

SINCE 1950

# CATALOG OF FLY CONTROL



CONTROL FLIES SAFELY IN INDUSTRIAL AND PUBLIC FACILITIES

**RINCON-VITOVA**

INSECTARIES, INC.

[www.rinconvitova.com](http://www.rinconvitova.com)

800-248-2847 (BUGS)



## RVI Experts Ready to Help Control Flies Naturally



**We help maximize nature's effectiveness** with biological fly control information and products. What is natural fly control???

**safe** – materials are healthy for animals & people

**specific** – affects only flies (pets, birds, frogs, toads, lizards—all other wildlife—are safe)

**simple** – just sprinkle fly parasites around, manage manure, trap adults, no funny suits to wear, no gas mask

**cost effective** (cheap) – comparable or lower cost than chemical control

**better control is possible** – fly parasites have biological radar to find that last fly

**program is tailored** –to your area and needs

**inconspicuous** – tiny wasps work at night in manure piles

**gets better over time** – fly parasites and native predators build up to help control flies

**We use a tiny wasp as the key element** of our natural fly control program (just a tenth of an inch long) that feeds on and lays its eggs in fly pupae (the resting stage of flies). These wasps don't sting or otherwise bother humans or other animals. Fly pupae containing the wasps are placed in release stations near animals, or sprinkled near manure or wet feed where flies tend to breed. The number of wasps (called fly parasites) released and the frequency depends on the number of animals and local conditions.

**Benefits grow by spreading the word.** Friends, clubs and organizations can combine orders for price breaks and reduced shipping costs. Offering fly control to your neighbors improves the effectiveness of your program.

**As the pioneers since the mid-1970's** of the natural biocontrol method for flies, Rincon-Vitova staff offer unmatched advice and products.

***Our customer service team will answer your questions and refer you for expert help to the most knowledgeable and experienced field support in the industry.***



**Stefan Long**  
800-248-2847 (BUGS)  
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**Steve Chapman**  
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*Natural fly control uses several non-toxic strategies that exploit the limitations of the fly's biology. Simply put, these products make life difficult for flies without making life difficult for us, our animals or our environment. In addition, once a biological fly control program is set up, it requires only occasional maintenance. For this reason, biological fly control is less expensive than chemical control and a whole lot safer.*

*My MS studies at Cornell University concentrated on biological fly control and I've been developing programs over the past 15 years for dairy, poultry, live-stock and municipal waste facilities.*

*With 25 years of experience designing and implementing fly control programs, no fly problem is new to me and we are assured of success.*

*Because every operation is different, I use a hands-on approach to determine proper application rates for your facility throughout the season. I successfully implement fly control programs throughout the country using this approach. Changing scheduled amounts is just a phone call away. I stay in contact with your designated personnel on a regular basis to determine the amounts needed to ensure your fly control program is working to it's maximum potential.*

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## Pricing, Shipping, Technical Support

### Plan Ahead

The basic schedule of deliveries can be set up in one phone call. Request an increase or decrease in shipments by Wednesday for following week.

### How to Order

Call 800-248-2847, FAX a purchase order to 805-643-6267, or email [bugnet@rinconvitova.com](mailto:bugnet@rinconvitova.com) giving customer code, item code, quantity, description, payment/shipping information and phone number.

Hablamos español

Es para nosotros un placer servirle

### Shipping Addresses

Must be complete and accurate to avoid error charges. Report changes and corrections!

### Price Breaks for Multiple Items

Use 2+ quantity breaks when ordering 2 or more items. Use 5+ and 10+ quantity breaks where offered when ordering 5 (or 10) or more items (may be different products). For scheduled orders 10 or more shipments, ask for seasonal price agreement

Tambien ofresemos catálogos y boletíns técnicos en español

### Minimum Order \$25.00

If items total less than \$21 per shipment (not including freight), a \$4.00 handling is added.

### Shipping Methods

UPS, FedEx, US Priority Mail are available. Fly parasite customers in CA, NV, UT and AZ receive delivery in 2 days by UPS Ground service. [Add a \$4.00 handling charge to help cover standing in line at the Post Office if you need shipment by US Mail.]

**Tracking Number and Delivery Notification** We care about your order and want you to receive it in a timely manner. You can usually arrange for the tracking number to be emailed when it leaves our facility. Email notification of delivery at your facility can also be arranged for UPS shipments.

Report problems with delivery within a half day of expected arrival

Report problems with the package within a half day of delivery

### Bulletins on Our Website

Bulletins on a wide range of topics are at [www.rinconvitova.com](http://www.rinconvitova.com), on CD-Rom and by FAX or mail. Download catalog in pdf format.

**ORDERLINE 800-248-2847 (BUGS)**

# Integrated Pest Management for Fly Control

Management of Filth Flies with Parasitic Wasps

Rincon-Vitova Insectaries is a pioneer in growing beneficial insects to control flies in animal manure and other fly breeding sites. Over 200 kinds of predatory and parasitic species of insects, spiders, diseases and mites attack flies.

