



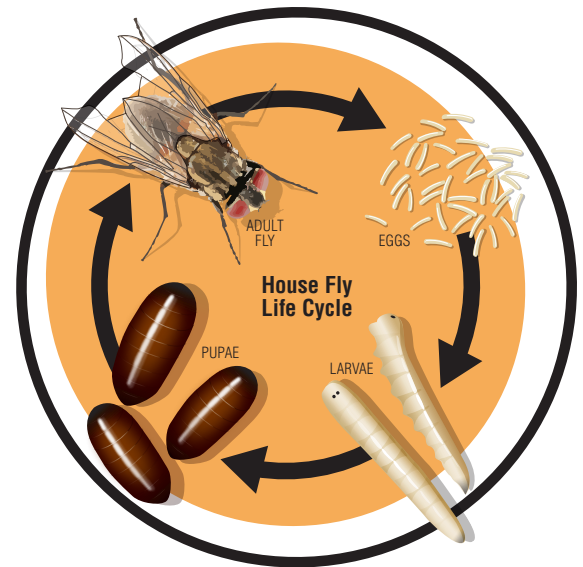
House Flies in Egg Laying Facilities Protocol

Why is Fly Control Important?

- Flies are mechanical vectors of many disease-causing pathogens such as Avian influenza, *E. coli* and *Salmonella*.
- Flies increase the feed conversion ratio.
- Flies leave fecal spots on eggs, reducing egg quality grading.
- Flies are an overall nuisance, reducing egg output and worker efficiency.

Understanding House Fly Habits and Life Cycle

- Flies have four life stages: Egg, larva, pupa, and adult.
- House fly life cycles are short, averaging less than two weeks in ideal conditions.
- Flies can have as many as 10-20 generations per year depending on regional temperatures.
- House fly breeding sources include decaying, moist organic matter. Any area where moist feed, litter, and manure can accumulate could become a breeding source for flies. Flies cannot develop in dry media.
- House flies normally stay within two miles of their point of origin but can travel as far as 20 miles to find a breeding source.



HOUSE FLY <i>Musca domestica</i>	IDENTIFICATION	IMMATURES	ADULTS
	1/8-1/4 inches Dull gray in color, with four black stripes on the thorax Sponging mouthparts	Egg hatch in 8-20 hours 3 instars over 3-7 days Pupal stage 4-6 days	~500 eggs in several batches over lifetime Live 15-25 days Egg to adult in 7-10 days

Inspection and Integrated Pest Management

- Integrated pest management (IPM) involves the use of all types of control techniques, including non-chemical approaches, to keep flies out of egg laying facilities.
- Locate all breeding sites and potential fly attractants, such as feed areas and manure accumulation.
- Look for fecal spotting that indicates frequent resting areas for adult flies.
- Installing fans in pits or anywhere manure is stored can help with drying organic material and preventing fly establishment.
- Mowing exterior grass and keeping the premise clear will reduce areas of fly harborage.



Common Resting and Breeding Sites



Indoors

- Manure accumulation, such as pits and belts
- Walls, rafters, and ceilings
- Feed and drinker lines
- Under slats
- In and under equipment
- Nest boxes
- Litter
- Spilled and/or accumulated feed

Outdoors

- Doors and windows
- Litter sheds
- Vegetation, fence lines and other structures near animals
- Organic refuse and litter, garbage areas
- Drainage areas and/or stagnant water
- Spilled and/or accumulated feed

Pre-Treatment

- Assess the current fly population with traps or other monitoring devices.
- Spot cards (Fig. 1) are a simple, cost-effective way to monitor fly activity.
- Corrective action should be taken prior to population explosions.
- Important Consideration Points:
 - Barnyards and other areas need to have proper drainage to reduce moisture. This includes filling in low spots and ensuring appropriate grading.
 - Sanitation is crucial. Ensure thorough cleaning of all problem areas to remove manure, feed and other organic materials from potential breeding sites. Pesticides alone will not be successful.
 - Maintain a good manure management system.
 - Keep exterior doors closed whenever they are not in use.



Fig. 1 (above) – When using spot cards, a common action threshold is ~150 specks on a 3x5" index card after a week. You may need to adjust this number to meet the needs of your facility.

