

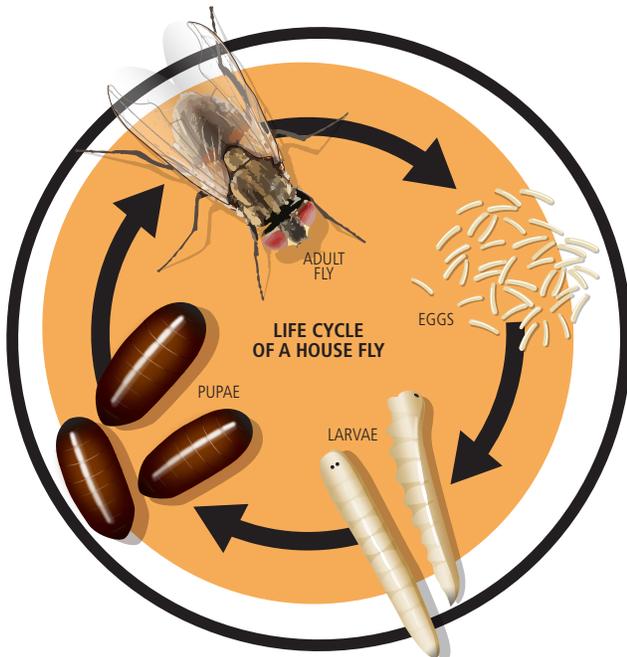


House Fly Protocol for Commercial Facilities



Understanding House Fly Habits and Life Cycle

- House flies have 4 life stages: eggs, larvae, pupae, adults.
- Their life cycles are short, lasting an average of two to four weeks in length.
- House flies can have as many as 10 - 20 generations per year depending on regional temperatures.
- Common breeding sources in commercial areas include moist organic matter such as rotten fruits and vegetables as well as in or near garbage receptacles.
- House flies normally stay within 0.5 - 2 miles of their point of origin, but have been known to travel as far as 20 miles to find a breeding source.



| House Fly <i>Musca domestica</i> | Length (Inches) | Colors & Markings | Eggs Per Batch |
|---|--------------------|---|---|
|  | 1/8-1/4 | Dull gray in color, with four black stripes on the thorax | 75 to 150 (5 to 6 batches in a lifetime) |
| Larvae | Pupae | Egg to Adult | Adults |
| Hatch within 8 to 20 hours. Complete 3 instars in 3 to 7 days. | 4 to 6 days | 7 to 10 days | Live from 15 to 25 days |

Pre-Treatment

- Ask the customer where the house flies have been most noticeable.
- Use sticky traps or other fly traps to assess current populations.
- Discuss with the customer that all areas need to have proper drainage. For example, washing garbage cans where the rinse water might drain into the soil can create a breeding site.
- Stress the importance of sanitation to your customers and encourage them to clean all problem areas thoroughly, remove all food sources and remove all organic materials from potential breeding sites.
- Garbage cans should be cleaned regularly. Dry garbage and trash should be placed in plastic garbage bags and sealed up. All garbage receptacles should be located as far from building entrances as possible.
- Stress the importance of keeping exterior doors closed whenever they are not in use. Doors should not be left open for long periods of time.

Inspection

- Locate all breeding sites and potential fly attractants.
 - o Dumpsters
 - o Food storage areas such as trash bins or other areas that can accumulate organic matter – even if there isn't enough organic matter for a breeding site it could be attracting flies from other areas
 - o Manure accumulation – a nearby livestock pasture, barn or dog park
 - o Grease trails leading out a door to a dumpster or a leak in a garbage bin
- Are lights left on at night that could attract flies?
- Is there torn screening or cracks in the building where they can get in?
- Look for fecal spotting that indicates frequent resting areas.

Recommend Mechanical Control Measures

- Air doors or curtains work to keep flying insects from entering. Manufacturer instructions and recommendations should be followed. Improper installation can pull flies and other insects into the building.
- Insect light traps attract house flies once they enter the facility. Place insect light traps according to the manufacturer's instructions. When properly maintained, cleaned and serviced, insect light traps are a valuable tool for house fly control.



