ECTOPARASITES OF POULTRY

• The control of ectoparasites and flies cost industry over $200 million annually.
• Most of this money is used on fly control in caged layer manure that constitutes a menace to public health and public perception.
• However, ectoparasites on poultry cause production losses and disease spread that must be controlled for poultry to reach its full production potential.
COMMON ECTOPARASITES

MITES AND LICE
• The most common ectoparasites seen in commercial poultry operation.

BEDBUGS
• Occasionally infest chickens and may cause them to become anemic and avoid using nests.

CHIGGERS
• In turkeys kept on the range - skin lesions may cause downgrading of products at slaughter.
MITES

- There are two species of mites that cause economic losses in U.S. Poultry.
  - Northern fowl mite - *Ornithonyssus sylvarium* is the most important.
  - Chicken mite - *Dermanyssus gallinae*, also known as red mites or roost mites may occur, particularly in backyard flocks.
NORTHERN FOWL MITES (FEATHER MITES)

• Causes economic loss due to reduced egg production (up to 15%), increased feed consumption, reduced weight gains, and reduced seminal fluid production in roosters.

• Entire life cycle on host that can be completed in 5 days. Adults survive off the host for 3-4 wks. under suitable conditions.

• Most problems are in cooler months.
Northern Fowl Mite

Northern Fowl Mite
1/64 to 1/32 in. long
DIAGNOSIS

• Presence of mites on feathers around the vent area in hens and over the entire body of males.

• Check several birds, some may not be infested.

• Use bright light and magnification.

• Light stimulates mite movement.

• Mites appear grey when looking for a meal and black after feeding.
SIGNS AND LESIONS

- Most often seen in young layers 20-30 wks. of age.
- Rough and scaly skin.
- Darkening of feathers around vent due to the accumulation of dried mite excreta and mite eggs.
- Heavy infestation may cause anemia since mites eat blood & body secretions.
- Scabs on "feeding areas" may be seen around vent or on dressed carcasses.
Northern Fowl Mites
Northern Fowl Mites
Northern Fowl Mites
CONTROL

- Make sure house is clean and free of mites before stocking.
- Make sure new birds are mite free.
- Prevent transport of mites on contaminated clothing, egg flats, and equipment.
- Remember mites can live several weeks off the host. Equipment movement from infested houses to clean houses causes new infestations.
CONTROL (CONT.)

- Use new egg flats and steam clean all equipment moved into a clean house.

- Exclude wild birds and rodents from poultry houses.
CONTROL (CONT.)

• If infestation occurs, established chemical control methods must be carried out with spraying equipment that will provide high enough pressure for the spray to penetrate the feathers, especially in the vent area. Wetting agents can help penetration. Use the spray under the cages and spray up at the birds. May also dip each bird in solution.

• Ideal spray pressure is 100 to 125 lbs./sq. inch. (psi) with 1 gallon of spray per 100 birds.
CONTROL (CONT.)

• Follow the directions and instructions found on the spray container closely.
• Emulsifiable concentrates mix better and are easier to use than wettable powders.
• Insecticide dust may be placed in the nest of breeders.
• In caged layers spray upward beneath the cage (vent area of the bird).
• Spray breeders at night when they are on the slatted area.
CONTROL (CONT.)

• When selecting an insecticide refer to UGA Cooperative Extension Service Circular 805, "Insecticide use chart for egg and poultry producers".

• The back side of this circular has an excellent guide on mixing and applying insecticide sprays.
THE CHICKEN MITE (RED OR ROOST MITE)

- This mite is a blood feeder that infests birds during the mites feeding period which is mostly at night.
- When not feeding, the mite hides in the cracks and crevices of poultry houses and objects within, especially roost slats and nest boxes.
- This mite can transmit diseases caused by viruses and bacteria.
Red Mite

Chicken Red Mite
1/64 to 1/32 in. long
Life Cycle

1. Hatch in 2 days in summer
2. Nymph
3. Become adult in 3 to 6 days
4. Lays eggs and breeds
5. Full-fed adult
6. Feeds, then lays (then feeds age)
7. Pearly white elliptical eggs
8. Feeds on blood
9. Unfed adult (Light color)
Red Mite
SIGNS AND LESIONS

- Same as for northern fowl mite but mites are found on the birds, usually at night only.
DIAGNOSIS

- Mites are gray or red depending on the timing of the last blood meal.

- Use strong light and magnification to see mites around vent. Best to look at night.

- Infestations with red mites will cause premises to have an offensive odor due to decomposed blood products in mite excreta.
CONTROL

- Same as for Northern fowl mites.

