



**K-STATE**  
Research and Extension

# Calf Health: Birth to Branding

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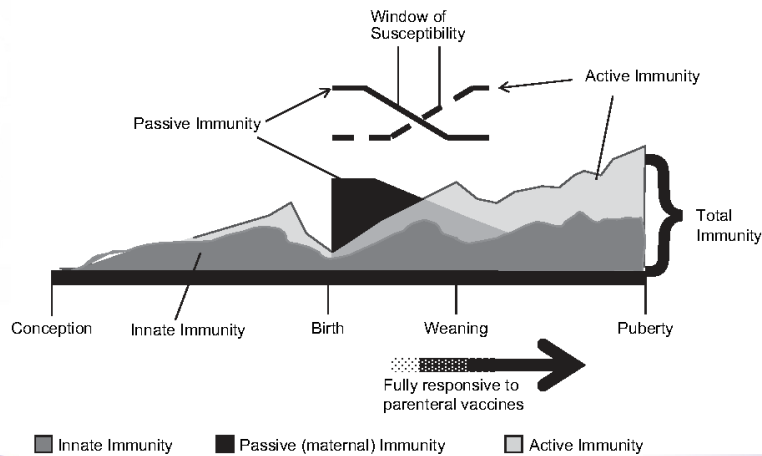
What is the goal?



## Where is the Calf's Immune System?

88

CHASE et al



## Calf Immune Function

- Calf completely naïve at birth
- Absorption of Colostrum antibodies
- Calf's own immune system begins to take over
- Calf begins to have full immune function by 5-8 months of age
- Maternal Antibody declining by branding time 2-4 months of age

## Post-Partum Considerations

- Colostrum
  - Antibodies, fat, vitamins, and WBC
  - 10% BW by 24 hrs (~3-4L)
  - Absorption time limited
    - Closure starts at 6 hours
    - 50% by 9 hours
  - Lifetime performance
    - 6.4 X likely to get sick as neonate
    - 3.2 X likely to get sick pre-weaning
    - 5 X likely to die
  - Dairy colostrum???
  - Replacer vs Supplement??



## Cold Stressed Calves

- Mild- (<100F)
- Severe- (<94F)
- Options??
  - Floorboard heater in pickup, heating lamps and blankets, warm water immersion (**warm slowly** to 100F/replace water frequently to keep temp), warming boxes, warm water IV Fluids
  - Can take 1-1.5 hrs to warm calves back to normal body temperature. **It takes time!!!**



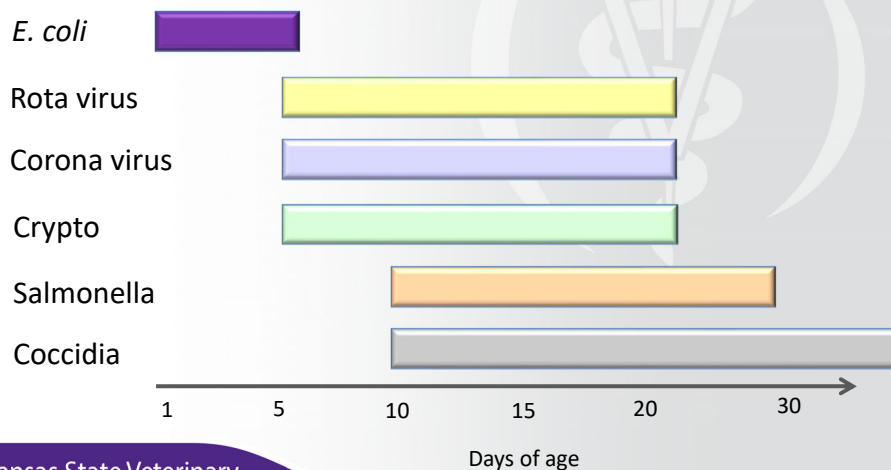
## Neonatal diarrhea (scours)

- **Bacteria**
  - E. coli*
  - Salmonella
- **Viruses**
  - Rota
  - Corona
- **Protozoa**
  - Crypto
  - Coccidia



Most of these are on every cow-calf operation

## Age when scouring



## Biosecurity

- Calve in a clean environment!!
  - Move shelters several times during calving season
  - Feed in different areas
  - Minimize contamination of resting areas (waters/under trees etc)
  - Bedding?
- Older calves give spread pathogens to young newborn calves
  - Separate!!!!

