Cache Creek Veterinary Hospital Beef Producer Meeting WHAT'S NEW IN THE INDUSTRY

Meeting Agenda

1 – 2:00 PM

- Lunch
- 1:40 1:50
 - Introductions

2:00 - 2:50

- Vaccination and Cow immunity
- How they work
- Why we give them
- What a baby calf goes through from birth to 60 days
- Integrating a vaccine protocol to maximize health and growth

2:50-3:00

• Break

3:00-3:30

- Coccidia Control
- Growth Implants

3:30-3:40

Emerging Issues Facing Beef Producer

3:40-4:00

- Zoeitis Product Support and Programs
- Closing Remarks



Vaccination and Cow Immunity

Innate Immunity- non specific

• mucous, tissue barriers, primitive WBC

Adaptive/Aquired Immunity-Learned via Exposure

- First exposure to a pathogen produces a slow response with short memory but 'primes the system'
- Second exposure produces a very fast response with long term immunity.
- Long term immunity is subject to
 - Pathogen
 - Route of delivery

Vaccination and Cow Immunity

Vaccination

- Administration of pathogen to produce an immune response
- Killed bacterial
- Attenuated Live Virus
- Delivery routes include
 - Intramuscular (IM)
 - Subcutaneous (SubQ)
 - Intranasal
- Normal Protocol (basic)
 - Naïve- First dose primes, Second dose induces long acting immunity
- Booster- Yearly vaccination to keep long acting immunity current



How an Animal Becomes Sick from a Pathogen

Lack of previous exposure

- No maternal antibodies
- No vaccination
- Vaccine failure
 - Improper handling
 - Improper administration

Supressed Immunity

- Stress
- Poor innate or adaptive immunity (inherited or poor colostrum)

Load of pathogen exposure

- Amount of pathogen exposed exceeds body's ability to overcome
- Aggressiveness of pathogen



How Vaccinations Work

Antigen

 Foreign object in the body; virus, bacteria, fungus, parasite

Antibody

• Small molecule the body produces that can attach to an Antigen

How An Antibody Works

- Opsinization- Key part of Passive Transfer Immunity; Scourgaurd
- Chemical activation of WBC
- Heightened activation of WBC when contact with Antigen occurs



Why Do We Vaccinate?

To protect the body against a pathogen

- Keep antibodies high and cells primed
- Simple math; antibodies need to outnumber antigens
- Overtime, without exposure, antibodies decrease and WBC lose their memory



Current Vaccine Protocol for a Cow-Calf Herd From January to Dec

Heifers/Naïve Cows- Precalving; <u>Scourgaurd 4KC</u> • 2 vaccination Protocol Given 3 Weeks Apart • Second dose given 3-6 weeks pre calving

> Cows- Precalving; Scourgaurd 4KC • Annual Booster 3-6 weeks pre calving

> > Bulls- Semen testing; Fusogaurd Annual booster for preventing foot rot (2 dose on arrival of new purchase)

Cows- Prebreeding; Bovisheild Gold FP5 VL5

Annual Booster done at branding time Protect against pathogens causing early embryo loss or abortion Protect cows against viral pneumonia pathogens

Bulls- Prebreeding; Bovisheild Gold FP5 VL5

Annual Booster done at branding time (2 dose at branding for new purchase)

Protect against pathogens causing early embryo lose or abortion Protect cows against viral pneumonia pathogens

Current Vaccine Protocol for a Cow-Calf Herd From January to Dec

Calves- Branding; <u>Bovishield Gold</u> <u>One Shot</u>, <u>Ultrabac 7-Somnubac</u>

Two vaccine, single dose at branding Prevents Viral Pnuemonia, summer bacterial pneumonia and clostridial diseases

> Replacement Heifers- Weaning; Bovishield Gold One Shot, Ultrabac 7-Somnubac

Booster for calf vaccine

Replacement Heifers- Pre breeding; Bovisheild Gold FP5 VL5

- Primary vaccination for prebreeding two weeks before branding
- Booster given at same time as cows during branding

Vaccinations

Where we are and what will change

Issues With Current Vaccine and Vaccine Protocols

Bovishield Gold One Shot

- IBR (Infectious Bovine Rhinotreachitis- Bovine Herpes Virus)
- BVD I and II (Bovine Virus Diarrhea Type I and II)
- PI3 (Para Influenza Virus)
- BRSV (Bovine Respiratory Syncidial Virus)
- Mannheimia haemolytica (Pasteurellosis)

