VMP 930
Veterinary Parasitology

Lice
Lice

- **Insects** (head, thorax, abdomen, 6 legs)
- Dorso-ventrally flattened
- Entire life cycle spent on host
  - very host specific
  - Claws may be specialized for clinging to the hair of a specific host species
Lice – Life Cycle

- Simple metamorphosis (= Hemimetabolous)
  - young look similar to adults
- Eggs (nits) are cemented to hair or feathers
  - Hatch in approximately 8-18 days
  - Nits resistant to insecticides
- Go through a series of nymph stages
  - Become adults in 18 days - 3 weeks
Lice - Life Cycle

- Compare / contrast the life cycles of fleas and lice.
  - Complex or Simple metamorphosis?
  - Percentage of insect population on the host?
    - What does this mean for control strategies?
  - Host specificity?
Lice - Life Cycle

Transmission

- Spread via close contact or fomites
  - Mother to offspring
  - Sharing nests / pens
  - Mating
  - Grooming tools
Lice - Ecology

Seasonal Population Trends

- Populations and Transmission increases during colder seasons.
  - Cold weather stress
    - Decreased immunity
  - Thicker hair coats
  - Increased huddling behavior
  - Kept in barns, etc.
Trichodectes canis

All Stages occur on the Host's Integument

Transmission to Other Hosts via Direct Contact or Infested Grooming Tools

Eggs (Nits) attached to Hair

Adults

Nymphs

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Lice Groups

MALLOPHAGAN LICE
Chewing Lice
- Broad head to accommodate chewing mouth parts
  - Mandibles & Muscles
- Feed on fur, feathers, epidermal debris.
- Birds and Mammals

ANOPLURAN LICE
Sucking lice
- Narrow head w/ piercing & sucking mouth parts
- Feed entirely on blood.
- Mammals only
Mallophagan (Chewing) Lice

Pathology

- Feed on fur, feathers, & epidermal debris
- Irritation / Pruritus
  - Restless, stressed animals
  - Host bites / scratch => self-trauma
    - skin, fur, wool, feather damage
- Decrease productivity
  - Egg and milk production decline.
  - Decreased Feed conversion.
Some Mallophagans

- Damalinia (Bovicola) spp.
  - cattle, horses, sheep
- Trichodectes canis
  - dog (intermediate host for Dipylidium)
- Felicola subrostratus
  - (only louse of cats)
- Menacanthus stramineus (Chicken Body Louse),
  Menopon gallinae (Shaft Louse)
  - poultry
Mallophagan (Chewing) Lice

Ex. *Trichodectes canis*, *Felicola subrostratus*, *Bovicola bovis*
Pathology

- Feed on Blood
  - Anemia
  - Staining of wool
- Irritation / Pruritus
  - Restless, stressed animals
  - Host bites / scratch => self-trauma
    - skin, fur, wool, feather damage
  - Decrease productivity
    - Milk production decline.
    - Decreased Feed conversion.

Anopluran (Sucking) Lice
Some Anoplurans of domestic animals

Cattle

- *Haematopinus eurysternus*
  - short-nosed cattle louse
- *Linognathus vituli*
  - long-nosed cattle louse
- *Solenopotes capillatus*
  - Little blue cattle louse
Some Anoplurans of domestic animals

**Horse**
- *Haematopinus asini*

**Pig**
- *Haematopinus suis*
  - only louse of pigs

**Dog**
- *Linognathus setosus*
Anopluran (Sucking) Lice

Ex. *Haematopinus*, *Linognathus*, *Solenopotes*
Diagnosis / Surveillance

- Observe Animal Behavior and Appearance
  - Increased scratching behavior?
  - Soiled or Loss of hair, wool, feathers?
- Direct inspection of host for lice and nits
  - Part hair, wool, feathers to inspect skin
  - Nits cemented to hair, wool, feathers.
- More vigilant in Fall and Winter. Why?
Treatment of Lice

- Topical insecticides
  - sprays or dips
  - chewing or sucking lice
  - Treat twice at 7 to 14 day intervals (Why?)
    - Insecticides don’t kill nits

- Systemic insecticides
  - sucking lice only
  - Always observe withdrawal times for production animals
Control

- Confirm type of lice before treatment. Why?
- Good Nutrition = decreased lice population
- New animals - Quarantine, check & treat
- Insecticide Application Methods
  - Sprays, Dusts, Pour-ons, Injections
  - Self-applications - dust bags, oilers, back-rubs
  - Flea control insecticides also eliminate lice
Human Anoplurans

- *Pediculus humanus capitis*
  - Human head louse
  - Nits on hair shaft
Human Anoplurans

- *P. humanus humanus*
  - body louse of man
  - Eggs deposited in clothing (not cemented on hair)
  - *Rickettsia prowazekii* (epidemic typhus)
Human Anoplurans

- Phthirus pubis
  - Human crab louse
  - STD (blamed on dog)