# High risk Calf Health Management

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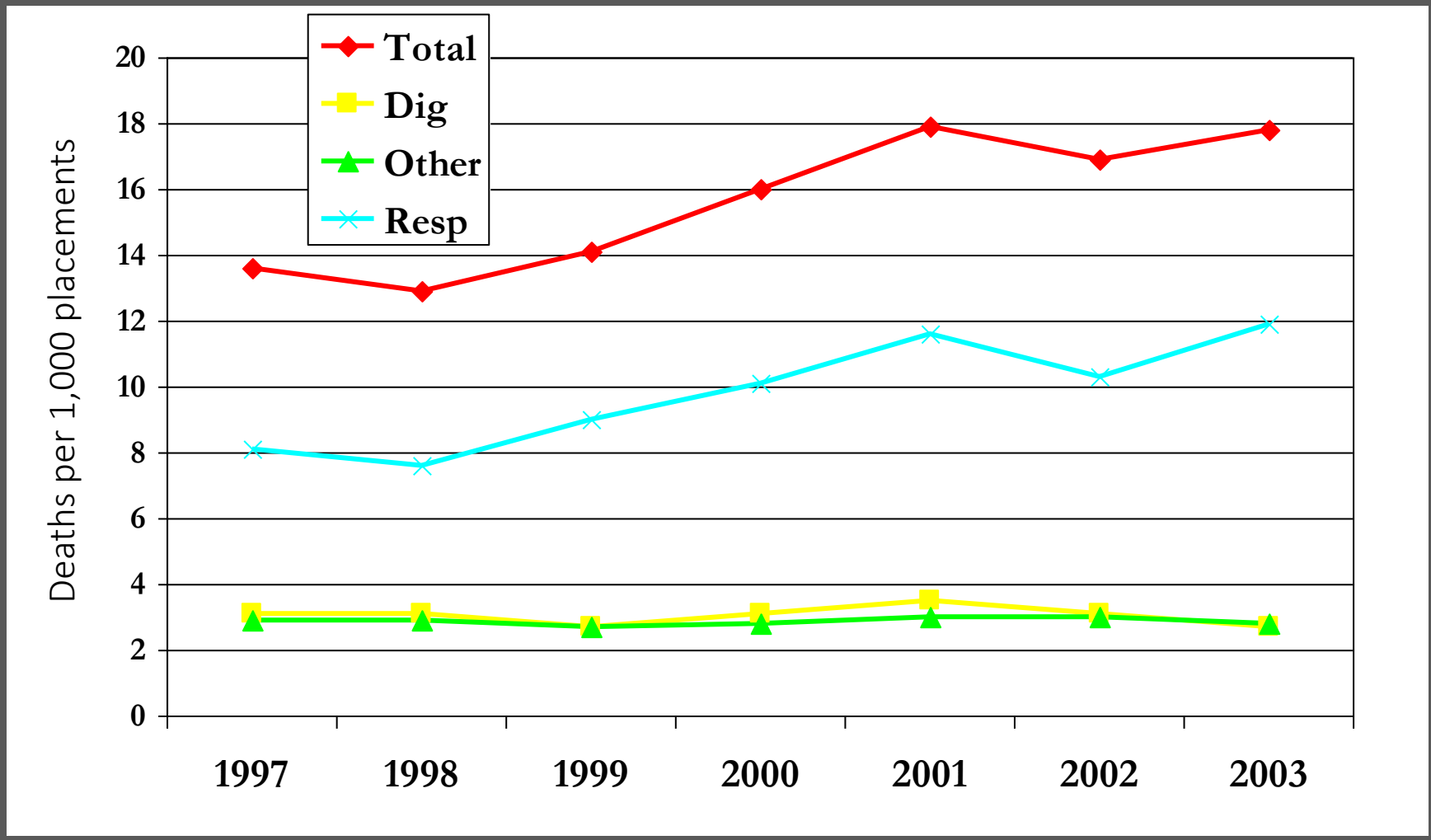
The true value of properly managed cattle has not been realized

# Expectations

None of these are going to die!!!!

# Mortalities by cause.



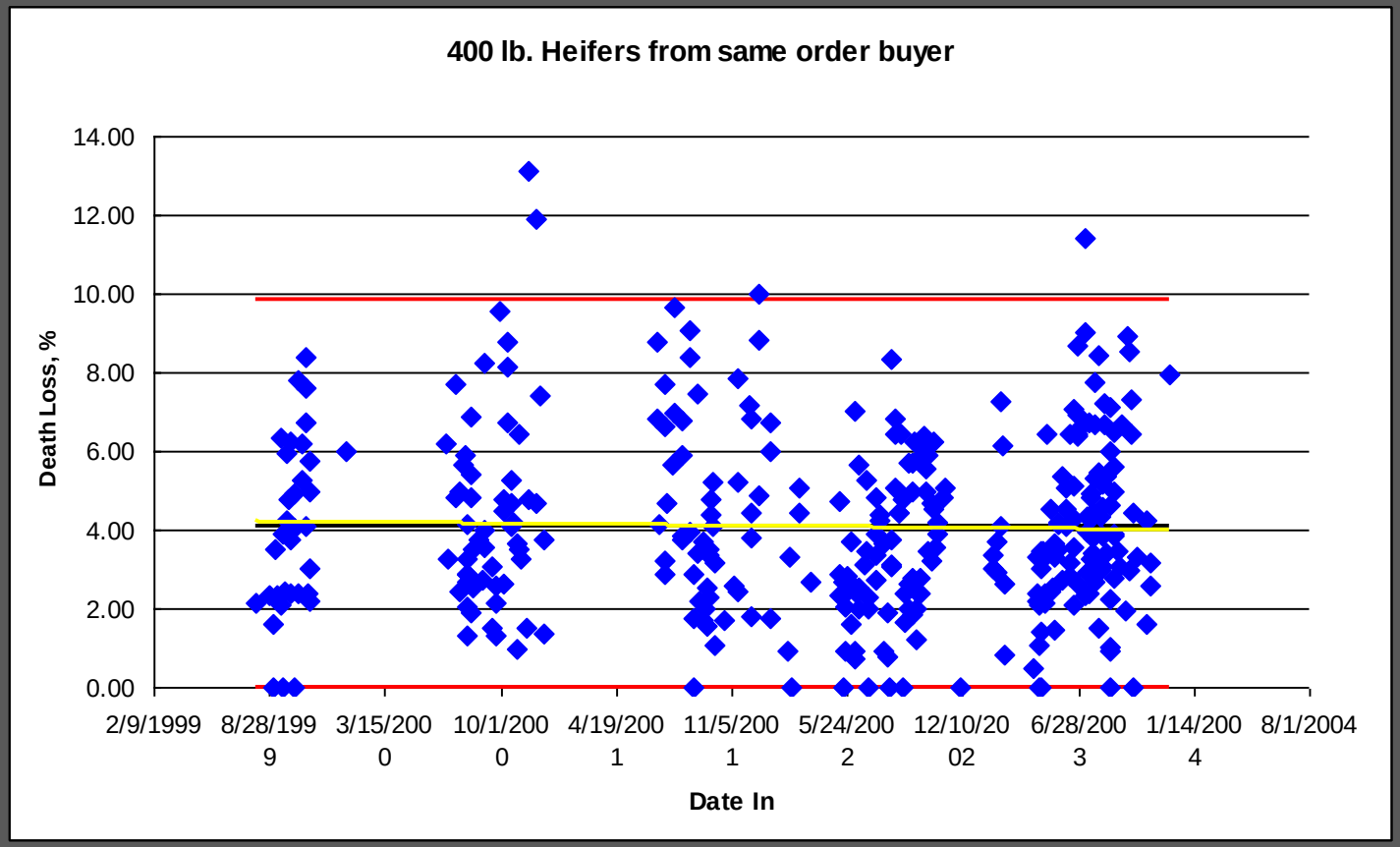

Loneragan, 2004

# Cattle classification

Low risk
- Yearlings – wheat or grass cattle
- Backgrounded cattle (careful how long)
- Preconditioned calves
- Mexican cattle

High risk
- Sale barn origin
- Freshly weaned ranch cattle
- Commingled, cattle
- Add ons

# Robust data and accuracy



# We must determine what is normal

To change the outcome, we must -

Change the process

Distort the process

Distort the data

# What is the first question during high mortality episodes?

Morbidity problem

Case fatality problem – the drug quit working

$$\text{CFR} = \frac{\text{number treated that died}}{\text{total number treated}}$$

# Scenario

A producer had 1% death loss last year and this year he had a 5% death loss.  He wants to change drugs or veterinarians.