- Since this mite can survive off of the bird for several weeks in protected areas additional attention is needed in the cleaning and chemical spraying of the infested house and its contents.

- A high pressure (175-200 psi) spray is required to penetrate cracks, crevices, and hiding places. Do not use more than 125 psi directly on birds.
LICE (PEDICULOSIS)

• The chicken body louse, *Menacanthus stramineus*, is common in both chickens and turkeys.

• It is about 1/8" long.

• Several other species of lice can occur but rarely in numbers large enough for economic losses.
CHICKEN BODY LOUSE

• Body lice may build up large populations in poultry, especially on caged layers. Lice spend their entire life cycle on the host. One pair can replicate to 120,000 lice in 3 months. They live for several months.

• Lice infesting poultry are chewing lice not blood suckers. They feed on dander and feather parts.

• Egg production losses up to 46% and body weight losses can occur in hens.
Chicken louse
Chicken louse
DIAGNOSIS

- **SUGGESTIVE DIAGNOSIS** - ragged appearance of feathers with fluff missing from feather barbs (eaten off).

- **POSITIVE DIAGNOSIS** - finding lice (about 1/8" long) on feathers and skin usually around the vent. Lice are photophobopic and move very fast.

- Nits (white egg capsules) - present around the base of vent feathers.
Chicken louse
Chicken Louse
CONTROL

• Same as Northern fowl mites.

• Due to slow hatching of lice eggs, a second spray 10-14 days after the first may be needed since chemicals are not ovicidal.
BEDBUGS
(Cimex lectularis)

- Usually seen in breeder houses and interferes with production by causing anemia and causing birds to resist using infested nests. Bedbugs are about 1/4" long and suck blood.
- Hard to diagnose - examine house. Look in cracks and crevices.
- Behave similar to chicken mites (red mites) but are much larger (about 1/4" long). They are nocturnal feeders and may be hard to diagnose because they get on bird for a blood meal that takes only 5-10 mins. Usually diagnosed by finding them in cracks and crevices of the house or equipment. Suspected when insect bites appear on anemic chickens.
Bed bug

Bed Bug
1/32 to 1/8 in. long
CONTROL (BED BUGS)

- Same as for chickens mites (red mites).
- Concentrate on cracks and crevices of house and equipment.
- May have to spray a second time due to the low toxicity of available approved chemicals.
- Use a product with good residual effect.
Bed bugs
CHIGGERS

- A problem in turkeys ranged on low brush-type pasture usually including pine trees.

- Soil type is important. The parasite requires clay type soil that cracks in dry weather.

- The free living form of this parasite has never been found in nature.

- Cause down grading because of reddened lesion where the chigger embeds in the skin.
Chigger

Chigger
1/64 to 1/32 in. long
DIAGNOSIS

• Should check market birds about 5 weeks before market time.

• Look for red areas under wings and in areas where feathers are sparse.

• Takes 3 1/2 - 4 weeks for lesion to heal.
CONTROL

- Treat infested or suspect infested ranges as described in UGA Cooperative Extension Service Circular 805.

- Dursban* (chlorpyrifos) or Malathion** are treatments of choice.

- *Use on ranges only.

- **Can be used on birds.
Darkling Beetle
(Lesser mealworm)

• A nearly universal pest in poultry operations
• Thrives on warmth, abundant food, and moist litter
• Black or dark reddish brown, 1/4 to 3/8 inches
• Egg to adult in 2-3 months. Hundreds of larvae each 60 days.
• Life span: 2+ years
DARKLING BEETLES

- These litter beetles will migrate from chicken houses to peoples’ houses after the chickens are moved out.

- They pupate in the soil. Placement of boric acid on the soil will destroy the larvae and control populations.

- These beetles are able to concentrate Botulism toxin, carry tapeworm eggs, and transmit bacterial and viral diseases.
Costs of Darkling Beetles

• Increased building maintenance costs
  – Larvae tunnel into insulation and even wood to pupate
  – Damage as much as 25% of initial cost
• Increased production expense
  – Damaged insulation increases heating costs and less efficient growth
• Reduced feed conversion
  – Birds eat beetles and less feed
Costs of Darkling Beetles

- Increased disease and medication costs
  - They can carry and transmit Salmonella and other disease organisms and act as intermediate hosts for parasites
  - Results include increased death loss, condemnations, and medication costs

- Reduced public good will
  - Handling manure containing beetles can cause public relations problems
  - May migrate to neighbors - attracted to light
Darkling beetles