Diseases and Parasites of Beef Cattle

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Herd Health Plan

- Needed to maintain the overall health of the herd
- Key to success of the plan is the prevention of problems before they start
Vital Signs of Beef Cattle

- Temp. 100.4-102.8 avg. 101.5
- Pulse 60-70 BPM
- Respiration 10-30 breaths per minute
HEALTHY COWS ARE HAPPY COWS
Diseases
Bovine Spongiform Encephalopathy (BSE): MAD COW DISEASE

- Chronic, degenerative disease
- Affects the central nervous system
- 1 of several brain disease called Transmissible Spongiform Encephalopathy's (TSE’s)
  - Some affect animals and some affect humans
- Other TSE’s
  - Chronic Wasting Disease in deer and elk
  - Feline Spongiform Encephalopathy
  - Transmissible Mink Encephalopathy
  - Creutzfeldt-Jakob Disease (CJD- ID in the 1920’s)
  - New variant CJD (nvCJD ID in 1995)
  - Gersmann-Straussler-Scheinker Syndrome
  - Kuru
BSE in the United States and the World

- Rare
- 3 cases in the United States
- First diagnosed in Great Britain in 1986
  - The US has not imported any beef from Great Britain since 1985
- USDA and the APHIS maintain constant surveillance and enforce import restrictions.
BSE: Symptoms

- Nervousness or aggression
- Muscle twitching
- Abnormal posture
- Loss of body weight
- Decrease in milk production
- Difficulty in rising after lying down
- Eventual death
So what causes BSE?

- Not fully known
- Available evidence indicates that it is not viral or bacterial
- Related to a prion
  - A prion is a microscopic protein particle that is similar to a virus but lacks nucleic acid
- BSE may be contracted by ingesting protein in feed that came from an animal source that was contaminated by the agent that causes the disease
- While no direct link has been made there is suspicion that feeding cattle rendered protein from scrapie infected sheep was involved in spreading the disease
- In 1997 the FDA banned using ANY mammal derived protein in cattle feed in the United States
Incubation of and Testing for BSE

- Ranges from 2-8 years
- Death occurs within 2 weeks to 6 months after clinical symptoms appear
- No test to determine if live cattle are infected
- Only a postmortem microscopic examination of the brain can determine if the animal had BSE
  - Brain tissue in infected animals has a spongy appearance when examined under a microscope
- There is no treatment for BSE
So Can BSE Be Transmitted to Humans?

- No evidence that it can be transmitted by direct contact or consumption of meat or dairy products
- No evidence that eating meat of BSE infected animals can cause CJD
- In 1995 nvCJD was found to be caused by the same agent as BSE but it too was not found in milk or milk—only in the brain tissue, spinal cord, corneal tissue and some other central nervous system tissues
BSE
Bovine Virus Diarrhea (BVD)

- Common throughout the United States
- May appear in mild, acute & chronic forms
- Spreads by contact
Mild BVD

- Often no symptoms
- If they are present:
  - Fever
  - Coughing
  - Discharge from the nose
  - Slow gains
  - Rapid breathing
  - Mild diarrhea
- Animals that have had the mild form of the disease are immune to further infection.
Acute BVD

- Fever
- Difficult breathing
- Discharges from the nose and mouth
- Possible lameness
- Dehydration
- Weight loss
- Diarrhea after 3-7 days

- Pregnant animals may abort if the disease is contracted with in the first 2 months of pregnancy
- Fetus’s may mummify if contracted from the 90-120th day of pregnancy
- Fetus may suffer in later stages of pregnancy
  - Brain damage
  - Hairlessness
  - Underdeveloped lungs
Chronic BVD

- All the same symptoms as the acute plus
  - Slow gains
  - Rough hair coat
  - Lameness
Preventing BVD

- Modified live virus vaccine used
- Calves are vaccinated between 1 day of age and 3 weeks before weaning
- May be vaccinated when upon arrival in the feedlot
  - They should not be vaccinated at the feedlot if they were vaccinated as calves
- Pregnant cattle should not be vaccinated
- Adult cattle should only be vaccinated
  - After calving
  - At least 3 weeks before breeding
  - 1 vaccination will give immunity for the productive life of the animal
- Replacement heifers should be vaccinated between 9 & 12 months of age but not during the last 3 weeks before breeding
- There is no cure for BVD
Brucellosis

