

BVD-PI Herd Biosecurity

HREC Beef Research Review

Hettinger, N.D.

Jan 10, 2008

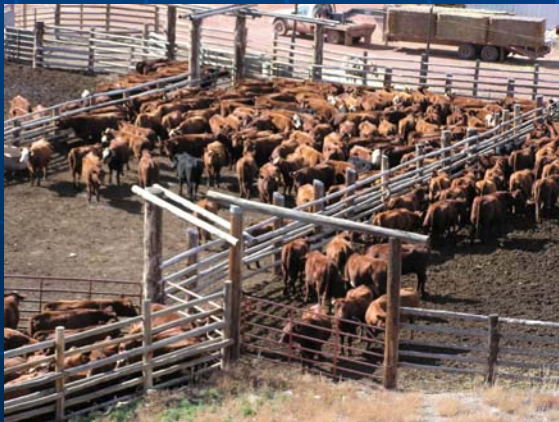
Clint Peck

Montana State University

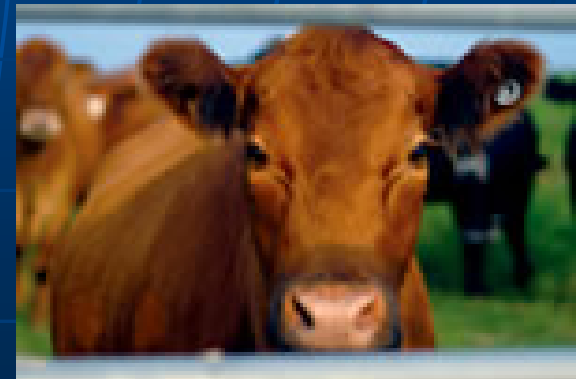
Beef Quality Assurance

Biosecurity Basics

- Increasing disease resistance through vaccination.
- Prudent livestock movement and handling.

