Managing the Health of Stocker Calves
Tri State Stocker Conference

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Clinical Professor and Extension Veterinarian
Va-Md Regional College of Veterinary Medicine
Calved 45 heifers in 2 days
What did we learn?
Don’t breed heifers to Danny
Dr. Whittier does such a good job teaching during the day he can leave it to everyone one else at night.

Where did Dr. Whittier go? Oh well I guess I had better call Dr. Currin again.
After 2 nights without sleep be careful what you say to students.
If you calve out 45 heifers in 2 days, every heifer will try to take one calf and no heifer will try to take the other 44 calves.
Who was the smart person that called what we are doing SPRING calving?
Managing the Health of Stocker Calves

- Hot topics in stocker health
- Health considerations for improving stocker performance
- BRDC Prevention
New Product Labels
Nuflor® Products
**Nuflor®**

**Original Dose**
- 3cc / 100 lbs IM
- Repeat in 48 hours

**“One dose SQ”**
- 6 cc / 100 lbs SQ
- Withdrawal 38 days
- Divide dose into multiple injection sites
Nuflor®

- Treat BRDC
- Control BRDC
  - Treat High Risk Calves on Arrival
- Treat Footrot
New Formulations of Nuflor®

Nuflor Gold®

Resflor Gold®
Resflor Gold®
# Label Differences

<table>
<thead>
<tr>
<th>Factor</th>
<th><strong>Nuflor®</strong></th>
<th><strong>Nuflor Gold®</strong></th>
<th><strong>Resflor Gold®</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotic</td>
<td>300mg/ml</td>
<td>300mg/ml</td>
<td>300mg/ml</td>
</tr>
<tr>
<td></td>
<td>Florfenicol</td>
<td>Florfenicol</td>
<td>Florfenicol</td>
</tr>
<tr>
<td>Anti-inflammatory</td>
<td></td>
<td></td>
<td>16.5mg/ml flunixin</td>
</tr>
<tr>
<td>Dose</td>
<td>3cc/100lbs IM repeat in 48 hrs or 6cc/100lbs SQ</td>
<td>6cc/100lbs SQ</td>
<td>6cc/100lbs SQ</td>
</tr>
<tr>
<td>Labeled for Mycoplasma</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Volume per injection site</td>
<td>10ml</td>
<td>15ml</td>
<td>10ml</td>
</tr>
<tr>
<td>Labeled for metaphylaxis</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Meat Withdrawal</td>
<td>38 days</td>
<td>44 days</td>
<td>38 days</td>
</tr>
<tr>
<td>Criteria</td>
<td>Nuflor®</td>
<td>Nuflor Gold®</td>
<td>Resflor Gold®</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Costs</td>
<td>Cheapest</td>
<td>5-10% more expensive</td>
<td>10-12% more expensive</td>
</tr>
<tr>
<td>Contains flunixin</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Syringeability</td>
<td>Best</td>
<td>Worse</td>
<td>Worse</td>
</tr>
<tr>
<td>Labeled for metaphylaxis</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Labeled for mycoplasma</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Oxytet Products

LA-200

Biomycin 200

Generic
200mg Oxytet

300mg Oxytet
200mg Oxytet levels vs 300mg Oxytet levels
LA200 13.5, T1/2 = 20.5
TD300 13.5, T1/2 = 23?
BM200 13.5, T1/2 = 18

ug/ml

~MIC90 (DxLab) Ph~32, Pm~16, Hs~16, Ec~16, S~16
~MIC50 (DxLab) Ph~8, Pm~1, Hs~8, Ec~16, S~16

CM 12 24 48 72 96 120 144 168
PTI

- **Post Treatment Interval**

Time after administration of a Premium Antibiotic till a calf should be treated again if he is not well

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
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<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
</tbody>
</table>
Dewormers
Dewormers
Most Commonly Asked Questions