Interior Control Measures

- For heavy infestations, apply Shockwave® Concentrate (use in food areas of food handling establishments) or Pyrocyde® 100 Concentrate as a space spray treatment.
 - o Prior to space spray treatments, follow all label directions to avoid contact with exposed food and food handling surfaces.
 - o Direct spray toward upper corners of the room and ceiling.
 - o Leave room closed for half an hour and ventilate thoroughly before re-entry.
- Use Shockwave® 1 Aerosol for space spray applications to control insects in localized areas.
 - o Close all windows and doors and direct fog upward.
 - o Keep area closed for 15 minutes.
 - o Open and ventilate before reoccupying.
- For maintenance applications, apply Onslaught® FastCap Concentrate mixed with NyGuard® IGR as a spot or crack and crevice treatment to walls where trash receptacles are typically placed and any resting areas identified during the inspection.

| Product | Rates | Application Areas |
|--|--|---|
| Shockwave Fogging Concentrate | 0.5 fl. oz. undiluted concentrate per 1,000 cu. ft. | Direct fog into and around any known or suspected breeding areas as well as any areas they are known to rest, breed, or feed. |
| Onslaught FastCap Concentrate | 0.5 fl. oz. per gallon per 1,000 sq. ft. | Spot or crack and crevice applications may be made while facility is in operation, provided exposed food is covered or removed from the area being treated. |
| NyGuard IGR | 8.0 ml per gallon per 1,000 sq. ft. | Spot or crack and crevice applications may be made while facility is in operation, provided exposed food is covered or removed from the area being treated. |
| Decimari Fly Bait | 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 brush on or spray | Outdoor scatter application in and around fly resting and breeding areas or a paint or spray application in fly resting and breeding areas such as dumpsters, window sills, walls, etc. |
| Pyrocyde 100 Fogging Concentrate | 1.5 fl. oz. undiluted concentrate per 1,000 cu. ft. | Direct spray toward upper corners of room and ceiling. |
| Shockwave 1 Flushing, Killing & Residual Aerosol | 2 to 5 seconds per 1,000 cu. ft. | Disperse evenly throughout the space. |

Exterior Control Measures

- Apply Onslaught FastCap Concentrate mixed with NyGuard IGR in the following areas:
 - o House flies are daytime insects that rest in protected areas at night (vegetation, covered porches, landscaping, etc.). Treat these resting areas using a broadcast spray or spot application.
 - o The dumpster can be used as an attractant for insecticide control measures. House fly landing zones on or near the dumpster should be treated. Make spot applications to the top rail edges, sides and covers of the dumpster, as well as the pad below.
 - o Walls around exterior doors and windows should be treated with spot applications. House flies are attracted by odors and air movement coming from the building and will rest near these areas before they enter a facility.
- Apply Decimari™ Fly Bait around dumpster area and areas where flies are resting. Placing fly bait in stations can protect the bait from weather and non-target animals.