Ultrabac7/Somnubac

- 7 strains of Clostridium (Black leg)
- Haemophilus somnus (histophilus)

Issues With Current Vaccine and Vaccine Protocols

- IBR in a vaccination often commands such a large immune response recognition of other pathogens in a vaccine can be sub-optimal.
- IBR given Intra nasal does not interfere with a Sub-q vaccine given at the same time.
- Inforce 3 is an intranasal vaccine with IBR, BRSV and PI3.
- The problem was BVD could not be added to the intranasal Inforce 3.
- Inforce 3 was not adopted in our protocols for Cow Calf due to the necessity of BVD and M.heamolytica.

Solution to IBR Interference

One Shot BVD IM

- BVD I and II
- Mannheimia heamolytica

Inforce 3 IN

- IBR
- BRSV
- PI3

Ultrabac7/Somnubac Sub-Q

- Clostridial
- Heamophilus somnus



Pre Calving Vaccination

- Pre-calving vaccine with Scourgaurd 4KC gives calves protection from scour causing pathogens
- Label claim is: Primary Vaccination: Administer 2 IM doses approximately 3 weeks apart to pregnant cows, with the second dose given 3–6 weeks before calving.
- Vaccinating Cows pre-calving stimulates antibody production
- Cows incorporate these antibodies into colostrum
- Calves nurse this colostrum and these antibodies
 become defence mechanism for calves
- Change protocol to 4-5 weeks pre calving



New Data

Calves

- Calves have only 6 hours to get adequate colostrum. Previously we believed this was 12 hours.
- Calves go through a phase of marked low immunity between days 1-10 post partum with the low being day 4-5. (Inforce 3 has to be given day 1 or 10).
- The health of a calf in the first 60 days of life dictates its production performance for the rest of its' life. Weight must double by day 50.
- Calves will not respond to IM or Sub-Q in the first 10 days of life and will become immune depressed if they do. Inforce only close to branding.
- Intranasal first vaccine with IM booster is much greater than a IM first vaccine with and subsequent IM booster (current protocol).
- Critical time frame for transition of antibodies into colostrum is 5 weeks pre calving.

Colostrum

Colostrum.

- Is the trigger for genetic programming, not just short term survival.
- Contains IGF hormone; trigger for long term weight gain and efficiency.
- Low colostrum will up-regulate more stress receptors that are permanent.
- Proper transfer teaches the calf how to respond in the presence of and antigen. Response has been recorded up to 2 years old.
- Cows start producing colostrum 5 weeks pre calving and stop 2 weeks.

First Feeding

- Calves have only 6 hours to get adequate colostrum. Previously we believed this was 12 hours.
- Calves need 1.25 gallons by 6 hours; if tubed best divided into 2 feedings.
- First Feeding after 3 hours risks FPT due to volume: absorption.
- After 6 hours absorption decreases 50%.
- Freezing destroys antibodies and 75% of WBC.
- Time from calving to time of first suck comes from the sire.
- In dairies inadequate colostrum in heifer calves yields a 5x greater cull rate after first lactation.



Life Cycle of Coccidia in Cattle

- One oosyste can replicate into 23 million in 21 days.
- Reproduce in the intestinal tissue and in the feces after defecation.
- 95% of infections are subclinical.
- Carrier status is common.
- In clinically sick calves we often won't find it in the stool.
- Most prevalent in calves 30-60 days of age.
- Health status of calf prior to infection is of little benefit.
- By the time we have clinically sick calves massive intestinal infection and damage has occurred. Treatment is guarded.
- Survival in environment is years.



Coccidia In Cattle

- Treatment is preventative
- Anticoccidials
- Environmental manage
- Spring thaw floats oocysts into puddles where calves drink

<u>Reference: Joe Dedrickson, DVM Ph.D, Coccidia Lifecycle</u>

Emerging Topics Facing Beef Producers

Pain Management

- National Farm Animal Care Council
- Debudding (<2-3 months of age)
- Dehorning (> 3 months of age). Jan 2016 Pain control is LAW
- Castration- Jan 2018 Pain control is LAW in catrating bulls older than 6 months of age
- Industry recommends pain control for castration or debudding regardless of age

Special Thanks

- Producers for attending.
- Dr. Victor Cortese, Professor WCVM
- Joe Buntyn, Nutritional Expert Zoetis
- Gord Colliar, Industry Specialist Zoetis