Are the generic dewormers in good?
Are the pour-on wormers any good?
Is there resistance to the ivermectin type wormers?
Should I deworm adult cows?
<table>
<thead>
<tr>
<th>Calf ID</th>
<th>Dewormer</th>
<th>Pre sample</th>
<th>Post Sample</th>
<th>% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Cydectin</td>
<td>158</td>
<td>5</td>
<td>97%</td>
</tr>
<tr>
<td>302</td>
<td>Cydectin</td>
<td>117</td>
<td>14</td>
<td>88%</td>
</tr>
<tr>
<td>309</td>
<td>Cydectin</td>
<td>210</td>
<td>139</td>
<td>34%</td>
</tr>
<tr>
<td>313</td>
<td>Cydectin</td>
<td>368</td>
<td>75</td>
<td>80%</td>
</tr>
<tr>
<td>314</td>
<td>Cydectin</td>
<td>10</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>315</td>
<td>Cydectin</td>
<td>221</td>
<td>81</td>
<td>63%</td>
</tr>
<tr>
<td>316</td>
<td>Cydectin</td>
<td>37</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>Jer No Tag</td>
<td>Cydectin</td>
<td>138</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>298</td>
<td>Panacur</td>
<td>112</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>306</td>
<td>Panacur</td>
<td>205</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>308</td>
<td>Panacur</td>
<td>78</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>310</td>
<td>Panacur</td>
<td>417</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>311</td>
<td>Panacur</td>
<td>224</td>
<td>3</td>
<td>99%</td>
</tr>
<tr>
<td>312</td>
<td>Panacur</td>
<td>405</td>
<td>0</td>
<td>100%</td>
</tr>
<tr>
<td>317</td>
<td>Panacur</td>
<td>24</td>
<td>2</td>
<td>92%</td>
</tr>
<tr>
<td>Yell Tag</td>
<td>Panacur</td>
<td>3</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>
Nursing Calf Deworming
Bland Correctional Center - Summer 2006

- Ivermectin PO
- Generic Ivermectin
- Dylectin
- Control

Graph showing worm fecal eggs (eggs per gram) from Avg fecal count 7/12 to Avg fecal count 10/5.
Weight Gain in Suckling Calves dewormed with different products

- Ivomec Pour On
- Promectrin B (generic ivermectin)
- Cydectin Pour-On
- Control

The graph illustrates the weight gain in suckling calves dewormed with different products. The highest weight gain is observed in calves treated with Cydectin Pour-On, followed by Ivomec Pour On, Promectrin B, and the control group.
Should I deworm adult Cows

- Adult Cow deworming trial
  - 500 fecals
  - Fecal Egg counts 0-33(avg. 0.5 eggs/3grams)
Dewormers
Most important questions

- When should I deworm my calves?
- How do I maximize the use of dewormers?
When Should I deworm my calves

**Stocker**
- Turnout
- 3-7 weeks later
- 30-100 pounds extra gain

**Cow Calf**
- Spring
  - Late July-Early Aug
  - **Not spring turnout**
- Fall
  - May-Early June
  - **Not April**
Strategic Deworming
Safeguard, Valbazen, Synanthic, Tramisol
0, 3, 6 weeks

Begin egg shedding

Begin Grazing 3 wk 6 wk 9 wk

Worm development
Strategic Deworming

Ivermectin Pour-on 0,5

Persistent Activity

Deworm

Begin egg shedding

Deworm

Begin Grazing 5 wk

Worm development 10 wk
Strategic Deworming

Dectomax® Pour On, Cydectin® 0,7

Persistent Activity

Deworm

Begin egg shedding

Begin Grazing

7 wk

14 wk

Worm development
Implants—Just Do it

Non Implanted

Implanted
Corn Gluten

Corn Gluten has a lot of pluses as a feed

1. Protein level exceeds nutrient requirements for all stages of beef cow production
2. Corn Gluten can be fed free choice without causing rumen acidosis
Corn Gluten Limitations

- Corn Gluten is not a highly palatable feed
- Corn Gluten can contain high levels of Sulfur which can cause poiloencephalomalacia (PEM)
Clinical Signs of PEM

- Blindness
- Staggering
- Down
- Seizures.
Causes of PEM

- Ingestion of plants containing Thiaminases
- Lack of production of Thiamine
- Consuming a diet containing >0.4% sulfur
- Rumen acidosis from too much high starch grain
- Eating high levels of corn gluten
## Corn Gluten Sulfur Levels