Last year we pulled 10% of the population

This year we pulled 50% of the population

Last year CFR = 10%

This year CFR = 10%

# Scenario

The drug worked the same this year as it did last year.  Our problem is morbidity.

- Source
- Viral antigens
- Weather
- People
- Prior nutrition
- Transportation
- Evenness of cattle

# Feedlot consultant survey

Completed Summer 2009

Invited 23 feedlot consultants to participate

These veterinarians supply consultation for 11,295,001 hd of feeder cattle annually

Average 491, 087 hd per practitioner

# Factors affecting morbidity rates in newly arrived calves

# Cattle flow

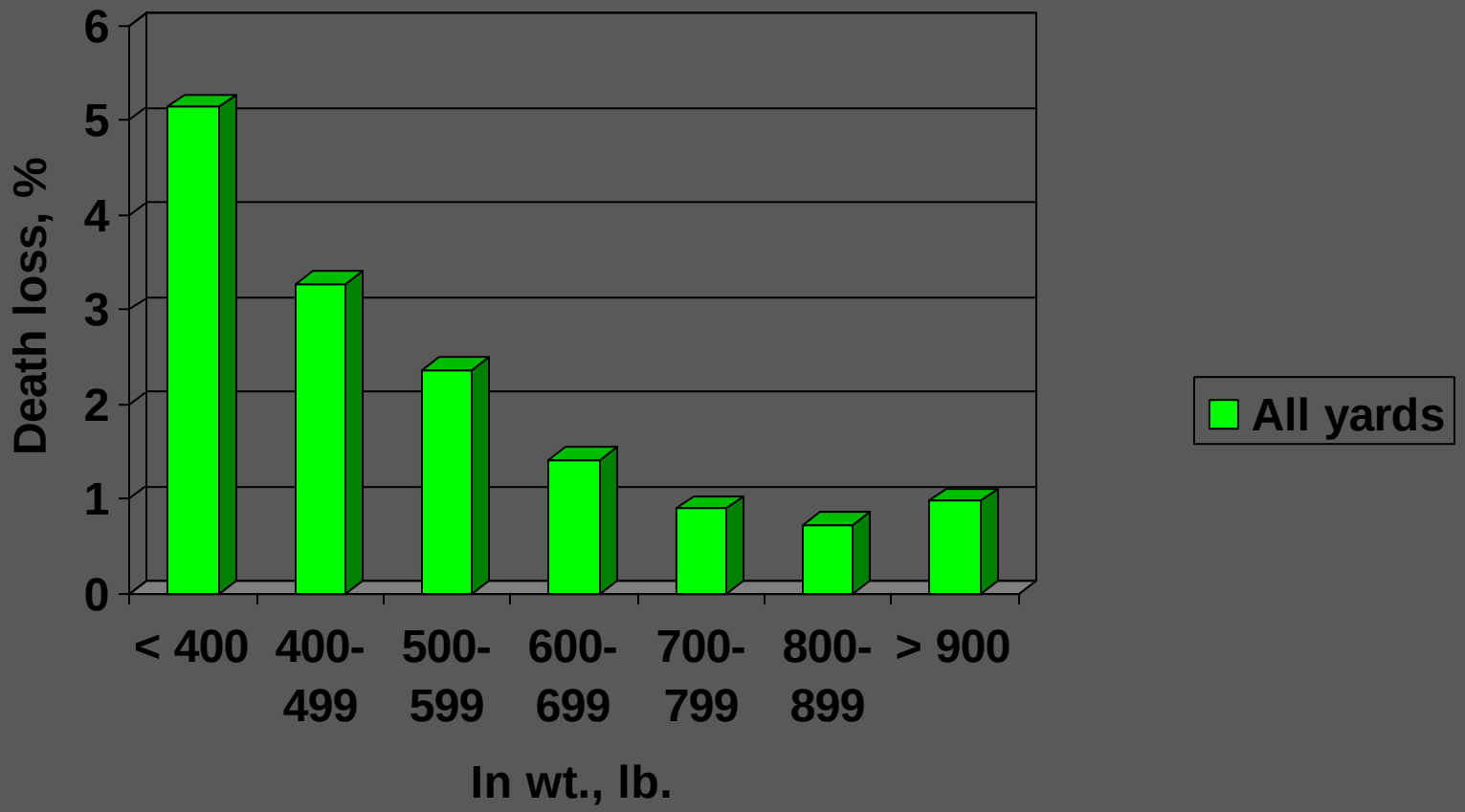
The more new high risk cattle you have at a facility the higher risk your low risk cattle become.

