



Bed Bugs in Poultry Facilities Protocol

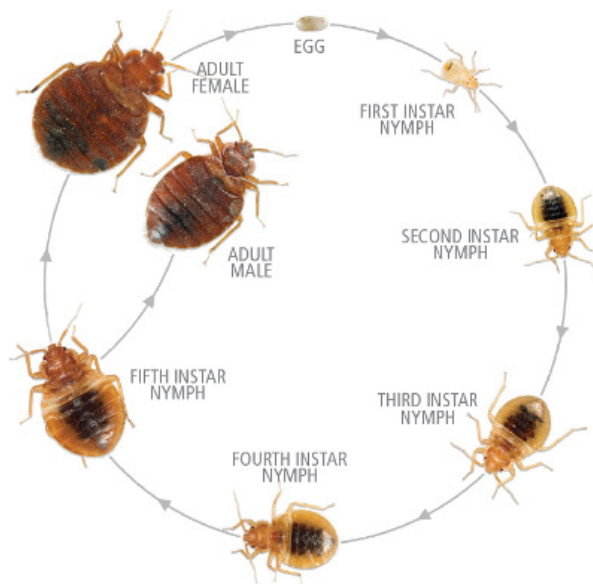



Importance of Bed Bug Control

- Heavy bed bug infestations may lead to excessive feather loss, cloacal irritation, lesions on the breast and legs, and even anemia.
- Production may be decreased, feed consumption may increase, and egg spots from bed bug fecal deposits may be observed, potentially diminishing the value of the eggs as well as the profitability of the chickens.
- Bed bugs are hitchhikers. Many farm employees and integrators are concerned about potential infestation in their personal residence.

Understanding Bed Bug Life Cycle and Habits in Poultry Facilities

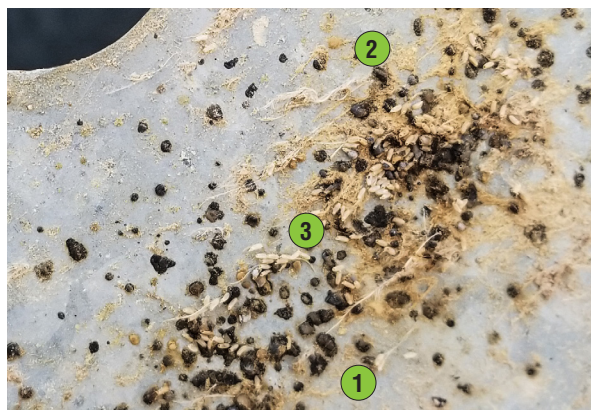
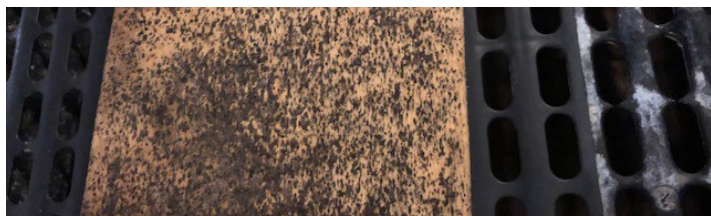
- Bed bugs have three life stages (eggs, nymphs and adults).
- Bed bugs can feed on multiple hosts. Hosts include, but are not limited to humans, poultry, and pets.
- Bed bugs do not live on their hosts. After feeding, they return to a harborage site.
- Bed bugs typically travel 5-20 feet to feed and are attracted to body heat and carbon dioxide (CO₂).
- All bed bug life stages require a blood meal to continue development.

