

# BioRational Vector Control

Specializing in Biological Vector Control



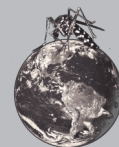
Specializing In  
International Mosquito  
and Sand Fly Control

A Green and Safe  
Approach To Chemical  
Choice and Application

We Utilize Methods  
Recognized by United  
States Environmental  
Protection Agency,  
Center for Disease  
Control, and the World  
Health Organization.

7575 Tamra Drive  
Reno, Nevada 89506

Phone: (775) 972-4782  
Cell: (775) 843-2647  
Fax: (775) 972-8254



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Mosquito & Sand Fly  
Control Solutions

# BioRational Vector Control

Specializing in Biological Vector Control

TURNKEY SOLUTIONS FOR

MOSQUITOES

SAND FLIES

BED BUGS

RODENTS

BIRD CONTROL

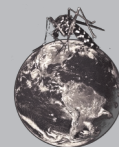
ORNAMENTAL INSECTS

SOLID WASTE MANAGEMENT

***Thank you for considering BioRational Vector Control for your specialized control project. We offer entomological, aerial, logistical services, equipment, training, as well as soft and environmentally compatible chemical control expertise that can be tailored for your specific needs.***

BioRational Vector Control staff form a multidisciplinary team with over 150+ years of experience led by Dan Ariaz, who has won numerous awards and is internationally recognized as an expert in establishing effective control programs that work with a minimum of resources and capital.

Core philosophies and technology are integrated into a unique approach to site evaluation, field surveillance, and environmental impact to tailor a control program specific to your area. This all inclusive strategy is applied throughout your organization by thorough education and training of all employees responsible for implementation of the program.



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# Contact Information

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## Corporate

## President Director

### Africa and South

### Pacific Regions

## Entomologist Director

### Caribbean Region

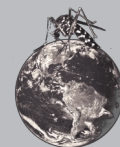
## Director

### Eastern Caribbean

### Region Barbados,

### Trinidad, St. Lucia

## Equipment

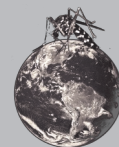


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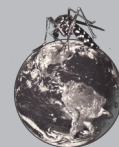
# Chemical Control Materials

## **Resistance Management & BioRational Views**

Historically, throughout the world, insect populations that have been repeatedly exposed to organophosphate poisons over time develop an immunity that has been labeled as chemical resistance. Once resistance has developed, these control materials are no longer effective and become virtually useless. In order to address chemical resistance and provide the best control, we suggest that alternative control materials be used. There are three types of chemical strategies that are recommended for use. Judicious uses of these chemicals are an integral component of an environmentally sensitive application program. Furthermore, it is recommended that only those materials approved by the U.S. Environmental Protection Agency be used.

## **Insect Growth Regulators**

Formulations of Altosid using the active ingredient methoprene, are recommended to be applied to control mosquitoes and sand flies prior to emergence and dispersal as biting adults. Methoprene is an insect growth regulator which, instead of directly toxic action, disrupts the mosquitoes and sand fly's own biological development to the adult stage. A wide variety of formulations are available to prevent mosquito emergence for up to 150 days. This product will not harm non-target organisms. Lastly, this product has been approved by the World Health Organization for use in drinking water. Applications for larval sand fly control can be conducted by using a variety of tools ranging from a hand rake to more advanced application systems (please see the equipment section of this catalog).



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# Mosquito Larval Control



“Our programs combine natural control elements in a compatible manner with chemical suppression that is used only when necessary. Chemical controls recommended are compatible with, and will not disrupt, natural controls. This integrated control program concept is also intended to be non-disruptive to the local environment. Encouraging naturally occurring control mechanisms such as predators. Control activities will focus on the limiting factors that affect the environment of the mosquito and sand fly....”