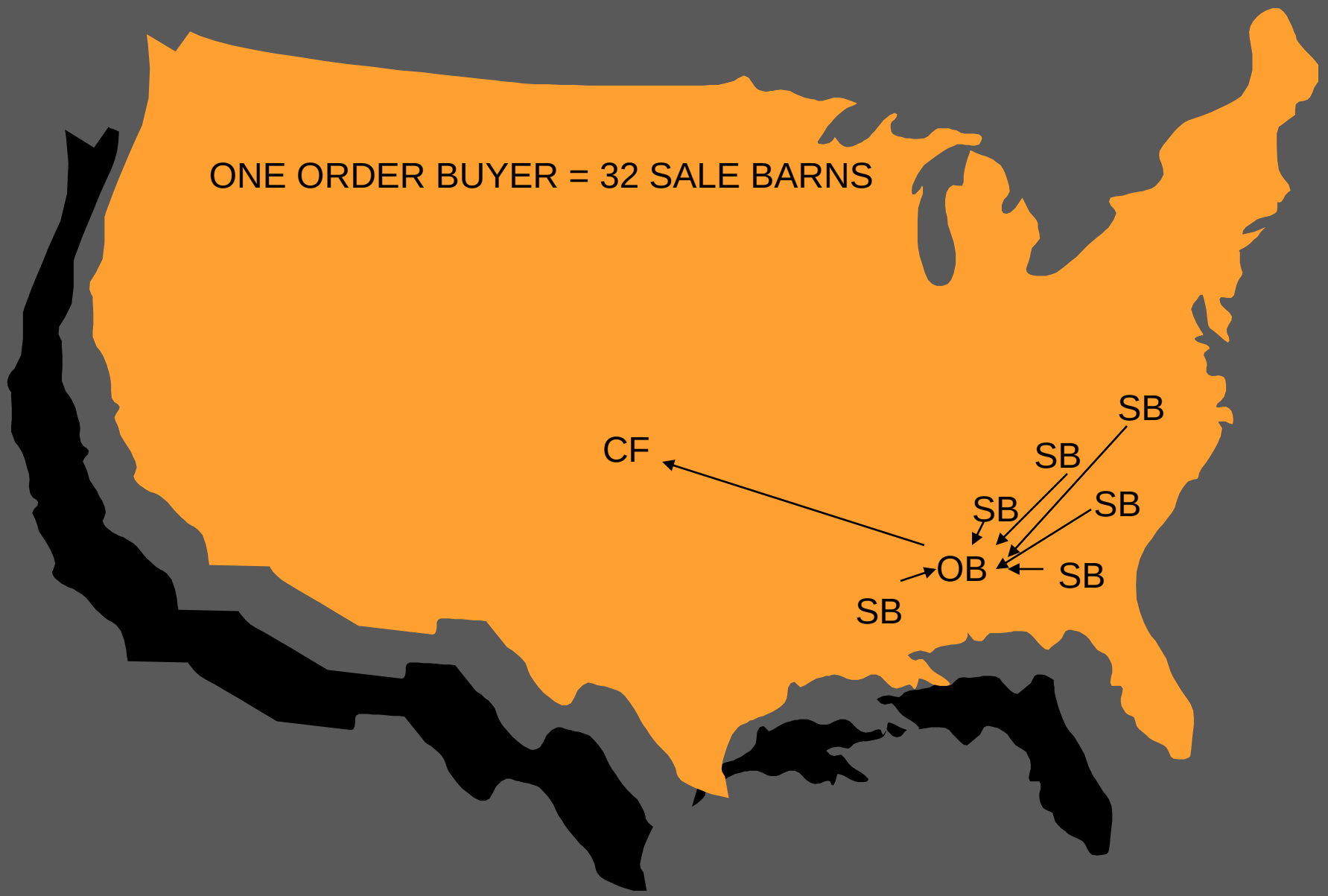
Facilities and people

Overwhelming the system

Cattle market dictates cattle type and flow

# Effects of initial weight on death loss of feeder cattle.




ONE ORDER BUYER = 32 SALE BARNS
CF
SB
SB
SB
SB
OB
SB
SB

# Transportation

Common place to haul cattle over 8 hours

Air circulation in trailers

Metal tops

Smoke stacks

# Adding on pens

More large pens being built or were built?

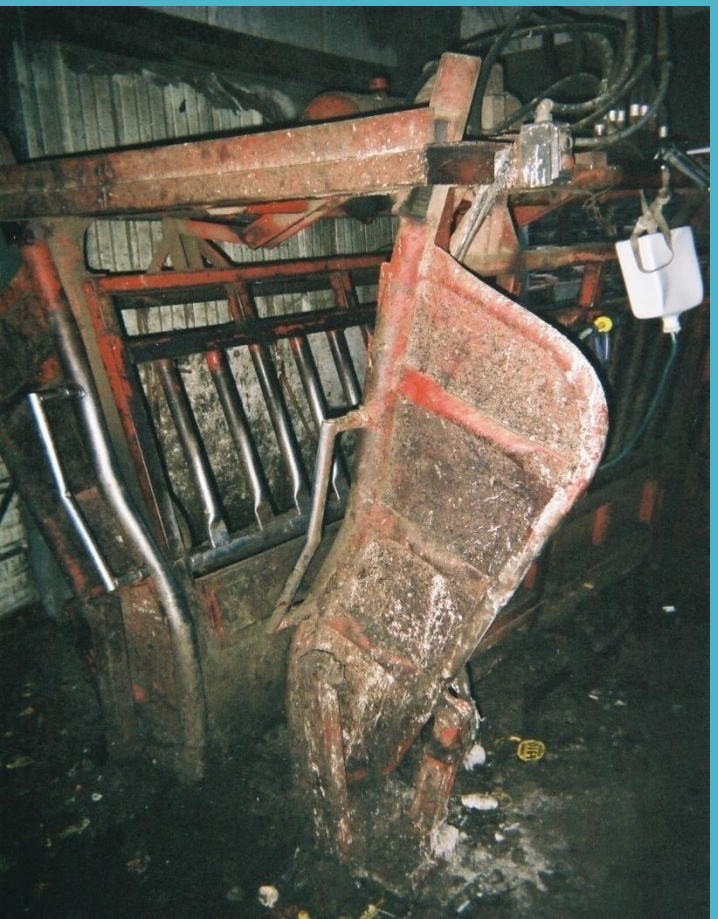
Increased number of add ons?

How many days to build a pen?

# Weather and receiving pens?

| Treatment | Avg. Face Temp (°F) | Ambient Temp (°F) |
|---|---|---|
| Bare Floor | 137 | 97 |
| 6” Manure | 137 | 97 |
| 6” Straw | 112 | 97 |

# Processing is not a timed event!



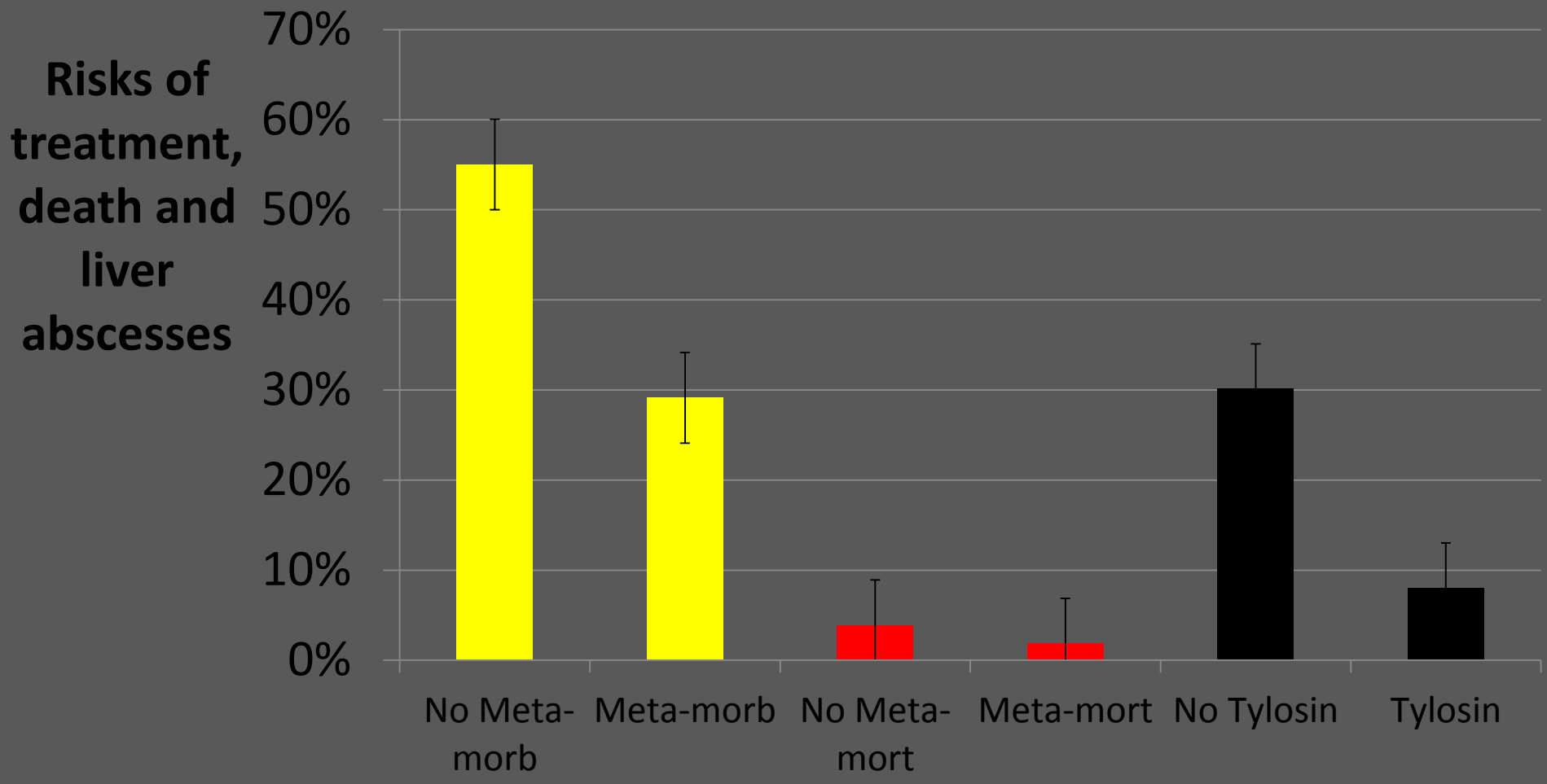
# Vaccine recommendations by 23 consulting feedyard veterinarians

