Large Animal Science

Chapter 4

Animal Health

Health

- Health is the Condition of an animal in terms of how the functions of life are being preformed.
- An animal is said to be in good health when its life processes are normal.

Bright eyes, alert behavior, neat appearance, and no discharge from nostrils or mouth indicate good health

Vital Signs

- Health is associated with Vital Signs. Vital signs are the signs of life. Pulse Respiration, and Temperature are vital signs of many animals

Normal Signs of Selected Adult Animals			
Species	Ave. Normal Temperature (Rectal ^{O}F)	Normal Pulse Rate (rate/min.)	Normal Respiration Rate (rate/min.)
Cattle	101.5	60-70	10-30
Swine	102.6	60-80	8-15
Sheep	102.3	70-80	12-20
Goat	103.8	70-80	12-20
Horse	100.5	32-44	8-16
Chicken	106.0	200-400	15-30

Behavior

- Behavior is defined as the reaction of an animal to certain stimuli. It is the manner in which the animal reacts to its environment.

Disease

- Disease is defined as a disturbance in the functions or structure of an animal.

Animals with disease often have behavior that is not normal. If signs of a healthy animal are not observed, then the animal has ill health. Signs of ill health may include:

- *Lack of Appetite*
- *Sunken Eyes*
- *Nasal Discharge*
- *Inactivity*
- *Rapid Breathing*
- *High Temperature*
- *Rapid Heartrate*
- *Lumps or Protrusions*
- *Open Sores*
- *Bloody Urine or Feces*
- *Loss in Production Levels or Weight*

