ANSC 410 Veterinary Entomology

This course will focus on economically important arthropods that spend all or some portion of their lives on wildlife, livestock or companion animals.

Objective: Develop an awareness and understanding of the impact arthropods have on animal production and health.

ANSC 410 Veterinary Entomology

- My motivation
- My qualifications
- Course syllabus
- Grading system

Parasitic Arthropods

Parasite lives directly at the expense of other animals

- Not a commensal relationship

- Degree of harm varies with condition of host and density of parasite
Parasites

1. Ectoparasite
   lives on or burrows into the surface of the skin. Ex. Ticks, flies, etc.

2. Endoparasite
   occurs inside the host. Ex. Cattle grubs, horse bots

Parasites

Obligatory - totally dependent on the host
Ex. Lice

Facultative – free-living and parasitic life stages
Ex. mosquito

What does a parasite derive from its host?

   Food
   Home
   Transportation
   Proliferation (growth/multiplication)
Food – blood, tears, skin, tissue, manure

Home - warmth, moisture, protection from elements

Transportation
Proliferation (growth/multiplication):
- Egg laying sites
- Sites for development
  - On-animal
  - By-products
  - Carcasses

Effects on livestock health

Blood loss: Myiasis
Dermatitis: Envenomation
Allergic responses: Annoyance
Self-wounding: Vector
Social nuisance

Effects on livestock health

Blood loss:
- Seepage from wounds
- Up to ½ liter per day by tabanids
Effects on livestock health

Myiasis:
- Invasion of living tissue by fly larvae

Effects on livestock health

Dermatitis:
- Skin inflammation, hair/plumage loss

Effects on livestock health

Envenomation: urticating or stinging catpillars
Effects on livestock health

Allergic responses:
• Blister beetles and cantharadin

Effects on livestock health

Annoyance:
• Behavior modification

Effects on livestock health

Self-wounding:
• Escaping from insect attack resulting in cuts, broken legs, etc.
Effects on livestock health

Social nuisance:
- Odors
- Fly dispersal
- Contamination

Effects on livestock health

Vector of pathogens:
- Mechanical or biological

Arthropod Transmitted Diseases in Montana 2005 - 2013

<table>
<thead>
<tr>
<th>DISEASE</th>
<th>VECTOR</th>
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<tbody>
<tr>
<td>West Nile Virus</td>
<td>mosquito</td>
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<tr>
<td>Vesicular Stomatitis</td>
<td>black fly</td>
</tr>
<tr>
<td>Bluetongue</td>
<td>biting midge</td>
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<tr>
<td>Epizootic Hemorrhagic Disease</td>
<td>biting midge</td>
</tr>
<tr>
<td>Equine Infectious Anemia</td>
<td>deer/horse</td>
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<td>Canine Heartworm</td>
<td>fly</td>
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<tr>
<td>Anaplasmosis</td>
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<tr>
<td>Rocky Mountain Spotted Fever</td>
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<tr>
<td>Colorado Tick Fever</td>
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<tr>
<td>Relapsing fever</td>
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<tr>
<td>Tularemia</td>
<td>tick</td>
</tr>
<tr>
<td>Plague</td>
<td>flea</td>
</tr>
<tr>
<td>Jamestown Canyon</td>
<td>mosquito</td>
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</tbody>
</table>
Disease impacts on livestock

- Morbidity and mortality
- Cost of recovery
- Quarantine and confinement
- Surveillance activities
- Vaccination programs
- Loss of exports

Direct damage impacts are staggering

- Horn fly and stable fly reduce cattle production annually by >$1 billion in US and ~$500 million in Canada.
- House fly #1 nuisance pest in confined animal operations can carry >65 pathogens.
- Millions spent annually on mosquito control in US.
- Economic losses include weight reductions, lower milk production, pasture usage, control costs, etc.