



Backyard Flock Pests and Management Techniques

Amy C. Murillo

**Department of Entomology
University of California Riverside
alock001@ucr.edu**



Where are parasites
coming from?



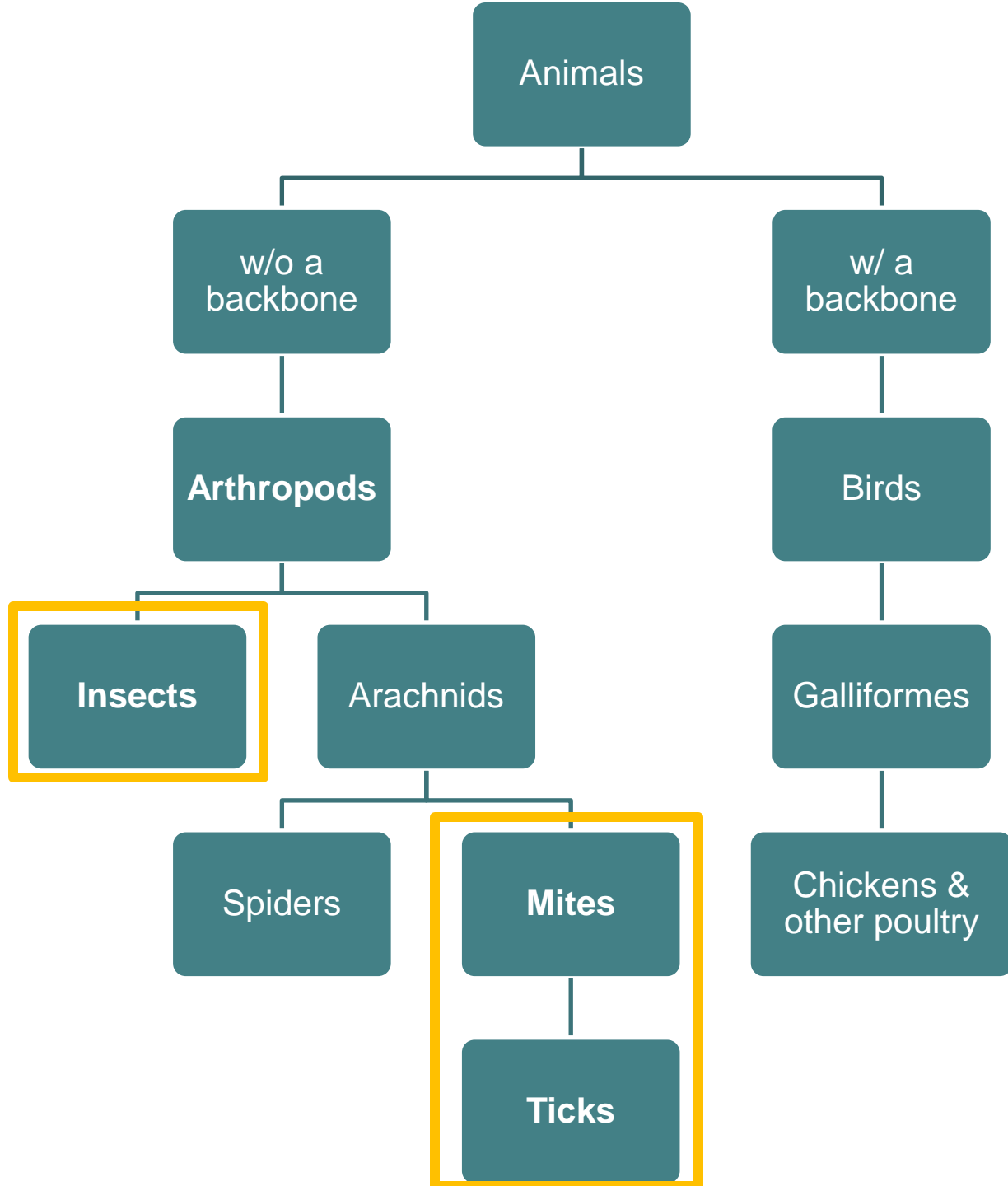
Most common Pests

- On- & off-host
- Life cycles



Management

- General tactics
- Resources



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



Short Communication

Diversity and Prevalence of Ectoparasites on Backyard Chicken Flocks in California