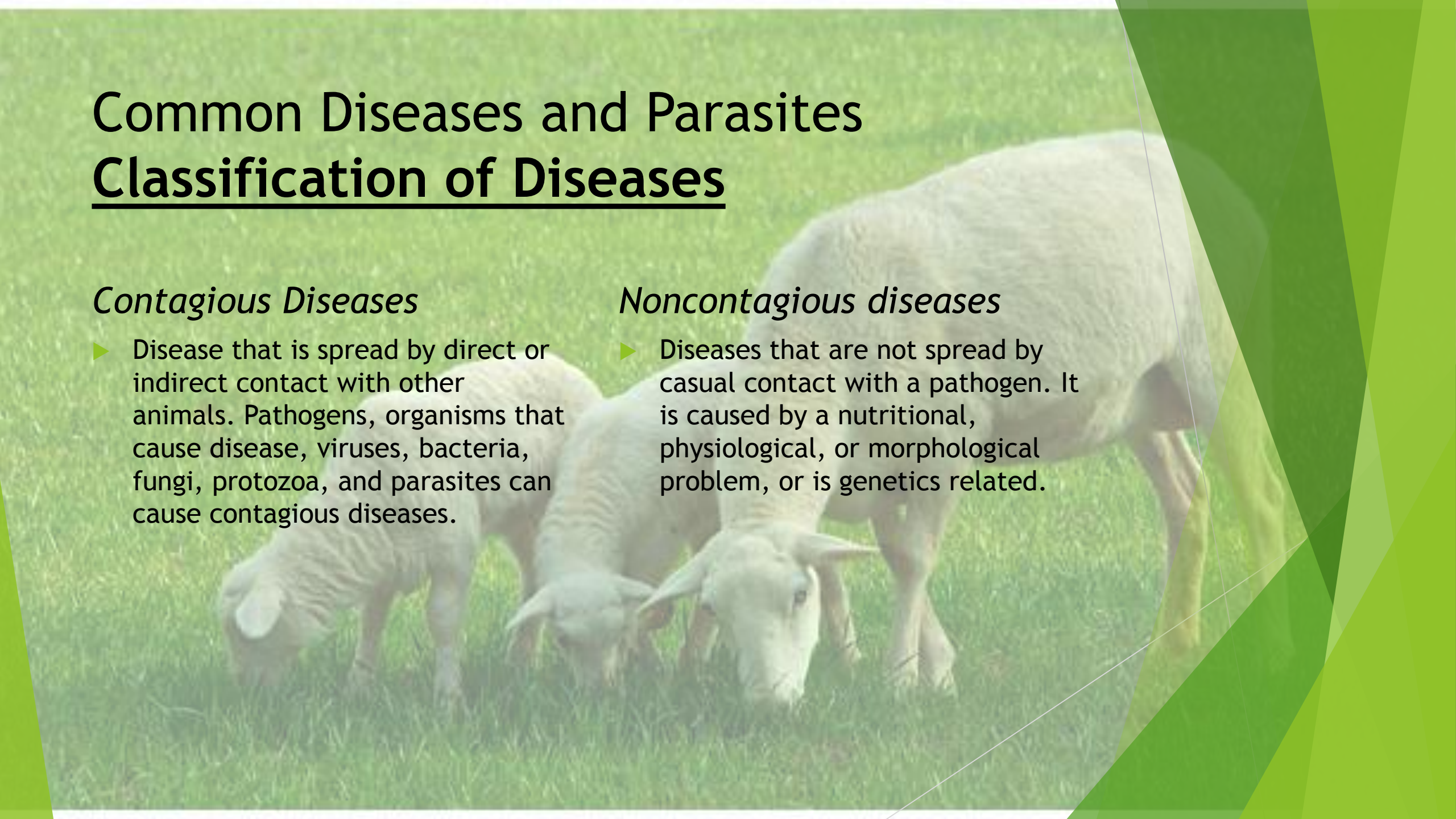
Impact of Environment on Animal Health

- Temperature
- Light
- Moisture
- Moving
- Pollution

Losses Due to Poor Health

- ***Death*** – Dead animals have no value. The producer has lost all that they have invested. Dead animals should be buried, burned or composted. Improperly disposing of dead animals may create bad odors, attract predators, or continue the spread of disease.
- ***Lower Production*** – Failure to reproduce or breed, slow growth rates, decreased milk production, decreased meat production, and increased costs of production are all effects of lower production.
- ***Human Disease*** – Diseased animals can spread the diseases to humans.

Common Diseases and Parasites
Classification of Diseases



Contagious Diseases

- Disease that is spread by direct or indirect contact with other animals. Pathogens, organisms that cause disease, viruses, bacteria, fungi, protozoa, and parasites can cause contagious diseases.

Noncontagious diseases

- Diseases that are not spread by casual contact with a pathogen. It is caused by a nutritional, physiological, or morphological problem, or is genetics related.

Common Diseases and Parasites
Classification of Diseases

- Viral Diseases – A Virus is a microscopic disease producing particle similar to DNA. Vaccinating animals is the most efficient way to control virial diseases
- Bacteria – Bacterial are one-celled organisms sometimes referred to as germs. Bacterial diseases most often manifest themselves as infections and can most effectively be treated with antibiotics
- Fungal Diseases – Fungi are unicellular organisms that generally cause diseases on the outside of the body
- Protozoa – unicellular organisms that are the simplest form of life
- Parasites – Multicellular organism that lives on or in a host and receives its nourishment from that host. Internal parasites live inside the host and external parasites live on the external parts of the animal

Selected Diseases of Animals

Anaplasmosis

- Species Affected: Cattle, Sheep, Goats
- Cause: Protozoan
- Vector: Ticks, Mosquitoes, and Flies
- Information: Anemia due to the destruction of red blood cells
- Clinical Signs: fever, anemia, jaundice
- Treatment/Prevention: Antibiotic if caught early. Blood transfusions occasionally used. Vaccination against. Prevent or manage flies and external parasites

Anthrax

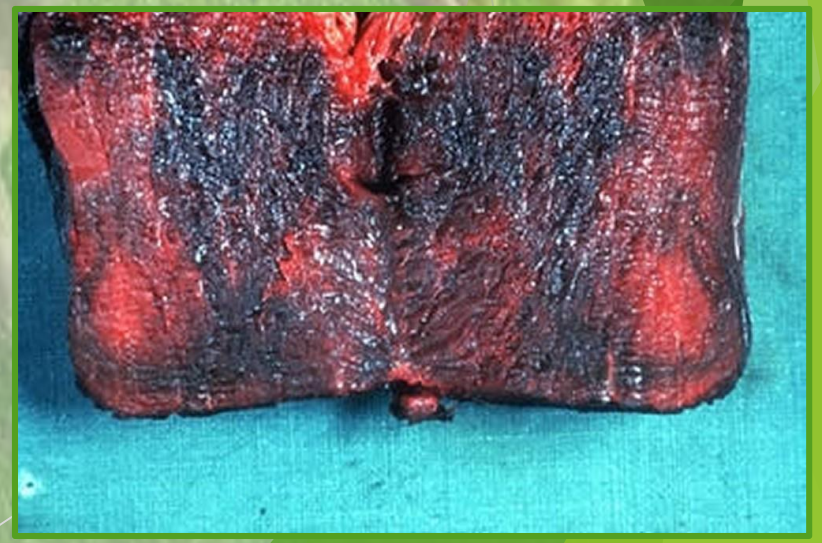
- Species Affected: All warm blooded animals, but primarily Cattle
- Cause: Bacteria
- Information: Contagious and infectious soil-borne disease caused by Bacillus anthracis, a relatively large spore-forming bacteria that can infect mammals
- Clinical Signs: fever, rapid respiration, swelling of neck, sudden death
- Treatment/Prevention: Large doses of antibiotics if caught early. Prevention includes vaccination, controlling flies, sanitizing the environment including disposal of dead animals

