

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



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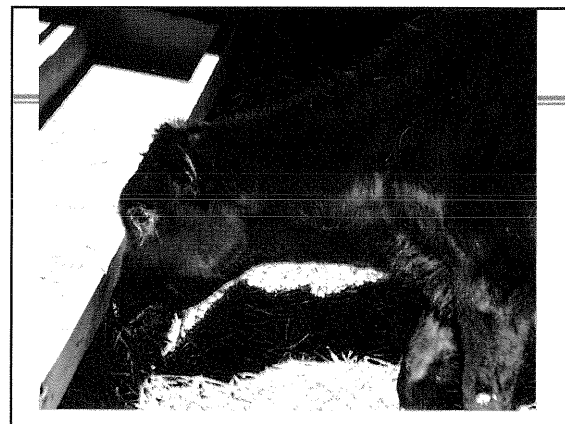
Virginia-Maryland Regional College of
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DIFFERENT NAMES
SAME DISEASE

- 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

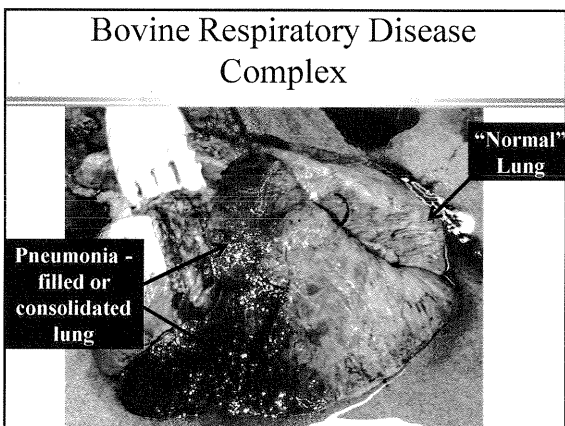
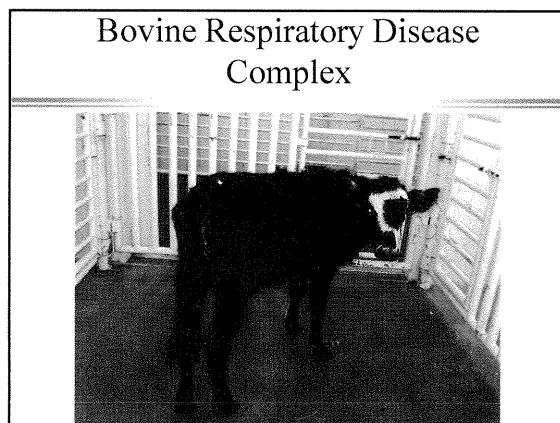


Bovine Respiratory Disease
Complex

- 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

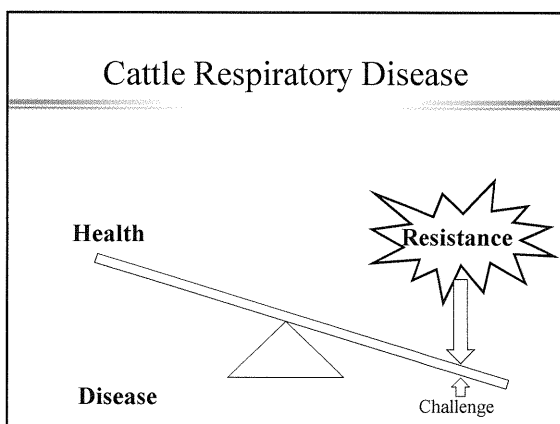


Cattle Respiratory Disease

- Shipping fever is NOT a classical Infectious / Contagious Disease
- Healthy cattle can be challenged with Mannheimia, Hemophilus, IBR, BVD, PI₃, BRSV and not get pneumonia most of the time