Combinations of these beneficial insects are attracted to manure, destroying all life stages of the filth flies. Beetles, mites, and nematodes devour fly eggs and maggots. The adult fly stage is partially controlled by natural disease. The pupa (or cocoon stage) is the target for the most important natural enemies of flies: small parasitic wasps. Parasitic wasps find fly pupae with biological radar in manure and other fly breeding sites.

Rincon-Vitova Insectaries mass-produces tiny non-swarming beneficial wasps in the genera of *Muscidifurax* and *Spalangia* that attack fly pupae. Over a thousand satisfied customers over more than 30 years of service use fly parasites to reduce flies and minimize or eliminate the use of pesticides.

## How Fly Parasites Work

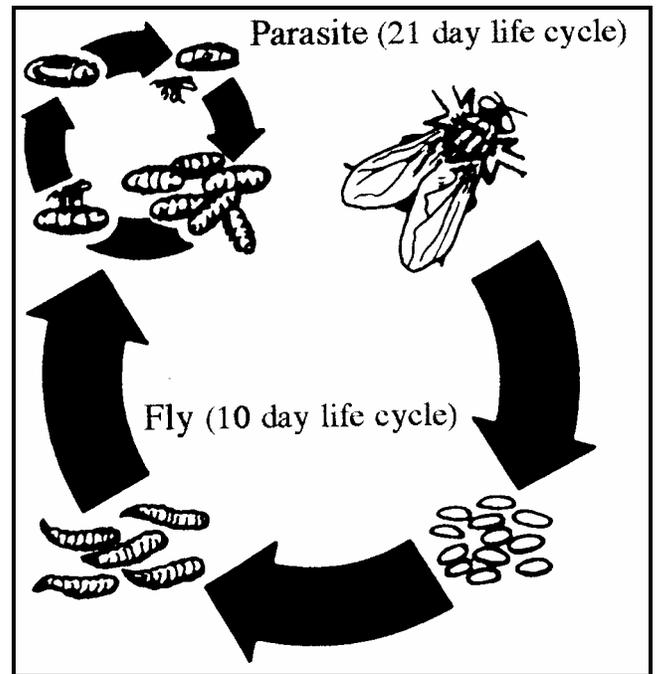
Parasitic wasps lay their eggs inside fly pupae and prevent the flies from emerging as adults. Female wasps pierce a newly formed fly pupa and insert an egg. Immature stages of the parasites feed on the juices of the fly pupa. Adult parasites also kill flies by drinking fluid from fly pupae. We call this host feeding. Because each species in our mixture is adapted to different climates, we increase the proportion of *Spalangia* (heat tolerant) to *Muscidifurax* as seasonal temperatures rise.

## Kinds of Flies They Attack

These parasites are very effective against the housefly, biting stable flies, garbage flies, and the lesser housefly, which comprise 95% of the flies in manure accumulations. These parasites will also attack blow flies and bottle flies breeding in and around garbage dumpsters.

## The Parasitic Wasps are Rarely Seen

The parasitic wasps only attack flies and will not bite, sting, swarm or bother anything else. They hop more than fly and are attracted to manure and rotting wastes. They are active at night and are rarely seen during the day. Fly parasites may operate in manure as deep as 8 inches.



**Fly and Parasite Life Cycles**  
(at approximately 80° F, 27° C)

## Life Cycle of the Fly and its Natural Enemy

Fly parasites complete a generation every 17-28 days, (from parasitism of the fly pupa to emergence of the adult). That means at least three releases, a week or so apart, are recommended to yield a steady production of adult parasites. With weekly releases, a noticeable reduction in flies can be expected in 4 to 6 weeks as the parasite population increases. Because their prey is only filth flies, they must find and kill the flies at your location.

The life cycle of the fly takes only five days in hot weather, up to ten days in mild weather. This is less than half the life cycle of the parasites. And this is why repeated releases are needed in the summer so the parasite population will build up to a high level. Adult flies may be migrating in, or brought in (compost operations) so other control strategies such as trapping are useful. Biological control will work best if you and your neighbors work together.

# Successful Three-Pronged Fly Control Strategy

A fly parasite release program is most cost-effective when combined with two other strategies: trapping adult flies and managing manure or decomposing organic matter to reduce fly breeding sites. Each of these strategies is described below.

## 1) Regular Fly Parasite Releases

Rincon-Vitova Insectaries produces a high quality product containing a mixture of species of parasitic wasps can be shipped by UPS or other carriers which are developing inside the fly pupa. Some adults will be emerging on delivery unless otherwise requested. They are shipped in wood shavings to cushion them in transit and absorb moisture. Paper bags that breathe are used for packaging. Do not store in plastic containers.