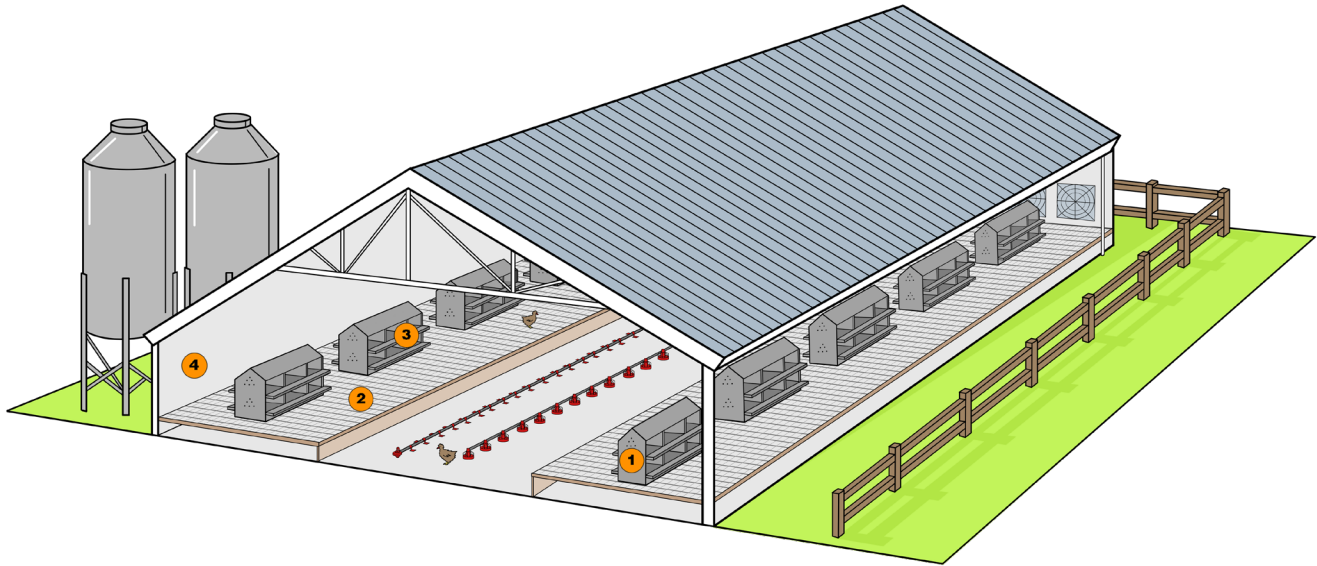


BED BUG <i>Cimex lectularius</i>	IDENTIFICATION	IMMATURES	ADULTS
	Adults are 3/16 inches, comparable to an apple seed. Dark reddish brown	Egg hatch 6-10 days In favorable conditions (blood meal availability), egg to adult in 28-48 days	Females can lay 2-5 eggs a day, up to 200-500 in lifetime. Adults live 6-7 months

Signs of Infestation

- Fecal spots (1) on nest boxes, roosts, floor slabs, boards, posts and other surfaces
- Lesions on bird
- Shed skins (2) and eggs (3)
- Live and/or dead bugs





Common Resting and Breeding Sites

1. Nest Boxes

- Under pads
- In, under and around framework
- Rocker, if present

2. Slats

- 3. Egg Belts
- 4. Walls

Pre-Treatment

- Twenty-four hours after bird catch, treat with Onslaught® FastCap Spider and Scorpion Insecticide.
- Power wash after manure collection a minimum 2 days after treatment with Onslaught FastCap.
 - Clean floor panels and nesting pad with hot water (120°F or above is ideal) and soap.

Post-Treatment

- Be vigilant of possible reinfestation by checking the following:
 - People – shoes and clothing
 - Birds
 - Personal items
 - Production equipment
 - Catcher equipment

Recommended Spray Equipment

- Backpack mist blower
- Backpack or handheld sprayer

Treatment: Interior Control Measures

- Treat with CrossFire® Bed Bug Concentrate or Darlex® Insecticide, focusing on cracks and crevices. Spray bed bugs and eggs directly whenever possible.
 - Thoroughly treat nest boxes (rocker if present, exterior of box and nest pad)
 - Raise nest boxes to treat the underside
 - Treat interior walls
 - Treat all sides of the slats
- Optional: To encourage bed bugs to move from their harborage areas toward the insecticide, place a CO₂ tank at each corner of the house near the nest boxes. Position each tank nozzle to point inward, toward the center of the house, then release the CO₂ by turning the nozzle a quarter turn. Allow the CO₂ to disperse for approximately one hour.

