



The Lo-Line Trap For Professional Pest Control

Cecil Patterson and William Robinson
B&G Equipment Company

INTRODUCTION

Professional pest control technicians have many options on how to control pests. These include non-chemical methods, such as the use of sticky traps to remove large numbers of individual pests. The Lo-Line Trap is the most advanced sticky trap available for many pests. It includes features based on research on the movement behavior of insects, with a direct focus on cockroaches using the technology of glue and chemical attractants. This trap has a 20-year history in professional pest control of providing effective monitoring, prevention, and control of pest infestations.

Pesticide-free service is often required or requested in residential and commercial accounts. These sensitive accounts include nearly all school classrooms, food processing plants, restaurants, fitness gyms, health care facilities, supermarkets, and office buildings. Other locations needing pesticide-free service include accounts in which the workers or residents are chemically sensitive, or animals may be affected by exposed to insecticides. A well-designed trapping program can help reduce or eliminate infestations of cockroaches, spiders, centipedes, and earwigs with little or no use of insecticide.

DESIGN FEATURES OF THE LO-LINE TRAP

The Lo-Line is designed for professional use as a trap for crawling insects, and specifically for cockroaches. It is more than a folded piece of cardboard with a sticky surface. Research on cockroach walking behavior and food preferences have been applied to the overall design and key features of this unique trap.

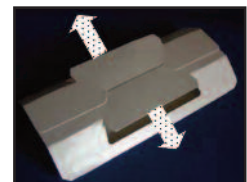
- A key feature is the 30° slope of the ramps at both ends of the trap, and the slope of the sides of the trap. Cockroaches walk or run up the 30° slope at the ends, and they don't slow down or stop. Their forward momentum carries them over the ramp and onto the glue. Movement up the sides of the trap results in cockroaches entering the openings and onto the glue surface.



- The food-based attractant is an important feature of the Lo-Line. It is highly effective in bringing cockroaches and other crawling insects to the trap. Unlike the chemical scents used in the majority of mass-produced sticky traps, the Lo-Line employs a powerful food attractant. The attractant is applied to the bottom of the trap to form a continuous layer and covered by the glue. This unique combination of attractant + glue make the Lo-Line the most effective and long-lasting trap in professional pest control.



- The wings on the top of the trap protect the glue surface from dust and dirt, and help to disperse the attractant. The trap design allows air to enter at the ends and flow out the sides into the environment. This maintains the efficacy of the trap over a long period. Cockroaches approach the trap and seek the ends and the sides which have the highest concentration of the food attractant.
- The glue has an extreme hold-fast quality. It will tightly hold the feet and body of cockroaches, centipedes, and spiders that walk on the surface.

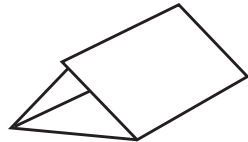


CONVENTIONAL TRAPS

There are many different sticky traps available for household pests. Most are simply a folded piece of cardboard with a sticky surface. These traps have only a limited amount of glue and moisture protection, and do not have a long service life.

Standard Sticky Traps. These traps may be scented (often it is banana), but this is not an attractant and does not improve the performance of the trap.

These traps usually have a flat entry to the glue surface, and research shows that this is the least effective design. They are thin cardboard and are easily damaged by moisture and water.



Pheromone Sticky Traps. These traps use the aggregation pheromone of German cockroaches as an attractant. The pheromone is obtained by placing small strips of cardboard in cockroach colonies so the attractant is absorbed on the paper surface. The aggregation pheromone only applies to German cockroaches and not other cockroach species. It is 'attractive' only at a close (inches) distance. The pheromone does not last long and the traps must be replaced regularly.



There are other pheromones produced in cockroach colonies, and these chemicals may be absorbed onto the paper strips used in the traps. One of the most common pheromones is one that has a repelling or dispersant effect. This chemical stimulates cockroaches to move away from a surface, or from the trap.