| | High risk calves | Low risk calves |
|---|---|---|
| **IBR** | 100% | 100% |
| **BVD Type 1** | 100% | 95.6% |
| **BVD Type 2** | 100% | 95.6% |
| **BRSV** | 65.2% | 52.2% |
| **PI3** | 60.9% | 52.2% |
| **Histophilus** | 21.7% | 4.4% |
| **Moraxella bovis** | 0% | 0% |
| **Mycoplasm bovis** | 0% | 0% |
| **Leptospira** | 4.34% | 4.4% |
| **Clostridials** | 60.9% | 56.6% |
| **Mannheimia** | 73.9% | 0% |
| **Pasturella** | 34.8% | 0% |

Terrell, Thomson et al. 2009

# Current research on Mycoplasma diagnosis and vaccine efficacy

# Effects of mass treatment on beef cattle health and mortality

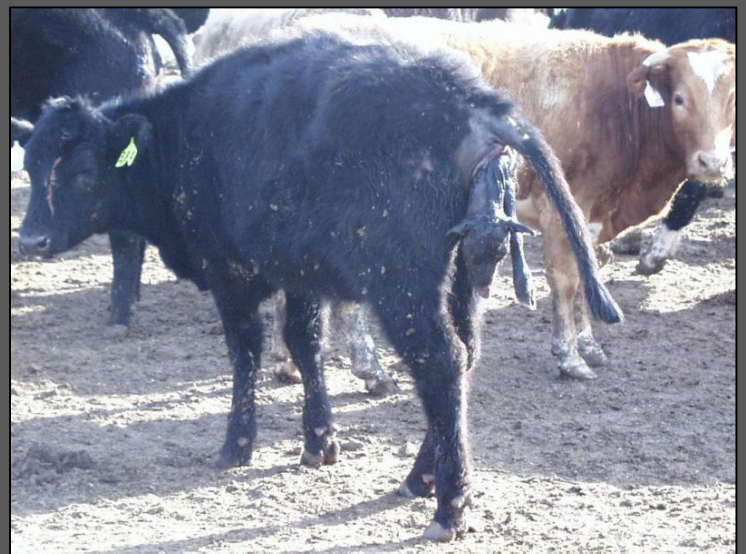


# Metaphylaxis and feed grade antibiotics

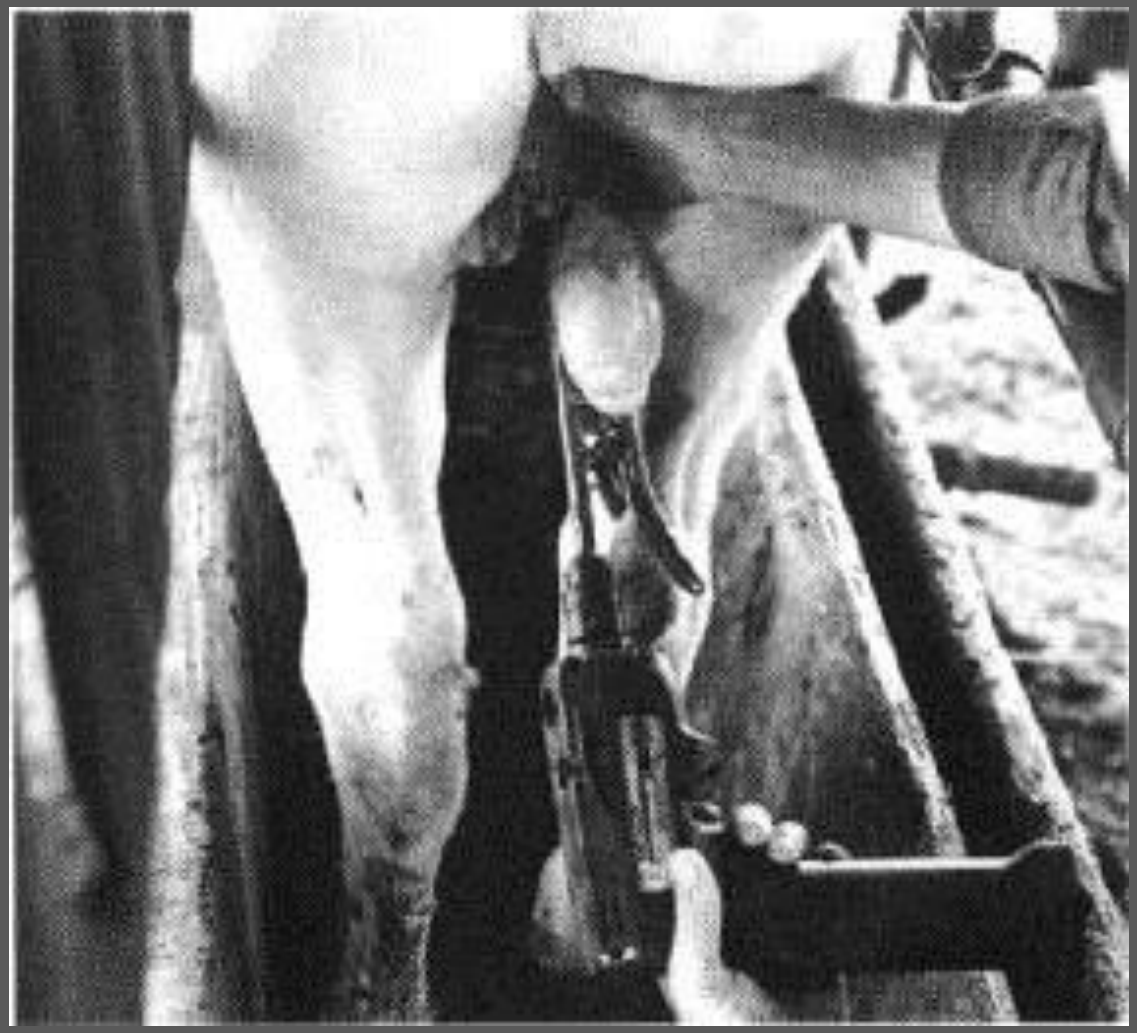
| | Percent responses | | |
|---|---|---|---|
| | Yes | No | Depends |
| **Metaphylaxis –high risk calves** | 95.6% | 4.3% | NA |
| **Metaphylaxis – low risk calves** | 8.7% | 91.3% | NA |
| **Feedgrade antibiotics –high risk calves** | 52.2% | 26.1% | 21.7% |
| **Feedgrade antibiotics – low risk calves** | 17.4% | 69.6% | 13.0% |

Terrell, Thomson et al. 2009

# Castration, dehorning and pregnancy: timing is everything.



# It’s gonna be a wreck when……



# Effects of intact males on arrival

Bulls have 140% higher morbidity rates than steers

Bulls have 142% higher mortality rates than steers

Bulls have 163% higher railer rates than steers

Renfro et al., 2004

# Castration trials

Timing

- Arrival - best
- Delayed 2 weeks – too many in hospital
- Delayed to 1st reimplant - staggy

# Castration methods

# Newly received calves…

Stressed

Don’t know where to eat

Sick

We want them eating 1.5% of body weight by 1.5 weeks on feed.

