



# Prescription Treatment<sup>®</sup> brand

## Pest Management Bulletin

Volume 5



### Fly Management in Commercial Accounts

The industrial preparation of food and other manufacturing processes creates ecological opportunities for insects that often lead to problems for humans. This is perhaps best exemplified by the infestation of food facilities by flies. The presence of flies in and around commercial food establishments is unacceptable for a variety of reasons; not the least of these is their tendency to annoy customers and employees. Another major problem is the role of flies as mechanical vectors of organisms that cause human illness and disease.

*Flies have been linked as vectors of many serious health threatening microorganisms including: Cryptosporidium, Salmonella, E-choli, Listeria.*

*Flies put customer's health and business at risk due to translocation of microorganisms.*

As an industry of pest management professionals, we play an important role in protecting our customers and the public from the negative impact of pests, including flies. As public awareness of food quality issues and the hazards associated with the exposure to flies increase, improved fly management programs are a natural fit. Restaurants, food processors, pharmaceutical suppliers, healthcare providers and many other industries have a lot at stake that could be jeopardized by flies. Protecting the quality of their products, reputation, and their relationships with their customers is an essential and valuable service that shelters the profitability and even the sustained existence of a company. For this reason, fly management continues to emerge as a leading service opportunity in our industry.

Fly management by its very nature tends to be more complex and demanding than many other aspects of pest management. For this reason, it is imperative that anyone venturing into fly management be well informed on the biology and behavior of flies and set out with a systematic approach for fly management. In this bulletin we will discuss many of the important concepts, strategies and options utilized to establish a successful commercial fly program using the Prescription Treatment<sup>®</sup> pest management process.



#### INSPECT WHICH FLIES? WHERE? WHY?

The first step in a Prescription Treatment fly management process is inspection. Think of the inspection as the actions taken to develop situation awareness. Before you begin a treatment program you must understand the problem and the environment in which it occurs.



*Proper identification of the fly magnifies your success.*

Questions you must answer during the inspection phase include:








- ▶ What species of fly or flies are present (or most likely to threaten the facility)?
- ▶ Is there anything about the building's construction, maintenance, surroundings, or operation that makes it particularly susceptible to fly infestation?
- ▶ Which areas of the building are at greatest risk for fly infestation?
- ▶ What is the overall level of sanitation in the facility and does it appear to be contributing to the fly problem?

Obviously, to answer these questions you will have to look around and become familiar with the building and its operation both indoors and outdoors.

The first step in understanding a fly problem is to identify the offending fly species. This can be accomplished by looking for dead fly specimens on horizontal surfaces such as window ledges, counters, shelves or floors and determining the species. Insect light traps that capture flies on a glueboard can be very helpful in this regard. Once specimens are collected the use of a diagnostic key will aid in quick identification of the species. Proper identification of the fly is extremely important, particularly where small flies or gnats are involved. Often the customer may refer to small flies as "fruit flies" when they are, in fact, another species.

- ▶ **PT Quick Tip:** It's important to note that correct identification of the fly can provide valuable information about the location of larval breeding sites and where the problem originated.

Although over 16,000 species of flies can be found in North America only a few are considered pests and can be found in and around human dwellings and commercial establishments. Among the more common pest flies are the house fly, bottle fly, flesh fly, phorid fly, small fruit fly, fungus gnat and moth fly.

PEST		DESCRIPTION	BREEDING/FEEDING SITES
Small Fruit Fly <i>Drosophila</i> spp.		1/8 inch long, bright red eyes, yellow-brown color	<ul style="list-style-type: none"> <li>• Attracted to ripening fruit, fermenting material</li> <li>• Animal waste, garbage, drains and mops, other decaying organic matter</li> </ul>
Phorid Fly Family <i>Phoridae</i>		1/8 inch long, tan-to-dark brown color, similar to fruit fly but humpbacked and without bright red eyes	<ul style="list-style-type: none"> <li>• Moist decaying organic matter, drains, sewer breaks, trash, food under counters or in cracks</li> </ul>
Dark Winged Fungus Gnat Family <i>Fungivoridae</i> Family <i>Sciaridae</i>		1/16 inch long, black color with a long thin wing	<ul style="list-style-type: none"> <li>• Fungus growing in moist soil, root hairs of plants</li> </ul>
Moth Fly Family <i>Psychodidae</i>		1/8 inch long, usually black (rarely brown), body and wings covered with scale-like hairs, wing veins unbranched	<ul style="list-style-type: none"> <li>• Decaying organic matter, sewers, drains</li> </ul>
House Fly <i>Musca domestica</i>		1/4 inch long, dull gray color, four stripes on thorax, fourth wing vein sharp upward bend	<ul style="list-style-type: none"> <li>• Animal waste, garbage, other decaying matter</li> </ul>
Green Bottle Fly <i>Phaenicia sericata</i>		Medium sized, robust shape, metallic-looking appearance	<ul style="list-style-type: none"> <li>• Animal carcasses, garbage, animal manure, decaying vegetables, decaying grass clippings and leaves</li> </ul>
Flesh Fly Family <i>Sarcophagidae</i>		Two to three times larger than house fly, gray and black color, three stripes on thorax, checkerboard pattern on abdomen	<ul style="list-style-type: none"> <li>• Animal carcasses, garbage, animal manure</li> </ul>

