Kentucky Department of Agriculture

“Governmental Response For BVD-PI Control”

NIAA Conference
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Bovine Viral Diarrhea

- Worldwide prevalence
- Estimated >60% exposure rate
- Endemic in Kentucky
- Huge economic impact
- Numerous manifestations
- A manageable disease
- Prevalence: 60 – 80%
- Persistent Infection Syndrome is the major reservoir of BVDV
How Does BVD Impact You?

• Stocker and Feedlot Operations
  – Respiratory Disease: Bovine Respiratory Disease Complex (BRD), “Shipping Fever”
  – Reduced feed conversion
  – Reduced weight gain
  – Increased days on feed
  – $$$
Impact On You

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

1. Acute/Transient
2. Fetal
3. Persistent (PI)
Three Clinical Syndromes Associated With BVDV Infections

1. Acute Infection
   - Subclinical
     - Fever
     - Infertility
     - Immunosuppression
   - Transient Infection
     - Acute death
     - Diarrhea
     - Bleeding disorders
     - Respiratory disease

2. Fetal Infection
   - Transient in utero infection
   - Calf born with an acute infection
   - Abortion
   - Birth defects

3. Persistent Infection
   - Normal appearance
   - Immunosuppression
   - Acute death
   - Poor performance
   - Mucosal disease
Acute / Transient Infection

- Can be 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

- **Birth defects**
- **Calf born with an acute infection**
- **Noncytopathic BVDV**
- **Persistent Infection** (40 - 120 Days)
- **Abortion**
- **Infertility**

Day 0 of gestation | ~150 days | birth
Persistent Infection - PI

Clinical Expressions:

• Normal appearance
• Continuous virus shedding
• Immunosuppression
• Poor performance
• Mucosal disease
• Acute death
Pregnant female (non-PI) infected with BVD virus during first half of gestation

Pregnant BVD-PI female

BVD virus from anywhere

Least common route (less than 10%)

PI calf that will now constantly shed BVD virus

Most common route (over 90%)
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

Pregnant female whose fetus may become infected.

PI calf constantly shedding BVD virus to herdmates

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

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

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

• Work with your veterinarian on herd management program
• Test all herd additions
• Isolate acquired additions 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 including 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 should be PI tested prior to introduction to the herd)
How Many PI Animals Are in Kentucky or in Your State?

• Difficult to estimate
• A common number for the general cattle population is 0.4%
• The prevalence of young calves persistently infected with BVDV (<1% to 10%) is higher than detected in the general population
• 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 in Kentucky Reporting Labs 2013-2014

<table>
<thead>
<tr>
<th>Laboratory</th>
<th>2013</th>
<th>Prevalence</th>
<th>2014</th>
<th>Prevalence</th>
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<tbody>
<tr>
<td>MSU Breathitt</td>
<td>257/6 pos</td>
<td>0.02</td>
<td>570/8 pos</td>
<td>0.015</td>
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<tr>
<td>UKVDL</td>
<td>11,069/168</td>
<td>0.015</td>
<td>7957/116</td>
<td>0.015</td>
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<tr>
<td>Gold Standard</td>
<td>48,981/265</td>
<td>0.005</td>
<td>63,563/281</td>
<td>0.0044</td>
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<td>Central States Testing</td>
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<td>68,338/370</td>
<td>0.0054</td>
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</table>
## BVD-PI TESTING
### KENTUCKY REPORTING LABS 2015

<table>
<thead>
<tr>
<th>LABORATORY</th>
<th>2015</th>
<th>PREVALENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSU BREATHITT</td>
<td>451/8+</td>
<td>0.017</td>
</tr>
<tr>
<td>UKVDL</td>
<td>5463/87+</td>
<td>0.015</td>
</tr>
<tr>
<td>CENTRAL STATES TESTING</td>
<td>7033/18+</td>
<td>0.002</td>
</tr>
</tbody>
</table>
What Can Legally Be Done With PI+ Animals?

• Remove from herd

• Options – move only on 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. Move to permitted feedlot
  4. Euthanize

• Do **NOT** send to stockyards or sell
257.040 Places diseased animals prohibited.

No person who has in his possession any domestic animal infected with a reportable disease shall:

(1) Permit such an animal to run at large;

(2) Keep such an animal where other domestic animals, not affected with or previously exposed to the disease, may become infected with or exposed to it;

(3) Permit such an animal to go on, across, or along any public highway, or in any field or lot adjacent to any public highway, or in any field through which flows a stream; or stream; or

(4) Transport, sell, offer for sale, trade or give away such an animal, except upon permission or approval from the state veterinarian.

Effective: June 25, 2009

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.
- 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

• Actions by OSV upon receiving positive test results:

1. Contact the owner/attending veterinarian regarding the current status and location of the PI+.
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 Working Group

• Formed at direction of State Board of Agriculture
• Had two meetings
• Represent broad base of cattle stakeholders
• Working Group members from KFB, KLMA, KCA, KDDC, BVC, UKVDL, Private Labs, SBA, Veterinarians
• Review KY laws and other state’s programs: AL, MS, CO
• Goal: Develop recommendations for specific regulations and programs
BVD-PI Working Group

• Issues to Consider:
  - Certification program
  - Participation programs
  - Official identifications for testing
  - Visual I.D. of positives (i.e. branding)
  - Methods of verification for test negative cattle
  - Indemnity
  - Promotion to create market incentive (i.e. “CPH 45-PI”)
Conclusions

“Working Together Works”

Diagrams Courtesy of Dr. Dan Givens, CVM, Auburn University
Questions