Interior Control Measures

- When applying insecticides with ULV equipment, calculate cubic feet to determine how much product is needed by multiplying length x width x height.
- Over-poultry applications are a good option for knockdown of adult flies.
- For over-poultry applications:
 - Open nest boxes before application.
 - Ensure proper calibration of application equipment.
 - Fog a product approved for over-poultry applications, like BP-100 Plus™ Fogging Concentrate, into upper corners and ceiling, letting application drift onto birds.

Exterior Control Measures

- Treat exterior with premise insecticides, paying attention to fly resting areas and entry points like doors and fans.
- Ground applications are important, especially in tall grass or areas with moisture issues.
- Treat interior and exterior surfaces of litter stacking sheds or manure pads with an adulticide or insect growth regulator (IGR). Applications should be made over litter and organic matter, as well as when the barn is cleaned out.

Post-Treatment

- Continue to monitor fly population numbers. Reapply when fly counts exceed your action threshold. Be sure to follow any reapplication intervals listed in product labels.
- During inspection, fly larvae and pupae may still be visible due to insect growth regulator effects, but they will eventually die and not mature into the adult stage.



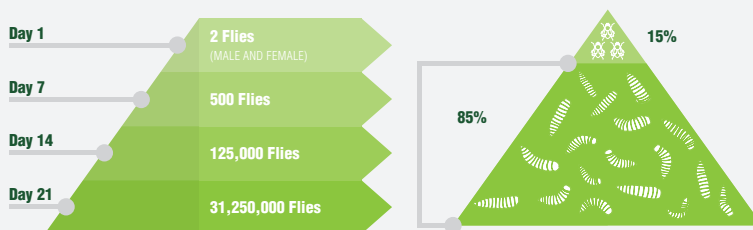
PRODUCT	IRAC GROUP	ANIMALS PRESENT DURING APPLICATION	RATES	APPLICATION METHODS
BP-100 Plus™ Fogging Concentrate	3A; 7C	Poultry and Equine Only	1 fl. oz. per 1,000 cu. ft.	Apply as a space spray toward the upper portions of the enclosure, above the animals, filling the room with a mist or fog. Pay special attention to treat areas where insects rest and can breed.
Decimari® Fly Bait	4A; 7C	Areas inaccessible to animals	6.3 oz. per 1,000 sq. ft. scattered or 1.6 oz. with 1 - 4 fl. oz. of water per 250 sq. ft. for paint-on or spray-on applications.	Apply bait where house flies congregate. Select application type (scatter, bait station, paint-on or spray-on) to ensure bait is inaccessible to animals.
Flynexx® Granules	17	Areas inaccessible to animals	Dry scatter 1 lb per 200 sq. ft. Spray 1 lb per gallon of water per 200 sq. ft.	Treat fly breeding areas. Spray the entire manure area approximately 1 week after manure removal.
NyGuard® IGR Concentrate	7C	Poultry Only	1 ml per 1,000 cu. ft. or dilute at the rate of 1 ml of concentrate with 1 fl. oz. of water.	Direct application to areas where insects are known to rest or breed. After space spray, keep facility closed for 1 hour and thoroughly ventilate. Tank mix with adulticide to achieve faster results. When tank mixing, mix directly with fogging concentrate solution.
Riptide® Waterbased Pyrethrin ULV	3A	Yes	For over animal applications, including cattle, poultry, swine, and other livestock: • 0.25-1 fl. oz. undiluted or 1-2 fl. oz. diluted per 1,000 cu. ft. of room space.	Direct space spray above animals with conventional ULV or fogger adjusted to delivery aerosol size droplets. For on animal applications, lightly mist for flies. This product can also be used in automatic misting systems.
Sector® Misting Concentrate	3A	Yes	0.32-1.28 fl. oz. per gallon for on animal applications. See label for automatic misting and ULV spraying system rate.	Direct spray to adult fly resting areas such as poles and rafters, followed by spraying over poultry with a fine mist. This product can also be used in automatic misting systems.
Sumari® Insecticide	4A; 7C	No	1 fl. oz. per gallon per 1,000 sq. ft.	Directly spray with a spot or crack and crevice treatment to kill house flies. Remove animals from area being treated.
Tobex® Multi MoA Concentrate	3A; 7C	No	1-2 fl. oz. per gallon per 1,000 sq. ft.	To kill listed flying insects, apply as a general surface or spot treatment. Remove animals from area being treated.
ULD® BP-100 Contact Insecticide II	3A	Yes	For over animal applications, including cattle, poultry, swine, and other livestock: • 1 fl. oz. undiluted or 1-2 fl. oz. diluted per 1,000 cu. ft. of room space.	Select dilution and apply with ULV equipment over animals or through indoor misting systems.

