Managing Health on Newly Purchased Calves / What To Do In a Health Wreck

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DIFFERENT NAMES SAME DISEASE

• PNEUMONIA
• SHIPPING FEVER
• BRDC (BOVINE RESPIRATORY DISEASE COMPLEX)

Bovine Respiratory Disease Complex

• What we see:
  ➢ Depression
  ➢ Off feed
  ➢ Fevers: Temp > 103°F to 104°F
  ➢ Coughing
  ➢ Snotty nose
  ➢ Heavy breathing
  ➢ Death Loss

Bovine Respiratory Disease Complex

• Nose
• Throat
• Windpipe
• Lung

Bovine Respiratory Disease Complex

• Bacteria – Manheimia hemolytica (Pasteurella), P. multocida, Haemophilus
• Live in upper tract in normal cattle
• Multiply in upper tract in stressed cattle
• Important when invade lung – Death!!!
**Bovine Respiratory Disease Complex**

- Viruses: IBR, PI3, BRSV, BVD
- Viruses: dozens of other viruses (like the human cold)
- Viruses are most important in the upper tract
- Don’t respond to antibiotics, seldom kill cattle alone

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**Cattle Respiratory Disease**

- Shipping fever is NOT a classical Infectious / Contagious Disease

  - Healthy cattle can be challenged with Manheimia, Hemophilus, IBR, BVD, PI3, BRSV and not get pneumonia most of the time

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**Cattle Respiratory Disease**

- **AA balance between resistance** and challenge.
Resistance

- Immunity — Antibodies and cells in the blood and lymph system designed to protect the body from disease
- Goal of vaccination is to produce immunity
- Effective immunity to Mannheimia has proven very difficult to produce
  - Older vaccines stimulated damaging immunity
  - Current vaccines reduce severity but not the incidence of pneumonia

- Whittier:
  - Immunity to IBR, BVD, PI3 and BRSV is only moderately successful in preventing pneumonia in stressed calves
  - Vaccine that promises complete prevention of respiratory disease through a vaccination program hasn't owned enough of their own cattle

Cumulative BRD-Related First Pull Incidence

Cumulative BRD-Mortality Incidence
Resistance

- Much Resistance that is not immunity
  - Macociliary clearance system (an elevator to get junk out of the respiratory system) - efficacy hurt by dehydration, ammonia, exhaust
  - Scavenger cells in the lung that kill bacteria when they get there (but Manheimia can kill them)
- Stress, how the body reacts to being uncomfortable, hampers immunity and other resistance

Cattle Respiratory Disease

Respiratory Disease

Health Rarely!

Disease Challenges

Cattle Respiratory Disease

Health

Stressed calves: Decreased Resistance

Disease

Moderate increase in exposure

Challenges

- Shipping
- Weaning
- Time in Marketing
- Mixing = Commingling
- Diet Changes
- Time without feed and water
- Processing
- Handling
- Exposure to other cattle (Bugs and Social)
- Weather changes
- Bugs from within the group (carriers such as PI's)
- Others
Challenges

- Shipping
- Wearing
- Time in Marketing
- Wearing
- Milking
- Diet Changes
- Time without feed and water
- Processing
- Handling
- Exposure to other cattle

- Weather changes / Night: Day
  > 40°
- Others

Challenges

- Shipping
- Wearing
- Time in Marketing
- Wearing
- Milking
- Diet Changes
- Time without feed and water
- Processing
- Handling
- Exposure to other cattle

- Others – Sometimes unknown:
  Everything looked right...but there lots of sick cattle

Resistance Factors

- Age
- Size
- Prior Exposure
- Marketing method
- Short/ Comfortable Travel
- Vaccination
- Proper prior nutrition
- Parasite free
- Many others

Avoiding Respiratory Disease Losses:

- Buying program
- Shipping program
- Comfort on arrival
- Processing program
- Arrival nutrition
- Disease detection and treatment

Processing

- Vaccinations:
  - IBR, PI3, BRSV
  - BVD?, Hemophilus?, Pasteurella??
  - MLV vs Killed, Intranasal
- Grubs and lice; Flies
- Deworming
- Implants
- Vitamin/ Mineral
- Castrate/ Dehorn?
- Growth promotant implant
Intranasal Vaccines