Brucellosis (Bang's)

- Species Affected: Cattle, Sheep, Goats, and Hogs
- Cause: Bacteria
- Information: The reproductive tract of the female is infected and usually results in abortion. Females may have to be rebred several times before conception and often abort again
- Clinical Signs: abortion
- Treatment/Prevention: Vaccination, Sanitation, and Bringing in animals from only Bang's free herds.

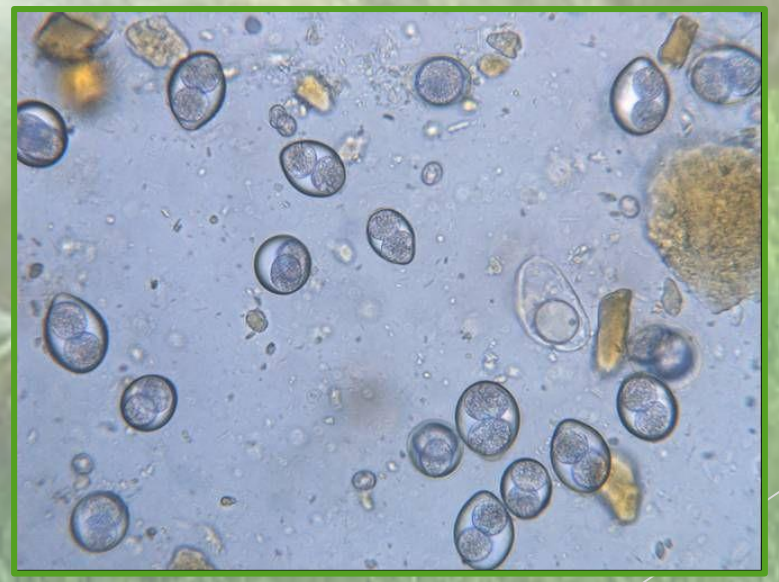
Blackleg

- Species Affected: Primarily Cattle however can affect sheep and goats
- Cause: Bacteria
- Information: acute highly infectious disease that is caused by the Clostridium bacteria and usually results in death
- Clinical Signs: high fever, swelling of neck and shoulder, and thighs will crackle when mashed
- Treatment/Prevention: Vaccinating



Coccidiosis

- Species Affected: All warm blooded animals but primarily sheep, goats, cattle, and camelids
- Cause: Parasite
- Information: The ileum, cecum, and upper colon are usually most affected. Because oocysts are prevalent in feces of sheep of all ages, coccidiosis cannot be diagnosed based solely on finding oocysts. However, diarrhea with oocyst counts of a pathogenic species of >20,000/g is characteristic of coccidiosis in sheep
- Clinical Signs: diarrhea, dehydration, fever, loss in appetite, weight loss, anemia, wool breaking, and death
- Treatment/Prevention: Oral treatment with Corrid, Sanitation, Isolation



Foot and Mouth Disease

- Species Affected: Animals with cloven or divided feet
- Cause: Virus
- Information: No cure & infected animals cannot be imported into the US. In fact animals from many countries with known FMD issues cannot be imported. Pain and discomfort from the vesicles and erosions lead to other symptoms such as depression, anorexia, excessive salivation, lameness, and reluctance to move or stand. Most affected animals will not die from FMD, but the disease leaves them weakened and unable to produce meat and milk the way they did before
- Clinical Signs: watery blisters around the mouth and hooves, High fever
- Treatment/Prevention: Quarantine