### Product Description

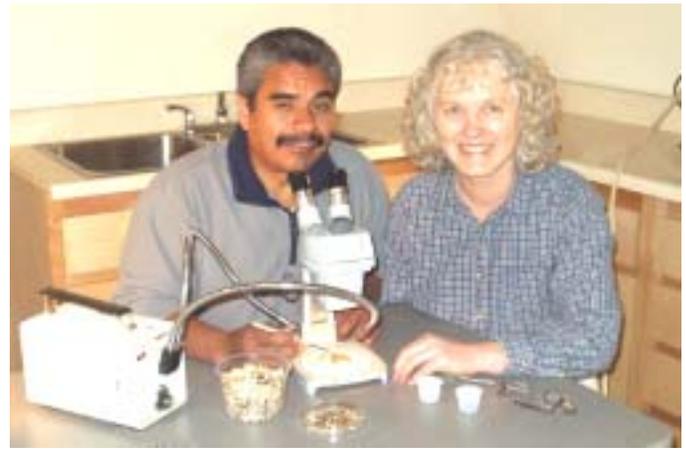
75% minimum parasitism; no live flies, expected sex ratio: 60% female. Approximately 50% wood shavings by volume.

Item Code	Pupae	Parasites	Units
FP5	5,000	10,000	1/2
FP10	10,000	20,000	1
FP50	50,000	100,000	5

***Muscidifurax raptorellus***, Kogan and Legner: This species comprises 60% to 95% of the mixture. It produces 4 to 6 parasites per fly pupa and adapts well to all fly breeding environments and produces two or three times more new parasites.

***Spalangia cameroni***, Perkins: a cold-hardy and heat-resistant and aggressive strain commonly found throughout the US, produces one parasite per fly pupa. *Spalangia* thrives in hot weather, so we increase the proportion of *Spalangia* in relation to *Muscidifurax* species as temperatures increase.

Rincon-Vitova does **not** grow *Nasonia vitripennis*, another species of fly parasite. Research shows it to be ineffective except in controlled environment poultry facilities.



Rincon-Vitova manager Jan Dietrick and production worker Victor Zaragoza work to maintain RVI's 44-year reputation for high quality.

### Handling Fly Parasites on Arrival

You can put the pupae out immediately or hold them until they start hatching. Healthy parasites produce a distinctive aroma that intensifies in the heat. Alert your delivery person that you want those smelly packages. Also assure them these fly parasites will only attack fly pupae and do not bite, sting, swarm, infect or otherwise bother humans or animals.

### Release Guidelines

- Hold at 60° to 90° F (15° to 32° C) with good air circulation. Keep out of direct sun.
- Ready to release immediately or within 48 hours (unless you ordered unincubated pupae that need to be held in a warm place).
- Sprinkle widely around edges of organic matter where flies lay eggs and pupate.
- Pouches of metal or plastic mesh can be used as release stations where damage or predation is likely.
- Parasites are most effective around areas where flies are breeding (indicated by presence of maggots)

### Putting Parasites Out

Sprinkle a small handful or spoonful of the parasitized fly pupae near wet manure or wet feed where flies are growing. The widest possible distribution around fly breeding areas is best.

Place the parasites where they will not be trampled by animals or eaten by birds, and in drier areas near fly breeding sites (where you find maggots). The maggots move from wet spots to nearby dryer areas to pupate. In wet areas the pupae will get rotten or be eaten by beetles. To

help spread them around, one unit, a bag of 10K (FP10) contains about 4 cups or 32 oz. or 64 Tbs.

You can throw a few in the corner of stalls or under mangers. Dig a furrow with the back of your heel, sprinkle in a few parasites, then cover with soil or dry manure. Sprinkle some under a fence near water troughs. Look around, see what makes sense in your facility.

### Estimating Parasites Needed

Parasites are sent as approximately 10,000 parasitized pupae at approximately 75% parasitism to yield one standard colony (minimum 20,000 adult parasites). Factors affecting recommended numbers include numbers of flies, amount of manure or other organic matter, moisture content, humidity, temperature, existing beneficial controls, chemical usage, use of bait traps and incoming migrations.

Below are some suggested release rates based on number of animals. Other considerations are temperature, moisture (rainfall) and the number of potential fly breeding sites. Fewer parasites may be needed during cool dry weather, espe-

cially when manure is removed frequently and adult flies are trapped.

### Timing Releases

It is easier to prevent a build-up of flies than to get rid of them. A few flies always survive the cold and drying conditions of winter in the pupa stage. Parasite releases should be made early each spring at the first sign of emerging or immigrating adults to decrease adult flies laying eggs. Very early releases can be smaller in number, increasing in quantity at the first signs of active breeding (maggots in wet spots).