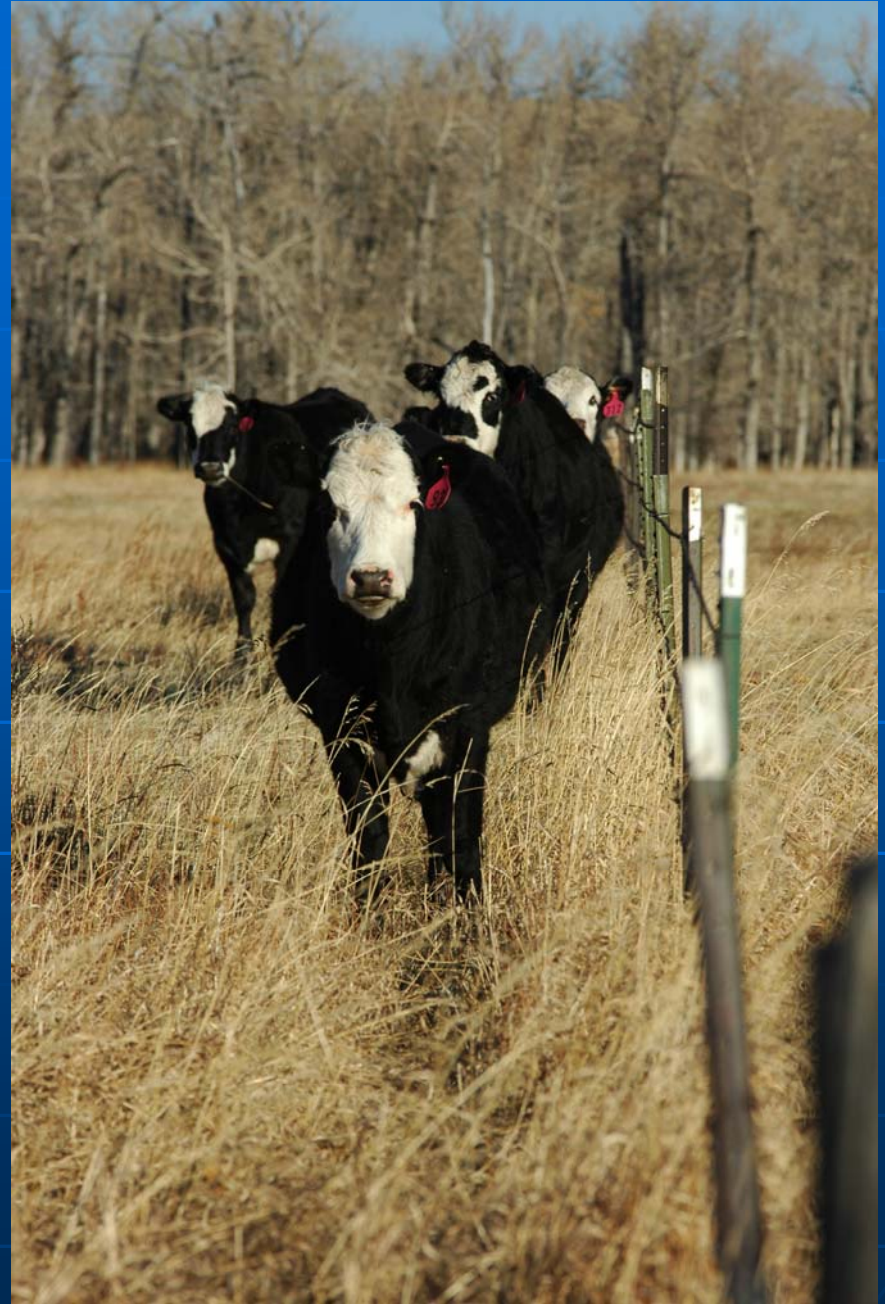


- Animal identification & recordkeeping.



Keys to Biosecurity & Health Management

- Don't rely solely on vaccination.
- Attention to proper nutrition.
- Screening for disease agents.





BVD-PI Herd Screening

- 1) Helping reduce sickness potential in individual cow herds.**
- 2) Adding value through healthier commercial and seedstock cattle.**
- 3) A template for on-ranch biosecurity.**

BVD Begins at the Ranch

- *Transient* Infection
vs.
Persistent Infection

- PI calves are only "created" during gestation.



Once a PI, always a PI -- Not a PI, never a PI.

Key BVD-PI Screening Points

“Whole herd” screen before breeding to avoid exposing pregnant cows to the BVD virus during early gestation.

Cows do not need to be screened unless they have a positive PI calf.

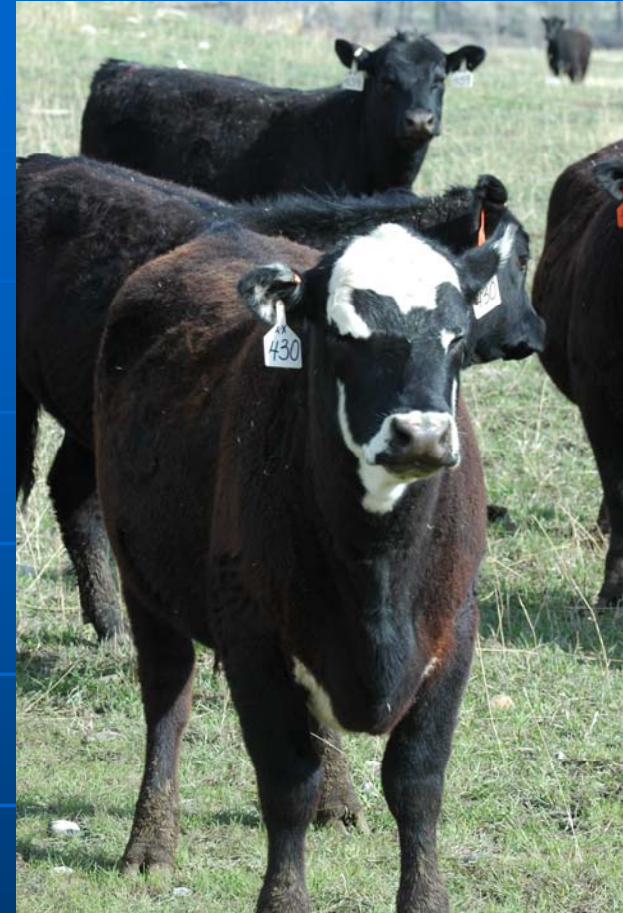
Surveillance should include the screening of as many aborted fetuses, stillborns and pre-weaning deaths as possible – and calves from “late calvers.”



BVDv Biosecurity

Open replacement heifers should be screened for BVD-PI status before commingling with herd.

Purchased bred heifers or cows should be kept separate from the home herd and their calves should be screened.



Bulls should be purchased as BVD-PI negative or screened prior to breeding.