Cattle Grubs

- Species Affected: Cattle
- Cause: Parasite caused by heel flies
- Information: The fly lays its eggs in the summer around the heels of the cattle. When the eggs hatch the larva migrate through the animal till they reach its back in a few months where they cause blisters to swell and the adult fly with burst from the bumps
- Clinical Signs: Heel Fly's and bumps along the back
- Treatment/Prevention: Fly control

Leptospirosis

- Species Affected: Cattle, Sheep, & Goats
- Cause: Bacteria
- Information: A disease transmitted through contact with the aborted fetus, blood, bodily fluids, and sexual contact
- Clinical Signs: High Fever, Poor Appetite, Bloody Urine, and abortion in pregnant females
- Treatment/Prevention: High levels of antibiotics for treatment and vaccination against

Lice

- Species Affected: All species
- Cause: Parasite
- Information: A small insect that suck the hosts blood
- Clinical Signs: Itchiness, Anemic
- Treatment/Prevention: Insecticides to kill lice and control/prevent them

Mastitis

- Species Affected: All species
- Cause: Bacteria
- Information: Bacterial infection of the mammary system of female animals that interferes with milk production
- Clinical Signs: Hard, warm udder and in some cases thick or lumpy milk
- Treatment/Prevention: Antibiotic treatment

Rabies

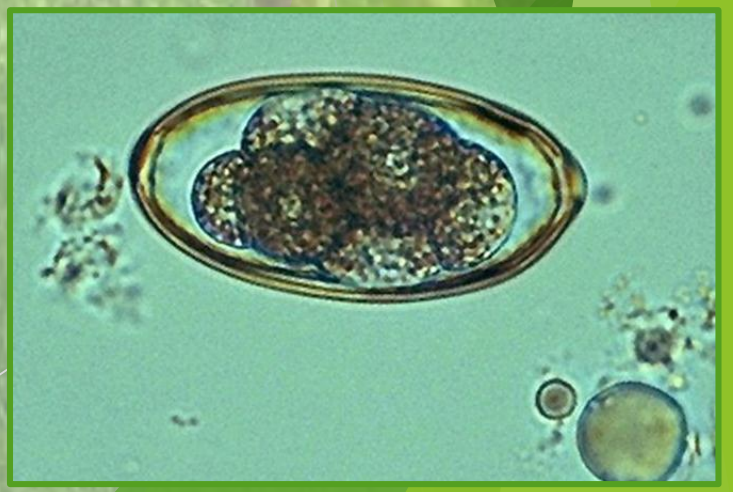
- Species Affected: All species
- Cause: Virus
- Information: Neurological disease that once developed is fatal. Incubation period is 3 to 8 weeks. Common carries include dogs, cats, foxes, skunks, and raccoons.
- Clinical Signs: Irritable and aggressive behavior, avoiding light, fever, vomiting, diarrhea. Frenzied, vicious, and attack. Drawn lips
- Treatment/Prevention: Avoiding suspect animals

Roundworms & Tapeworms

- Species Affected: All Species
- Cause: Parasite
- Information: Intestinal and Stomach worms of many animals
- Clinical Signs: weight loss, anemic, diarrhea
- Treatment/Prevention: Sanitation, not over grazing, and use of wormer products.

Barberpole Worm

- Species Affected: Primarily Sheep and Goats
- Cause: Parasite
- Clinical Signs: rapid weight loss, anemic, diarrhea, severe lethargy, sometimes “bottle jaw” will appear
- Treatment/Prevention: Sanitation, not over grazing, and use of wormer products. Use large amounts of product and make sure it protects against Haemonchus contortus.



Shipping Fever

- Species Affected: Cattle and Sheep
- Cause: Environmental
- Information: Caused by conditions animal may encounter while being transported. More likely to affect those with weakened immune system
- Clinical Signs: High Temperature, Nasal discharge, cough, difficulty breathing
- Treatment/Prevention: Vaccination and control of environment

Pneumonia

- Species Affected: All Species
- Cause: various bacteria, viruses and parasites of the upper and lower respiratory tract are often involved in the development of pneumonia. In sheep, a systemic virus known as Ovine Progressive Pneumonia virus (OPPV) can play an important role
- Information: Pneumonia is an infection of the lung tissue with multiple causes
- Clinical Signs: Lack of alertness, High Temperature, Nasal discharge, cough, difficulty breathing, falling behind the herd or flock
- Treatment/Prevention: Sanitation, Ventilation, & treatment of symptoms with antibiotics

