Backyard Flock
Pests and
Management
Techniques

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Where are parasites coming from?

Most common Pests
-On- & off-host
-Life cycles

Management
-General tactics
-Resources
Animals

- w/o a backbone
  - Arthropods
    - Insects
    - Arachnids
      - Spiders
      - Mites
        - Ticks
  - w/ a backbone
    - Birds
      - Galliformes
      - Chickens & other poultry
Where are parasites coming from?
Head Lice Victim Jennifer Garner Does Perfect Ben Affleck Impression

Rebecca Rose
Filed to: JENNIFER GARNER  10/02/14 9:40am

43,656  12  ★
Where are parasites coming from?

- Wild birds
- Rodents
- Contaminated pullets/new birds
- Contaminated supplies
- People
Know your parasite

• Why?
  – Dictate decision making
  – Life cycle
Diversity and Prevalence of Ectoparasites on Backyard Chicken Flocks in California

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Abstract

Peridomestic (“backyard”) chicken flocks are gaining popularity in the developed world (e.g., North America or Europe), yet little is known regarding prevalence or severity of their ectoparasites. Therefore, five birds on each of 20 properties throughout southern California were surveyed in summer for on-host (permanent) and off-host
Lice

- Several chicken-specific species
  - Can have >1 type per bird
- Found on different parts of body in **feathers** and **on skin**
Menopon gallinae
Shaft Louse

Menacanthus cornutus

Goniocotes gallinae
Fluff Louse

Menacanthus stramineus
Chicken Body Louse

* NOT to scale

Photos by ACM
Menacanthus stramineus
Chicken Body Louse

Photos by ACM
Cuclotogaster heterographus
Chicken Head Louse

Photos by ACM
Lipeurus caponis
Chicken Wing Louse
Sticktight Flea

- *Echidnophaga gallinacea*
- Not chicken specific
Sticktight Flea

- Adult fleas embed into the face/comb of chickens
Sticktight Flea Life Cycle

- Eggs
- Larva
- Pupa
- Adult

On Host: 1-2 months

Off Host:

http://purchase.fleabusters-rxforfleas.com/
Bed bug

Human victim
Bed bug

- Not chicken specific

Human victim
Scaly Leg Mite

- *Knemidocoptes mutans*
- Live in the skin under leg scales
- Chicken specific
Northern Fowl Mite

- *Ornithonyssus sylviarum*
- Bird specific
Northern Fowl Mite
Life Cycle

Complete life cycle in 5-12 days!

Modified from:
Annu. Rev. Entomol. 59:447–66

All On-Host
Poultry Red Mite/Chicken Mite

- *Dermanyssus gallinae*
- Bird specific

Complete life cycle in 10 days!
Dermanyssus gallinae
Fowl Tick/Poultry Tick

- Soft ticks – *Argas* spp.
Fowl Tick/Poultry Tick

- Larvae = prolonged feeding
- Can cause paralysis
- Vector of avian spirochetes
Flies

- Can move around pathogens
- Generally pestiferous
Flies

- House fly – *Musca domestica*
- Little house fly – *Fannia canicularis*
Control
Integrated Pest Management

• Prevention
• Monitoring
• Use different techniques
  – cultural – how animals are raised
  – chemical – use a product to kill pest
IPM - Prevention

Sanitation & Biosecurity

• Exclude wild birds & their nests
• Exclude rodents
• Quarantine/examine new birds*
• Clean equipment
  • Hot soapy H₂O & bleach
• Limit visitors to flock
• Don’t visit multiple flocks on same day

Sparrow on commercial poultry operation

B. Mullens
IPM - Monitoring

^ Off-host pests

<- Check on-host
- Beak compromised birds
- Males
IPM - Cultural

• Remove litter regularly
  – especially after treatment
• Fill crack & crevices in nest boxes/housing
• Bathe birds with soap & water
  – Dislodge ectoparasites
  – Eggs may remain...
• Clip vent feathers
• Breed choice
Flies & Manure

• Too much manure & too wet
  – Bird density
  – Removal of manure – thin layers to dry
  – Fertilizer
    • Disc in/incorporate with soil (less concentrated)
  – Fly baits & fly tapes
IPM – Chemical control

• Treatment
  – ALWAYS read the label
  – Protect yourself & animals
0.50% Pyrethrins for Quick KILL

KILLS & REPELS:
FLYING INSECTS: Flies, Mosquitoes, Small Flying Moths, Gnats, Cockroaches, Fleas, Asian Beetles, Barn Flies, Deer Flies, Stable Flies, Horn Flies, Horse Flies, House Flies, Face Flies, Lice and Cluster Flies

FOR USE IN:
Beef Cattle Operations, Dairy Farms, (including Milk House, Milk Parlor, Loafing Sheds and Holding Lot), Hog Operations, Kennels, Barns, Stables, Farms, Animal Quarters, Milkrooms and Poultry Houses

CONTAINS NO CFCs OR OTHER OZONE DEPLETING SUBSTANCES. FEDERAL REGULATIONS PROHIBIT CFC PROPELLANTS IN AEROSOLS.