# Description of perfect feeding pen for starting calves

Max – 200 head, Min – 50, Mean – 103 head

Bunk space, Max 21 in., Min 10 in, Mean – 13 in

One load pens with 116 ft of bunk space

# What's most the important factor for predicting feedlot morbidity or mortality

| | Mean | Mode |
|---|---|---|
| **Cattle health risk** | **1.32** | **1** |
| **Weather patterns** | **3.18** | **2** |
| **Amount and quality of labor** | **3.41** | **4** |
| **Receiving nutrition program** | **3.86** | **3** |
| **Class of antibiotic use for metaphylaxis** | **4.36** | **5** |
| **Class of Antibiotic use of treatment** | **5.64** | **6** |
| **Brand of Vaccine** | **6.23** | **7** |

Terrell, Thomson et al. 2009

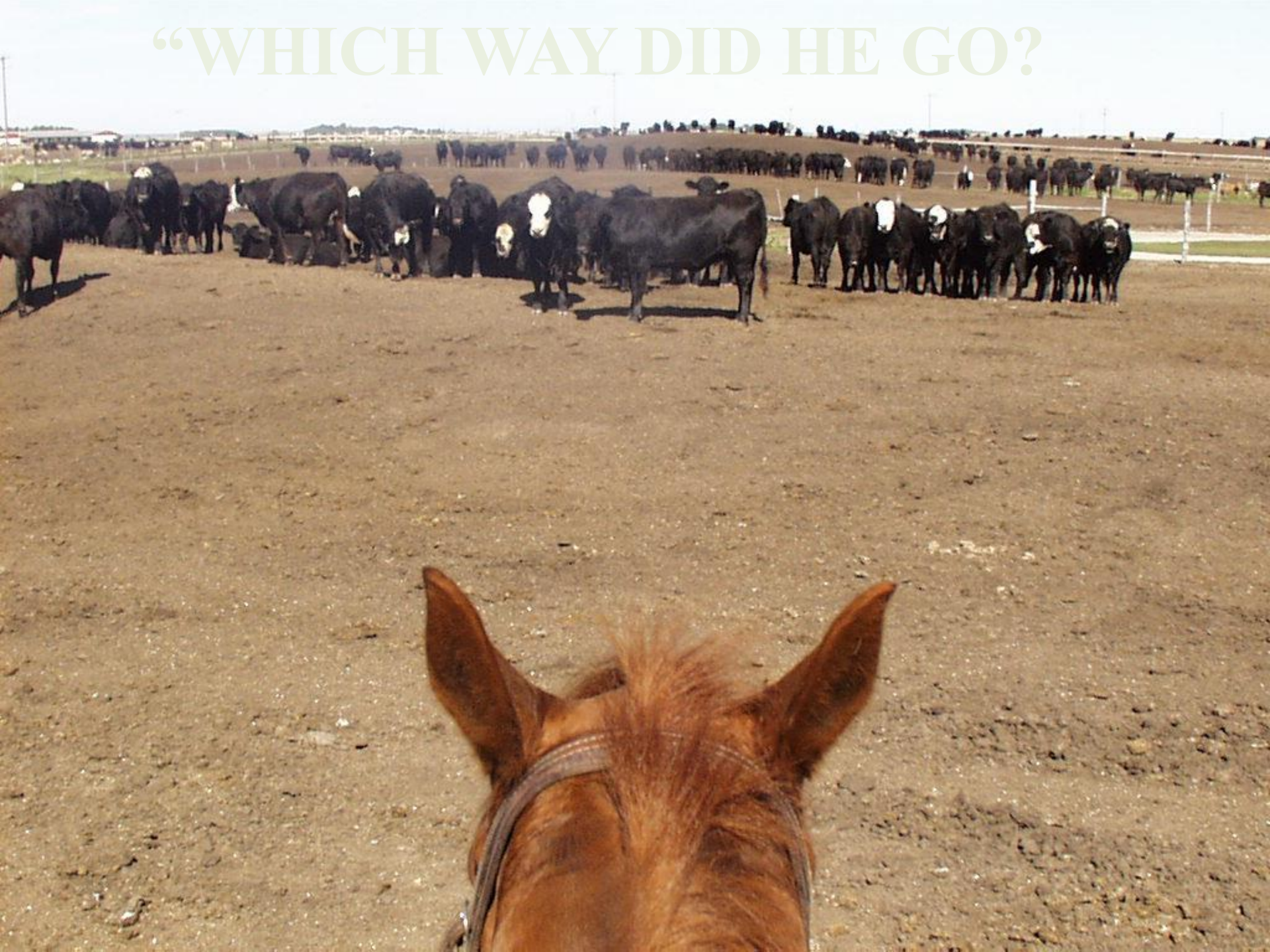
# When and Why did the animal die?