Amy C. Murillo¹ and Bradley A. Mullens

Department of Entomology, University of California, Riverside, CA 92521 (alock001@ucr.edu; bradley.mullens@ucr.edu) and

¹Corresponding author, e-mail: alock001@ucr.edu

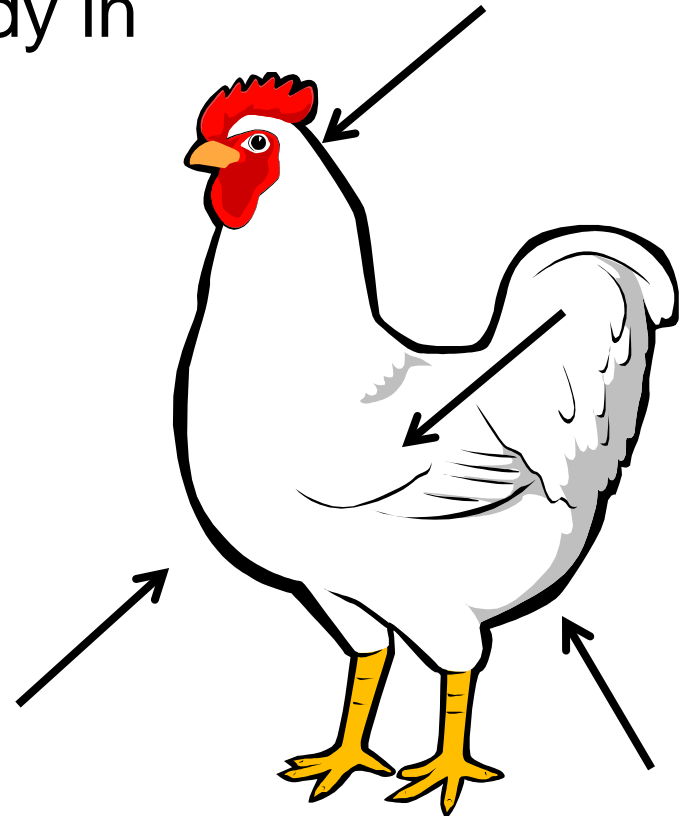
Received 23 October 2015; Accepted 9 December 2015