- Caused by microorganisms
- Causes heavy economic losses
- Less common than it once was due to state and federal eradication programs
  - SD still has brucellosis due to Ted Turner’s buffalo near Pierre
- Dangerous to humans—the germs that cause brucellosis cause undulant (Malta) fever
Brucellosis: Symptoms

- Cattle abort during the last ½ of pregnancy
- Infected cows retain the afterbirth (placenta)
- Sterility in cows and bulls
- Reduced milk flow in cows
- Enlarged testicles in bulls
- Calves born to infected cows may be weak
How Brucellosis Spreads

- Bringing infected cattle into the herd
- Fence line contact with infected animals
- Aborted fetus’s that carry the *Brucella* organism being carried to other farms by dogs and other carnivorous animals
- Calves being infected by their mothers
- Cattle coming in contact with feed or water where the organism is present
- Sniffing or licking an aborted fetus or calf from a cow that has the disease
Prevention and Cure

• No cure
• Prevention is accomplished by good herd management
Blackleg

- Caused by bacteria that grow only in the absence of oxygen
- Most serious when the bacteria lodge in deep wounds
- When exposed to air the bacteria form a spore and may live in the soil for many years
- Spores enter the animal through the mouth or wounds
- Young animals are more commonly affected
- Malignant Edema has the same symptoms.
Symptoms of Blackleg

• First sign is one or more animals suddenly die
• Before death symptoms are:
  ▫ Lameness
  ▫ Swollen muscles
  ▫ Severe depression
  ▫ High fever (in early stages)
  ▫ Animal may be unable to stand
Preventing Blackleg

- Vaccination
- Calves are vaccinated when young (typically in the spring at branding or shortly after calving) and again at weaning (fall)
- Dead animals should be burned or buried
Treating Blackleg

• Massive doses of antibiotics
• Treatment is only effective if diagnosed early
• Prevention is more effective and less costly.
• Malignant Edema is controlled and treated the same way.
Calf Enteritis (Scours)

- Disease complex (group of diseases)
- Most common in fall, winter and spring
- Afflicts young calves - calves over 2 months of age are seldom affected
Symptoms of Scours

- **Vary**
- **Acute form**
  - Calf is in a state of shock
  - Nose, ears and legs are cold
  - Diarrhea
  - Sudden death
- **Chronic form**
  - Symptoms for several days
  - Weight loss
  - Death after several days if not treated
Preventing Scours

- Sanitation is the most important factor!
  - Clean barns
  - Clean buckets for bucket calves
- Calves need the first milk (colostrums)
- Supplement the cows diet with Vitamin A before calving
- Most common types of scours can be controlled by vaccines
  - The dam is vaccinated at least 30 days before calving and passes the antibodies on to her calf
Treating Scours

- Antibiotics
- Sulfa drugs
Foot Rot

- Caused by a variety of bacteria, fungi and other organisms found in feedlots
- They enter the body when the skin of the foot is broken
  - Typically by sharp objects such as stones, nails, or wire
- Muddy, manure filled feedlots only increase the problem
Symptoms of Foot Rot

• First noticeable sign is lameness
• Other symptoms
  ▫ Loss of appetite
  ▫ Fever
  ▫ Depression
  ▫ Animals may not want to stand or move around
• Death may eventually result
Prevention

- No vaccine
- Sanitation and paved lots work best
- Good drainage and mounds in the feedlot also help in eliminating conditions that encourage the disease.
- Spreading line and 5% blue vitriol around water tanks and feed bunks help in control.
Treatment

- Penicillin
- Wide spectrum antibiotics
- Sulfa drugs
Pinkeye (Infectious Keratitis, Keratoconjunctivitis)

- Carried by insects
- Affects the eye of the animal
- A viral form of pink eye is associated with IBR
Mild Pinkeye

- Eyeball develops a pinkish color
- Cornea becomes slightly clouded
Acute Pinkeye