CL

- Species Affected: Small Ruminates
- Cause: Bacteria
- Information: a chronic, contagious disease caused by the bacterium *Corynebacterium pseudotuberculosis*.
- Clinical Signs: The disease is characterized by abscess formation in or near major peripheral lymph nodes (external form) or within internal organs and lymph nodes (internal form).
- Treatment/Prevention: culling; Animals with genetic or emotional value are treated mainly for aesthetic reasons and to limit their infectivity to the rest of the herd or flock. Treatment of individual animals should be undertaken with the understanding that CL is not considered a “curable” disease. Treatment options have included lancing and draining, surgical excision, formalin injection of lesions, systemic antibiotics

Selenium Deficiency & White Muscle Disease

- Species Affected: Small Ruminates
- Cause: Selenium Deficiency
- Information: a chronic, contagious disease caused by the bacterium *Corynebacterium pseudotuberculosis*.
- Clinical Signs: Weak Pasterns, poor growth, stiff gait, arched back, apparent lameness, reluctance to move, sudden deaths
- Treatment/Prevention: Prevention through feeding feed with adequate selenium & access to free choice mineral Treatment through selenium injections (Bo-Se)

Poisonous Plants

- Species Affected: All Species
- Cause: Plants
- Information: Different species are affected by different pathogens
- Treatment/Prevention: Prevention by removing poisonous plants

Poisonous Feed

- Species Affected: All Species
- Cause: Feedstuffs
- Information: Different species are affected by different pathogens
- Treatment/Prevention: Prevention by feeding only approved feedstuffs

Sore Mouth

- Species Affected: Small Ruminates
- Cause: Virus
- Information: Sore mouth, also known as contagious ecthyma (CE) or orf, is an acute infectious disease of sheep and goats. Symptoms include the formation of vesicles, pustules and thick scabs on the lips, nostrils, face, eyelids, teats, udders, feet and occasionally inside the mouth.
- Clinical Signs: formation of vesicles, pustules and thick scabs on the lips, nostrils, face, eyelids, teats, udders, feet and occasionally inside the mouth.
- Treatment/Prevention: Allow disease to run its course. Isolate infected animals to prevent contamination of healthy animals. Vacciciantion is available

Bloat

- Species Affected: All Species
- Cause: Nutritional
- Information: Bloat, or gas accumulation. Bloat occurs when froth, or foam, is produced in the rumen. The foam prevents the gas release, resulting in enormous pressure.
- Clinical Signs: abdominal distention, breathing difficulties and kicking at the stomach
- Treatment/Prevention: Reduce grazing of legumes, watch for swelling of stomach. For treatment, remove the gas by using bloat medicine or in severe cases puncturing the rumen.

Scours

- Species Affected: Young of all species
- Cause: viruses, parasites, bacteria, or any combination of those.
- Information: diarrhea occurring in the first 30 days of a calf's life. The primary harm that scours causes to calves are dehydration, loss of electrolytes (body salts), and inflammation of intestinal lining which impairs the ability to digest nutrients.
- Clinical Signs: Diarrhea; liquid stool; off color stool; dehydration yields symptoms including sunken eyes; weak or depressed disposition; swaying while walking, and/or too weak to stand
- Treatment/Prevention: Sanitation. Stop the diarrhea. Treat with electrolytes for dehydration. In severe cases IV fluids may be necessary

Fungus/Ringworm

- Species Affected: all species
- Cause: Fungus
- Information: Ringworm is a transmissible infectious skin disease caused most often by Trichophyton verrucosum, a spore forming fungi.
- Clinical Signs: Grey-white areas of skin with an ash like surface that is usually circular in outline and slightly raised. Size of lesions very variable, can become very extensive. In calves most commonly found around eyes, on ears and on back, in adult cattle chest and legs more common
- Treatment/Prevention: Topical treatment, application of the medication directly onto the lesion

Scrapie

- Species Affected: Sheep
- Cause: Unknown
- Information: Neurological Disease similar to ‘Mad Cow’ or BSE
- Clinical Signs: Change in Behavior, Scratching, Loss in coordination, abnormal walking, weight loss, loss of wool, lip smacking, tremble, and convulsions
- Treatment/Prevention: No treatment. Suspected Animals should be quarantined. Potentially infected animals should be destroyed