Sampling Procedure

- Ear notches are taken by ranchers and shipped (chilled) overnight.
- \$1.95 / head (sample groups > 100 samples).
- Samples are "pooled" and assayed for BVDV RNA.
- **Screening results returned to the producer "next business day" upon receipt.**
- PIs are confirmed using ear notch samples obtained from the suspect animals 3-4 weeks after initial sampling. \$1.75 / head



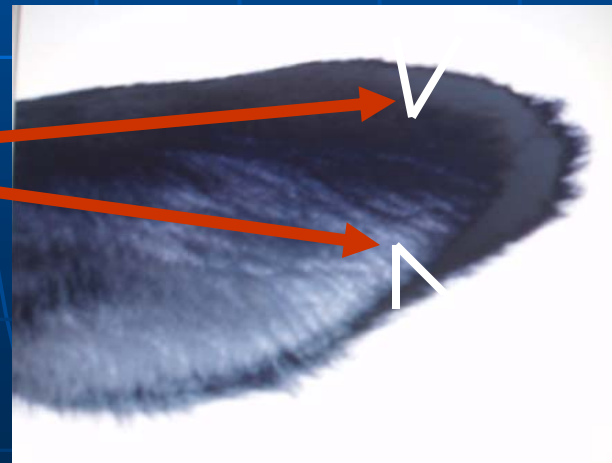
Tissue Collection



- Collect ear notch and place in dry tube (not in formalin or other preservative).
- Match tube to animal ID.
- Keep samples in a cooler with ice packs. Can be frozen prior to shipment.
- Sanitize and rinse ear notch tool between animals.

The best areas
of the ear to
take the
sample.

Need only one
piece of
tissue.



BVD-PI Screening Protocol

-- Pooled PCR --

*“Performing a reverse transcriptase–PCR assay on pooled fresh tissue samples is a “sensitive and specific method” of screening cattle for persistent infection with BVD virus.” **

PCR = polymerase chain reaction



* James A. Kennedy, DVM, MS,
Colorado State University
Diagnostic Laboratory, Rocky Ford
Branch; JAVMA, Vol. 229, No. 9,
November 2006

The Ranch - Costs of BVD

- One PI animal in a cow herd

\$14-24/cow/year – due to increased herd health costs and losses in reproductive efficiency.



* Bob Larson, DVM, PhD, University of Missouri, Columbia, *Planned BVD Control in Beef Herds*, Conference proceedings "BVD Control and Eradication: The future is now!" Jan. 31, 2006, Denver, CO.

The Feedlot - Costs of BVD

- Guy Loneragan of West Texas A&M University found feedyard PI prevalence to be about 0.17% (1.7 PIs per 1,000 head).
- The probability for initial treatment for respiratory disease is 43% greater with calves exposed to BVD-PI calves in their same pen or an adjoining pen.

G. Loneragan; Journal of the American Veterinary Medical Association (JAVMA), 2005.

Ultimately assuring beef quality...



"Each time you treat an animal for a sickness in a feedyard..."

...you run the risk of losing a quality grade and a tenderness score."



- Dr. Gary Smith, Colorado State University

2007 MT Project

408 herds screened
31 herds with PIs (7.8%)

~106,600 head screened
110 PIs
1.03 PIs / 1000 head

- 84 new crop calves
 - 15 '06 "fall" calves
 - 5 weaned calves
- 5 yearling rep. heifers
 - 1 yearling bull

Case Study - Sept '06 Calves

15 PI's / 120 tested

4/2/07 ear notch calves for BVD test	steers	weight	heifers	weight
4/27/07 wean 15 BVD PI calves Calves on weaning supplement and hay	9	388	6	367
6/1/07 weigh calves and turn out on grass	8	454	5	431
8/13/07 Weigh calves and put in lot on hay	8	554	5	510
12/5/07 weigh 9 calves (210 days post weaning)	6	652	3	633