LO-LINE TRAP

The design and the ready-to-use feature of the attractant + glue make the Lo-Line trap effective for capturing cockroaches and other crawling pests.



- Low profile allows the trap to fit under equipment and in narrow spaces. The size is suitable for all crawling pests. The top lock prevents accidental opening and protects the glue surface. The shape conceals the trapped insects from public view.
- Quality construction and materials prevent damage in commercial and residential locations. It is durable under wet conditions.
- It can be used as an on-going monitor for crawling pests and as a control tool to eliminate isolated infestations of cockroaches, earwigs, house centipede, and silverfish.

IPM PROGRAM: MONITORING AND DETECTION

Detection. Lo-Line Traps can be used to detect the location of infested harborage before any insecticide treatment. This ensures that insecticides are only used when needed and directed to the infested sites. Insecticide application with the support of sticky traps to identify infested sites makes treatment more effective and efficient.



Monitor. Lo-Line traps can be used to monitor pest activity following the use of chemical or non-chemical control methods. The low profile permits the Lo-Line to be used in concealed locations, and the size provides on-going capture until the next scheduled service.

PESTICIDE-FREE CONTROL

The Lo-Line can function as a control tool when used in large numbers at infested areas and harborages. This specialized use of Lo-Line traps can meet the needs of facilities that require or benefit from a pesticide-free control program. These facilities include classrooms and office cubicles, health-care facilities, kitchens, and restaurants.

Occasional Invaders. The Lo-Line trap can provide immediate elimination of occasional invaders from the outside, such as: cockroaches, earwigs, spiders, and millipedes coming under door thresholds; camel crickets, sowbugs and wolf spiders in basements, and silverfish in bathrooms.

Sensitive Individuals. Among a large office staff or school system there may be individuals that are sensitive to insecticides or other chemicals. A program based on trapping can meet the needs of these people and still provide effective pest control.

Objectives:

Capture pests at key locations in the environment, such as the infested harborages, entry points from the outside, and feeding points on the inside of buildings.

Remove reproductive females, such as female cockroaches with eggcases, from the infested environment.

Prevent establishment of new infestations by removing individuals invading from the outside and pests brought inside in furniture, luggage, and backpacks.

Control small or limited infestations with strategic placement of traps near infested harborages and food sources.

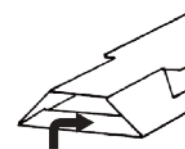
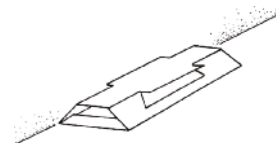
Methods:

- Use appropriate numbers and placement of Lo-Line traps in the environment to maximize the capture rate.
- Maintain a year-round trapping program to remove pest invaders and prevent new or re-infestations.
- Identify each trap with the date and location, record trapping data and retain all traps for 6-12 months.



Procedures:

- Place Lo-Line traps parallel to wall and close to corners. Cockroaches, centipedes and other crawling pests move along edges and encounter the trap when it is along the wall.
- Place under tables and equipment, in cabinets beneath sinks. The low-profile of the Lo-Line makes it easy to place it in narrow spaces.
- Do not place on wet or dirty surfaces.
- Lock the top and fold in the ramps at the ends of the trap for maximum trap catch.

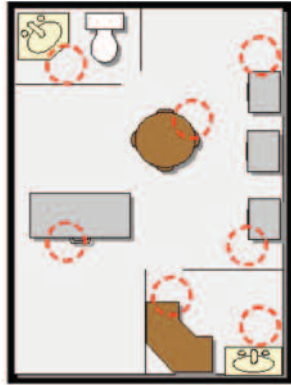


TRAPPING FOR CONTROL / ELIMINATION

Traps can be used to eliminate small infestations, or control a new or expanding infestation of cockroaches. The strategy is to start by using a large number of traps; then reduce the number by concentrating on the most productive sites.