Once established, fewer parasites are needed. Since few fly parasites survive the winter, yearly augmentation is necessary. One typical program is to release the appropriate number of fly parasites weekly for four weeks after the first frost-free day in the spring. This inoculation is followed by four more releases every other week. This schedule gives three months of sustained fly control. In areas with longer fly seasons continued releases are recommended

### Schedules and numbers of units used in some typical seasonal programs: (1 unit = 1 FP10)

Area	Rate	Frequency	Amount suggested
Stables	100 parasites/horse	every 2-4 weeks	1-4 units/month for up to 30 horses
Feedlots	250 parasites/head	every 1-2 weeks	7-10 units/week for 1,000 head
Dairies	200 parasites/cow, 1,000/calf	weekly	5-7 units/week for 100 cows
Poultry breeders	6 parasites/bird	weekly	5 units/week for 10,000 breeders
Poultry layers	4 parasites/bird	weekly	1 unit/week for 10,000 layers
Compost	500-1,500 parasites/cu. yd	monthly	5-15 units/month for 100 cubic yards



South Valley Reclamation in West Jordan, Utah, has been using fly parasites since 1998. The first year more frequent releases of higher quantities were needed. Now four FP50's (20 units that total 200,000 parasitized pupae) every three weeks between June and November provide satisfactory fly control for an annual budget of less than \$1,200 that includes UPS second day service.

## Make increases or decreases in the basic program based on these factors:

Factor	Increase	Decrease
number of flies	high	low
manure or organic matter	a lot	little
manure moisture content	wet	dry
control measures established	no existing program	good program
rain	regularly	little
humidity	damp	dry
drainage	could be better	good
animal watering equipment	leaky	no leaks
temperature	hot	cool
existing biocontrols (i.e. beetles, mites & fungi)	few	many
bait traps	don't use	use
flies migrating in	yes	no
flies hauled in (i.e. to composting sites)	yes	no
comfort level with flies	low	higher
neighbor's comfort level with flies	low	higher
budget for control	good	low
health concerns	yes	no

### Release Stations

Rincon-Vitova produces a semi-rigid plastic mesh cylinder that can be hung from posts or fences, be strapped to posts or slid onto a nail on the wall. It holds one FP10 unit. The release station is made of tough plastic mesh, which resists weather, is flexible - low risk of animal injury. Fly parasites easily exit through plastic mesh. Release stations provide a protected area where the fly parasites can emerge without being trampled, eaten, or rot in decomposing food or manure. (Fly parasites emerge over a 3 to 4 week period.) These stations are especially useful where the floors are washed regularly. Release stations help you get the most from the parasites you buy.

Whether you use our release station or another homemade type, it should shed water, drain water and have holes for the fly parasites to leave (1/16 inch minimum). When your fly parasites arrive, hold them until they are hatching, then place a small amount in each release station.

### Using Our Release Stations

Place release stations every 50 to 100 feet. To mount, attach with tape or strap to pole or post, or hang 3 to 5 feet above ground. hook bail through a cross beam on fence post, hook on nail on wall, use wire hook on nail or screw on wall. Use strap to bind to post or fence. Lid can be easily removed and for periodic dumping, slide mesh cylinder through cable tie. Cable ties, and bails are included; screws and nails are not.



To use the release station, lift lid, and place a tablespoon or two of fly parasites from each shipment into the container. When release station is full, empty it and start over. If ants find the station, coat the post with a 2 inch band of Stikem ant barrier above and below the station.

## Priority Sites

Priority release sites are in and around coops, kennels, barns, stables, and stalls, with special attention to hospital and calf pens on dairies, below mangers in horse stalls, and around feed bunks on feedlots. Place also around corral posts, fence lines, paddock areas, and other dropping sites, at the edges of manure piles, pits or carts, and wherever manure accumulates. Other fly-breeding areas are near (but never directly in) water sources, and near decomposing matter, garbage cans and septic tanks.

## Holding and Hatching of Parasites

Fly parasites must not be left in direct sunlight or hot areas. Normally our product is sent ready to release within a day or two. To speed up emergence, hold at 70° to 80° F, increasing to 85° F with good air circulation. Cold storage shortens life and may harm reproduction. Avoid chemical sprays within 48 hours of release.

## Delaying Emergence of Fly Parasites

Fly parasites work best when some are released each week. This strategy assures the constant presence of parasites to parasitize developing fly pupae. However, the freight costs add up. An alternative is to have two weeks worth of parasites shipped every other week. This may result in a quantity price break and reduces shipping costs. This schedule works best if you can delay the emergence (hatching) of the fly parasites.

To delay the emergence of the fly parasites, you must keep them cool (about 50° F) but not cold (about 40° F), i.e. cooler than an air-conditioned room but warmer than a refrigerator. Keep the extra fly parasites in a cooler with cold packs wrapped in newspaper (no ice please- when it melts the parasitized pupae will get wet and moldy - preventing parasite emergence) and replace it as needed. The cooler itself should be kept in a cool, dark place. When you want the parasites to emerge, place the bag in a warm (>80 °F) sunny area until you see parasites emerging (usually 2 to 3 days).