+ 264

+ 266

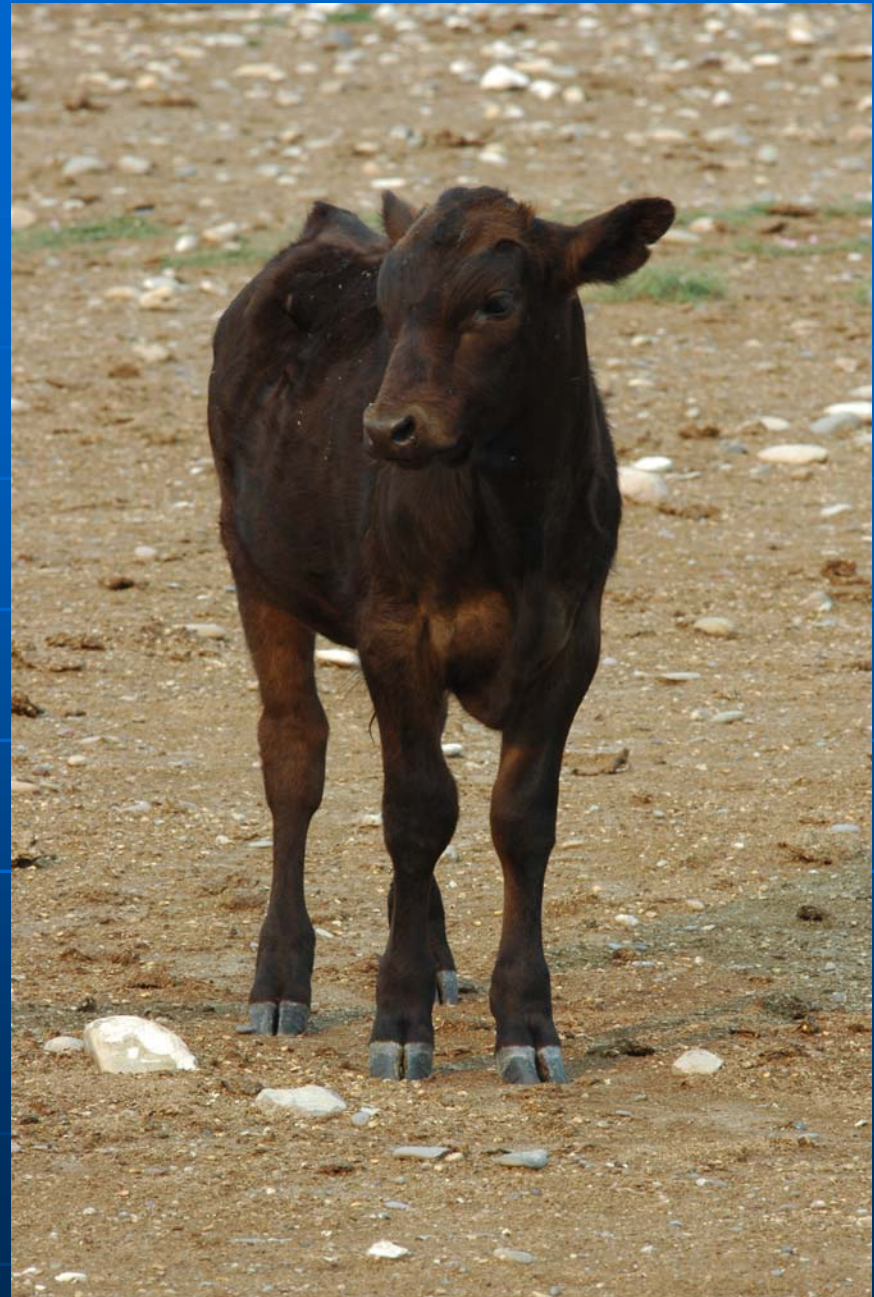


2-Yr Total to Date

470 herds screened
42 herds with PI's
~ 145,000 head screened

139 PI's (0.093%)
0.93 PI's / 1000 head

- 125 new crop calves
 - 6 weaned calves
 - 5 yrly heifers
 - 2 cows
- 1 purebred yrly bull



2008 Montana Project

The project will provide*:

- Sampling “kit” – serum tubes, ice packs and box liners shipped to the participant.
- A “small” (pig type) ear-notching tool used for tissue sampling.
- Technical assistance and follow-up survey data.
- Documentation of test results.

* Depending on funding availability

The participant pays for:

- All pooled PCR screening costs.
- “Re-test” costs in “positive” pools.
- Shipping costs to the lab via UPS (preferred), FedEx, DHL, U.S. Postal Service, etc.



Boehringer Ingelheim

The Next Year (s)?

We don't necessarily recommend "perpetual" whole-herd screening:

IF

- 1) You maintain a vaccination protocol based on a modified-live product.
- 2) You screen all new entries into the herd. Ask the **PI question !!!**
- 3) You re-screen herds with suspected breaches in biosecurity.

Depending on marketing value of "PI Screened" calves, there may be incentive to continue testing all calves.

Acknowledgements

Dr. James A. Kennedy, DVM, MS, Colorado State University Veterinary Diagnostic Lab, Rocky Ford Branch, Rocky Ford, CO, for his inspiration in BVDv control and his demonstrated expertise in PI screening.

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Montana Stockgrowers Association

with

Animal Profiling International

&

Intervet & Boehringer Ingelheim

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