<table>
<thead>
<tr>
<th>Year</th>
<th># samples</th>
<th>Avg Sulfur%</th>
<th>High Sulfur %</th>
<th>Low Sulfur %</th>
<th>STD Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>00-01</td>
<td>22</td>
<td>0.51</td>
<td>0.695</td>
<td>0.325</td>
<td>0.185</td>
</tr>
<tr>
<td>2001-2002</td>
<td>21</td>
<td>0.581</td>
<td>0.86</td>
<td>0.303</td>
<td>0.265</td>
</tr>
<tr>
<td>2002-2003</td>
<td>39</td>
<td>0.493</td>
<td>0.65</td>
<td>0.37</td>
<td>0.156</td>
</tr>
<tr>
<td>2003-2004</td>
<td>44</td>
<td>0.527</td>
<td>0.772</td>
<td>0.281</td>
<td>0.245</td>
</tr>
<tr>
<td>2004-2005</td>
<td>54</td>
<td>0.49</td>
<td>0.669</td>
<td>0.311</td>
<td>0.179</td>
</tr>
<tr>
<td>2005-2006</td>
<td>75</td>
<td>0.608</td>
<td>0.818</td>
<td>0.397</td>
<td>0.21</td>
</tr>
<tr>
<td>2006-2007</td>
<td>74</td>
<td>0.48</td>
<td>0.616</td>
<td>0.344</td>
<td>0.136</td>
</tr>
<tr>
<td>2007-2008</td>
<td>68</td>
<td>0.462</td>
<td>0.574</td>
<td>0.351</td>
<td>0.111</td>
</tr>
<tr>
<td>2008-2009</td>
<td>105</td>
<td>0.443</td>
<td>0.544</td>
<td>0.342</td>
<td>0.101</td>
</tr>
<tr>
<td>2000-2009</td>
<td>501</td>
<td>0.501</td>
<td>0.677</td>
<td>0.325</td>
<td>0.176</td>
</tr>
</tbody>
</table>
Castration of Bull Calves

Method and Timing
Method of Castration
# Effect of method of Castration on stocker calf performance

## Table 2. Receiving performance Experiment 1

<table>
<thead>
<tr>
<th>Item</th>
<th>Treatmenta</th>
<th></th>
<th></th>
<th></th>
<th>SEMb</th>
<th>Prob. &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Steers</td>
<td>Banded bulls</td>
<td>Cut bulls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calves</td>
<td>83</td>
<td>74</td>
<td>106</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pens</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight, lb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial</td>
<td>337</td>
<td>329</td>
<td>326</td>
<td>30.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>420</td>
<td>400</td>
<td>409</td>
<td>37.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily gain, lb/d</td>
<td>1.99&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.67&lt;sup&gt;d&lt;/sup&gt;</td>
<td>1.92&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.09</td>
<td>.022</td>
<td></td>
</tr>
<tr>
<td>Intake, lb/d</td>
<td>8.00</td>
<td>7.81</td>
<td>7.57</td>
<td>.33</td>
<td>.49</td>
<td></td>
</tr>
<tr>
<td>Feed:gain</td>
<td>3.36</td>
<td>3.69</td>
<td>3.44</td>
<td>.09</td>
<td>.19</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Calves entering the feedlot as steers; calves banded on d 1; calves surgically castrated on d 1

<sup>b</sup>SEM=standard error of the least squares means

<sup>c,d</sup>Means within a row containing different superscripts differ significantly (P<.05).
Effect of Castration Timing on stressed stocker calves

Table 1. Effect of early vs late castration on growth performance and health of stressed bull calves.

<table>
<thead>
<tr>
<th>Item</th>
<th>Time of castration</th>
<th></th>
<th>SEa</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrival</td>
<td>21 days later</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of pens</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td># of cattle</td>
<td>54</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial weight, lb</td>
<td>550</td>
<td>546</td>
<td>6.9</td>
<td>.69</td>
</tr>
<tr>
<td>Final weight, lb</td>
<td>626</td>
<td>624</td>
<td>9.3</td>
<td>.89</td>
</tr>
<tr>
<td>Daily gain, lb</td>
<td>1.46</td>
<td>1.50</td>
<td>.17</td>
<td>.86</td>
</tr>
<tr>
<td>Feed intake, lb</td>
<td>13.06</td>
<td>12.92</td>
<td>.59</td>
<td>.87</td>
</tr>
<tr>
<td>Feed/gain</td>
<td>9.29</td>
<td>8.80</td>
<td>.82</td>
<td>.68</td>
</tr>
<tr>
<td>% treated</td>
<td>88.4</td>
<td>75.0</td>
<td>4.3</td>
<td>.07</td>
</tr>
<tr>
<td>% dead</td>
<td>11.4</td>
<td>3.6</td>
<td>3.7</td>
<td>.18</td>
</tr>
<tr>
<td>% chronically ill</td>
<td>5.4</td>
<td>3.8</td>
<td>3.6</td>
<td>.78</td>
</tr>
</tbody>
</table>

a Standard error.

b Probability that treatment effects are similar.
Table 2. Economic implications of early vs late castration in highly stressed bull calves, costs averaged within each treatment group and expressed as dollars per head.\(^a\).