To release the fly parasites, keep them in a warm place, about 70 to 80 °F with 40 to 60% humidity, and check for them hatching by simply opening the paper bag and looking for the ant sized parasites moving around the bag. The parasites should emerge within 7 days.

When you see several crawling inside the bag, sprinkle the contents near fly breeding areas. Most customers receive shipments at intervals of 2 to 4 weeks.

## 2) Trapping Adult Flies

Flies grow fast for several reasons. A single fly can lay up to 800 eggs a day while one parasite attacks less than 30 fly pupae a day. Flies also have a shorter life cycle than parasites (5 to 10 days for flies compared to 17 to 28 days for fly parasites). Thus, a single fly could become more than 64 million flies in the same time it takes for one fly parasite to produce 510 fly parasites. The short life cycle also allows flies to become resistant to insecticides faster than parasites. Adult flies are able to travel greater distances faster than parasites. Reducing the number of adult flies by using selective strategies; toxic baits, traps is critical to reducing the fly's advantage so parasites will be better able to keep pace with the number of fly pupae being produced. Getting enough fly parasites for the number of fly pupae is also important, which is why insectary-grown parasites need to be released in high enough numbers and frequently enough.



Final Flight fly trap and lures to control adult flies

## Fly Traps

Rincon-Vitova sells a variety of fly traps and can provide directions for making your own. Trapping adult flies with baits is recommended along with fly parasite releases. Some chemicals or nonpoisonous materials are useful in the form of sugar baits. Such bait traps can be economically and safely used to remove large numbers of adult flies without interfering with fly parasites and other biological controls. Baited jug traps are easy to make such that the bait is out of way of children and pets. Use them to reduce the adult fly population early in the fly season (usually beginning after the first frost-free day of the

year). An early start gives the beneficial populations time to increase to larger numbers in the manure and will result in fewer fly problems for the rest of the summer.

Counting the number of flies caught in jug traps with bait in them or on fly tapes is an excellent way to monitor changes in fly populations. Baited jug traps are easily made by hanging a gallon milk jug that has four 2 to 2½ inch holes in the top half of the jug with a wire. One ounce of bait is placed in the bottom of each trap.

### **Z-9 Sex Pads Lure Flies to Traps**

Baits containing the fly pheromone muscalure (Muscamone®, Z-9-tricosene) are the most effective at attracting flies. Golden Malrin®, Blue Streak®, Stimukil®, Apache®, and Flytek® are some brands that contain 1% methomyl (a carbamate). Flies eat the bait and quickly die. These traps should be hung about one foot below beams near areas where flies are often seen resting or where fly specks are concentrated. If you empty the trap weekly and estimate and record the volume of dead flies, it is one way to assess how the program is working.

### **Cone and Jug Style Fly Traps**

Sagebrush traps can be baited with Rescue® or Final Flight® fly bait containing muscalure and feeding attractants (no pesticide) and used in sensitive environments and on organic farms.



**Sagebrush Trap S3**

Most flies are resistant to all contact pesticides. However, when flies eat these toxins in a bait, they will die. Begin applying registered fly baits whenever and wherever adult flies tend to accumulate. Releasing more parasites suppresses the number of fly pupae and increases the number of parasites. Keeping pesticides (larvacides) away

from the breeding sites protects naturally occurring predators that contribute to the success of the overall program. Results of over 95% control are achievable by trapping and baiting the adult flies and releasing parasites into fly breeding sites when flies are present.

In humid areas and wet manure accumulations, especially where manure is washed into pits, it takes parasite releases AND bait stations to give excellent fly management. When you start releasing parasites, set up at least one bait trap inside each barn or shady area where you see high numbers of adult flies (as indicated by fly specking – see below). Trapping along with parasite releases should continue until flies are gone.

### **Special Traps for Biting Flies**

Fly parasites do not attack many biting flies. See catalog for sticky traps. Horse Pal and the NZI trap simulate the side of a cow and physically trap the fly. See [www.rinconvitova.com](http://www.rinconvitova.com) for current links to information about traps for biting flies.

## **3) Control of Fly Breeding Sites**

Good sanitation practices that eliminate conditions favorable to fly breeding are critical to limit fly problems. Frequent manure removal reduces the breeding sites. Keep areas around watering and feed troughs clean and dry. Wet feed and wet manure are good for growing maggots (fly larvae). Maintain ventilation to dry the manure and eliminate wet areas wherever possible.

Large amounts of manure can be managed in a pond or storage where non-aerobic digestion is accomplished or by aerobic composting systems. Unprocessed manure can be piled and covered or watered – depending on climate – to speed decomposition. This reduces the surface area and heat builds up to reduce fly breeding. Dry manure will not breed flies. The interface between wet (moisture content of 50 to 80%) and dry manure is where fly breeding occurs. This is also where the fly parasites work best.