Tetanus

- Species Affected: All Species
- Cause: Bacteria
- Information: Bacterial infection caused by the tetanus toxin.
- Clinical Signs: Stiffness, straddling gait, inability to eat, rigid jaw and tail, respiratory failure, death.
- Treatment/Prevention: Vaccination. Treat with tetanus antitoxin

Foot Rot

- Species Affected: Sheep & Goats
- Cause: Bacteria
- Information: Bacterial infection in the foot
- Clinical Signs: lameness, loosening of the hoof wall, foul-smelling discharge
- Treatment/Prevention: Reducing wet environments, trimming feet regularly, foot baths when necessary

Vibriosis

- Species Affected: Sheep & Goats
- Cause: Bacteria (Campylobacteriosis)
- Information: Bacterial infection in in the ewes repro tract. Spread through exposure to contaminated fetus or fluid
- Clinical Signs: Abortion
- Treatment/Prevention: Isolation of infected ewes. Vaccination

Urinary Calculi

- Species Affected: Sheep & Goats
- Cause: creation of small stones in the urinary tract
- Information: stones can lodge in the urinary tract causing urine to back up, the bladder to swell, and burst. More common in rams and wethers
- Clinical Signs: arched back, depression, low feed intake, straining to urinate, kicking at belly
- Treatment/Prevention: Prevention through uses of Apple Cider Vinegar and limiting in take of calcium and phosphorus. Treatment through surgery

Pregnancy Toxemia (Ketosis)

- Species Affected: Sheep & Goats
- Cause: Metabolic Disorder
- Information: Occurs late in gestation when the ewe doesn't take in enough feed to support her and the fetus
- Clinical Signs: going off feed, lagging behind, nervousness, unsteady gait, inability to stand
- Treatment/Prevention: Treatment with oral propylene glycol. Induce birth if possible. Maybe prevented through proper nutrition.

Impaction

- Species Affected: All Species
- Cause: Rumen is filled with dry, indigestible feed
- Information: Digestive tract becomes blocked
- Clinical Signs: Poor appetite, not chewing cud, bad breath, constipation, weakness
- Treatment/Prevention: Laxative feed, remove feedstuffs, Mineral Oil. Can be prevented

Maintaining Good Health

- Body Defenses – Epithelial Tissue, Mucous Membranes, Digestive Tract, Lymph organs, Metabolic Activity Increase, Immune Reaction

Health Management Practices

- Environmental Conditions
- Sanitation
- Proper Nutrition
- Isolation
- Restrict Traffic
- Restrict Human Access
- Preconditioning of Animals
- Immunization

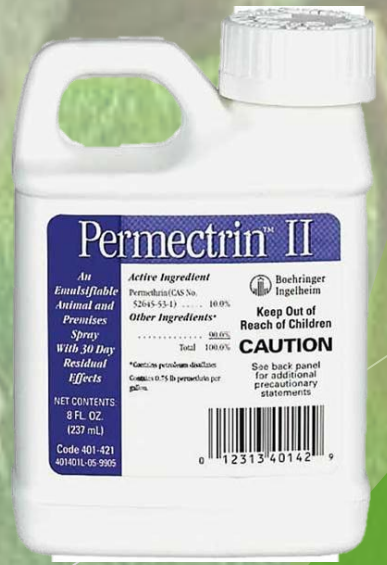
Hog Farm Biosecurity

Treating Disease

- A medication is a substance that is used to prevent and control disease

Kinds of Medications

- A biological is a medicine primarily used to prevent disease
- A pharmaceutical is a medicine used to treat a diseased animal
  - Antibiotics – a substance produced by an organism that will inhibit or kill another organism
  - Pesticides
  - Dietary Supplements
  - Sulfonamides
  - Others (Vaccines, Serums, Bacterins, Toxoids)



Administering Medications

- In order for medications to reach the source of infection and work properly they must be administered correctly.
  - Additives
  - Injections – a medication given directly into the bloodstream, tissues, muscle, or body cavity
  - Implants
  - Topical
  - Oral – medication given through the mouth. Given with a drench (liquid) or balling gun (pill/bolus)
  - Other

Types of Injections

- Intradermal – injection made into the skin
- Subcutaneous – injection given just beneath the skin
- Intramuscular – injection given into the muscle
- Intravenous – injection given into the vein
- Intranasal – injection given through the nose
- Intraperitoneal – injection given into the body cavity