Cattle Respiratory Disease

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

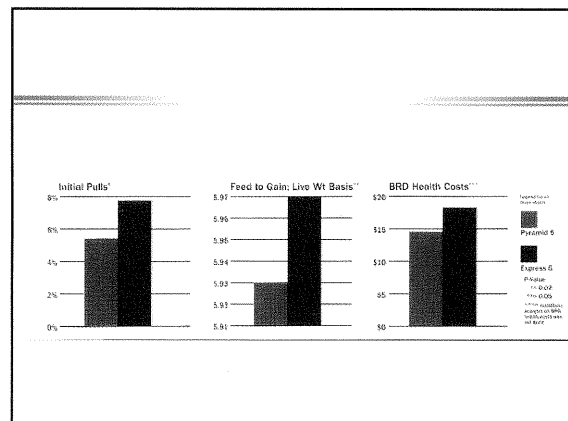
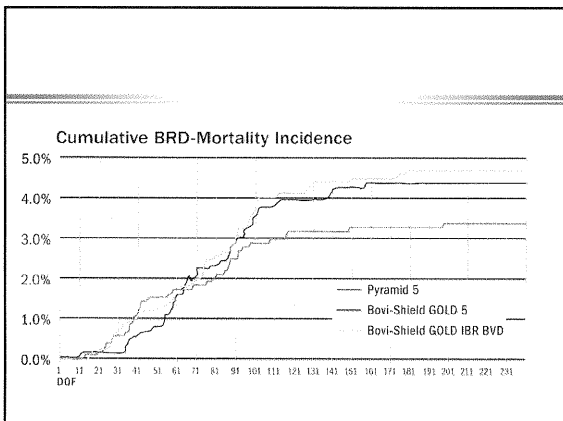
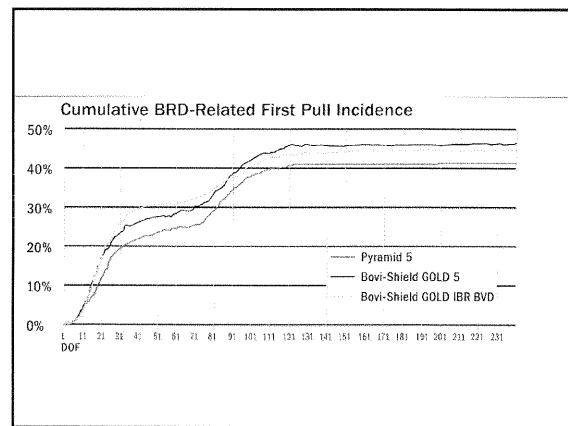
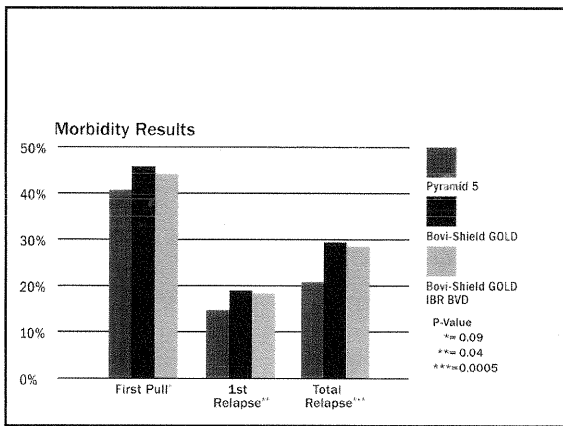


Resistance

- 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 Manheimia has proven very difficult to produce
 - Older vaccines stimulated damaging immunity
 - Current vaccines reduce severity but not the incidence of pneumonia