<table>
<thead>
<tr>
<th>Item</th>
<th>Time of castration</th>
<th></th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arrival</td>
<td>21 days</td>
<td></td>
</tr>
<tr>
<td>Value of dead cattle</td>
<td>$48.28</td>
<td>$16.59</td>
<td>$31.68</td>
</tr>
<tr>
<td>Value of chronically ill</td>
<td>$12.06</td>
<td>$8.29</td>
<td>$3.77</td>
</tr>
<tr>
<td>Value of weight gain</td>
<td>$35.77</td>
<td>$36.75</td>
<td>$0.98</td>
</tr>
<tr>
<td>Treatment cost</td>
<td>$17.40</td>
<td>$15.00</td>
<td>$2.40</td>
</tr>
<tr>
<td>Feed cost</td>
<td>$28.79</td>
<td>$28.48</td>
<td>$0.31</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$39.14</td>
</tr>
</tbody>
</table>

\(^a\)After adjusting for shrink, cattle cost $79 per cwt delivered, cost of a chronically ill animal was one half that of a dead animal, value of weight gain was assumed to be $50 per cwt, treatment cost was assumed to be $20 per animal treated, and feed cost was calculated at $90 per ton on a DM basis.
### Table 4. Performance data (Experiment 2)

<table>
<thead>
<tr>
<th>Item</th>
<th>Treatmentsa</th>
<th>Steers</th>
<th>Cut bulls</th>
<th>SEMb</th>
<th>P – value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calves</td>
<td></td>
<td>24</td>
<td>81</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Weight, lb</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial</td>
<td></td>
<td>363</td>
<td>372</td>
<td>2.98</td>
<td>--</td>
</tr>
<tr>
<td>Final</td>
<td></td>
<td>462</td>
<td>448</td>
<td>5.52</td>
<td>--</td>
</tr>
<tr>
<td>Daily gain, lb/d</td>
<td></td>
<td><strong>2.35</strong></td>
<td><strong>1.77</strong></td>
<td>.13</td>
<td>.02</td>
</tr>
<tr>
<td>Intake, lb/d</td>
<td></td>
<td>8.85</td>
<td>7.59</td>
<td>.33</td>
<td>.03</td>
</tr>
<tr>
<td>Feed:gain</td>
<td></td>
<td>3.77</td>
<td>4.32</td>
<td>.23</td>
<td>.13</td>
</tr>
</tbody>
</table>

*aCalves entering the feedlot as steers; calves surgically castrated on d 1

*bSEM=Standard error of least squares means
Bottom line on Steers vs Bulls

- More bull calves get sick than steers
- More bull calves die than steers
- Bull calves gain less than steer calves

- Bull calves are worth $1-$2 per hundred weight less per hundred pounds bodyweight
  - 300 # $3-$6 less
  - 400# $4-$8 less
  - 500# $5-$10 less
  - 600# $6-$12 less
Different Names
Same Disease

- Pneumonia
- Shipping fever
- BRDC (bovine respiratory disease complex)
How Does BRDC Happen?

- Weather
- Respiratory Viruses
- Nutrition
- Weather
- Comingling
- Shipping
- Marketing
- Weaning
- Weaning
Where does Mannheimia Live?

- Other
Which factor is most important in Preventing BRDC?