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**



* NOT to scale



Menopon gallinae

Shaft Louse



Menacanthus cornutus



Goniocotes gallinae

Fluff Louse



Menacanthus stramineus

Chicken Body Louse



Menacanthus stramineus
Chicken Body Louse







*Cuculotogaster
heterographus*

Chicken Head Louse





ACM

Lipeurus caponis
Chicken Wing Louse



ACM

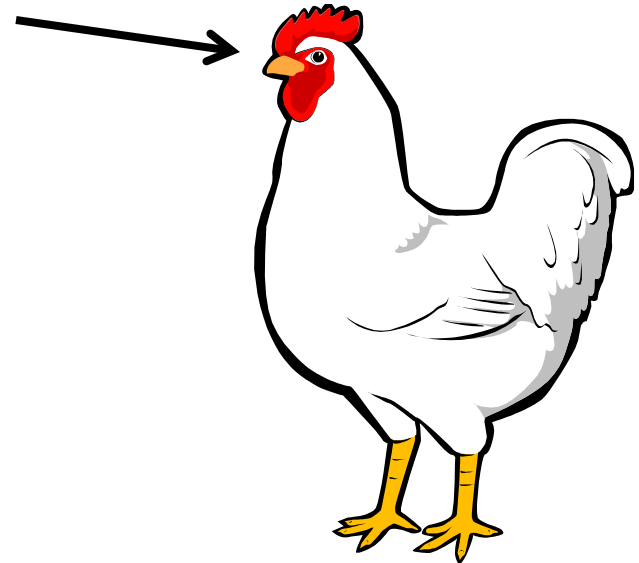
Sticktight Flea

- *Echidnophaga gallinacea*
- Not chicken specific



Sticktight Flea

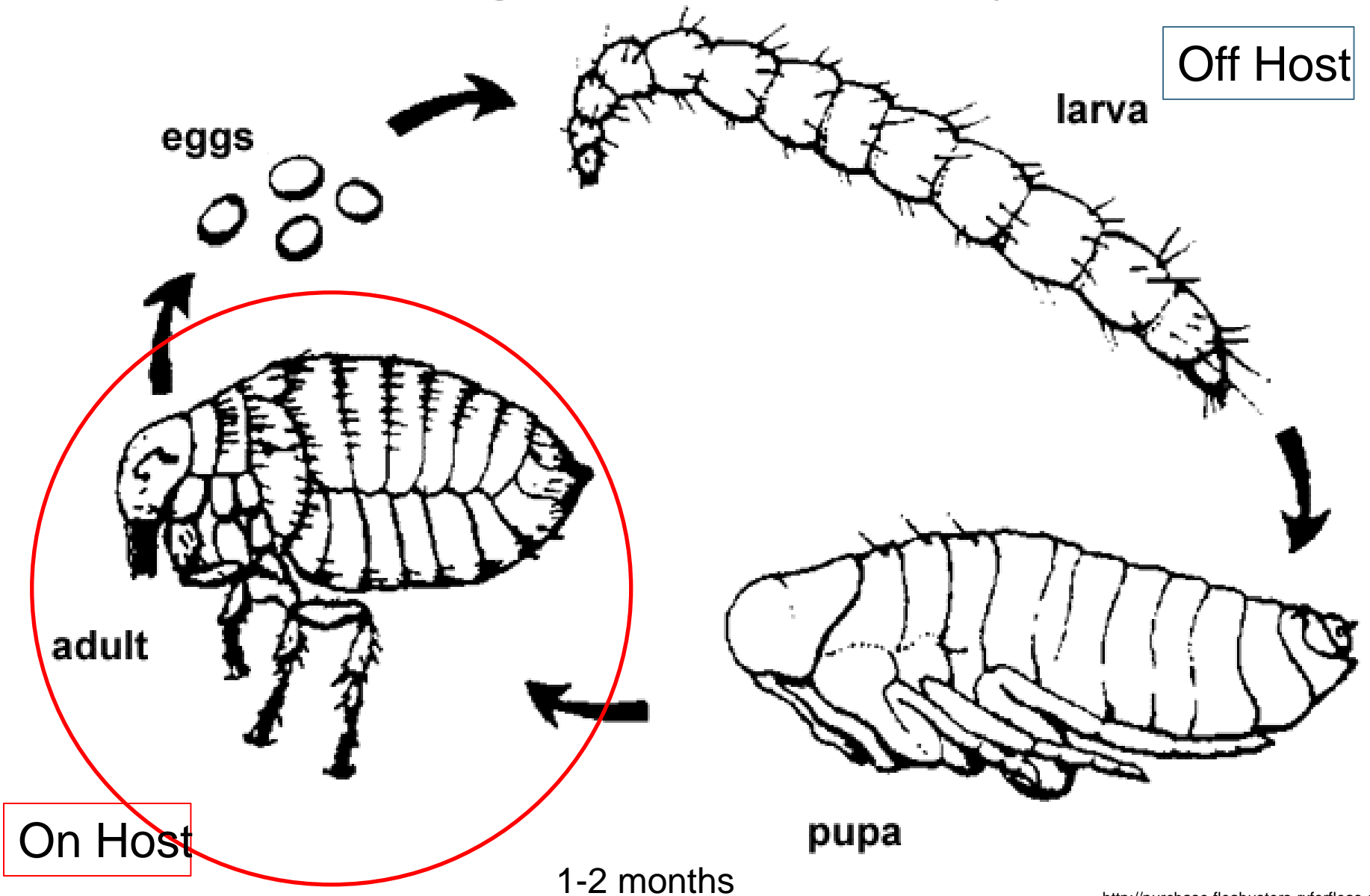
- Adult fleas embed into the face/comb of chickens







