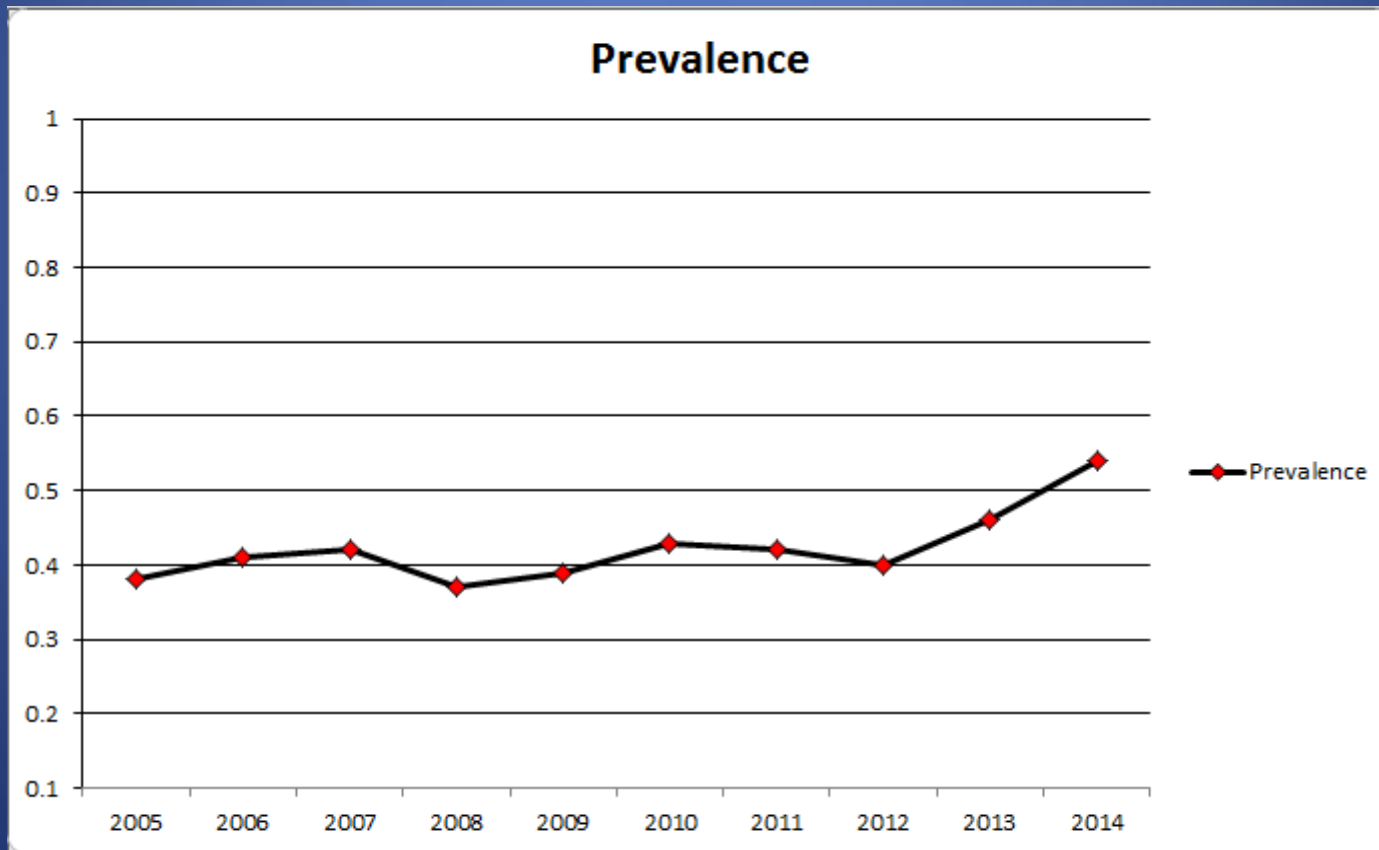
How Many PI Animals Are In Kentucky?

- Difficult to estimate
- A common number for the general cattle population is 0.4%
- The prevalence of young calves persistently infected with BVDV (1.8% to 10.5%) is higher than detected in the general population because some of these calves die
- 4% to 17.2% of farms are expected to have one or more PI calves

Prevalence of BVD-PI Positives

Central States Testing, Elizabethtown, KY

Bill Hessman, DVM



BVD-PI TESTING KENTUCKY REPORTING LABS 2013-2014

| <u>LABORATORY</u> | <u>2013</u> | <u>Prevalence</u> | <u>2014</u> | <u>Prevalence</u> |
|------------------------|-------------|-------------------|-------------|-------------------|
| MSU BREATHITT | 257/6 pos | 0.02 | 570/8 pos | 0.015 |
| UKVDL | 11,069/168 | 0.015 | 7957/116 | 0.015 |
| Gold Standard | 48,981/265 | 0.005 | 63,563/281 | 0.0044 |
| Central States Testing | | | 68,338/370 | 0.0054 |

What Can You Do With BVD-PI Animals?

- Remove from herd
- Do not send to stockyards or sell
- Options – move only a permit from OSV
 1. Send directly to slaughter – meat is ok
 2. Isolate and feed to slaughter - may be a losing proposition, recognize risk
 3. Euthanize

Office of State Veterinarian / BVD-PI Guidelines

- BVD-PI has significant impact on the health of Kentucky cattle herds.
- BVD including PI is reportable by labs, vets, owners, and others having knowledge.
- Both privately owned and university laboratories are currently reporting positive results.
- Interpretation of test results has been investigated. It appears that the (AC) ELISA test provides a significant confidence level for identifying PI positive cattle. A second test 2 – 3 weeks later can be used to confirm PI status.

BVD-PI Guidelines (cont.)

- Actions by OSV upon receiving positive test results:
 1. Contact the owner/attending veterinarian regarding the current status and location of the animal.
 2. Provide an opportunity for the owner to understand the impact of the disease and the laws governing SV response (i.e. KRS 257.040).
 3. Present options to the owner for managing the cattle involved:
 - a) Isolate and retest in 2-3 weeks to confirm the diagnosis.
 - b) Transport to slaughter with OSV permit.
 - c) Isolate either on owner's farm or at permitted feedlot and feed to slaughter only.
 - d) Euthanize and dispose of by an approved method.
 - e) Test positive animal is not to be sold, given away, or transported without approval of the SV.

BVD-PI Guidelines (cont.)

- Other issues to be considered:
 1. Official I.D. of tested animals recorded on laboratory accession sheet.
 2. Confirmed positive animal is officially ID'd and branded as positive.
 3. All movements of positive animal shall be documented by USDA 1-27.
 4. Target education at the cow/calf level.
 5. Certification incentive program (e.g. CPH).
 6. Establish an indemnity fund.

Conclusions

“Working
Together
Works”