Dan Ariaz, President, BioRational Vector Control

For more information on Altosid Products  
[www.centralmosquitocontrol.com](http://www.centralmosquitocontrol.com)



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# Mosquito Larval Control



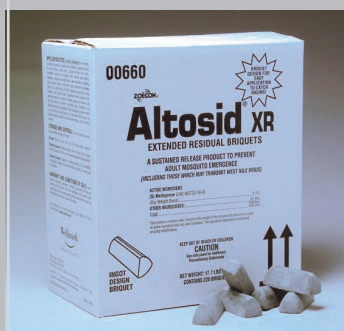
## ALTOSID XRG

- Applied at 5-20 pounds per acre
- Excellent penetration of canopy
- Up to 21 day residual



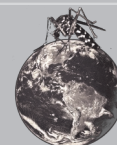
## ALTOSID PELLETS

- Apply either with air or ground equipment
- Excellent penetration of canopy
- Can be applied 15 days pre-flood stops when dry
- Up to 30 day continuous residual mosquito control



## XR BRIQUETS AND INGOTS

- Extended residual control: continuous efficacy for up to 150 days
- Product releases when wet, stops when dry
- Use for smaller bodies of water
- Applied by hand



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# Sand Fly Larval Control



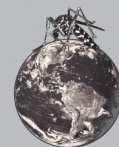
## **ALTOSID SBGII**

- Up to 7 day control residual



## **ALTOSID LIQUID LARVICIDE**

- Compatible with the BioRational Vector Control Injector System
- Up to 7 day control residual



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# Bacterial Larvicides

Bacterial larvicides are naturally occurring control products that are derived from *Bacillus thuringiensis israelensis* (BTI). Formulations of these products have been used routinely throughout the world to control populations of mosquito larvae. These products have the ability to eliminate 95-100% of the target populations of mosquito larvae—quickly and effectively.

Extensive field and laboratory evaluations and testing have shown the BTI is one of the most ecologically friendly insecticides in use today. These products kill larvae of mosquitoes but do not adversely affect other wildlife or beneficial insects, or more importantly, people or pets.

Formulations of these types of biological larvicides develop toxicity by producing a crystal that is poisonous to mosquito larvae but virtually harmless to other forms of aquatic life. The beauty of these products is their specific action, BTI attacks the larvae of mosquitoes leaving beneficial insects and other organisms virtually unaffected. In addition, tests have shown BTI to have little effect on plants, fish, or other organisms that live in the water.



## **FOURSTAR BTI**

- Positive Environmental Profile
- Offers extended residual and optimized delivery of active ingredient to target site



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# Bacterial Larvicides

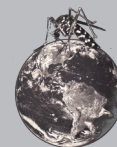
Granular insecticide effective against ant, centipedes, cockroaches, crickets, fleas, and many more. The intended application is for landscaped areas and perimeters around residential, institutional, public, commercial, and industrial buildings.

Can be used as an exterior perimeter treatment around buildings, applied directly to turf and landscape, or used directly on ant mounds and nests.



## **ESSENTRIA G**

- Positive Environmental Profile
- Offers extended residual and optimized delivery of active ingredient to target site



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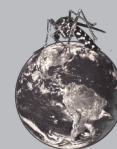
Mosquito & Sand Fly  
Control Solutions

# Adult Mosquito and Sand Fly Control

One of the safest chemicals known to man is Pyrethrum. This product is derived from plant extracts primarily the chrysanthemum plant family and produces a rapid knock down effect for flying insects, such as mosquito and sand fly. While being extremely effective, a little bit goes a long way. Pyronyl Fogging PF uses pyrethrin as it's active ingredient and is also labeled so that it can be used in a variety of application equipment.



Another ultra-low volume product offered by *BioRational Vector Control* is Zenivex. As described in the following pages, Zenivex is an extremely safe adulticide. Zenivex has been thoroughly tested by *BioRational Vector Control* staff and has been found to be highly effective at low application rates. Zenivex is also labeled so that it can be used in a variety of application equipment.



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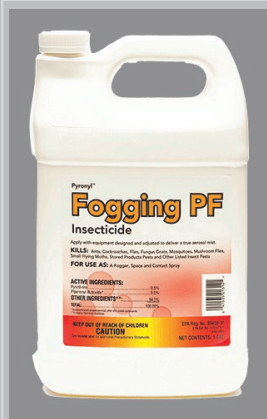
# Adult Mosquito and Sand Fly Control



## ZENIVEX E20

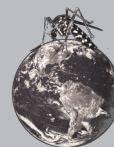
- No Piperonyl Butoxide (PBO), no synergist
- Ability to use diluted or undiluted
- Quick, permanent knockdown
- Low use rates
- Environmental Protection Agency (EPA) reduced risk classification

Etofenprox presents a low toxicity to birds and dried foliar residues are not harmful to honeybees. Zenivex™ E20 offers a positive environmental profile. It is an oil-based formulation for use in Ultra Low Volume (ULV) and does not require dilution. It is ready-to-use for hand, ground or aerial application, and requires no aquatic setbacks.