Sludge pits can be improved by adding aeration. Anaerobic digestion attracts flies and produce airborne chemicals that are not good for the health of animals and people. We can provide references for aeration equipment. We also sell Ophyra, a predatory fly that lives in sludge pits, and attacks fly larvae.

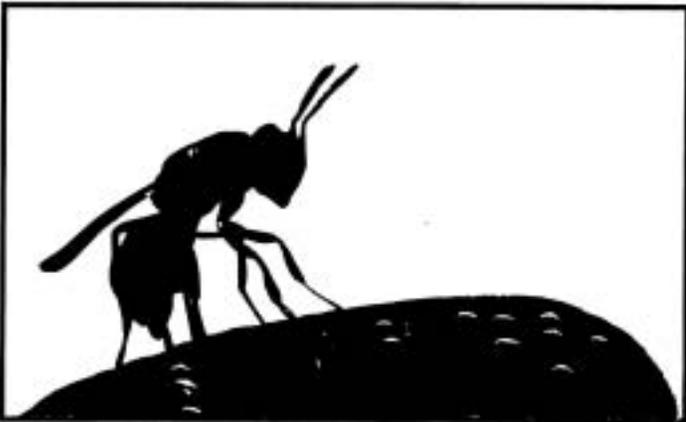
## Evaluating Parasite Effectiveness

### Monitor Number of Adult Flies

A reduction in the number of adult flies is the best measure of a successful fly control program. Control decisions should be based on a standardized method of quantifying fly numbers. Baited jug traps and index cards offer two standardized methods.

### Fly Scatter Bait Traps

Count the number of flies caught per trap in a week. Fly activity is usually considered high if more than 250 flies are caught weekly in a trap.



Fly parasite wasp laying egg on fly pupa  
actual size is approximately 1/10 inch

### Fly Speck Cards

Weekly placement of 3 X 5 inch plain index cards near fly resting areas as indicated by fly specking provide an inexpensive method for monitoring fly populations as well as a historical record of fly activity. Cards should be fastened flush to a surface where fly specks are concentrated in the same position at each renewal. In general, fly activity is considered high if each card on average has more than 50 to 100 spots in a week.

### Assess Parasitism of Fly Pupae

Fly pupae can be separated from the manure by flotation in water. Agitation will float the pupae to the surface. Pupae that are old enough to have been exposed to parasitic wasps change from reddish to dark brown. Up to ten percent of these will not develop into flies. Those yielding flies have the end of the pupal case broken off. Neatly cut escape holes are evidence of parasitism. Check 100 dark brown pupae in a week for parasitism and dead intact pupae to get parasitism rate and parasite-induced mortality rate.

## Use of Other Biocontrols

**Ophyra** or dump fly (*Hydrotaea aenescens*) is a fly whose larva lives in manure sludge and preys on house fly larvae. The adult fly doesn't bother people or animals like house flies. See page 11.

**Hister Beetles**, *Carcinops pumilio*, are tiny 1/8 inch long beetles that eat fly eggs and larvae in moist manure. Release in chicken houses where the manure stays moist and warm. See page 11.



Hister beetle eating fly eggs

**Dung Beetles**, *Onthophagus spp.*, are large scarab beetles 1/2 inch long, that bury manure in pastures. This removes the manure pile as a home for flies. See page 11.

## Use of Chemical Pesticides

Fly parasites are susceptible to pesticides, particularly when sprays are directed at manure. Spray only adult flies resting on surfaces such as walls to minimize the impact on the parasites. Non-residual sprays work well for knocking down flies. This way you keep biological control working for you and reduce the need for insecticides.

Biological control works because the entire complex of insectary-grown and naturally occurring predators and parasites work together to break the life cycle of the fly at many different stages. All natural enemies of flies are susceptible to pesticides. Intelligent use of broad-spectrum pesticides will reduce the need for them.

### Enjoy Life With Fewer Flies and No Pesticides!

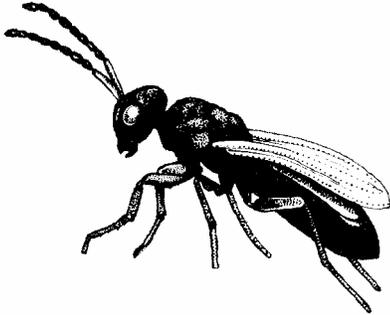
*As a horse owner,  
I appreciate stables that  
control their flies with-  
out pesticides. Such  
places offer a safer and  
more enjoyable atmos-  
phere for my horse and  
family.*