Recommended Space Spray Equipment

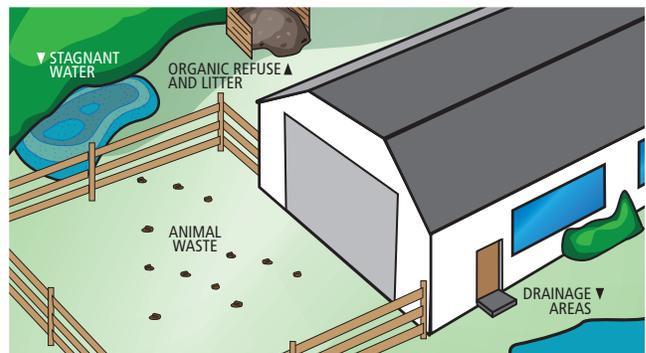
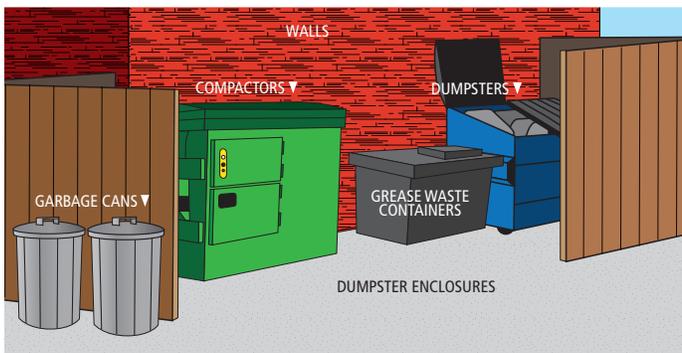
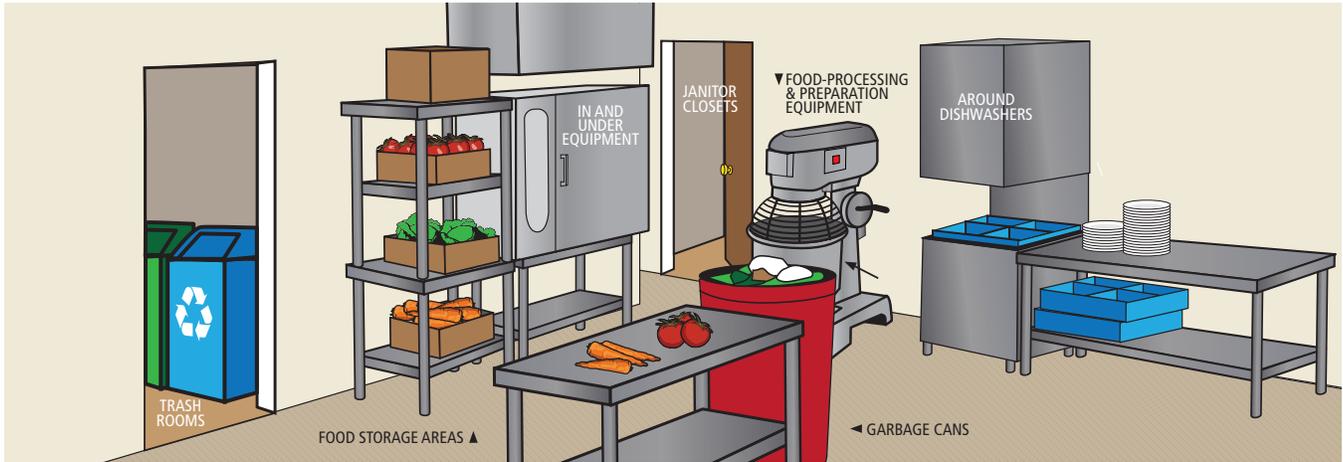
- Cold foggers (ULV) – Generate fog by a mechanical action that breaks down the liquid while combining it with high volume of air at low pressure. Users can calibrate the unit to produce droplets of the optimum size for the situation or product being used. The most effective droplet size is 5 to 15 microns.
- Mist generators – Utilize high-pressure air to force liquid through a small nozzle, producing a mist. This type of unit is well-suited for delivering active ingredients deep into inaccessible or difficult to reach areas such as wall voids, ceilings, floors, cabinets or equipment.

Post-Treatment

- Check trap counts to make sure the population is declining. Control should be gained within several days if all resting, breeding and feeding sites are treated.
- If control is not achieved, re-inspect to make sure all relevant areas have been cleaned and treated.
- If necessary, expand inspection area to other nearby sources of infestation, including: nearby trash bins, plumbing with broken pipes, under or inside building walls and foundation or nearby pastures with untreated manure.
- Talk with the customer to make sure all sanitation and exclusion recommendations are being followed. Ask what they've noticed since the initial treatment.



House Fly Protocol for Commercial Facilities



COMMON RESTING AND BREEDING SITES

Indoors:

- Garbage cans
- Food storage areas
- Food-processing and preparation equipment
- Around dishwashers
- In and under equipment
- Trash rooms
- Janitor closets

Outdoors:

- Dumpsters and dumpster enclosures
- Compactors
- Garbage cans
- Grease waste containers
- Walls
- Stagnant water
- Drainage areas
- Organic refuse and litter
- Animal waste



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Shockwave®
Fogging Concentrate:

Shockwave® 1
Flushing, Killing & Residual Aerosol:

All-in-one premium products to solve the toughest problems.



Onslaught® FastCap
Concentrate:

Non-microcapped and microcapped active ingredients for quick knockdown and long-lasting control.



Decimari®
Fly Bait:

Dual modes of action bait that attracts and kills flies, including neonicotinoid resistant house fly populations.



NyGuard® IGR
Insect Growth Regulator:

Breaks the reproductive cycle and prevents pests from maturing into adults.



Pyrocyde 100®
Fogging Concentrate:

Botanical solution with a synergist to knock down pests.



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