*Where are the flies coming from - indoors or outdoors?*



Many species of flies have developed highly specific life styles. Flies found in and around food processing facilities are often specific to the type of food processed. In a meat packing plant, flesh flies and bottle flies would be expected. In vegetable or fruit canning facilities, small fruit flies would be more common.

Another important step during your inspection is to determine whether the problem flies originate indoors or come in from outdoors. Again, correct identification can be helpful in this regard. You should be alert to the possibility of mixed infestations. This often occurs when doors or windows are left open and large numbers of outdoor flying insects enter the building. Many of these are captured in insect light traps. If insect light traps contain a large number of moths and other outdoor nighttime flying insects, you can be fairly certain that someone is leaving doors or windows open during the evening hours. If, on the other hand, the glueboards contain fairly large numbers of one or two species, particularly some distance away from doors and windows, you would be correct to assume that these flies are probably produced within the facility.

Your inspection should not focus solely on adult flies. Once you have identified the primary and, if present, secondary pests, you should also look for likely larval development (breeding) sites. These may include drains in the case of moth flies, decaying organic matter and sludge in the case of phorid flies, misplaced fruit, vegetables, or soft drink cans in the case of small fruit flies, and animal fecal matter or garbage in the case of house flies.

- ▶ **PT Quick Tip:** The more information you obtain about the species of fly, its biology, behavior and the conditions contributing to the fly infestation, the more effective your prescription will be.

The facility should also be examined for its physical attributes, which can make it inherently susceptible to fly infestations. As conditions in and around the facility are inspected, keep in mind that factors such as temperature, moisture, airflow, odors, lighting, and food resources, usually determine the most vulnerable areas within a facility and should be considered when formulating a prescription.



## PRESCRIBE

**Match strategies to treatment options for success.**

The basic principal to obtain long-term control of flies in and around commercial buildings is that environmental sanitation and exclusion is absolutely essential and that chemical fly control is only a supplement to these measures.

### Sanitation

There are two major objectives of fly control by sanitation. The first is to eliminate or reduce fly breeding within or around a facility. This is accomplished when flies are kept from a potential breeding source (to prevent egg laying), when larvae are killed in infested materials or when resources suitable for fly breeding (larval development sites) are eliminated. The second objective is to reduce immigration of flies from other areas by eliminating sources of attraction.

Depending on the variety of fly, the organic matter that attracts flies as either food or breeding site may vary. Consideration of the fly's preferences should be given when focusing on sanitation amid a particular fly infestation. However, as a rule for general fly prevention, sanitation is achieved through rigorous cleaning of the facility, including the exterior perimeter. Floors and walls should be cleansed to remove all organic matter. Floor drains should be cleaned. All garbage receptacles should be cleaned, fitted with tight fitting lids and emptied daily. Recycling bins should be cleaned and

## CONTACT INSECTIDES



## RESIDUAL INSECTICIDES



## TRAPS



**PT Vector Super Nova** -  
*The high-performance Super Nova is ideal for large areas or heavy infestations.*



**PT Vector Classic** -  
*The Classic's easy serviceability and versatility as a wall mounted or portable ILT make this trap a favorite for almost any setting.*



**PT Vector Discreet** -  
*The subtle styling of the Discreet trap fits into most decors, bringing a high performance option to the front end of many accounts.*

emptied at least twice a week. All equipment should be thoroughly cleansed including cracks, crevices, and behind service panels. Dumpsters should be located as far from entry doors as possible. The dumpster and its immediate surroundings should be kept clean and its doors and lid kept closed.

- ▶ **PT QUICK TIP:** Sanitation must be taken seriously as a primary fly control technique or the effectiveness of other techniques will be compromised.

In theory, treatment of breeding places with insecticides would appear to be the logical method for controlling fly populations but, in practice, there are several drawbacks. The most important drawback is that the breeding medium is accumulating and changing continuously and, therefore, frequent treatments are required. Further, the penetration and distribution of the insecticide in the medium is often a problem. For these reasons, chemically treating the larval stage is rarely practical in commercial environments.