APPLICATIONS BETWEEN FLOCKS

PRODUCT	RATES	APPLICATION METHODS
CrossFire® Aerosol	Spray each square foot for 5 seconds or until damp	Apply in break rooms, offices, vehicles, egg collection room. Spray surfaces thoroughly, paying special attention to areas where bed bugs and their eggs hide or harbor.
CrossFire® Bed Bug Concentrate	13 fl. oz. per 115 fl. oz. of water to treat 1,000 sq. ft.	Apply as a pinstream, coarse spray or low-pressure spray. Treat areas where bed bugs frequently occur, such as walls, supports, nest boxes, frames and slats. Focus on cracks and crevices.
Darlex® Insecticide	4 fl. oz. per ½ to 2 gallons of water to treat 1,000 sq. ft.	Treat areas where bed bugs hide, such as walls, supports, cages, cage framing, stalls, and around feeders. Focus on cracks and crevices.
Onslaught® FastCap Spider and Scorpion Insecticide	1 fl. oz. per gallon or 1 fl. oz. in sufficient water to cover 1,000 sq. ft.	Spray on floors, getting under all the water and/or feed lines in the house. Continue applying along the inside perimeter and 1-2 feet up onto the walls, support beams and wood surfaces. May also be used as a broadcast surface spray to treat the entire house.

APPLICATIONS WHEN BIRDS ARE PRESENT

PRODUCT	RATES	APPLICATION METHODS
EverGreen® Pro 60-6 Concentrate	0.21 fl. oz. per gallon of water	Spray crevices of roost poles, cracks in walls, nests and other areas bed bugs hide, followed by spraying over the birds with a fine mist. Do not apply more than 1 time per day.
ULD® BP-100 Contact Insecticide Formula II	Use at full strength, 1 fl. oz. per 1,000 cu. ft.	Apply as fog/space spray over the birds. Open nest boxes before application.

MGK Technical Department Answers Common Misconceptions about Bed Bugs in Poultry Facilities

- Common Misconception: You need to use large amounts of insecticide to control bed bugs.
 - Answer: False, where you treat is more important than the volume of product.
- Common Misconception: If you remove the poultry from the house, you can control bed bugs by starvation.
 - Answer: False, bed bugs can survive for a long period of time without a blood meal. For example, nymphs may survive without a blood meal for up to 70 days, and adults can live 4 to 6 months under normal household conditions.

- Common Misconception: Bed bugs are introduced into a poultry house on live birds.
 - Answer: Partially false, although bed bugs can be moved from one area to another on a person or animal it is not their normal method of dispersal. Bed bugs typically return to the harborage area after feeding. They are true hitchhikers and are more likely introduced into poultry facilities in boxes, clothing, cages, manure removal equipment or any other equipment brought from another infested poultry house.
- Common Misconception: All insect growth regulators control bed bugs.
 - Answer: MGK does not recommend using juvenile hormone mimics for bed bug control. University studies have shown that bed bugs are still able to reach adulthood after exposure to juvenile hormone mimics at commonly listed label rates.

PREMISE SPRAY PRIOR TO BIRD PLACEMENT



CrossFire® Aerosol

- For use in poultry facilities when birds are not present
- Formulated to kill bed bugs, including pyrethroid-resistant strains
- Kills all bed bugs life stages by contact and prevents bed bug egg hatching
- Patented technology with multiple actives for a fast knockdown and residual control



CrossFire® Bed Bug Concentrate

- For use in poultry facilities when birds are not present
- Next-generation insecticide formulated to kill bed bugs, including pyrethroid-resistant strains
- Kills bed bugs at all life stages by contact and prevents bed bug egg hatching
- Patented technology with multi-mode action for a fast knockdown and residual control



Darlex® Insecticide

- Premise insecticide for use in and around poultry facilities
- Contains clothianidin, a second generation neonicotinoid
- Kills bed bugs, darkling beetles and nuisance ants



Onslaught® FastCap Spider and Scorpion Insecticide

- Premise insecticide for use in and around poultry facilities
- Dual-active, synergized formula; microencapsulated residual insecticide and knockdown agent for enhanced control
- Kills bed bugs, biting flies, darkling beetles, fleas, house flies, mosquitoes, ticks, spiders and other listed pests

OVER-ANIMAL INSECTICIDE



EverGreen® Pro 60-6 Concentrate

- For use on poultry and in their facilities
- Flushes pests out of hiding for a faster, more complete kill
- Synergized formula containing pyrethrins, a botanical insecticide
- Kills a broad spectrum of pests including bed bugs, flies, cockroaches and other listed pests
- May be used alone or tank mixed with other insecticides



ULD® BP-100 Contact Insecticide Formula II

- For use over poultry and in their facilities
- Quick knockdown and kill of bed bugs, flies and other listed pests
- Oil-based concentrate that adheres to bird feathers
- Can be used full strength or diluted in a variety of ULD application equipment
- Synergized formula containing pyrethrins, a botanical insecticide

Always read and follow EPA approved label instructions and proper PPE.



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