Sticktight Flea Life Cycle





Bed bug

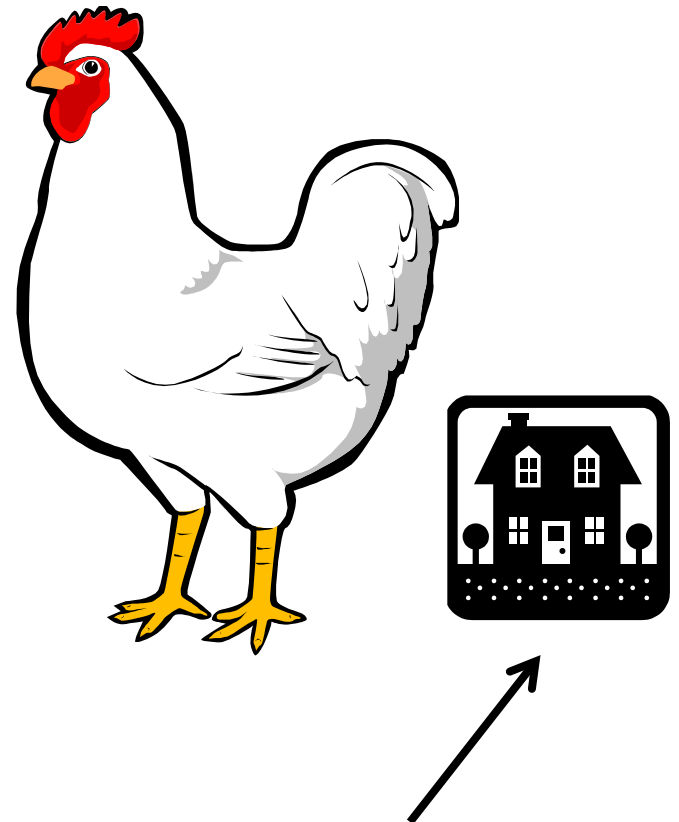


Bed Bug Life Cycle



Bed bug

- Not chicken specific

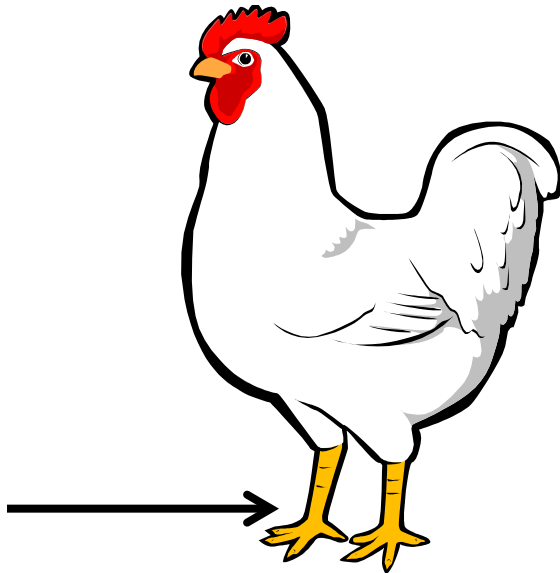






Scaly Leg Mite

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







Northern Fowl Mite