### **Contact Insecticides**

Contact insecticides are commonly used to quickly knockdown the adult fly population either indoors or outdoors. This is a very useful strategy to control the visible symptoms of an infestation and to quickly reduce the number of egg laying adults within the facility. Often too much reliance on this method occurs as a cure all. For this technique to be useful, it must be integrated with other techniques that aim at reducing the invasion or reproduction of flies in and around the facility.

There are six Prescription Treatment brand non-residual contact insecticide formulations available for use against flies in the adult stage. All are applied as contact space treatments. These products include Prescription Treatment® brand Clear Zone® metered pyrethrum spray, PT® 565 Plus XLO® pressurized contact insecticide, PT PI.® contact insecticide, PT ULD® BP-50 contact insecticide, PT ULD BP-100 contact insecticide, and PT ULD BP-300 contact insecticide. Each of these products contains fast-acting, non-residual insecticides capable of knocking down adult flies both indoors and outdoors.

### **Residual Insecticides**

Residual insecticides are often used to control adult flies on resting sites and other surfaces frequented by flies. This type of treatment around dumpsters, loading dock areas, and around windows and doorways is common. PT Cy-Kick® CS controlled release cyfluthrin is ideal for both indoor and outdoor applications. Where a less persistent residual product is desired, PT Microcare® CS controlled release pyrethrum may be used indoors and outdoors for fly control. The concept of this type of treatment is to kill as many flies as possible either before they enter the structure or to kill them before they have an opportunity to lay eggs inside.

- ▶ **PT Quick Tip:** Common resting sites frequented by flies include easy-to-grip surfaces such as chords, ropes, wires, and bird netting.

### **Baits**

The use of baits outdoors for the control of adult house flies has proven useful. Typically, these are granular products applied to areas house flies are known to congregate and feed. Baits can reduce fly populations, however frequent application is needed to maintain good control.

### **Traps/Monitors**

Insect light traps are useful in several ways. Many ILTs, such as the Prescription Treatment brand Vector® traps, utilize glueboards to capture flies. These glueboards preserve the catch for easy analysis. Identification is quick and catch counts allow for trend analysis and accurate record keeping. Additionally, they serve as excellent lines of defense when positioned properly. Whether a breeding source exists indoors or outdoors, ILTs can be positioned to capture flies before they enter sensitive areas or capture them once they've entered a sensitive area. There are three Prescription Treatment brand insect light traps available to assist in controlling adult flies and for use in monitoring fly populations. PT Vector Super Nova®, PT Vector Classic®, and PT Vector Discreet®. All these traps capture insects fully intact without discharging disease carrying insect parts. They operate continuously and quietly without disrupting facility operations.

*Eliminate  
fly access,  
harborage  
and attraction.*

**Exclusion**

Physical exclusion of flies as a control technique is often practiced by the screening of doors and windows, installing door sweeps, sealing of cracks and crevices in exterior building surfaces, and preventing flies from gaining access to suitable breeding media by using tight-fitting lids on garbage cans and dumpsters. Becoming familiar with the common materials used to seal openings of a facility is advisable. Not all caulks, screens and sealants are created equal.



Excluding flies from finding suitable breeding sites can also be accomplished by modifying environments they would find normally suitable for egg laying. Floor and sink drains are often used by drain flies, small fruit flies, and phorid flies as suitable breeding sites. Filthy floor drains, particularly those with a gelatinous slime, and the surface of the water in the P-trap are highly desirable to these flies. Use of a biologically based drain cleaner such as PT Vector Bio-5® to clean and maintain drains will eliminate the treated drains as sites of fly production.



**Putting It All Together**

Once you have identified the components of your fly management program, it is time to assemble them into an effective prescription custom tailored to the commercial account and the specific flies threatening the facility. Assembly of the prescription might look like the following:

- ▶ **Step 1** – Identify the fly or flies infesting/threatening the facility.
- ▶ **Step 2** – Locate all likely breeding and/or entry sites both indoors and outdoors. Also determine the distribution of the flies within the facility.
- ▶ **Step 3** – List all environmental, procedural, and mechanical improvements needed to reduce or eliminate the susceptibility of the building to fly infestation.
- ▶ **Step 4** – Select the chemical (contact and residual insecticides) and non-chemical (insect light traps and drain cleaners) agents best suited for the particular facility.
- ▶ **Step 5** – Meet with the customer to explain the control strategies prescribed and to identify those elements of the prescription that the customer is responsible for, such as clean-up, operational practices, and repair.
- ▶ **Step 6** – To the extent possible, simultaneously deploy all control tactics.  
Control tactics include:
  - ✓ Install insect light traps.
  - ✓ Knock down adult flies with contact insecticides.
  - ✓ Apply residual insecticides to outdoor fly resting sites.
  - ✓ Clean all indoor and outdoor sanitation deficiencies.
  - ✓ Clean floor and sink drains.
  - ✓ Apply biologically based drain cleaners.
  - ✓ Perform necessary building maintenance.





