Vaccination
A Tool for Managing Cattle Health

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Cow-calf Productivity

- Number of weaned calves
  - Cow fertility
  - Calf survival

- Productivity of calf from birth to weaning
  - Cow maternal abilities
  - Range nutritional conditions

- Post weaning performance
  - Bull selection (carcass traits)
  - Health
Mechanisms to reach herd health goals

• Improve reproductive performance
  – Getting and keeping cows pregnant

• Controlling persistent health problems
  – Blackleg, Tetanus

• Strategic vaccination
  – “Preloading” calves so they stay healthy
Impact of failure of strategic vaccination

- **THE PRIMARY FEEDLOT DISEASE**
- **BRDC/SHIPPING FEVER/PNUMONIA**
THE BOTTOM LINE FOR PRODUCERS

• Source verification **IS HERE**
  – **Mandatory Animal ID??**

• Feeders and packers will monitor production from linked to source verification

• The price gap between good and poor performing cattle will increase

• Keeping cattle healthy during feeding is vital for profitability
  – Impending restrictions on antibiotic use!
Adding Value to Your Calves

• Herd biosecurity *don’t ship problems*
• Have well vaccinated, health calves that are ready to go on feed and perform
  – Reduces (Eliminates) need for Treatment and residue worries
  – Get Best Response to Feeding Program
• Follow how your cattle perform
  – How are my bulls doing???
Vaccination

• Should be “immunization”
  – Indicates appropriate response
• Good humeral, cellular and local immune response similar to natural infection
• Protection against clinical disease and reinfection
• Minimal immediate side reaction
Vaccination, Introduction to Animal Health Program

• Proper nutrition
  – Protein and trace minerals in young growing animals

• Low stress conditions
  – Stress hormones reduce immune system

• Functioning immune system
Vaccine tools for the immune system

• Killed Vaccines and Toxoids (Nonreplicating)

• Modified Live (Replicating)
Killed Vaccines & Toxoids (Nonreplicating)

- Wide variety of Dz protection
- No risk of reverting to “wild strain”
- No risk of spread between animals
- Little risk of abortion
- More stable in storage
- No on farm mixing required
- Good stimulant for colostrum

- More likely to cause allergic reaction/lumps
- Boosters usually required
- Slower onset of immunity
- May not stimulate as strong or long lasting immunity
- Narrower spectrum of protection vs. MLV
- Cost is often higher
Modified Live (Replicating)

- One dose can provide protection
- More rapid protection
- Wider spectrum of protection vs. Killed
- Less likely to cause allergic reaction/lumps
- Not as susceptible to passive antibody block
- Cost usually less vs. Killed

- Possible reversion to virulent forms
- Disease problems in immune stressed animals
- Risk of abortion/infertility
- Handling, mixing, using
Recommend Vaccination Program Cows and Bulls

• Basic protection:
  – Annual 7 way Clostridial
  – Annual killed 4 way respiratory
    • IBR, BVD, PI$_3$, BRSV
    • Best 6-8 pre calving
    • Need booster on initial vaccination

• Trich Control Program

• Options
  – Lepto (5 way), Vibrio, Deworm
  – Mineral Supplementation
Calf Vaccination

• Branding
  – 7 way Clostridial
  – Tetanus if banding
  – Killed 4 way respiratory
• Preweaning (3-4 weeks)
  – 7 way Clostridial
  – Killed 4 way respiratory
  – De worm, Mineral supplementation
• Weaning
  – Respiratory Killed for sure/maybe MLV
  – Pasteurella, Hemophalus, +/-
  – Bunk and drinker broke?
• Az BQA
Vaccine Handling

• Follow label
  – Storage especially refrigeration
• FOLLOW LABELS
  – PREGANCY STATUS, AGE, BOOSTER
• Expiration date
• Refrigeration after mixing
• MLV short life after mixing/temperature effect
Vaccination Procedures

• FOLLOW LABEL DIRECTIONS
  – Route of injection and location
• Tent skin for SubQ
• Needle length
  – IM 1-1.5 inch 16 or 18 gauge
  – SubQ 3/4 inch or 1 inch 16-18 gauge
• Spread out injection sites
• Change needles every 10-20 head
Vaccination Procedures
Part II

• Make sure hide/skin is clean/free of mud and manure

• DO NOT USE SKIN DISINFECTANT OR DIP NEEDLE IN DISINFECTANT WHEN USING A MLV VACCINE

• DO NOT MIX VACCINES

• FOLLOW QA GUIDELINES ON INJECTION SITES
VACCINE FAILURE

• FAILURE TO RESPOND
  – Vaccinating calves at too young age
  – Effect of nutrition on cow and average calf age @ vaccination

• INSUFFICIENT RESISTANCE
  – Protected @ home but not on the ROAD

• LAG TIME
  – Vaccination is not automatic

• FAILURE TO BOOST
• HANDLING
• Vaccine Lesions at Slaughter
Figure 1–2. The characteristic time course of the immune response to an antigen as measured by serum antibody levels. Note the differences between a primary and a secondary immune response.
Recommended Needle Size

• Sub Q Injection ½ or ¾ inch needle
  – <300 lbs 18 gauge
  – 300-700 lbs 18-16 gauge
  – >700 lbs 16 gauge

• Intramuscular 1 or 1/12 inch needle
  – <300 lbs 20-18 gauge
  – 300-700 lbs 18-16 gauge
  – >700 lbs 18-16 gauge
The Equipment
Metal Syringes

- Take apart and **BOIL** in hot water
- Wash external surface with water and soap
  - **DONOT USE INTERNAL PARTS WITH SOAP OR DISINFECTNATS**
- Boil internal parts for 5 minutes (distilled or de-ionized water)
- Reassemble while still hot with small amount of **CLEAN** vegetable spray
- After reassembly rinse internal parts 3-5 times with hot (>180F) water
- Allow to cool 10 minutes before use
- If stored rinse with >180 water and allow to cool before use
- >180F water boil 2 cups in microwave and use for rinse
Plastic automatic syringes

- Can be heat sterilized in microwave (cover in water)
- Wash external parts in soap and water
- Rinse internal parts with hot tap water (no soap)
- Fill with distilled or de-ionized water
- Wrap in 5-10 layers of wet paper towels
- Place in zip lock bag and microwave hi 5 minutes
- Do each syringe individually
- Unwrap and squirt remaining water cool 10 minutes before use
10 Take Home Points

• Know what you expect vaccine to do
• Use quality products
• Read/Follow label directions
• Store vaccine correctly
• Chute side keep vaccine cool and shaded

• Sterile needle to rehydrate
• Mix what you can use in < 30-40 minutes
• Sub Q is best in front of neck!!
• Use new sharp needles change every 10-15 head, never re-enter vaccine bottle
• Clean/sterilize equipment when done, store correctly
HAPPY TRAILS!!