- *Ornithonyssus sylviarum*
- Bird specific



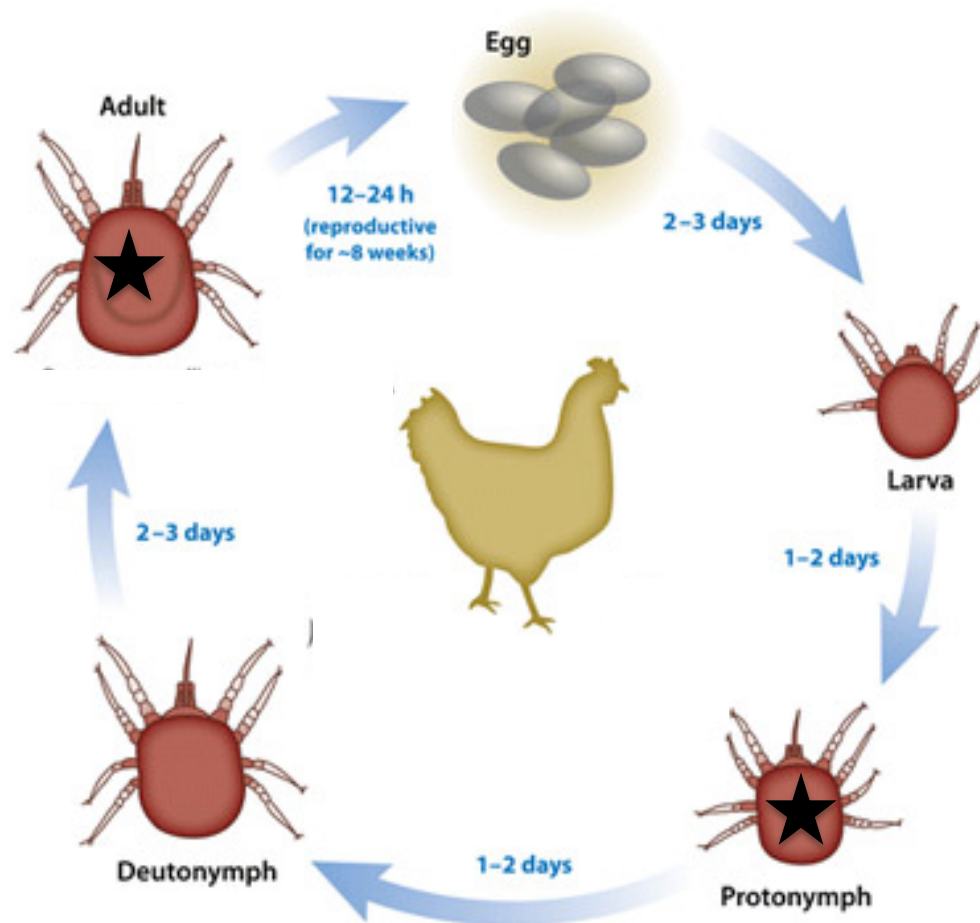
Northern Fowl Mite





Life Cycle

Complete life cycle in 5-12 days!



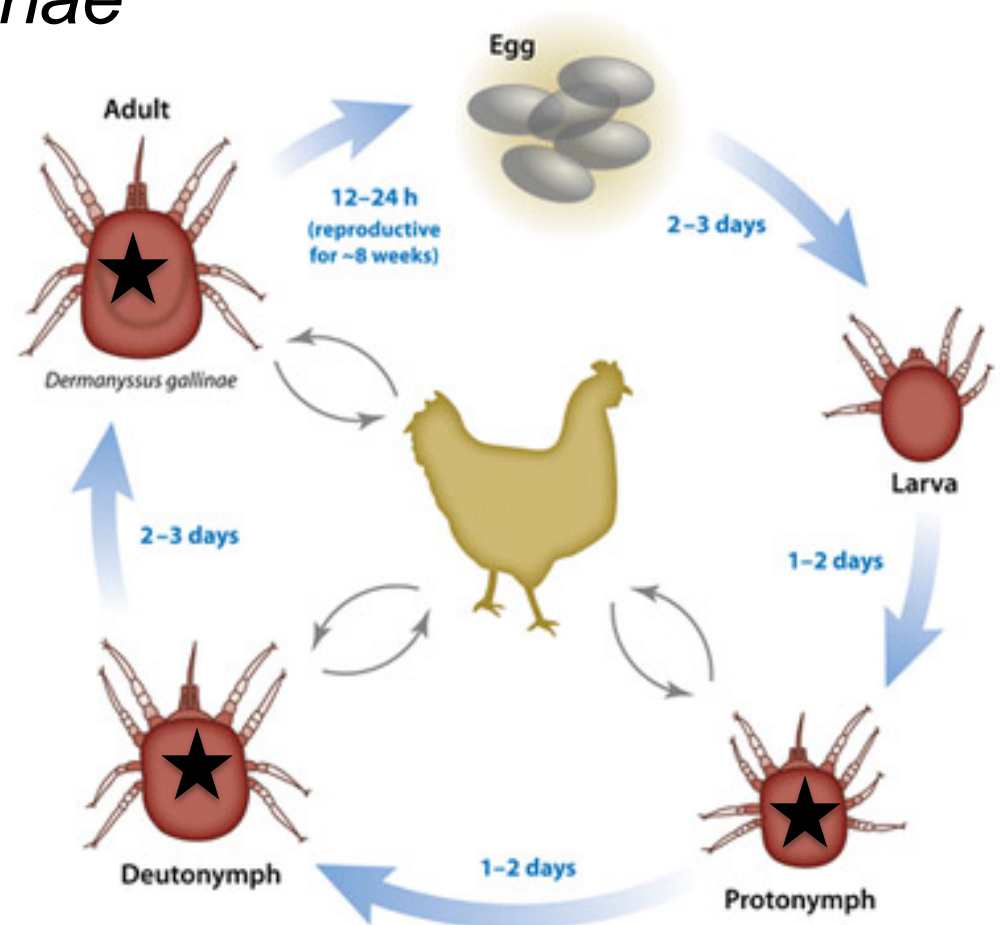
Modified from:
Sparagano OAE, et al. 2014.
Annu. Rev. Entomol. 59:447-66