## TREAT

Take the necessary actions to gain control.



Contact products are used to quickly crash an adult fly population and provide short-term repellancy. When making a space treatment with PT P.I. or PT 565 Plus XLO, apply at a rate of 1-3 seconds per 1,000 cubic feet. Always follow label directions.



Bulk contact insecticides such as PT ULV BP-50, BP-100 or BP-300 may be applied through a variety of ULV equipment. Apply at a rate of 1oz. per 1,000 cubic feet and always follow label directions.



The capsule suspension formulation of PT Cy-Kick CS makes cyfluthrin available to flies even on porous or grease covered surfaces.

PT Microcare CS is a less persistent residual option for treating common resting sites for flies.



ILTs are most effective when installed:

- ✓ 3-5 feet from the floor
- ✓ where interception of insect pathways is most probable
- ✓ away from competing light sources of areas visible from outdoors
- ✓ where flies tend to congregate



Many different sealant materials exist. Learn about your options.



PT Vector ILTs are valuable as monitors because they provide capture information that can be used to fine tune a fly management program.



PT Vector Bio-5 has five strains of bacteria which attack organic matter, eliminating many common breeding sites for flies.



*Proper sanitation is the cornerstone to any fly control program.*



*Physical repairs may be costly to a customer, however, the success of a fly management program relies heavily on his commitment to building maintenance and sanitation.*



*Showing results  
motivates  
customers.*



## COMMUNICATE

There is nothing more important in any pest management program than communication between the pest management professional and his customer. In fly management programs it is essential the customer fully understand the reasons behind each and every part of the prescription created for his facility. The customer has an integral role in the overall management process, specifically in the areas of sanitation, building maintenance, and employee practices modification. If these issues are not addressed the overall program will fail to deliver the expected results. It is, therefore, essential that the customer be part of the initial inspection and prescription process.

Part of effective communication is demonstrating to your customer that the fly management program you've implemented in his facility works. The best way to do this is through the use of a PT Vector light trap as a monitor. As part of your prescription you may want to install a PT Vector light trap prior to implementing your recommendations. Allow the trap to sample the fly population for a period of 48 hours then remove the glueboard and replace it with a fresh one. You can place clear plastic wrap over the glueboard to protect it. Now you will want to implement the full suite of recommendations in your fly management program. After approximately one or two weeks using the same PT Vector light trap used in the pre-treatment survey, place a fresh glueboard in the trap and leave it there for 48 hours. Compare the pre- and the post-treatment glueboards with the customer. A significant reduction in the number of flies after implementing your treatment program will communicate the success of the program to your customer. It will also teach him how important it is to have a pest management professional protecting his facility.

Before beginning any fly control program you need to put in writing exactly what the program will entail, what flies will be targeted, and what is expected of the customer. Additionally, if certain services are to be sold separately, such as drain cleaning, this should be clearly communicated in the contract. If equipment such as insect light traps are to be installed it should be clear to the customer if they are for sale, lease or rent. It should also be clearly stated in the contract that the customer must comply with the sanitation and building maintenance recommendations made as part of the prescription for his facility. If these are not carried out the program will be far less effective and may not work at all.

Sometimes customers lose sight of the importance of fly management. It is worth while to remind them what is at stake. Remind them why they agreed to have a fly management program in the first place. This usually keeps them involved, motivated to help and able to acknowledge the valuable service you are providing... to protect their business.



## FOLLOW-UP

There is no such thing as a one-time fly control procedure. Fly control, like most forms of pest management, is an on-going process. During the initial month of a fly management program it is likely that the pest management professional should visit the facility at least weekly. This will depend on the size, complexity of the facility, and the severity of the fly problem. During follow-up visits intense inspections should be made to determine the effectiveness of the original prescribed program and whether or not the customer is following through with his commitments. You should also use your follow-up inspections to determine if you have overlooked anything. It is not uncommon when dealing with small flies such as fruit flies and phorid flies that additional breeding sites are uncovered during the initial stages of the program. For example, if you have implemented everything in your original prescription and applied contact non-residual insecticides to knock down adults, there should be no more outbreaks of adult flies. However, if they show up a week or more after your initial treatment, there is a very good chance that you missed or failed to locate a breeding site. Follow-up visits should also be utilized to check light traps and replace the PT Vector glueboards when necessary. Finally, follow-up visits should be used to continually communicate with your customer. Praise him for the parts of the program he has successfully carried out and encourage him to continue to maintain sanitary levels and building maintenance. Continued contact with the customer will go a long way towards assuring he does not lose sight of just how valuable you are to his business.

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For additional information and photos visit:

[www.pt-u.com/commercialflies](http://www.pt-u.com/commercialflies)

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