Phase 1: Position traps throughout the site to include all possible harborages or food sites.

- Some traps will be empty; these sites can be eliminated from consideration.
- Some traps will have male cockroaches (they have a long slender body) and large nymphs (small body and lack wings). These are the *least* important trapping sites, because males and nymphs move long distances from their harborage.

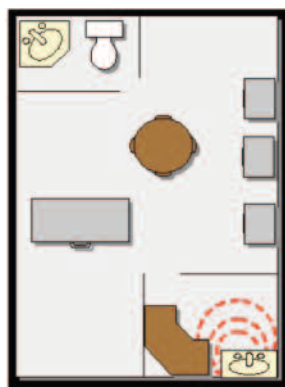


- Some traps will have females (they have a broad, oval body) and some will be carrying an eggcase. These are the *most* important trapping sites, because female cockroaches do not move far from their harborage.



Phase 2: Concentrate trap placement at sites where the largest numbers of cockroaches are trapped.

- The most important traps are those with female cockroaches. These traps are the closest to one or more infested harborages.
- Continue trapping at the sites that have large numbers of cockroaches in the traps. The presence of female cockroaches in the traps indicates a nearby harborage.



Phase 3: Select the areas for further trapping or insecticide treatment.

- The link between a trapping site and the location of an infested harborage(s) is based first on the females, and second on the number of small nymphs captured.

Schools / Classrooms

Schools require little or no pesticide use in the classrooms or other locations where students are present.

Maintaining a pesticide-free environment in schools requires a careful use of traps to protect people and classroom pets from insects, spiders, and other pests.



Fall / Winter: Spiders are active this time and traps will be effective when placed at floor level and near doors. Wolf spiders and millipedes are common invaders from outside. Insects that over-winter as adults, such as boxelder bugs, cluster flies, and Asian ladybird beetles may occur at windows on the sunny side of buildings. Window traps can reduce these pests.



Spring / Summer: Insects will come to outdoor lights and then move indoors through windows and around doors; these include spiders and earwigs. Springtails may be numerous on the shaded side of buildings where moisture is high, they can move indoors.



Trapping Locations

- Top shelves of book cases
- In cabinets beneath sinks
- Behind electrical equipment
- Behind pet cages and aquaria
- In the teacher's desk
- Around / behind potted plants
- Where backpacks are stored
- Janitorial closets
- Gym locker rooms
- Vending machines



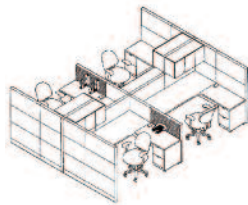
Trapping Procedures

- Notify teacher and cleaning staff of traps and location
- Write date and location on each trap used
- Record capture during each service visit
- Save traps until the end of the school year
- Increase trapping during school holiday periods



Office Workplace / Cubicles

Business office space and other workplaces may have sensitive equipment, documents, and people that are allergic to or unwilling to be exposed to insecticides. A pesticide-free control program can be designed around the use of Lo-Line traps. These pest control tools can remove the spiders, house centipedes, and cockroaches that occur in this environment.



Pests. The most common infestation in office environments are from silverfish and house centipedes. These pests are usually not present in large numbers, but they will be captured in sticky traps. Cockroaches are occasional pests, but they are usually brought in from the outside with commercial supplies, food materials, or employee belongings. On-going trapping programs will eliminate and prevent cockroaches and other pests from becoming established.



Trapping Locations

- File cabinets (bottom)
- Cabinets beneath sinks
- Behind computers
- Kitchen or 'Break' areas
- Supply rooms
- Around / behind potted plants
- Junction of work cubicles
- Vacant cubicles
- Vending machines
- Reception area



Trapping Procedures

- Notify cleaning staff of traps and location
- Write date and location on each trap used
- Record capture during each service visit
- Replace traps removed* or discarded
- Increase trapping during holiday periods



* Employees may remove trap for home use.