# Case Fatality Rate Problem

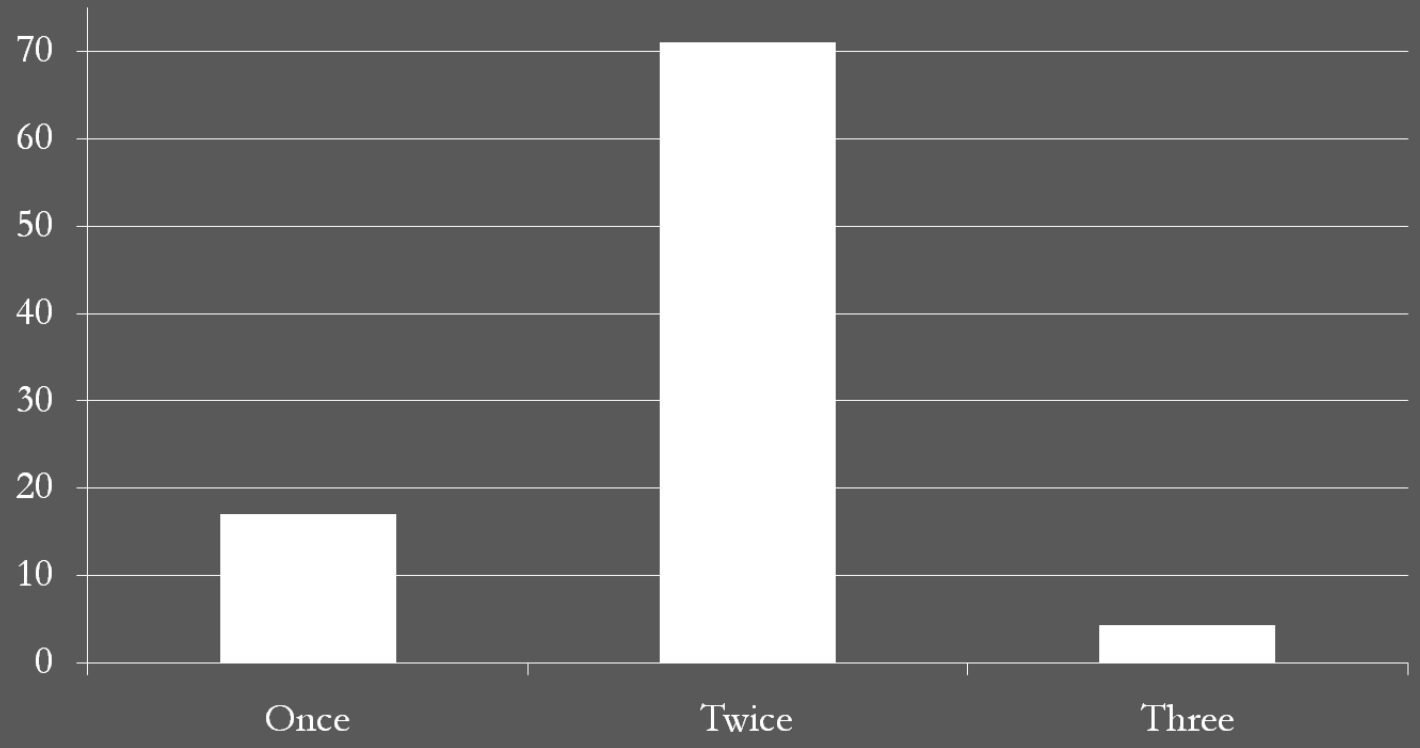
# Numbers we watch

| | |
|---|---|
| Dead to pull ratio – | 10 to 15% |
| Case fatality rate – | 5 to 10% |
| Treatment success (1st treatment) | 75 to 80% |
| Treatment success (2nd treatment) | 50 to 60% |
| Treatment success (3rd treatment) | 50% |
| Respiratory observe case fatality rate | 0 to 2% |
| BRD pen death loss rate (never treated) | < 10% of BRD deads |
| Chronic: Dead ratio – | 1:1 to 1:2 |

# “WHICH WAY DID HE GO?



# How many times do you recommend that that they ride pens on high risk calves.



# Three lung score categories

None

- No visible lung lesions

Moderate

- Visible lung lesions
  - *Scars, fibrin tags, consolidation, etc.*

Severe

- Lung missing due to severe adhesions

1,690 head Northern calves
ln wt = 553

# Lung scores of cattle pulled for respiratory disease

26% of the cattle on the trial were pulled for respiratory disease

62% of the cattle that were pulled for respiratory disease had lung lesions

Characteristics of lung lesions

- 57% of the lung lesions were moderate
- 43% of the lung lesions were severe

# Lung scores of cattle not pulled for respiratory disease

74% of the cattle were never pulled for respiratory disease

**43% of the cattle not pulled for respiratory disease had lung lesions**

Characteristics of the lung lesions

- 67% of these lung lesions were moderate
- **33% of these lung lesions were severe**

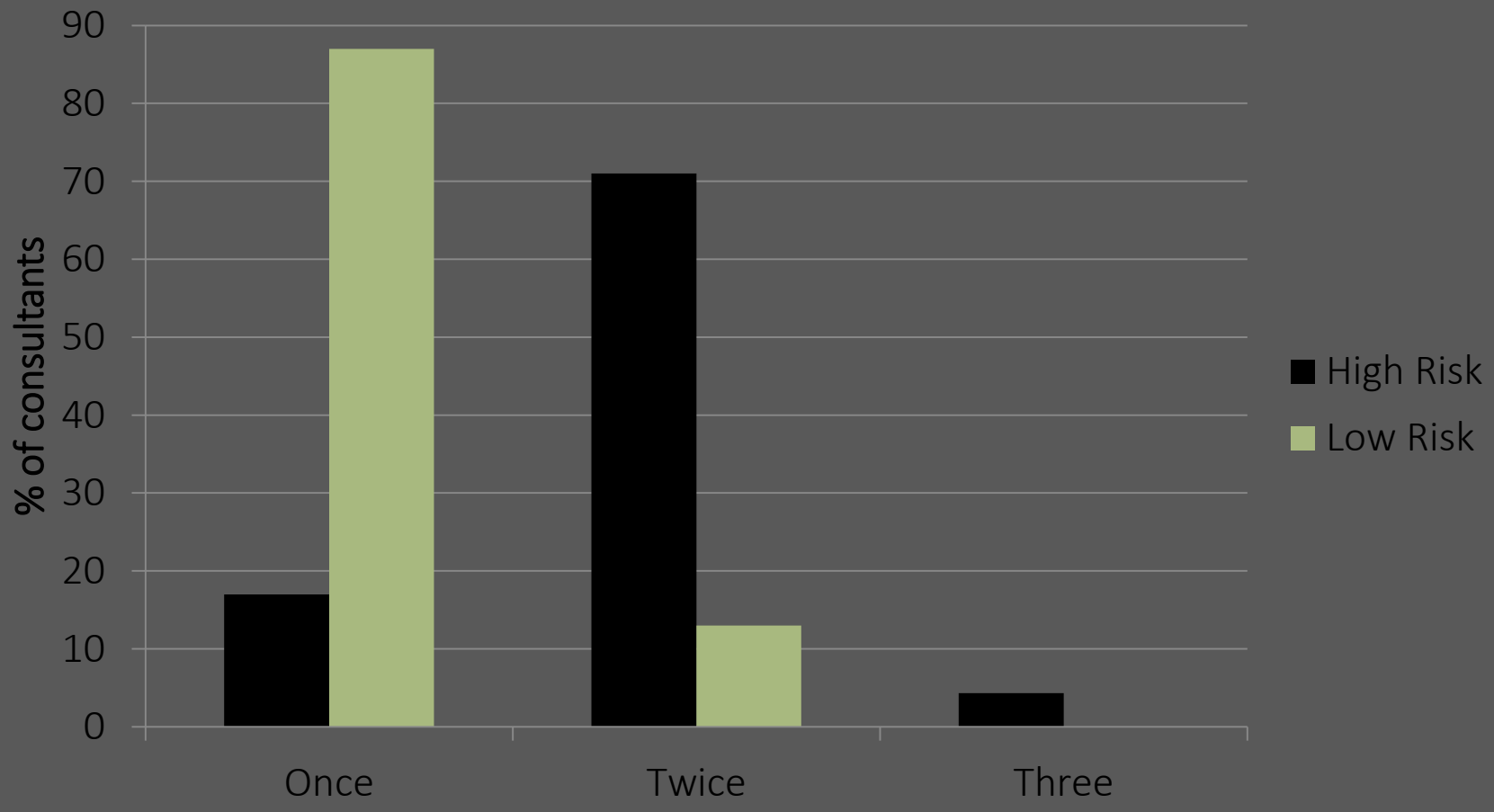
# What did the lung lesions cost us?

| | Lung lesion status | | | | |
|---|---|---|---|---|---|
| Item | None | Moderate | Severe | SEM | P = |
| Initial wt, lb. | 553 | 552 | 552 | 4.7 | .86 |
| Reimplant, lb. | 888 | 875 | 845 | 8.5 | .01 |
| Final wt., lb. | 1333 | 1321 | 1280 | 12.8 | .01 |
| Carcass | 863 | 855 | 829 | 8.5 | .01 |
| QG | 8.4 | 8.5 | 8.3 | .12 | .47 |
| YG | 3.7 | 3.6 | 3.4 | .10 | .01 |