- Faster response
- "Local" immunity
- General immunity (against rhino, adeno viruses, etc.)
- Less "sweat"
- New vaccine has IBR, PI3, BRSV, BVD Types I & II

Metaphylaxis

- Fancy word for preventive treatment
- Several antibiotics approved for "high risk cattle"
- Almost universal positive results in trials

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Telithromycin</th>
<th>Ticlosin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average daily gain</td>
<td>2.5 ± 0.17a</td>
<td>2.0 ± 0.12a</td>
</tr>
<tr>
<td>Feed gain ratio</td>
<td>5.9 ± 0.20a</td>
<td>7.1 ± 0.29a</td>
</tr>
<tr>
<td>Pounds fed/day</td>
<td>14.9 ± 0.51a</td>
<td>13.2 ± 0.51a</td>
</tr>
</tbody>
</table>

**Table 1. Drugs approved for use in metaphylaxis for bovine respiratory disease complex.**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost to treat a 500-pound calf^1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metrobac® (tilmicosin)</td>
<td>$8.00</td>
</tr>
<tr>
<td>Nuflor® (florfenicol)</td>
<td>$15.00</td>
</tr>
<tr>
<td>Tetravel® (oxytetracycline 300 mg/ml)</td>
<td>$4.05 - $6.02</td>
</tr>
<tr>
<td>Tilmicosin® (terreworcinol 200 mg/ml)</td>
<td>$13.12</td>
</tr>
<tr>
<td>Trimax® (trimethoprim)</td>
<td>$18.15</td>
</tr>
</tbody>
</table>

^1 Based on average national price.

What is it worth?

- If each incidence of BRD costs $84
  - Average: \((0.96 - 0.20) \times 84 = 52.48\) 69/64
  - Low Impact: \((0.30 - 0.20) \times 84 = 8.96\) 69/64
  - Extreme: \((0.72 - 0.60) \times 84 = 60.48\) 69/64
  - \((0.46 - 0.00) \times 84 = 38.64\) 69/64
Routine Vaccination Protocol

Calves can be divided into categories based on their previous health histories.

- Category I: Calves that have been fully preconditioned.
- Category II: Farm fresh calves.
- Category III: Fresh sale barn calves.
- Category IV: Stale calves from any source.

Routine Vaccination Protocol

- **VACCINATION PROGRAMS FOR STOCKER CALVES**
  - Vary from one delivery of truckload quantities (100 calves) or multiple deliveries over the course of 1-3 months via continuous salebarn purchases of groups of 2-10 calves/week.

Stocker Receiving

- **VACCINATION PROGRAMS FOR STOCKER CALVES**
  - **Category I Calves (Preconditioned):**
    - Vaccinations: None needed
    - Anthelmintics: None needed
    - Coccidia control: Decoq 14 days
    - Bovatec 2 months

Stocker Receiving

- **VACCINATION PROGRAMS FOR STOCKER CALVES**
  - **Category II Calves (Farm Fresh):**
    - Vaccinations: MLV IBR/PI-3/BVD in heavy calves
    - Intranasal or Killed IBR/PI-3/BVD in light calves
    - 7 way clostridial to all calves
    - Mannheimia for continuous receiving, not necessary for All In All Out
    - Anthelmintics: Yes
    - Coccidia control: As above

Stocker Receiving

- **VACCINATION PROGRAMS FOR STOCKER CALVES**
  - **Category III Calves (Sale Barn):**
    - Strongly consider preventive antibiotics
    - Vaccinations: MLV IN IBR/PI-3 Killed IBR/PI-3/BVD 7 way clostridial to all calves
    - Mannheimia for continuous receiving, not necessary for All In All Out
    - Revaccinate in 4 weeks
    - Anthelmintics: Yes
    - Coccidia control: As above

Stocker Receiving

- **PROCESSING PROGRAMS FOR STOCKER CALVES**
  - **Category IV Calves (High Risk):**
    - **Preventive Antibiotics**
      - Vaccinations: Intranasal IBR/PI-3 7 way clostridial to all calves
      - Mannheimia
      - Revaccinate at 1 weeks and 4 weeks
    - Anthelmintics: Yes
Stressed Calves: Arrival Factors

- Timing of processing?
  - High stress rest 12-24 hr.
  - Never postpone treatment of sick
  - Delay some procedures on stressed calves

Processing

- Gentle handling
- Costs
- Above all: “Do No Harm!”