## PYRONYL FOGGING PF

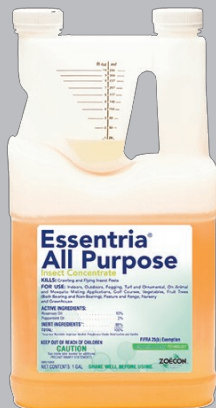
- Utilizes Pyrethrum, one of the safest chemicals known to man
- Derived from plant extracts
- Rapid knock down of mosquitoes and sand flies



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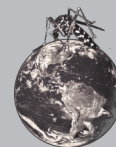
# Adult Mosquito and Sand Fly Control



## ESSENTRIA AP

- Quick control with residual protection
- Multi-purpose for indoor outdoor fogging
- Contains natural essential plant oils
- Fresh scent

Essentria All Purpose Insect Concentrate is a multi-purpose insecticide for indoor and outdoor fogging, turf, ornamental, nursery, and greenhouse applications. Great for mosquito misting applications, golf course, vegetables, fruit trees, pastures and ranges. Active ingredients are rosemary and peppermint oil which leaves a fresh and safe scent after applications.



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# Fly Control Products



## QUICKSTRIKE FLY SCATTER BAIT

- Kills house flies quickly
- Can be used daily where house flies are a problem
- Homogenous formulations
- Kills 7 times more house flies

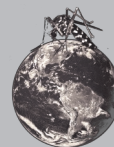
QuikStrike® Fly Scatter Bait is a fast-acting product that has been developed to control nuisance house flies.

Dinotefuran, the active ingredient in QuikStrike® Fly Scatter Bait, is an EPA approved, broad spectrum insecticide approved for control of nuisance house flies. QuikStrike® Fly Scatter Bait is approved for a variety of locations where house flies are a problem.



## GOLDEN MARLIN

- America's #1 Selling Fly Bait
- Attracts and kills flies
- With muscamone fly attractant



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# Barrier Spray Products

Another component of the integrated control program is a barrier spray regimen to control mosquitoes and sand flies migrating onto protected properties from outlying areas. It is also recommended that an aggressive barrier spray application program be started prior to the rainy season, and potential customer arrivals.

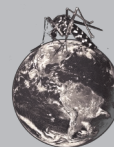
Barrier sprays are for use around outside surfaces and around buildings.



## MAVERIK PERIMETER

- Targets mosquitoes, ants, spiders, ticks, springtails, cockroaches, and fire ants
- Broad spectrum, no visible residue
- No lingering odor and non-toxic to honeybees

Controlling ants and mosquitoes in your customers' yards is a great way to keep both from becoming major problems in and around your customers' homes. Mavrik® Perimeter contains the pyrethroid fluvalinate, which provides quick knock-down of pests.



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# Application Equipment

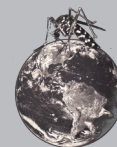
## BioRational Sand Fly Injection Control System

### FEATURES

- **3 Point Cat. 1 & 2 Tractor Mount**
- **ATV or Argo Mount**
- **12 Volt Liquid Pump**
- **Dual Output for Manifold or Spray Wand Dispersal**
- **High Capacity Strainer**
- **Weatherproof Remote**
- **All Powder Coated Heavy Duty Steel Frame**
- **Quick Attach Grooming Tines**
- **Steel Liquid Knives**
- **Simple Operation**



- A unique and innovative approach to effective sand fly control is simple with the Sand Fly Injection Control System.
- The durable frame is flexible for multiple mounting options and is easily connected to 3 point systems.
- The injection options allow for fast broad area or spot treatments on public or private beaches, or in specific inland target wetlands.
- Especially designed for resort use, the Sand Fly Injection System will aid staff in providing protection of visitors from the nuisance of biting flies and, as an added benefit, grooms and cleans beaches of debris.
- In combination with other treatment techniques, the Sand Fly Injection System rounds out the arsenal of equipment available to accomplish non-intrusive management methods and helps assure your guests of a more enjoyable vacation experience.