Food Plants / Restaurants

Use of insecticides may be limited or prohibited in locations where food is prepared or served. However, a pest control program is necessary to maintain sanitation standards. A trapping program that identifies the infested sites and removes individual pests can eliminate common pest problems.

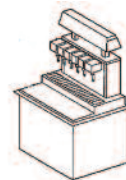
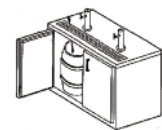


Pests. The most common pests in food handling facilities are cockroaches: German cockroaches may be established in the kitchen area, and American cockroaches may move in from outside. Lo-Line traps are designed to capture large number of these pests.



Trapping Locations

- Around garbage cans
- Cabinets beneath sinks and drink machines
- Behind electrical equipment
- Employee 'Break' areas
- Supply and food storage rooms
- Under serving counters and sinks
- Inside doors leading to outside
- Vending machines
- Behind and/or under refrigerators



Trapping Procedures

- Notify cleaning staff of traps and location
- Write date and location on each trap used
- Record capture during each service visit
- Increase trapping during kitchen down times
- Replace traps removed* or discarded

* Employees may remove trap for home use.



House / Apartment

Use of insecticides may be limited or prohibited in locations where food is prepared or served.

However, a pest control program is necessary to maintain sanitation

standards. A trapping program that identifies the infested sites and removes individual pests can eliminate common pests.



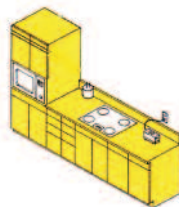
Pest. The most common pest in household kitchens and bathrooms is the German cockroach.

Infestations usually start small as individual cockroaches or eggcases are brought in from grocery stores or other households. Lo-Line traps are designed to capture large number of these cockroaches.



Trapping Locations

- Around garbage cans
- Cabinets beneath sinks
- Behind toasters and ovens
- Around potted plants
- Food storage cabinets
- Under counters and sinks
- Behind / under refrigerator
- Under the stove
- Closets in or adjacent to bathrooms



Trapping Procedures

- Notify residents of trap locations
- Write date and location on each trap used
- Record capture during each service visit



Grocery Stores / Convenience Stores



Use of insecticides is usually prohibited in grocery stores where food is exposed, and may be limited in small convenience stores. Pest control in these stores is important for maintaining sanitary conditions and food safety. A trapping program can eliminate small infestations before they become a big problem.

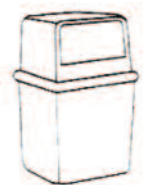


Pest. The most common pest, in supermarkets and small grocery stores are German and American cockroaches, centipedes, and spiders. Most of these are brought in with the packages, cartons, and pallets. Infestations usually begin in the storage areas, but can spread to the shelves and open food area of the store.



Trapping Locations

- Around garbage cans
- Cabinets beneath sinks
- Under shelves in Pet Food area
- Under (cold) counters
- Under sinks in storage rooms
- Behind / under refrigerators
- Next to doors on Loading / Unloading area



Trapping Procedures

- Notify Manager and employees of trap locations
- Write date and location on each trap used
- Record capture during each service visit



UNDERSTANDING TRAP CAPTURES

The results of limited or long-term trapping can provide important information on the location of infested harborages, the approximate size of the infestation, and the potential for elimination.



German Cockroach



Males – These are commonly captured; males move far from their harborage every night. Large numbers of males in a trap may indicate an infested harborage or simply a food source is nearby.



Females carrying an eggcase – These are not usually captured, but they are very important. Females carrying an eggcase do not move far from their

harborage, and when they are in a trap it indicates that an infested harborage is very close by.



Females without an eggcase – This is an important indicator of an infested harborage close to the trap. During the 5-6 days between eggcase development,

females search for food and water close to their harborage.



Large nymphs – These are often captured in large numbers in traps, but they are not a good indication of a harborage nearby.

