Infectious Diseases

- Prions
- Viruses
- Bacteria
- Protozoa
- Helminth parasites
- Arthropod parasites
Why is it important?

• Loss of productivity and economic losses
  – Cost = Losses + Treatment + Prevention
• Mortality
• Carcass condemnations
• Zoonoses
• Export and import
Identify the problem

• Monitoring
• Acute clinical disease
  – Multifactorial disease complexes
Identify the problem

- Subclinical infections
  - Record management systems
  - Production efficiency compared to industry benchmarks
Types of Problems

• Endemic disease
• Disease outbreaks
  – Change of management
  – Naïve animals (open herd)
  – New strains of pathogens
  – Inadequate vaccination
Clinical Examination of the Herd

• Identify risk factors
• Unaffected animals
• Characteristics of animals affected
  – Organ systems involved
  – Timing of disease
  – Place it occurred
Laboratory Diagnosis

• Confirm causative agent
• Identify carriers and shedders
  – In order to eliminate a pathogen from a herd
  – Sampling schemes and interpretation
Disease Triad

Pathogen → Host → Environment
Risk Factors - Pathogen

- Virulence
- Reservoir
- Mode of transmission
- Viability in environment
- Concurrent infections
- Antibiotic susceptibility patterns
Risk Factors - Host

• Age
• Size of herd
• Nutritional status
• Immunity
• Historical disease
• Stage of pregnancy or production
• Breed?
Risk Factors - Environment

- Region and herd density
- Climate
- Footing/bedding
- Insect vectors
- Other species
Risk Factors - Environment

• Introduction of new animals
• Co-mingling & transportation
• Stocking rate vs density
• Housing
• Hygiene
Management of Infection

- Prevention
- Control
- Eradication
Principles of Control

- Treat infections
- Minimize infection pressure
- Prevent new infections
- Improve host response (vaccines)
- Genetic selection for disease resistance
Biosecurity

- Screen new additions
- Isolation pens
- Hygiene/sanitation
- Traffic control
  - People & equipment
  - Naïve \(\rightarrow\) Disease
    - Young \(\rightarrow\) Adult
    - Origin flock \(\rightarrow\) New addition
Disinfection

- Dry clean
  - Remove dirt and debris
- Soap
- Rinse
- Dry
- Disinfect
  - Right chemical, concentration, & time

80%

20%
Caseous Lymphadenitis (CL)

- *Corynebacterium Pseudotuberculosis*
- Abscesses of lymph nodes
  - External
    - parotid lymph nodes
  - Internal
Caseous Lymphadenitis (CL)

• Sources of infection
  – Discharges from ruptured abscesses
  – Nasal and oral secretions
    • Pulmonary abscesses

• Major risk factors?
  – Shearing!!
Caseous Lymphadenitis (CL)

• Economic importance
  – Reduced growth rate
  – Carcass condemnation
  – Blemishes in the hide
  – Reproductive inefficiency
  – Chronic weight loss
Caseous Lymphadenitis (CL)

• Transmission
  – Direct contact with infected animals
  – Contaminated environment
  – Insect vector?

• Survives in the soil for months to years
Caseous Lymphadenitis (CL)

• Control strategies
  – Screening of new additions
  – Origin herd status
  – Fly control/waste management plan
  – Control external parasites
  – Minimize sharps objects in facilities/alleys
Caseous Lymphadenitis (CL)

• Control strategies
  – Disinfection of equipment
    • Needles, tattoo equipment, etc
  – Isolate ewes with clinical signs
    • Remove lambs
  – Handling (naïve → disease)
    • Youngstock → ewes → rams → animals with lesions
Caseous Lymphadenitis (CL)

• Control strategies
  – Pasture management (naïve → disease)
    • Close pastures for 6-8 months after infected sheep
  – Barn & pen management
    • Remove bedding & top soil
    • Disinfect
Caseous Lymphadenitis (CL)

• Control strategies
  – Consult with your veterinarian
    • Abscess management
    • Vaccination program
Other Diseases

• Clostridial enteritis
• Parasites
  – *Haemonchus contortus*, coccidiosis
• Mites
• Mycoplasma
• Q Fever
• Scrapie
Questions?

rcbusch@ucdavis.edu