Alexandra Long on Fancy

Stefan Long  
Entomologist and fly  
control consultant

## Fly Parasites

BENEFICIAL	TARGET PEST	CODE	QUANTITY	PRICE	 <p style="text-align: center;">fly parasite wasp actual size is approximately 1/10 inch</p> <p style="text-align: center;"><b>To estimate number of fly parasites to order,</b> see page 6 for details.</p>
<b>Fly parasites</b> Fly control   <p style="text-align: center;">Fly parasite emerging from fly pupae</p>	Filth breeding flies housefly, stable fly, lesser housefly	<b>FP5</b>	<b>5,000/bag</b>	<b>26.00</b>	
			2+ bags	15.00	
			5+ bags	9.00	
			10+ bags	7.20	
		<b>FP10</b>	<b>10,000/bag</b>	<b>29.00</b>	
			2+ bags	18.00	
			5+ bags	12.50	
			10+ bags	10.50	
			20+ bags	9.00	
		<b>FP50</b>	<b>50,000/bag</b>	<b>55.00</b>	
			2+ bags	44.00	
			5+ bags	40.00	
			10+ bags	38.00	
			20+ bags	36.00	

Fly Parasite Schedules	CODE	QUANTITY	PRICE	
Arrange for shipments every 1, 2, 3 or more weeks through the fly season. Choose between two levels of price savings—schedules of at least 4 shipment dates and schedules of at least 16 shipment dates. Feel free to increase or decrease number of bags and adjust shipping dates as needed.	<b>FP5 X4</b>	<b>5,000/bag</b>	<b>19.00</b>	
		2+ bags	12.50	
		5+ bags	7.50	
	<b>4 or more shipments</b>	<b>FP5 X16</b>	<b>5,000/bag</b>	<b>16.00</b>
			2+ bags	11.40
			5+ bags	6.80
			10+ bags	5.30

CODE	QUANTITY	PRICE	 <p style="text-align: center;">Fly parasites in a carrier of wood shavings as you will receive them. We package in a no-frills paper bag.</p>	CODE	QUANTITY	PRICE		
<b>FP10 X4</b>	<b>10,000/bag</b>	<b>22.00</b>		<b>FP50 X4</b>	<b>50,000/bag</b>	<b>49.00</b>		
	2+ bags	16.00			2+ bags	42.00		
	<b>4 or more shipments</b>	5+ bags			11.00	<b>4 or more shipments</b>	5+ bags	38.00
		10+ bags			9.30		10+ bags	36.60
20+ bags		8.40		20+ bags	35.00			
<b>FP10 X16</b>	<b>10,000/bag</b>	<b>20.00</b>		<b>FP50 X16</b>	<b>50,000/bag</b>	<b>46.00</b>		
	2+ bags	14.50			2+ bags	41.00		
	<b>16 or more shipments</b>	5+ bags			10.50	<b>16 or more shipments</b>	5+ bags	37.00
		10+ bags			9.00		10+ bags	35.70
		20+ bags			8.00		20+ bags	34.50
40+ bags	6.90	40+ bags		32.00				

## Fly Parasite Release Stations

<b>Fly Parasite Release Station</b> – PP plastic mesh cylinder to safely hold fly parasites for release, can be hung with bail, strapped onto a pipe or hung on a screw, hang 3-5 ft above ground.	Place around fly breeding sites, every 100 ft or so, protects from predators, birds, being trampled under foot. helps you get the most from your fly parasites – FP emerge over 3 week period	5-10/ac near where fly maggots found		<b>FPRS</b>	<b>set of 5</b>	<b>25.00</b>
				2+ sets	16.50	
				5+ sets	11.75	
				10+ sets	9.50	
				20+ sets	8.20	

## Hister Beetle, Fly Egg Destroyer

BENEFICIAL	TARGET PEST	RATE	CODE	QUANTITY	PRICE
<i>Carcinops pumilio</i> hister beetle, adult	fly eggs, small fly larvae, establish in manure pits in poultry houses	10K/pit 	HISTER1	10,000 beetles	700.00
Hister House – hister beetle traps, set on manure piles, collect, move to new pile	for collecting/moving predatory beetles when cleaning out or setting up a new poultry house	100–300/ manure pit	HISTERH	100 traps	200.00
				2+ units	193.00
				5+ units	184.00
				10+ units	177.00
<i>Ophyra, Hydrotaea aenescens</i> black dump fly predatory fly	fly larvae in wet manure	10K/1K ft <sup>2</sup> 	OPHYRA	10,000/tub	43.00
				2+ tubes	30.00
<i>Onthophagus spp.</i> Dung Beetles southern US (night temp 55°F+ )	bury manure to decrease flies, improve soil, use in rotational grazing	starter colony	DUNG1	100/ unit	118.00
				2+ units	100.00
				5+ units	92.00

## Odor Management

If you control odor from decomposing organic matter you can decrease flies attracted to scatole from fermenting manure and alcohols from fermenting sugars. Also, consider animal health and worker comfort in areas with strong odors. Odor can be a sign that a biological process has gone wrong.