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# Application Equipment

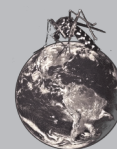
## Bullet 4-Cycle Hand Carry Fogger (Gas Model)

### FEATURES

- 4-Cycle Power by Makita
- No Mixing of Gas & Oil
- 145 MPH/358 CFM Blower
- Easy Start Engine
- Up to 60 Minutes Of Run Time Per Tank Of Gas
- Simple Operation
- Heavy Duty Polyethylene Chemical Tank
- 17 Ounce Chemical Capacity
- Dispenses Oil or Water Based Chemicals
- Lightweight (13.25 lbs.)
- Stainless Steel and Brass Nozzle
- Chemical Resistant Tubing



- The BioRational Vector Control Bullet Hand Carry Fogger offers 4-Cycle convenience in a lightweight portable unit.
- The simple operation and ease of use makes the Bullet an essential tool for outdoor spot treatments of mosquitoes and sand flies.
- Gone are the days of mixing oil and gas and frustrating yanks on the starter rope. The fuel priming system makes starting really easy. Usually one or two gentle pulls of the start rope and the Bullet will rev into action.
- The 358 CFM blower causes particles to virtually disappear with a powerful air stream, and makes the Bullet much less obtrusive than similar units.
- The best news is that the Bullet is one of the most economical units of its kind. With up to 60 minutes of runtime on every tank of gas, you save on fuel and oil.



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# Application Equipment

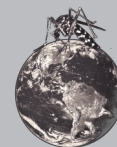
## Mozzie Fog Bullet (Electric Model)

### FEATURES

- **36 Volt Electric Power by Makita**
- **Brushless Motor Delivers Longer Time and Longer Tool Life Span**
- **No Mixing of Oil & Gas**
- **120 MPH/473 CFM Blower**
- **Quiet and Simple Operation**
- **Heavy Duty Polyethylene Chemical Tank**
- **32 Ounce Chemical Capacity**
- **Dispenses Oil or Water Based Chemicals**
- **Lightweight (9.9 lbs.)**
- **Stainless Steel and Brass Nozzle**
- **Chemical Resistant Tubing**



- The BioRational Vector Control Bullet Hand Carry Fogger offers electric convenience in a lightweight portable unit.
- The simple operation and ease of use makes the Bullet an essential tool for outdoor or indoor spot treatments of mosquitoes and sand flies.
- Gone are the days of mixing oil and gas and frustrating yanks on the starter rope. Just pull the throttle trigger and start fogging.
- The 473 CFM blower causes particles to virtually disappear with a powerful air stream, and makes the Bullet much less obtrusive than similar units.
- The best news is that the Electric Bullet is one of the most economical units of its kind. This fogger is quiet and less obtrusive than noisier gas powered units. Plus you save on fuel and oil costs



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# Application Equipment

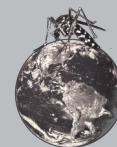
## Mozzie Fog (Model 100—HO)

### FEATURES

- **6.5 Horse Power OHV Engine**
- **Built with a reliable Honda Engine**
- **Dual Independent 360 Degree Adjustable Nozzels**
- **3 Gallon Chemical Tank**
- **Easy On-Engine Key Start Ignition**
- **Low Maintenance and Intuitive Operation**



- The BioRational Vector Control Model 100-HO unit offers a compact and efficient dual nozzle fogger.
- The simple operation and ease of use makes the Model 100-HO an essential tool for outdoor treatments of mosquitoes and sand flies.
- The fogger is built into its own chassis. This allows you move the unit to multiple vehicles for applications. This also allows for easy cleaning and access for maintenance.
- The fogger is ran by a very dependable and easy to service Honda motor.
- Dual independent 360 degree swivel adjustable nozzels make it easier to place chemical product where you need it.
- Easy on-engine key start ignition makes firing up the engine a breeze.



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