Putting BVD Control on Your Radar Screen

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What Will BVD Virus Infection DO?

- BVD Virus (BVDV) in the calf may cause:
  - Pneumonia
  - Diarrhea
  - Immune suppression
  - Ulceration of the mouth, esophagus, stomach, and intestines.
  - Death

More of What BVDV Will Do

- BVDV in the cow can cause:
  - Infertility
  - Abortions
  - Deformed calves
  - Still born calves
  - PERSISTENTLY INFECTED CALVES
- What happens in the cow is related to the stage of gestation.

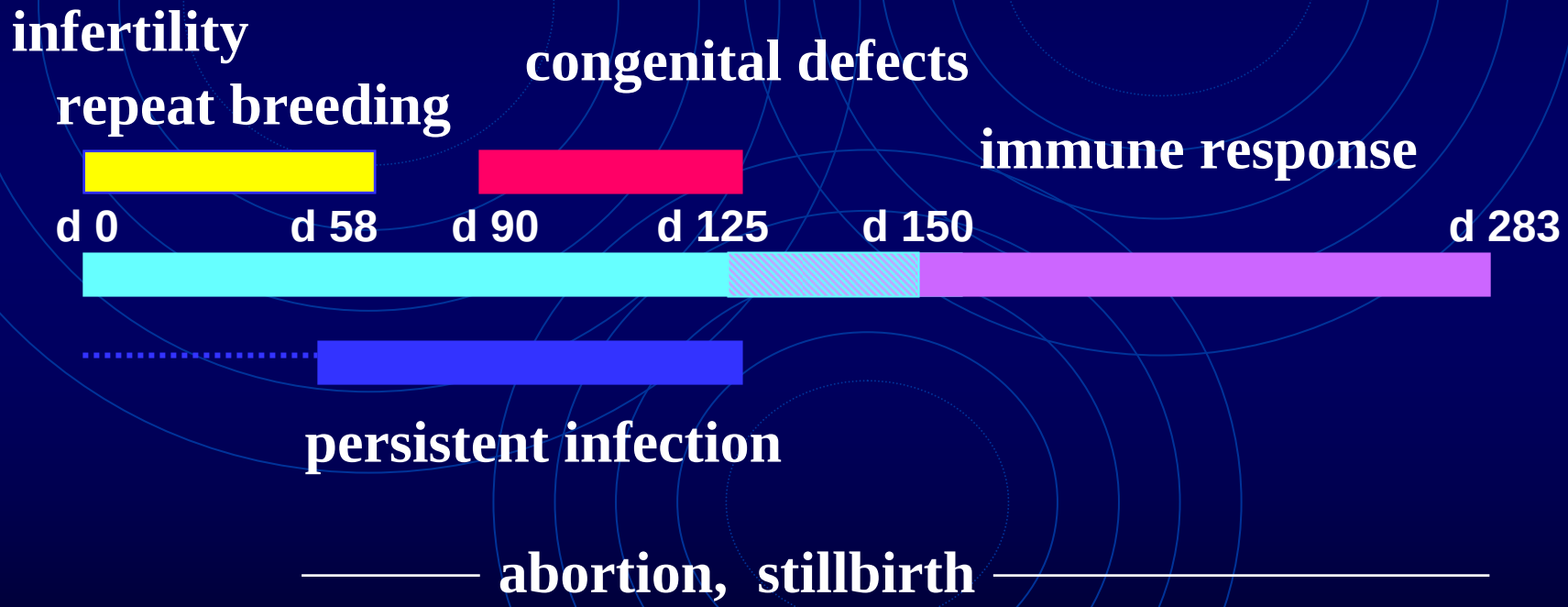
Infection Types

- Transient infections (TI's):
  - Transient infections sometimes called acute infections.
    - Cattle transiently infected may recover after a period of illness.
    - Transient infected cattle are inefficient at spreading the disease.
    - Often result in "chronic poor doers" due to secondary bacterial infection.

The Other Infection Type

- Persistent infections (PI's):
  - Most important source of infection
  - Never go away.
  - Cannot be visually identified.
  - Shed BVD virus 1000's of times greater than transient infected animals.
  - Without the PI the disease could be controlled or eliminated.

BVD Infection During Gestation



What do the two types of infections look like?