Recommended Spray Equipment

- Cold foggers (ULV) – Generate fog by a mechanical action that breaks down the liquid while combining it with a high volume of air at low pressure. Users can calibrate the unit to produce optimum sized drops for the situation or product being used.
- Backpack or hand sprayer – These are commonly used for spot, crack or crevice treatments around the premises. Users can opt for fan spray or pin stream. Do not apply insecticide to runoff.

Tips and Tricks From the MGK Technical Department

- When uncontrolled, house fly populations can explode in numbers. It is important to have an integrated pest management in place to prevent insecticide resistance and maintain insect control across the entire facility.
- In addition to over-bird and premise applications, insect growth regulators should be implemented. The flies you see swarming in a facility are only 15% of the total fly population. This means that 85% of flies are in the egg, larva, or pupa stage and by using IGRs, you can reduce the number that reach adulthood.
- NyGuard may be tank mixed with an adulticide like ULD® BP-100 Contact Insecticide to achieve faster results.





FLY BAITS



Decimari® Fly Bait

- Unique formulation attracts both male and female adult house flies
- Contains NyGuard® IGR for dual modes of action to target the entire fly population
- Versatile application methods of scatter, paint-on or bait station allow effective use across multiple surfaces where flies rest and breed

INSECT GROWTH REGULATORS



NyGuard® IGR Concentrate

- Insect growth regulator that keeps insects in juvenile state and provides residual activity
- Binds to organic and inorganic matter and is effective at low concentrations
- Can be tank mixed with adulticides to control immature and adult insects



Flynexx® Granules

- Insect growth regulator that disrupts the fly larvae molting process
- Water-soluble granule suitable for dry scattering or spraying in manure and other fly breeding sites
- Can be used simultaneously with adulticides

PREMISE SPRAYS



Sumari® Insecticide

- Contains clothianidin, offering a rotational option for pyrethroid products
- Formulated with NyGuard® IGR for dual modes of action to control immature and adult insects
- Provides residual control of insects



Tobex® Multi MoA Concentrate

- Combines a knockdown agent with controlled-release technology for residual control
- Formulated with NyGuard® IGR for dual modes of action to control immature and adult insects
- Synergized with piperonyl butoxide (PBO) to combat metabolic resistance and increase effectiveness

OVER-ANIMAL INSECTICIDES



BP-100 Plus™ Fogging Concentrate

- Oil-based fogging concentrate promotes better adhesion to bird feathers
- Formulated with a 1:5 pyrethrins to piperonyl butoxide ratio to combat resistance and increase effectiveness
- Contains NyGuard® IGR for dual modes of action to control immature and adult insects



Riptide® Waterbased Pyrethrin ULV

- Contains botanically based pyrethrins synergized with piperonyl butoxide (PBO) for knockdown and kill
- Formulated with a 1:5 pyrethrins to PBO ratio to combat resistance and increase effectiveness
- Water-based insecticide that can be automatically misted or manually applied



Sector® Misting Concentrate

- Formulated with synergized permethrin to provide knockdown and residual control
- Synergized with piperonyl butoxide (PBO) to combat metabolic resistance and increase effectiveness
- Water-based insecticide that can be automatically misted or manually applied



ULD® BP-100 Contact Insecticide II

- Contains botanically based pyrethrins synergized with piperonyl butoxide (PBO)
- Oil-based fogging concentrate for better adhesion to bird feathers
- Formulated with a 1:5 pyrethrins to PBO ratio to combat resistance and increase effectiveness

Contact your local MGK or distributor sales representative for more information.

See the label for a full list of insects controlled, detailed instructions and proper PPE.

Toll Free: 800.645.6466 | **Tel:** 763.544.0341 | **Fax:** 763.544.6437

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