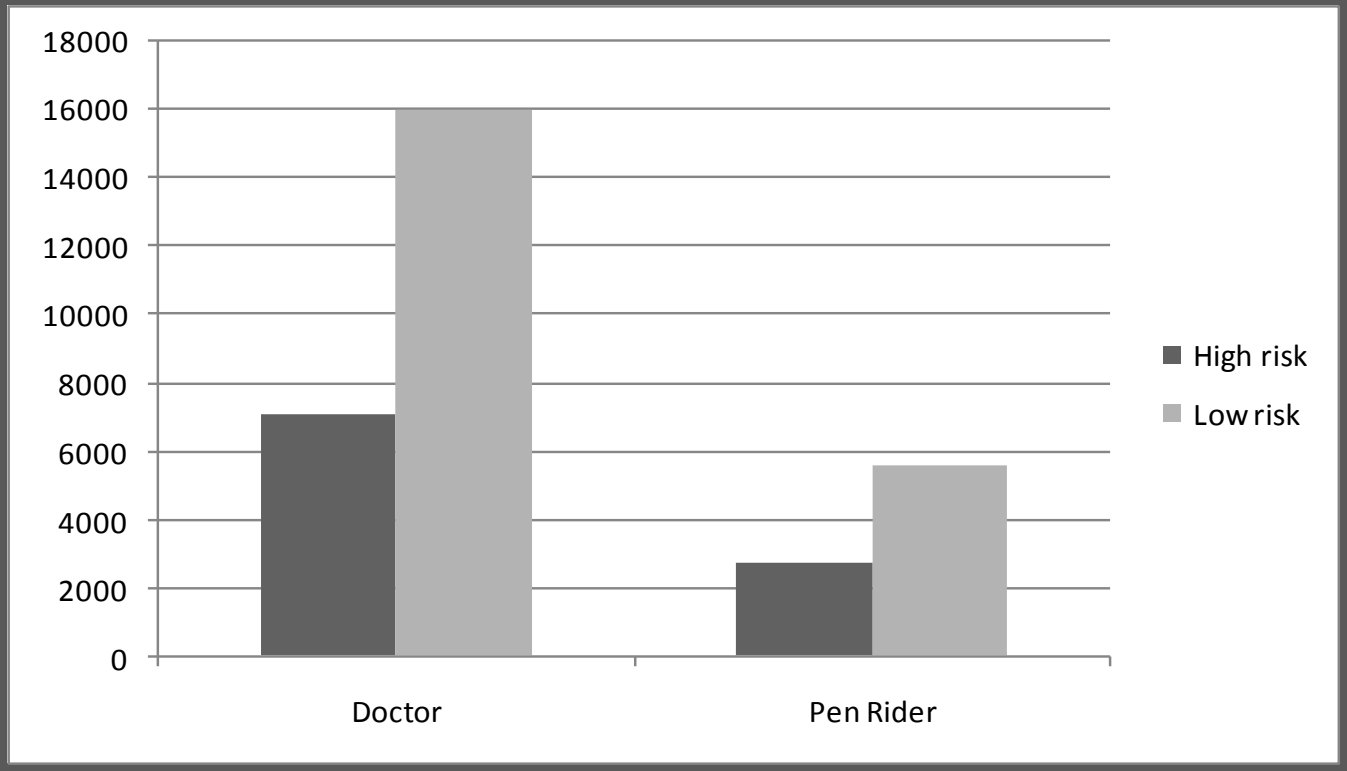
Reimplant = 85 DOF, Feeding period = 213 DOF

# Hay and pen riding

# How many times do you recommend that that they ride pens on high risk calves?



# How many people do you need?




# Effects of employee numbers per 10,000 head on the death loss in low risk steers.

| | Low DL (.59 %) | High DL (.97 %) |
|---|---|---|
| Pen riders | 1.8 | 1.5 |
| Processors | 1.3 | .6 |
| Doctors | .8 | .4 |
| Management | .7 | .3 |
| Total | 4.6 | 2.8 |
| Open Pen Rider | 1.2 | 2.0 |

Brink and Thoren, 2001

# Holding pen at hospital

Cattle are dropped off by the pen riders

Need water source

Shades/windbreaks

Needs to be dry

# Why Use Pull tickets?

Lot, pen, reason and severity

It is hard to see a foot rot once it is in the chute

Buller animals

# Hospitals

Scales in the hospitals

- We overdose cattle on an average of 71 lb.
- Baytril is $2.65/cwt = $1.88 extra per head if we use the pen average
- We doctor 150,000 head per year
  - *We could save $282,000 per year just from scales*

What about the cattle we under treat?

# Cattle handling/facilities

Crucial to no overcrowd the tub

Cattle are sick, we need to move them with as little stress as possible


105.9
GLA M500
Hi-Performance
Digital Thermometer
POWER BUTTON
FUNCTION SWITCH POSITIONS

# Single day vs. multiple day

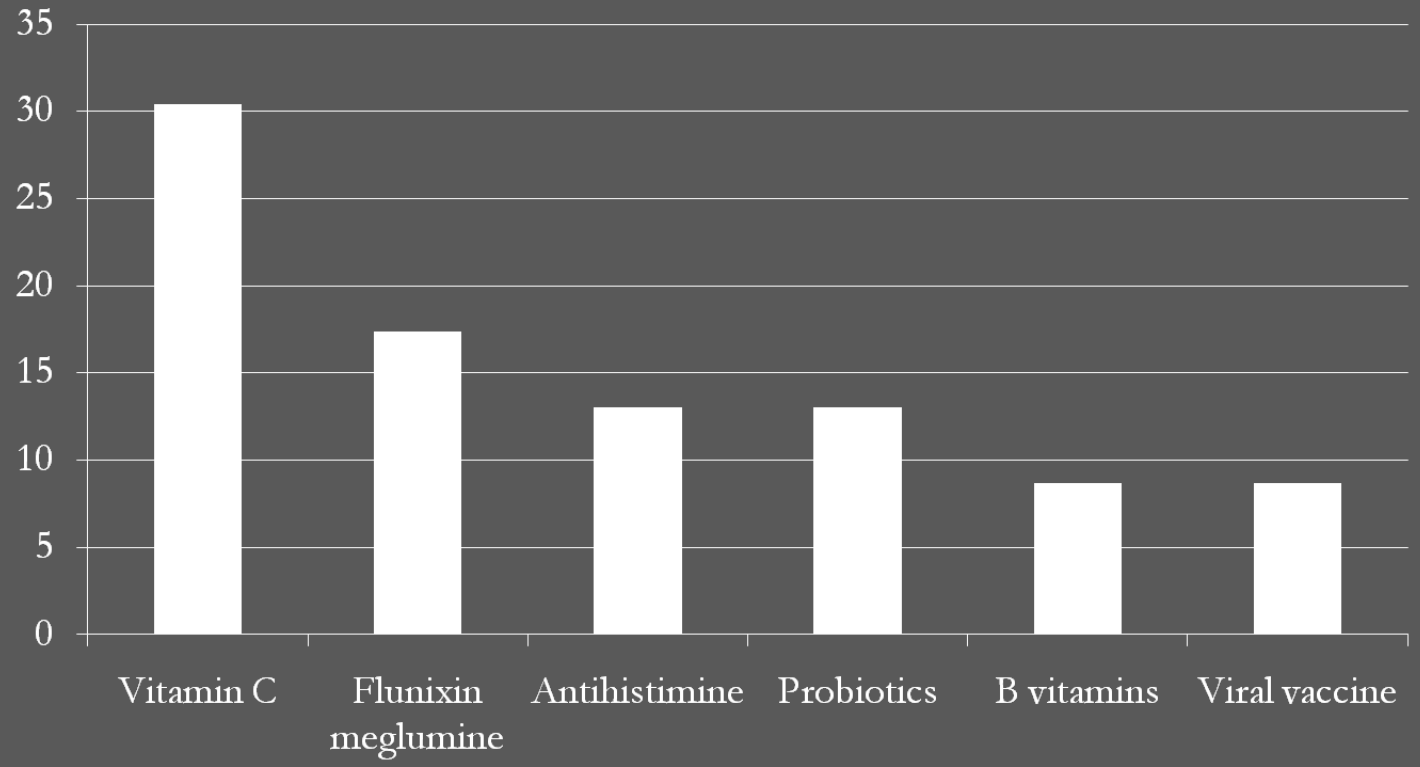
Most  drugs are labeled for 48 to 72 hrs

Labor

Wear and tear on animals

CFR – worse for single day therapy

# Which ancillary therapies do the consulting veterinarians recommend?




Terrell, Thomson et al. 2009

# Cleanliness

- Hospitals need to be clean
- Salmonella – drenching equipment
- E. coli – dirty needles
- Other environmental pathogens
- Never place a needle in the bottle unless it is brand new
- Joint problems start in the hospital

# Hospital pens

Hospital pens are the most abused pens in the feedyard.