TI

Obviously sick

Both are PI's

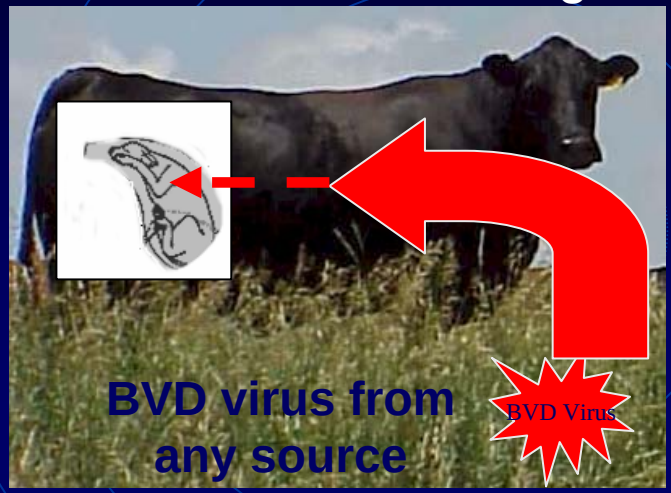
They don't look sick.

BVD Control Required Assumptions

- BVD contributes a significant negative impact to the cattle industry, estimates of greater than $10.00 per head per year cost in the cow herd (some European studies suggest nearer $65/hd)
- The primary source of BVD infection is the PI calf, **No PI No BVD**
- An effective BVD biosecurity plan can be developed and implemented
- Affordable, timely and reliable diagnostic tests are available to detect PI calves.

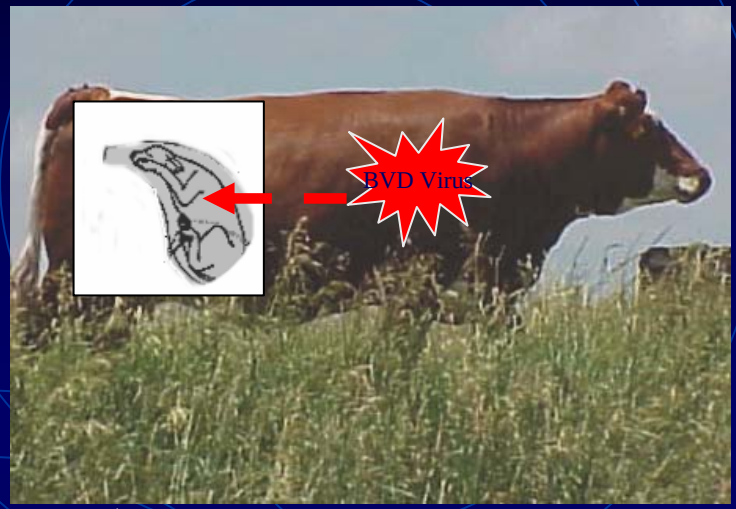
HOW TO MAKE A PI

Susceptible pregnant female (non-PI) infected with BVDV at about 1½ - 4 months of gestation.



Most common route (Over 90%)

BVDV persistently infected (PI) female becomes pregnant.



Less common route (Less than 10%)

BVDV persistently infected (PI) calf is produced.

BVD PI Testing or Looking for that Needle in the Hay Stack

- Approximately 1% of the cattle in the United States are PI's.
- All of the PI's are contained in approximately 4% of the herds. So a single herd may contain several PI's
- Most used individual tests, AC-ELISA & IHC, will cost from $3 to $7 per animal may not be cost effective.
- Need an economical screening test.

Screening Herds Economically for BVD PI's

- Screening tests allow for large numbers to be tested, cheaply
- Screening tests must be highly sensitive (this may be at the cost of some false positives)
- Screening tests must give a rapid turn around.

Available Screening Tests

- Serological tests on sentinel animals
- Serological tests on random sample of calves
- Pooled RNA testing on blood.
- Pooled RNA testing on fluid suspending fresh tissue, i.e. ear notch in a special saline solution

Serological Testing

- Number of animals to test based on herd size. May be random or sentinel animals
- Cost $10.00 per animal .
- Principle relies on an elevated titer indicates exposure to a PI.
- Projects the problem into the next years calf crop.
- Much skepticism exists in the potential for serological testing from fear it may miss positive herds.

RNA Pooled Testing

- Special adaptation of DNA testing.
- Suitable for multiple types of samples, including blood and tissue
- Extremely sensitive to the virus, essentially 100%.
- Will detect vaccine virus and TI's.
- Cost on a per head basis less than $1

What Colorado Offers in Testing Strategies

- Serological testing
- Pooled testing on ear notches.
  - Costs $50 for each pool (pools up to 100 samples).
  - Ear notches are saved for further testing if pools are positive.
  - Lab time required 48 to 72 hours.

What and when to test

- The calf is the best animal to test.
  - A negative calf means a negative mother, you are getting two tested for the price of one.
  - If the calf is positive then you must test the mother.
- Test before breeding.

Components of BVD Biosecurity

- **These are only minimal parts of a good biosecurity program.**
  - **1.) Minimize exposure to other cattle.**
  - **2.) Establish a good vaccination program.**
  - **3.) Keep herd and individual records**
  - **4.) Address health problems**