All On-Host

Poultry Red Mite/Chicken Mite

- *Dermanyssus gallinae*
- Bird specific

Complete life
cycle in 10 days!



Dermanyssus gallinae



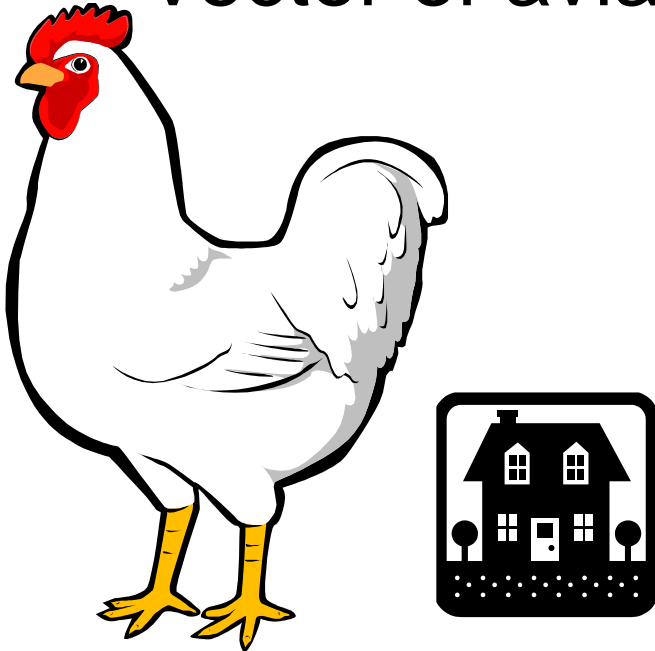
Fowl Tick/Poultry Tick

- Soft ticks – *Argas* spp.



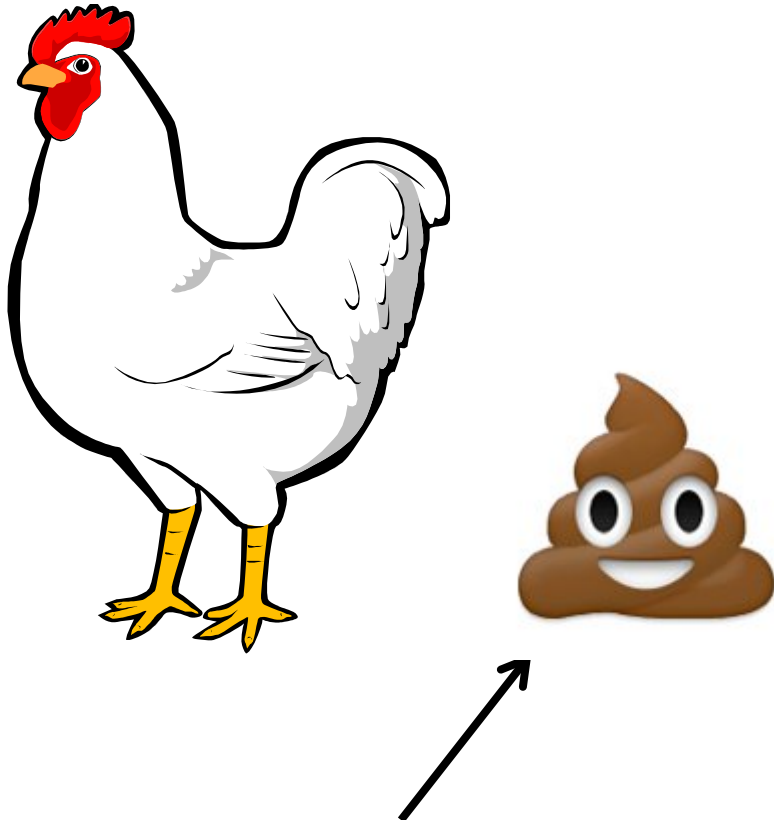
Fowl Tick/Poultry Tick

- 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*



A. Gerry

ACM

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

B. Mullens

Sparrow on commercial poultry operation



IPM - Monitoring



thechickenstreet.wordpress.com

^ 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%
	<hr/>
	100.00%

*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.