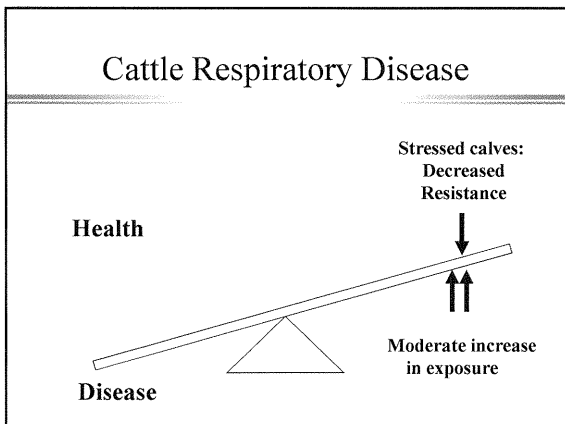
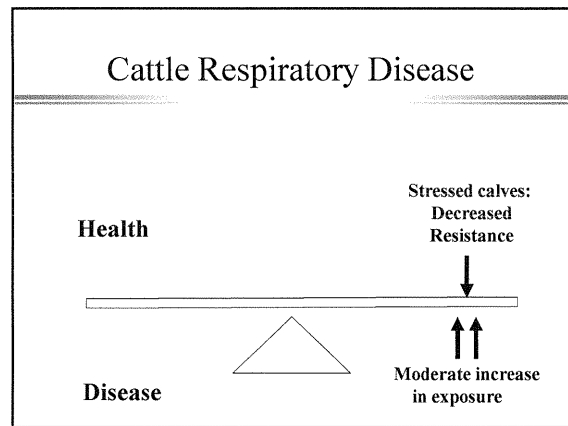
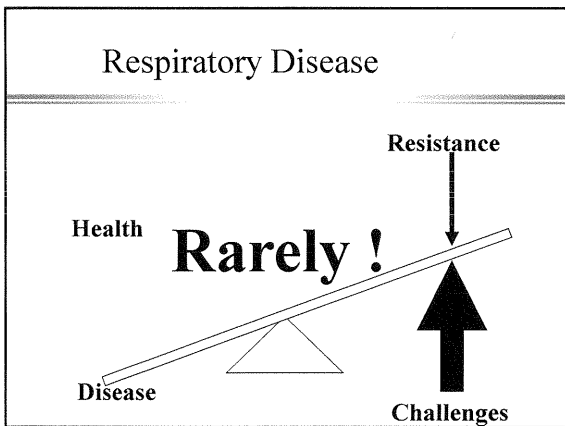
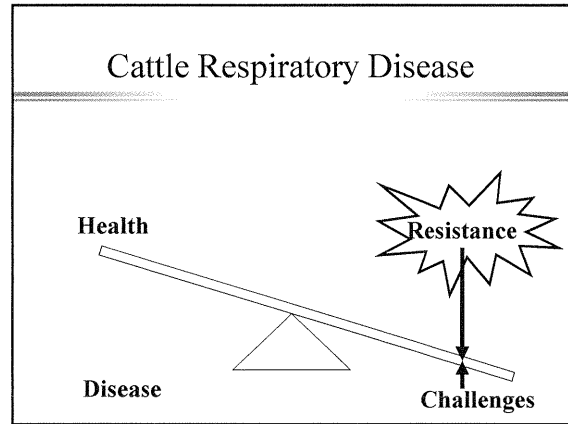
Resistance

- Immunity – Antibodies and cells in the blood and lymph system designed to protect the body from disease
- Whittier:
 - Immunity to IBR, BVD, PI3 and BRSV is only moderately successful in preventing pneumonia in stressed calves
 - Anyone that promises complete prevention of respiratory disease through a vaccination program hasn't owned enough of their own cattle



Resistance

- Much Resistance that is not immunity
 - Mucociliary 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



- ### 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
- Weaning
- Time in Marketing
- Weaning
- Mixing
- Diet Changes
- Time without feed and water
- Processing
- Handling
- Exposure to other cattle
- **Weather changes / Night: Day > 40°**
- Others

Challenges

- Shipping
- Weaning
- Time in Marketing
- Weaning
- Mixing
- Diet Changes
- Time without feed and water
- Processing
- Handling
- **Exposure to other cattle - Mycoplasma**
- Others

Challenges

- Shipping
- Weaning
- Time in Marketing
- Weaning
- Mixing
- 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

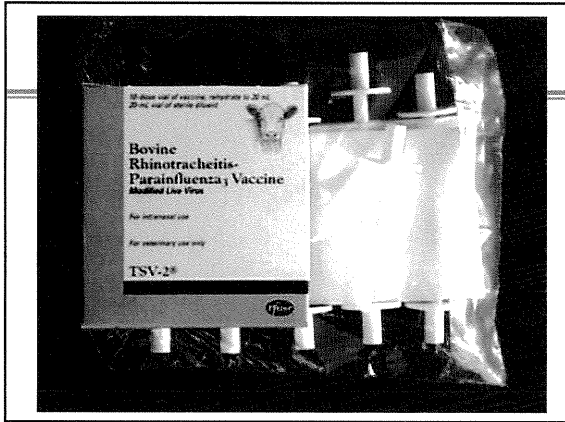
- Age
- Size
- Prior Exposure
- Marketing method
- Short/ Comfortable Travel
- Vaccination
- Proper prior nutrition
- Parasite free
- Many others