- Flowing of tears
- Cloudiness of cornea
- As the infection progresses the cloudy condition becomes worse and ulcers may develop on the eye
- The eye may become so damaged that blindness results
- The condition may last 3-4 weeks and if not treated will spread to the whole heard
Pinkeye

• White faced cattle and those with pink skin pigment around the eye are more likely to be infected

• Pinkeye occurs year round but is most common during periods of maximum sunlight.
How Pinkeye Spreads

- Insects
- Direct Contact with infected animals
- Dust
- Tail switching
Controlling Pinkeye

• Control flies and insects to prevent pinkeye
• Vaccinations are available to control *Moraxella bovis*, the bacteria that is considered to be the main cause of pinkeye
Treating Pinkeye

- Animals should be isolated in a dark place
- Antibiotics and sulfa drugs are applied to the eye
  - Medicine should be applied 2 X’s/day
  - Why???
- A cloth patch can be used on the affected eye
Shipping Fever (PI₃ Pasteurella, Bovine Respiratory Disease)

- A disease complex that affects the respiratory tract
- Most common in young cattle at times of stress
Stresses

- Moving cattle from range to the feedlot
- Extremes of heat or cold
- Exhaust fumes
- Hunger
- Fright
- Rough handling
- All these things allow bacteria and organisms already present to attack the respiratory tract
Symptoms

- Vary from mild to acute
- Early symptom is fever
- Animal appears depressed with its head down and eyes closed
- Drooping ears
- Discharge from the nose
- Watery eyes
- Loss of appetite
- Diarrhea
- Weight loss
- Difficult breathing
- Coughing
- Pneumonia
- Possibly death
- If the animal recovers it will be slow to gain
Preventing Shipping Fever

- Vaccination may be used.
- Vaccination should occur after 4 mo. of age.
- The best time to vaccinate is 3-4 weeks before the animal is exposed to the conditions that lead to the disease.
- Reducing stress and exposure also help in prevention.
- Good feedlot management and careful handling of new cattle helps reduce shipping fever.
Treatment of Shipping Fever

- Antibiotics
- Sulfa drugs
- Treatment must begin as soon as symptoms are noticed
- Treatment after an animal has developed pneumonia is of little value.
Trichomoniasis

- A venereal disease caused by a protozoan, *Trichomonas fetus*
- The organism infects the genital tract of the bull and is transmitted to the cow during breeding
- Clean bulls can also be infected by breeding “dirty” cows
- The disease can also be transmitted through infected semen, even when artificial insemination is used.
Symptoms

- Abortion in early gestation
- Low fertility
- Irregular heat periods
- Uterine infection
- Cows may have discharge from their genital tract
- Bulls may not show any symptoms of the disease but still be capable of transmitting it to the cow during breeding
- The organism is identified by microscopic examination of material from an aborted fetus, the prepuital cavity of the bull or vaginal discharge from the cow
Prevention

- No treatment or vaccination for trich
- Infected bulls should be slaughtered
- Use only clean bulls on clean cows
- Test bulls to ensure they are free of the disease
- Use semen from clean bulls
Campylobacteriosis (Vibriosis)

- Reproductive disease
- Both intestinal and venereal
- Leading cause of infertility and abortion in the cattle industry
Campylobacteriosis

- Intestinal form has little harmful effect
- Venereal form is more serious
- If the organism infects the uterus there will be some abortion in the herd
- Number of cows infected is usually small
- Cows do not become sterile and bulls are not affected.
Symptoms

- Infertility
- Abortion
- Irregular heat periods
- In newly affected herds conception rates may drop below 40%
- Calving season is longer
- More open cows in the fall

- In chronically infected herds
  - Conception rate is lower than normal-about 60-70%
  - Heifers or new additions will require repeat breeding or will abort
Prevention and Treatment

• Vaccinate animals 30 days prior to breeding
  ▫ Vaccination must be repeated every year
• The disease is spread from infected bulls to clean cows
• Bulls may be treated with antibiotics but the process is difficult
• Cows may settle easier if treated with antibiotics
• Skipping two heat cycles before attempting to breed the cow usually improves the conception rate of infected cows
• Cows with the disease eventually develop immunity and will breed again
• The use of AI helps in prevention because the semen used for AI is treated with antibiotics to eliminate disease organisms.
Ringworm