Comfort

- Need at least as much room or more than a feeding pen (150 to 200 sq. ft.)
- Water tanks must be clean
- Fresh feed and hay available
- Shades

# Pen floor maintenance

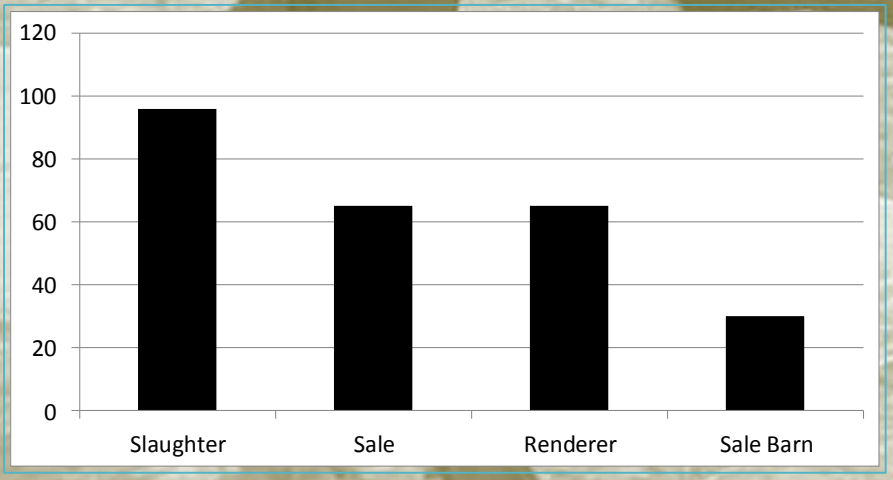
Map the low spots during the summer

Fill and build mounds

Adequate bedding

Salmonella

# Where do your chronics go?

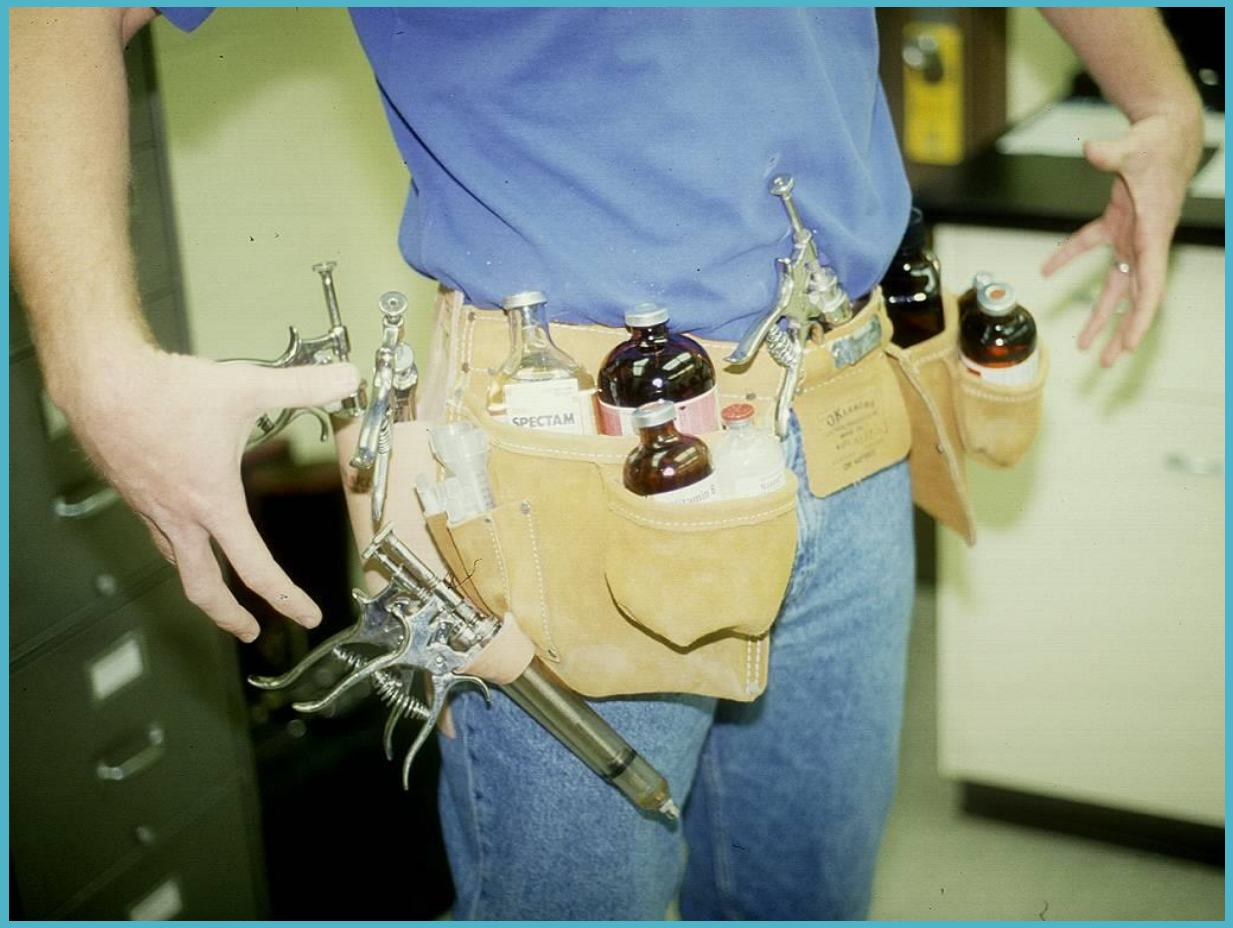


# What do railer buyers know???

| Death loss of chronics | Cost, $ | Revenue, $ | Breakeven, $/lb. |
|---|---|---|---|
| 20 | 46,541 | 82,022 | 0.50 |
| 30 | 43,226 | 71,769 | 0.54 |
| 40 | 39,911 | 61,516 | 0.58 |
| 50 | 36,595 | 51,264 | 0.64 |
| 60 | 33,280 | 41,011 | 0.72 |
| 70 | 29,965 | 30,758 | 0.87 |
| 80 | 26,649 | 20,505 | 1.15 |
| 90 | 23,335 | 10,253 | 2.02 |

Model assumptions – 500 lb. chronics, sold at $.25/lb., fats sold at $.89/lb.

# I gave him $2000 worth of medicine and he still died!!!!!



# Terminology for clinical data and BRD

Fatal Disease Onset (FDO)

*The day of first treatment of case that subsequently died or day of death if never treated.*

Treatment Death Interval (TDI)

*Time interval in days between day of first treatment and death*

Day of Death in Feedyard (DOD)

*Days after arrival to death*

Fulton, 2003

# Clinical data and treatment for BRD cases

| Case or agent | FDO, d | TDI, d | DOD, d |
|---|---|---|---|
| All BRD | 30 | 30 | 60 |
| Fibrinous pneumonia | 28 | 29 | 57 |
| M. haemolytica | 16 | 24 | 40 |
| P. Multocida | 24 | 38 | 62 |
| Mycoplasma | 26 | 26 | 55 |

Fulton, 2003


Thank you for all you do
for our industry