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 2. Treatment Group Mean (±SE) for Performance and Health Parameters*

Parameter	Tulathromycin	Tilmicosin
Performance		
Average daily gain	2.5 ± 0.17 ^a	2.0 ± 0.17 ^b
Feed:gain ratio	5.9 ± 0.29 ^a	7.1 ± 0.29 ^b
Pounds fed/day	14.9 ± 0.51 ^a	13.2 ± 0.51 ^b
Health		
Morbidity (%)	32.8 ± 0.04 ^a	68.0 ± 0.04 ^b
Mortality (%)	3.6 ± 0.02 ^a	13.5 ± 0.03 ^b
First treatment success (%)	71.9 ± 0.07 ^a	49.5 ± 0.05 ^b
Case fatality	10.4 ± 0.04 ^a	20.4 ± 0.04 ^a
Chronic BRD (%)	1.4 ± 0.01 ^a	7.5 ± 0.01 ^b

*Based on least squares means and SEs from mixed models accounting for arrival lot and metaphylactic treatment as fixed effects. Only the results of the effect of interest (metaphylactic agent) are reported.
^{a,b}Means in columns with different superscripts are significantly different ($P < .05$).

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

Drug	Cost to treat a 500-pound calf ¹
Micotil® (tilmicosin)	\$8.00
Nutflor® (florphenicol)	\$15.00
Tetradure® (oxytetracycline 300 mg/ml)	\$4.05 - \$6.02
Excede® (ceftiofur 200mg/ml)	\$13.12
Draxxin® (tulathromycin)	\$18.15

¹ Based on average national price.

What is it worth?

- If each incidence of BRD costs \$84
 - Average
 - (.496 - .202) * 84 = \$24.69/hd
 - Low Impact
 - (.309 - .202) * 84 = \$8.98/hd
 - Extreme
 - (.72 - .00) * 84 = \$60.48/hd
 - (.46 - .00) * 84 = \$38.64/hd

Routine Vaccination Protocol

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

- 1. Category I - Calves that have been fully preconditioned.
- 2. Category II - Farm fresh calves
- 3. Category III - Fresh sale barn calves
- 4. 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
Coccidiacontrol: Deccox 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
 Manheimia 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
 Manheimia 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
 Manheimia
 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

Table 3. Most commonly used antibiotics for treatment of Bovine Respiratory Disease Complex.

Drug	Dose/100 Pounds Body Weight	Frequency	Cost to Treat a 500-pound Cal ¹
200 mg oxytetracycline	4.5cc	Repeat if needed in 48 hours	\$1.00 - \$2.00
Micotil® (tilmicosin)	1.5cc	Once	\$8.00
Nalvor® (florfenicol)	6cc	Once	\$15.00
Baytril® ² (enrofloxacin)	5cc	Once	\$17.00
Alisip® ² (danofloxacin)	1.5cc	Repeat in 48 hours	\$13.50
Tetradure® (oxytetracycline 300 mg/ml)	3 - 5cc	Once	\$4.05 - \$6.02
Excede® (ceftiofur 200mg/ml)	1.5cc	Once	\$12.50
Draxxin® (tulathromycin)	1.1cc	Once	\$16.50

¹ Based on average national price.

² Cannot be used to treat female dairy animals of any age.

Antibiotics : Major Approach to Treatment

- The right drug
- The right route
- The right time
- Given for long enough time

● 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.

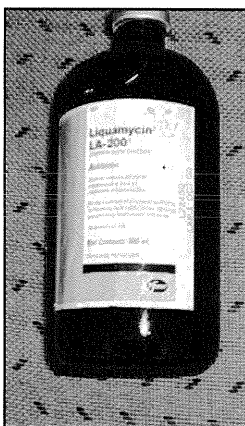
Consider:

- 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