ACTIVE INGREDIENTS:
Pyrethrins........................................0.50%
*Piperonyl Butoxide, TECHNICAL...........4.00%
INERT INGREDIENTS..........................95.50%

* Equivalent to 3.2% (butylcarbityl) (6-propylpiperonyl) ether and 0.8% related compounds.

KEEP OUT OF REACH OF CHILDREN
CAUTION
See Back Panel for Additional Precautionary Statements.
Registered Pesticides

Searchable database of pesticides to control pests of animals

Please choose the state in which this material will be applied:

CA

Please indicate the type of animal / area to which this material will be applied:

Poultry

Please choose the type of pest:

Lice

Please indicate the preferred application methods:

- All
- Dust (3)
- Fog/Aerosol (23)
- On-animal spray (24)
- Premise treatment (30)
- Topical application/Pour-on (7)

Search

Print Result
The inclusion of a product listed in this database does not imply an endorsement of that product by the University of California or any other entity associated with the Insect Pests of Animals website.

Read and follow product labels carefully for target pest information, compatibility of the treatment with other management practices and for precautions to avoid contamination of feed, water, meat or eggs.

Veterinary Entomology Pesticide Database accessed on Monday, February 01, 2016 01:21pm

Product labels can be found here - US EPA Pesticide Product Label System.

Show All entries

<table>
<thead>
<tr>
<th>PRODUCT NAME</th>
<th>A.I.</th>
<th>IRAC CODES</th>
<th>MANUFACTURER</th>
<th>EPA REG.CODE</th>
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</thead>
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<tr>
<td>ATROBAN 11% EC</td>
<td>Pyrethrin</td>
<td>9A</td>
<td>INTERVET INC.</td>
<td>772-59</td>
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</table>
IPM – Chemical control

• Insecticide Resistance
  – If you expose the same population of insects to chemicals that *work the same way*, the insecticide may become ineffective
Off Label Use

- Frontline - fipronil
  - High residual, very lipophilic
  - 200 d withdrawal for cattle
  - Never eat eggs or meat again
Botanicals

- Pyrethrum – plant derived
- Neem
- Garlic-based
- Other essential oils

- More variation
- Don’t last as long
- Beware of testimonials...
Dustbathing

- Complex behavior
- Control feather lipid levels
- Prefer fine substrate
  - (sand > straw)

Murillo and Mullens, *in prep*
Dustbathing

• Use a container
  – Plastic pool
  – Plastic cement mixing bin
• Use sand as main substrate
• Add Diatomaceous Earth
  – Food grade
  – 9:1 ratio
• Use Dustmask

Murillo and Mullens, in prep
Pest Management Resources

• Use reputable websites → .gov or .edu
  – Look for University Extension resources
  – .com / blogs
HEY MOM,

I JUST TOOK CARE OF THE SPIDER PROBLEM
Small and Backyard Flocks

Salmonella and Backyard Chickens
Outbreaks in humans of Salmonella infection, or salmonellosis, linked to live poultry in backyard flocks continue to occur. In an outbreak occurring during... >Read More
Small Flock Management Resources

- **General Topic**
  - Laying Hens
  - Problems

- **Incubation and Hatching**
  - Brooding
  - Feeds and Nutrition

- **Processing**
  - Table Eggs
  - Other Fowl

- **Broiler Meat Flock**

- **Health**
Insect Pests of Animals

Veterinary Entomology

Home

Pest Management
IPM information on pests of animals

VetPestX
Searchable database of pesticides to control pests of animals

Training and Instruction
Videos and documents

Veterinary Entomologists
Researcher contact information provided for each U.S. state

Funding Opportunities

Meetings and Events
Information on scientific and extension opportunities

Other Resources
Related links and websites

Blog
News and Events in Veterinary

This website is produced as an extension service of the USDA S1060 Multistate Research and Extension Project to provide information on the biology and management of animal ectoparasites (flies, lice, ticks, mites, fleas). Contributors include extension and experiment station faculty at universities across the United States.
QUESTIONS?

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IPM – Biological Control

- Using natural enemies to control pests
  - Parasitoids
  - Predators
  - Fungi
- Work best in enclosed areas
  - Lab reared
- Promote natural populations

Fly Pupa
Litter Beetles

• *Alphitobius diaperinus*
  – Darkling beetle, lesser mealworm

• Structural damage

• Vectors
  – *Salmonella* & *Escherichia coli*
  – Viruses - Newcastle & Marek’s
  – Intermediate hosts chicken tapeworm *Choanotaenia infundibulum*

• Nuisance
The life cycle of the darkling beetle, *Alphitobius diaperinus* (Panzer), from egg to adult. Scale bars = 1mm.

45-100d