These individuals move a long distance from their harborage every night.



Small nymphs – These are a good indication of a harborage nearby. These individuals do not move far from their harborage and the

presence of small nymphs or an eggcase in the trap means there is a harborage close to the trap.

American Cockroach



Adults – These individuals usually move indoors from outside infestations. The presence of a few adult American cockroaches indicates that they are coming in under doors or possibly a sewer line connection.



Nymphs – When nymphs are found in traps it is an indication that there is an infestation indoors, and perhaps close to the trap site.

USING TRAPPING DATA

The Lo-Line trap can provide useful data on pest infestations, such as location of infested harborages, record of species trapped and their seasonal abundance, and the progress made on reducing and/or eliminating pest problems.

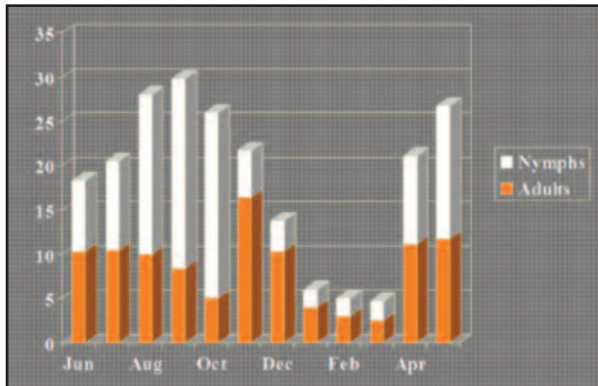


German Cockroach

- There are no seasonal peaks in numbers of the German cockroach. Thus, a gradual or even dramatic drop in trap catch usually indicates that the infestation is declining.
- The number of nymphs is greater than the number of adults, and this is usually seen in sticky traps. A sharp reduction in the number of nymphs captured in traps indicates that the infestation is declining.

American Cockroach

- Adults and nymphs are most common in spring, and trapping at this time will produce the most effective results because it will remove reproductive females from populations.



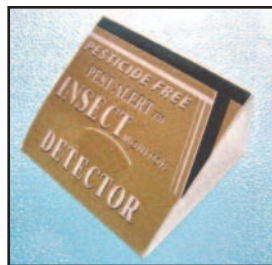
- In most populations the foraging activity of nymphs and adults declines from December through March. Using traps at this time is not effective in reducing infestations.

Save and Store: Saving traps from critical accounts, such as food preparation plants and warehouses, and restaurants, can be valuable for evaluating and improving existing programs.

- For traps to serve as tangible evidence of pest presence or absence in an account, each trap must be marked with the location and date of placement and removal.

DETECTOR TRAP

Detector Traps are an inexpensive monitor for all crawling pests in household or residential accounts.



- Ideal when all you need is a small monitor for detecting pests following a regular service call.
- Ideal as a 'leave behind' for customers.
- Professional looking trap with 'pesticide free' labeling.

The unique design of the Detector Trap allows for the trap to be placed against the wall and flush with the floor—and both surfaces are sticky. It can be used for monitoring all crawling in insects, including cockroaches, centipedes, and silverfish.



- This trap has the ready-to-use feature of the attractant + glue.
- Low profile and shape allows for the trap to be placed in almost any position or location.
- Comes as a 3-pack that is easily divided into smaller units.

SAMPLE PACKS FOR IPM AND PESTICIDE-FREE PROGRAM

Packets of Detector Traps and Lo-Line traps are available for starting IPM Programs in your sensitive accounts, whether residential or commercial.



- The Sample Packs will quickly get you started on a monitoring or elimination program.



**Call for a Sample Pack or Technical Help
on Pesticide-Free Programs
800-544-8811**



B&G Equipment Company

135 Region South Drive • Jackson, GA 30233 • 678-688-5601 • Toll Free 800-544-8811 • Fax 678-688-5633 • www.bgequip.com