## Biosecurity

- Basics of Sandhills Calving System
  - “Solution to pollution is dilution”
  - Minimizing contact time by increasing space
  - Segregating calves by age
  - Moving pregnant cows to clean calving pastures (leaving cow/calf pairs) every 2 weeks
  - Can be managed together after youngest calves are 1 month old

## Biosecurity

- Mold the principles to fit your operation
  - Calve close to facilities
    - Every two weeks move Cow/Calf pairs to new pasture
      - Still keeping different aged calves segregated
      - If drylot pen, scrape/remove manure often (easier said than done)



## “RULE OF THUMB” TO FOLLOW:

- FLUID THERAPY
  - TONGUE WARM AND STILL NURSING
    - ORAL ELECTROLYTES
  - DOWN, MOUTH COLD AND WEATHER COLD
    - CRITICAL – MAY NEED IV FLUID THERAPY
- >2 CALVES INVOLVED TIME FOR DIAGNOSTICS
  - FECAL SAMPLING/NECROPSY-TISSUE SAMPLES
  - ALLOWS FOR CORRECT TREATMENT AND **HUMAN SAFETY**

## Change in Threat

- As cattle age threat from calf scours to BRD (Bovine Respiratory Disease)

## Immune system

### Helps

- Quality nutrition
- Clean environment
- Vaccination
- **Maturity**

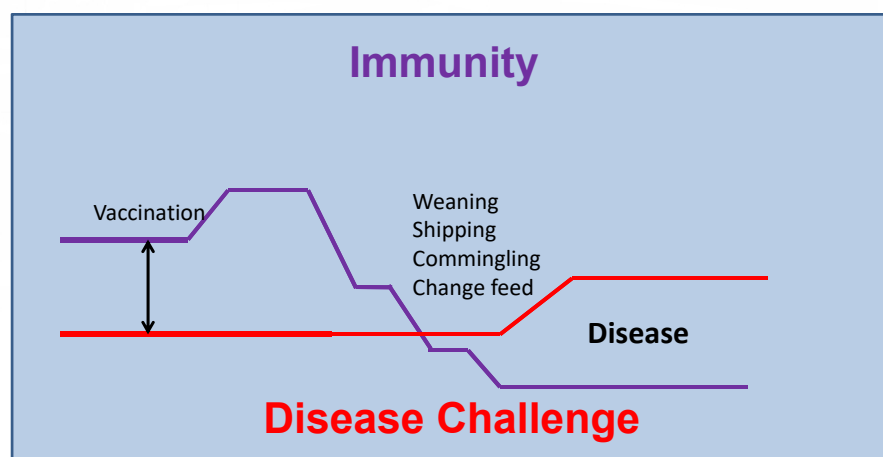
### Hurts

- Stress
  - **Weaning**
    - **Most stressful time in the life of a bovine**
  - Changes in feed
  - Extreme weather
  - Management practices
    - Castration
    - Dehorning
  - Transportation
  - Mixing groups of cattle

## How early can you vaccinate??

- Reliable response to vaccine by 2-3 months old
- As early as 1 month with some products
  - Work with your veterinarian for recommendations

## Goal: Reduce Compounding Stressors





## General Guidelines Calves

- Need a functional immune system to get adequate response
- **Biggest concern is BRD**
- When should be vaccinate?
  - **Branding time**
    - 3-4 months of age
    - Maternal antibody decline, own immunity increasing
  - Pre-weaning
    - This greatly increases the immunity against selected pathogens
  - Weaning?
    - Does a stressed animal's immune system function fully?



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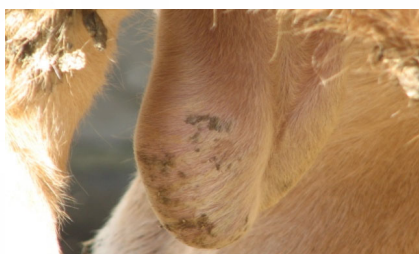
## General Guidelines

- What do we vaccinate against?
  - Clostridial Diseases (7 or 8-way)
    - Don't forget about tetanus
      - Banding or de-horning
  - 5 way MLV viral
    - Respiratory viruses
  - Respiratory Bacterins
    - Mannheimia/Pasturella/Histophilus



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## Timing is everything



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## A survey of recommended practices made by veterinarian practitioners to cow-calf operations in the United States

Fike, G.<sup>\*</sup>, J.C. Simroth<sup>†</sup>, D.U. Thomson<sup>†</sup>, R. Spare<sup>‡</sup>, and A.J. Tarpoff<sup>§1</sup>

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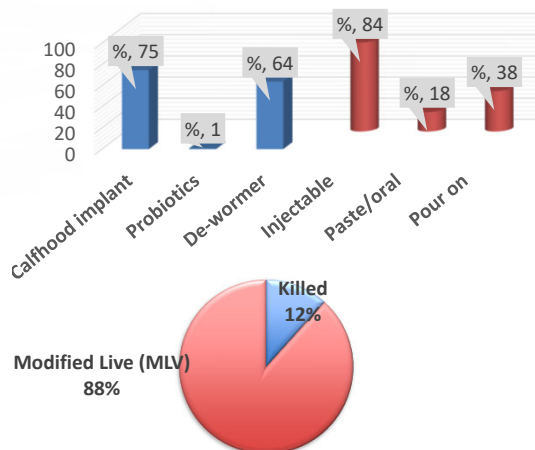


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## Recommended vaccines and practices for calves at branding

Vaccine	%
Clostridial	96
IBR	94
BRSV	91
PI3	90
Bovine Viral Diarrhea Type I	78
Bovine Viral Diarrhea Type II	77
Mannheimia haemolytica	45
Moraxella bovis	31
Pasturella multocida	26
Histophilus somni	18
Leptospirosis	5
Others not listed	5
Mycoplasma pneumoniae	1.5
Vibriosis	0.7