Insect Pests of Animals

UCR Home > Insect Pests of Animals > Registered Pesticides

Registered Pesticides

[A to Z Listing](#) | [Campus Map](#) | [Find People](#)

Search for:

[Home](#)

[Pest Management](#)

IPM information on pests of animals

[VetPestX](#)

[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
Entomology

Registered Pesticides

Searchable database of pesticides to control pests of animals

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

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

Please choose the type of pest:

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 entries

Find:

PRODUCT NAME	A.I.	IRAC CODES	MANUFACTURER	EPA REG.CODE
ATROBAN 440 EC	D	2A	INTERVET INC.	73350

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)

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



Pest Management Resources

- Use reputable websites → .gov or **.edu**
 - Look for University Extension resources
 - **.com / blogs**

A young boy with light brown hair, wearing a black jacket with red accents, is waving his right hand towards the camera. He has a calm, slightly smug expression. In the background, a large house is engulfed in bright orange and yellow flames, with thick black smoke billowing into the sky. The house appears to be made of wood and has a blue tarp covering part of its roof. A black metal fence separates the boy from the burning house. The scene is set in a grassy yard with some bare trees in the background under a clear blue sky.

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

Connect with us



Welcome

eXtension is an interactive learning environment delivering research-based information emerging from America's land-grant university system.

Select a different institution

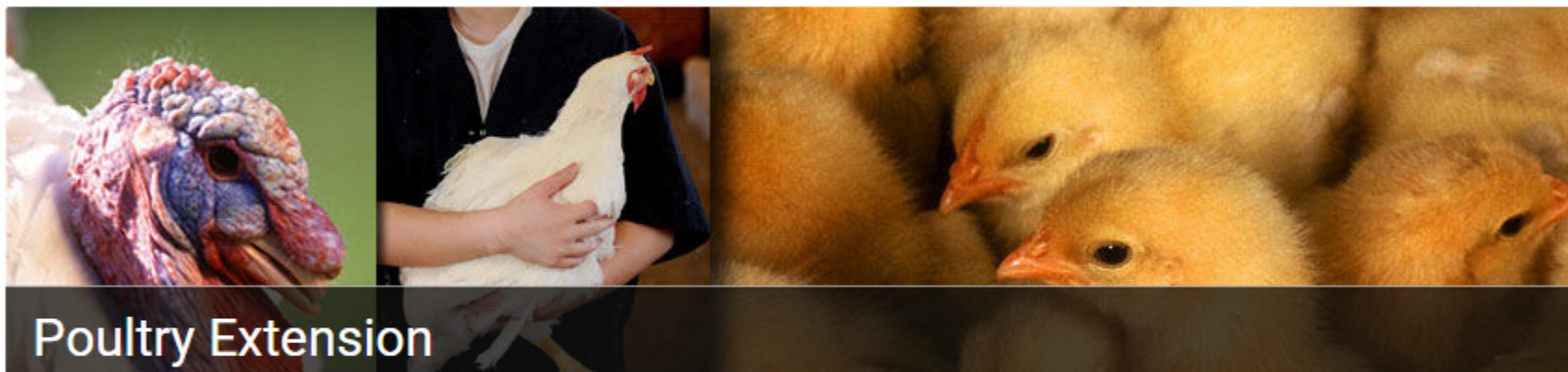
[LOCATE](#)



NC STATE

Search below or *ask an expert*

Enter Your Keywords Here

[Home](#)[About](#)[Contact Us](#)[Meet Our Staff](#)[Events](#)[NC A&T](#)[Our County Centers](#)