Where Do You Buy?

Sales source: Virginia Data
Weekly sales > Special Sales > Direct Sales

- Rations for Purchased Calves

Stressed Arrival Factors Calves

Receiving rations:
- Higher conc. gives more sickness and more performance
- Free-choice, good-qual. roughage to start.
- Higher conc. for smaller calves

Stressed Calves

Receiving ration additives:
- Coccidiostat* - Ionophore*
- Niacin, thiamine - Antibiotic
- Lactobacillus culture
- Yeast culture^ *recommended receiving ^hospital
Stressed Calves

Receiving ration cont'd.
- Avoid silage for 2 weeks
- Avoid urea for 2 weeks

Treatments
- Early detection
- Gentle handling
- Use of temperatures
- Visual Appraisal

Antibiotics: Major Approach to Treatment
- The right drug
- The right route
- The right time
- Given for long enough time

Table 3. Most commonly used antibiotics for treatment of bovine respiratory disease complex.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dose/100 Pounds Body Weight</th>
<th>Frequency</th>
<th>Cost to Treat a 1000-pound calf</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 mg enrofloxacin</td>
<td>1 x 500</td>
<td>Once</td>
<td>$1.00 - $2.00</td>
</tr>
<tr>
<td>Macrolide (dimethoxy)</td>
<td>1 x 5</td>
<td>Once</td>
<td>$8.99</td>
</tr>
<tr>
<td>Net 75 (fluphenaquine)</td>
<td>1 x 5</td>
<td>Once</td>
<td>$3.50</td>
</tr>
<tr>
<td>Betamethasone</td>
<td>1 x 10</td>
<td>Once</td>
<td>$7.00</td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>1 x 50</td>
<td>Report if needed in 48 hours</td>
<td>$35.00</td>
</tr>
<tr>
<td>Tetracycline (200 mg/ml)</td>
<td>3 x 50</td>
<td>Once</td>
<td>$4.98 ($6.00)</td>
</tr>
<tr>
<td>Erythromycin (200 mg/ml)</td>
<td>1 x 50</td>
<td>Once</td>
<td>$22.50</td>
</tr>
<tr>
<td>Troleandomycin</td>
<td>1 x 100</td>
<td>Once</td>
<td>$35.00</td>
</tr>
</tbody>
</table>

1 Based on average weaner size
2 Must be used in non-leukopenic dairy heifers of any age

Mycoplasma
- Prior to 2000, Mycoplasma was almost unrecognized as a cause of disease in Virginia. Since then, the dairy and beef industries have experienced a steady rise in illness associated with Mycoplasma. Mycoplasma is a tiny bacterium.

Rectal Temperatures
- Normal Temperature - 101.5°F - 102°F
- Useful to confirm disease
- Useful to monitor treatment
Stressed Calves

Rectal temperatures right off truck often misleading. Wait 12 -24 hours.
Consider:
- Sunlight - Temperature
- Excitement - Temperament

Stressed Calves

Rectal temperature guides
- increase 0.5 deg. per hr. wait
- increase 1.0 deg. w/ IM treat
- wet calves decrease 0.5 to 1.0 deg.
- best temp. early a.m.

LA-200® (oxytetracycline)

- Time honored
- Many bacteria resistant
- Quite economical

A Health Wreck

- Treat more than 25%
- Death loss more than 5%

A Health Wreck

- Make comfort a VERY HIGH priority
- Strongly consider mass injectable treatment
- Extra treatments:
  - Fluids
  - Anti-inflammatories

A Health Wreck

- Confirm/ get cultures with necropsies
- Consider carefully antibiotic treatments
- Higher priced treatments may be more economical in the end