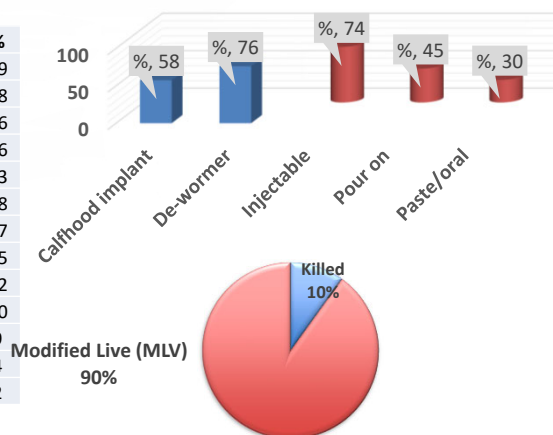


## Castration methods selected as best option for calves at:

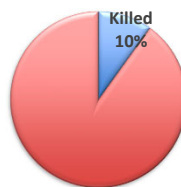


## Recommended vaccines and practices for calves before weaning

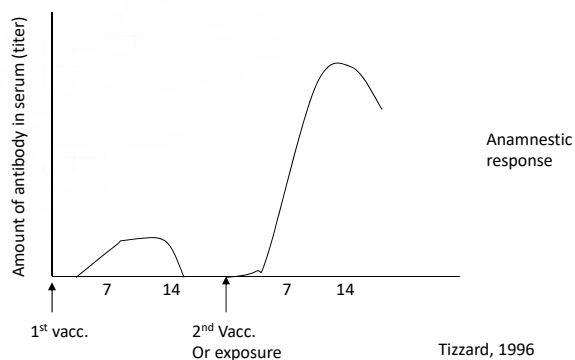
Vaccine	%
IBR	99
BRSV	98
Bovine Viral Diarrhea Type I	96
Bovine Viral Diarrhea Type II	96
PI3	93
Clostridial	88
Mannheimia haemolytica	77
Histophilus somni	45
Pasturella multocida	42
Leptospirosis	10
Moraxella bovis	9
Others not listed	4
Mycoplasma pneumonia	2



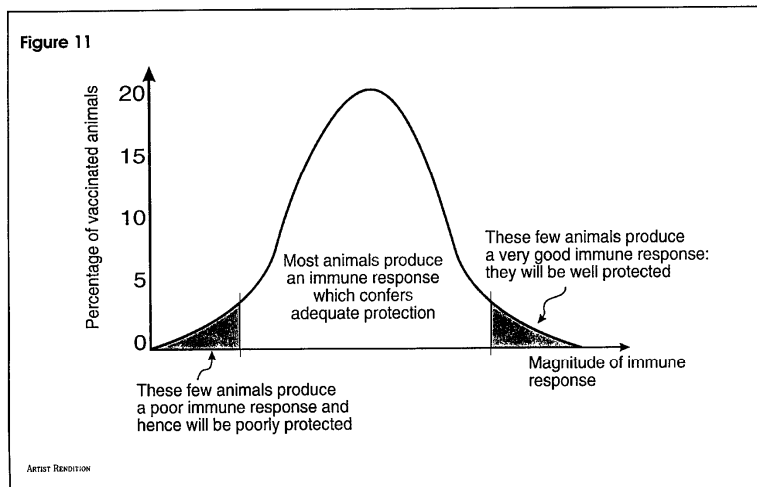
Modified Live (MLV)  
90%



## Anamnestic response?



## Vaccine Response

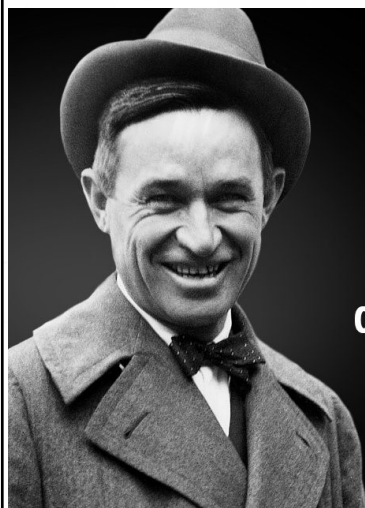


## Weaning

- The most stressful period in the life of beef cattle
- Decrease the stress????
  - Handle the cattle prior to weaning
  - Soft weaning
    - Fence-line/ 2-stage wean
  - Acclimate cattle to new environment
    - Water bowl/feed trough/new fence lines
    - Prior to weaning?

## Parasite Control

- GI Nematodes
  - Injectable/Pour-on/Oral deworming products
- Coccidiosis
  - Be prepared to combat this in weaned calves
  - Coccidiostats/Treatments
- External parasites
  - Flies/ticks



There are **three kinds of men.**  
The one that **learns by reading.**  
The few who **learn by observation.**  
The rest of them **have to pee**  
**on the electric fence** for themselves.

– Will Rogers

AZ QUOTES