- A contagious skin disease that can be spread to other animals and humans
- Symptoms
  - Round, scaly patches of skin that lack hair
  - May appear on any part of the body
- The affected area clears up but moves to another part of the body
- Sanitation helps control ringworm
- Isolate infected animals
- Treat ringworm with iodine tincture or quaternary ammonium compounds
Ringworm
Nutritional Health Problems (X)
Bloat

- Occurs when rapid fermentation in the rumen causes too much gas to be produced.
- The rumen swells and the animal cannot get rid of the gas.
Bloat

- The major cause of bloat is eating too much green legume too fast
- Ways to prevent bloat
  - Prevent animals from eating too much legume
  - Feed grain, dry roughage or silage before turning animals onto legume pastures
- Free access to water should be provided at all times
Bloat Treatments

- Stomach tubes
- Walking the animal on rough ground and forcing it to burp
- Forcing the animal to drink mineral oil or poloxalene (trade name Bloat Guard)
- Inserting a trocar and cannula into the rumen through the side
  - This should only be considered after other methods have failed.
Enterotoxaemia (Overeating Disease)

- Usually affects cattle on high-concentrate rations
- Symptoms
  - Lameness
  - Bloody diarrhea
  - Bloat
- The animal may die in 1-24 hours
- Vaccinating calves 2 weeks before putting them on high concentrate rations helps prevent overeating disease
- Treatments
  - Removing concentrates from the diet
  - Feeding roughage
  - Vaccinating
    - Animals may gradually be put back on the high concentrate ration after vaccination.
Founder

- A swelling of the tissue that attaches the hoof to the foot
- Occurs among cattle in the feedlot
- Caused by
  - Overeating concentrates
  - Sudden change in ration
  - Drinking too much water
  - Standing in a stall for long periods of time
- Signs
  - Lameness
  - Animal shifts its weight from one foot to another
  - Difficulty in standing
- Treatment
  - Taking the animal off its high concentrate diet
  - Putting wet cold packs on the affected parts
  - Antihistamines are sometimes used
Grass Tetany

- Found most often in cattle during the lactation period
  - It may also be found in cattle that are not lactating
- Occurs when cattle are grazing pastures that are deficient in magnesium
Symptoms

• Early signs
  ▫ Excitement
  ▫ Loss of coordination
  ▫ Loss of appetite

• Other signs
  ▫ Trembling muscles
  ▫ Convulsions
  ▫ Coma
  ▫ Inability to stand

• Death can occur quickly—sometimes within 30 minutes
• Animals seldom recover if not treated within 8-12 hours
Prevention

- Feeding magnesium in the ration
  - Especially in areas where there is a soil deficiency
- Including legumes in the pasture mix
Treatment

• Injecting a calcium and magnesium solution into the jugular vein
• Cattle with the disease MUST be handled carefully as stress will kill them.
• Call a vet when grass tetany is suspected.
• See fig 17-8 p. 351
Hardware Disease (Traumatic Gastritis)

- Cattle sometimes pick up sharp metal objects which collect in the reticulum.
- When they are sharp they may puncture the wall of the reticulum causing infection or damage to surrounding organs—such as the heart.
Symptoms

- Loss of appetite
- Arched back
- Fever
- Stiffness in moving
- Less chewing of the cud
- Pain in defecating
- Pain in lying down and getting up
- Flabby brisket
- Bloat
Prevention and Treatment

• Prevention
  ▫ Ensuring metal objects do not accidentally become mixed in feed
  ▫ Keeping loose wire, nails, and other sharp objects cleaned up in areas where cattle are

• Magnets may be placed in the cows stomach to attract and hold the metal

• The disease is cured surgically.
Summary cont...

- Insecticides are used to control insects—flies, lice, mites and ticks are the most common.
- Sanitation is the most effective control for internal parasites.
- Roundworms, flatworms, coccidia, anaplasma are the most common. Stomach worms are the most serious.
- Good management and feeding programs help prevent nutritional health problems