Poultry Extension

[Newsletter](#)[Technical Information](#)[Meet Our Staff](#)[Poultry 4-H and Youth Programs](#)[Prestage Department of Poultry Science](#)[Backyard Flocks and Eggs](#)[Feed Mill & Feed Science Program](#)[Calendar of Events](#)[CALS Poultry Coordinating Committee](#)[Workshops & Conferences](#)[NC Layer Performance and Management Test](#)[Print Content Only](#)

Small Flock Management Resources

**GENERAL
TOPICS**
**LAYING
HENS**
PROBLEMS**BROILER MEAT**
FLOCK**INCUBATION AND
HATCHING**
**BROODING FEEDS AND
NUTRITION****HEALTH****PROCESSING**
TABLE EGGS
OTHER FOWL

Insect Pests of Animals

[UCR Home](#) > [Insect Pests of Animals](#)

[A to Z Listing](#) | [Campus Map](#) | [Find People](#)

Search for: [Google™ Custom Search](#)

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



Photo by Brad Mullens/UC Riverside

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?

Amy Murillo

alock001@ucr.edu

IPM – Biological Control

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



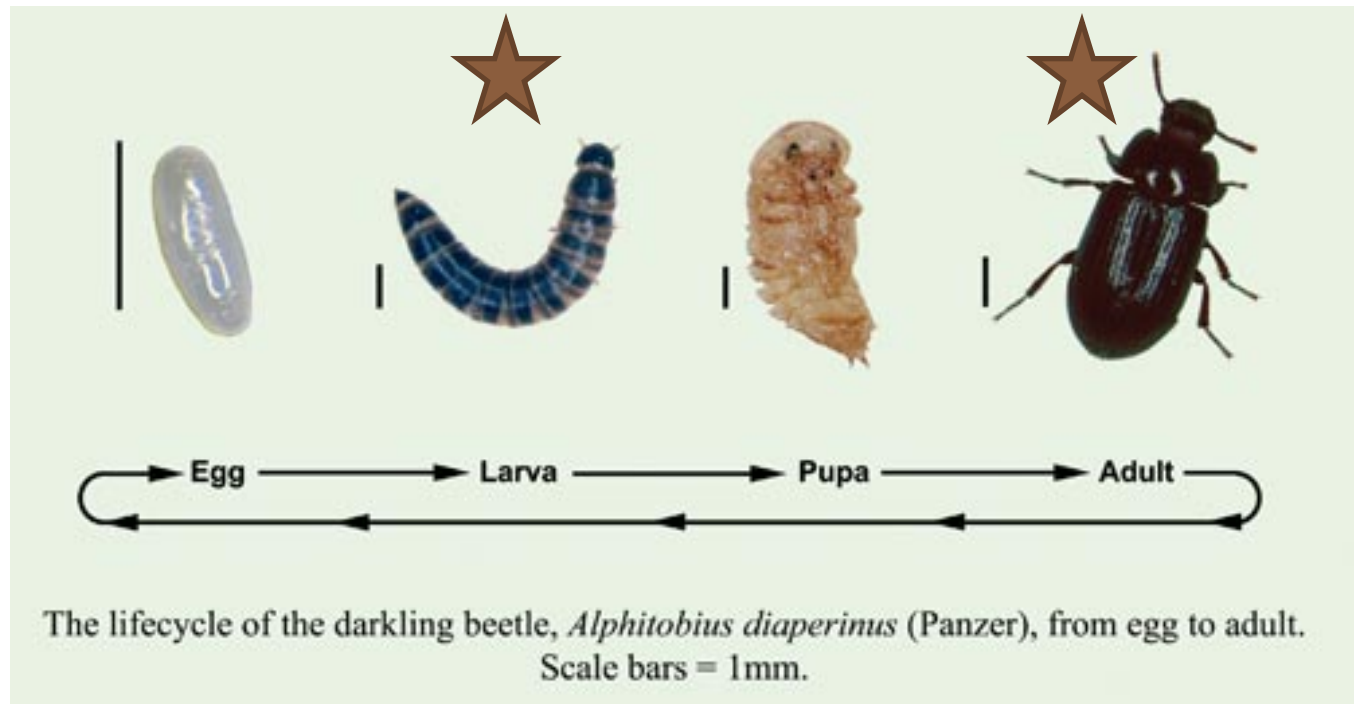
Fly Pupa

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



Life Cycle



45-100d