**Option 1**
- Vaccination Program

**Option 2**
- Mass Medication of all calves on arrival/in feed

**Option 3**
- Calf Purchasing
- Nutrition
- “Other Stressors”
What 2 factors can you control?

1. Type of calves purchased
2. Management of calves at receiving
You must match calf purchases to your facilities and management abilities
All Calves Are Not The Same

- Category 1
  - Preconditioned calves
- Category 2
  - Calves bought straight off of one farm
- Category 3
  - Fresh market calves
- Category 4
  - Stale calves
Category 3

- Most difficult group to design 1 program for
- Depends on all the additional factors
- Do you have more time or more money

- **Parasite control**
  - deworm and delice
  - coccidiastat
CATEGORCY 3
Processing Plan

At arrival

- Remove cattle from the market as soon as possible
- Fresh clean water immediately
- Free choice excellent quality grass hay
Within the first 24 hours

- 5-way MLV (IBR, BVD I&II, PI3, BRSV)
  - (consider IN IBR-PI3)
- Blackleg
- Parasite control
- +/- Pasteurella toxoid vaccine
- Selenium (+/- copper, zinc, manganese)
- Start on palatable grain diet
- Consider Metaphalaxis
Category 4

- Most of these calves would benefit from METAPHYLAXIS

- **Parasite control**
  - DEWORM and DELICE
  - COCCIDIASTAT
Metaphylaxis
Metaphylaxis

- Treating all calves at high risk of developing BRDC
- Mass Medication
- Treat em all
Metaphalaxis Costs

- Feed Costs: 14%
- Calf Costs: 84%
- Metaphalaxis Costs: 2%
Metaphalaxis?

- Always on high dollar cattle??
- On arrival if you expect >33% of calves to get sick
- Treated >15% of calves in one day
- Treated greater than >25-30% of calves on 3 consecutive days
Products approved for metaphalaxis
Did metaphylaxis work?

<table>
<thead>
<tr>
<th>Study</th>
<th>Non-Medicated</th>
<th>Tilmicosin</th>
<th>% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>11.9&lt;sup&gt;d&lt;/sup&gt;</td>
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68.9  | 28.7          |
67.8  | 46.9<sup>d</sup>          |
71.9<sup>c</sup>  | 59.7<sup>d</sup>          |
75.6<sup>c</sup>  | 59.4            |
79.2   | 70.0<sup>b</sup>          |
88.2<sup>a</sup>  | 31.0<sup>b</sup>          |
90.0<sup>a</sup>  | 31.0<sup>b</sup>          |
When do calves treated on arrival get sick?

Metaphylaxis  Continued from Page 1

Table 1. Comparison of health parameters between metaphylaxis treatment groups.

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Tilmicosin</th>
<th>Florfenicol</th>
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<tbody>
<tr>
<td>Number</td>
<td>87</td>
<td>87</td>
<td>86</td>
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<tr>
<td>% treated for BRD</td>
<td>68.9</td>
<td>28.7</td>
<td>32.5</td>
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<tr>
<td>Median Days to 1st Tx</td>
<td>9</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>% Retreat/Re-pull</td>
<td>41.6</td>
<td>20.0</td>
<td>13.04</td>
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<td>Mean treatment cost per calf</td>
<td>$13.60</td>
<td>$11.44</td>
<td>$15.92</td>
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</table>
Number of BRD Cases by Days on Trial
Miss Stocker Calf Study (T5CP50104)

* No BRD treatment given in metaphylaxis group during first 48 hours.
What about antibiotics in the feed?

- Intake
- Level to feed
- Science is only fair
  - Lots of producers report of success

- CTC Chlortetracycline
  - 0.5 grams/100 lbs bodyweight for 5-7 days
  - Then
  - 0.25 grams/100 lbs bodyweight for 5-7 days
Receiving

The other half of the puzzle
Provide plenty of water as soon as they arrive on highly palatable feed.
Treatment Success

- A joint result of calves’ defenses and drug treatment
- No antibiotic good enough without help from the calf
What do you do if you are having to many sick calves?

- Go to our friend who is treating a lot of calves and ask him what to use
- Switch Vaccination Programs
- Complain to anyone who will listen
- Change cattle buying practices
What would I keep in my medicine cabinet?
Which antibiotics have no place in treating BRDC?

- Procaine Penicillin
- Long Acting Penicillin
- Sulfa-Pills
- Neomycin
- Gentocin
- Gentamicin Sulfate Solution
What Antibiotic Should I Use?

- Micotil, Nuflor, Baytril 100, Draxxin, and Excede are all very effective and provide convenient dosing schedules and SQ dosing.
- Naxcel, Excenel, A180 and Adspec are likely to be effective and provide shorter withdrawal times in cases where this may be important.
Switching Antibiotics?

Calf

- Switch antibiotics if calf does not improve in 24-48 hours
- Monitor
  - Temperature
  - Calf’s appetite
  - Calf’s attitude
QUESTIONS