There are several ways to decrease odor:

- Change conditions (i.e. drying) to stop decomposition.
- Shift decomposition away from anaerobic microbes that live without oxygen and produce bad odors to aerobic microbes that use oxygen and make pleasant odors.
- Intercept and neutralize odors in the air (see Bioworld Odor Neutralizer below).

BENEFICIAL	DESCRIPTION	CODE	QUANTITY	PRICE
<b>BioWorld Waste &amp; Odor Treatment</b> microbe mix selected for efficient, rapid cleanup, shelf life 1 year at RT, cost \$1-2/ton or 25¢/cow	breaks down manure, sludge, reducing odors, use 1 gal nutrient with ½ lb microbes (1 unit) on 50 tons manure. spray nutrients then microbes, for larger quantities use 1-2 lb with 5 gallons liquid	GBM0.5	½ pound	50.00
		GBM2.5	2.5 pound	174.00
		LOP1	1 gallon	79.00
		LOP6	6 gallon	299.00
<b>BioWorld Odor Neutralizer (BON)</b> liquid organic formulation	eliminates offensive odors at source, mist into air	BON2	2 ounce	8.50
		BON32	quart	44.00
		BONG	gallon	130.00
		BON5G	5 gallon	516.00
<b>Odor Ace</b> organic acids from plant extracts, use 2 oz/gal water, spray on, use 1 gal/100 ton compost	odor control, shifts microbial metabolism away from foul odor, use on animal bedding, manure, garbage handling equipment, compost materials	ODOR1	gallon	54.00
			2+ gallons	46.00
		ODOR5	5 gallon	169.00
		ODOR30	30 gallon	775.00
<b>Suppress Odor Neutralizer</b> 1 gal/2K gal or 1:2 and spray surface OMRI listed	increase microbial activity, reduce ammonia, other N containing odiferous compounds, for manure, compost, livestock	SUPPRESSQT	quart	15.00
		SUPPRESS1	gallon	45.00
		SUPPRESS2.5	2.5 gallon	81.00
		SUPPRESS55	55 gallon	1080.00

# Traps and Equipment

ITEM	DESCRIPTION	CODE	QUANTITY	PRICE	
<b>Sagebrush Traps</b> Metal outdoor "solar-powered", screen cone design, bait recipes included, catches flies or yellow jackets, depending on bait, price includes freight. Fly bait: molasses 1:3 with water or use fly attractants. Yellow jacket bait: meat scraps	hangs from wire 6" dia, 10" h 	<b>FTH1</b>	<b>1 hanging trap</b>	<b>37.00</b>	
			2+ traps	30.50	
			5+ traps	26.60	
		<b>FTS3</b>	<b>1 large standing</b>	2+ traps	37.00
				5+ traps	33.00
				drum	inquire
<b>Rescue Fly Attractant</b> feeding and sex attractants	potent, fast acting, just add water, lasts 2-4 weeks, add more water when dry	<b>FTAR</b>	<b>6/pack</b>	<b>11.50</b>	
			2+ pack	9.00	
<b>Final Flight Fly Trap</b> Troy Biosciences reusable quart plastic	attracts, traps flies indoors or outdoors, with lures 	<b>FTFF</b>	<b>trap &amp; 1 lure</b>	<b>8.35</b>	
			12+ units	7.10	
<b>Final Flight Fly Lure</b> , fly sex attractant plus feeding stimulants	mix pack in qt water in FTFF	<b>FTL</b>	<b>pack of 3 lures</b>	<b>8.35</b>	
			6+ units	5.85	
<b>Rescue Big Bag Fly Trap</b> add water and hang, disposable, no touching bait or flies, use where you need fast, short term control	flies, house, false stable, blow, blue bottle, green bottle, flesh, face flies, etc., double capacity of standard bag, holds to 40,000 flies	<b>FTBB</b>	<b>1 doz</b>	<b>83.00</b>	
			2+ doz	74.00	
			4+ doz	69.00	
<b>Rescue Reusable Yellow Jacket Trap</b> lures wasps into trap where they dry up, lasts several seasons	proven cone design, pheromone bait that attracts dozen+ species of biting wasps, start early in spring to catch young queens	<b>YJTR</b>  lures available	<b>each</b>	<b>19.00</b>	
			6+ traps	13.00	
			12+ traps	11.50	
<b>Z-9 Sex Pad</b> , fly lure, pure Z-9 pheromone fly sex attractant, NO odor,	flies, house, false stable, males only, use with the Wet Tablet to attract females, use in any trap	<b>Z9PAD</b>  replace monthly	10/pack	46.00	
			2+ packs	36.00	
			5+ packs	30.00	
<b>Wet Tab</b> , fly lure, food grade material - no sex pheromones, very low odor - can be used inside	flies, best, most versatile food lure, fits in any trap, wet tablet before use	<b>FLYTAB</b>  replace monthly	10/pack	46.00	
			2+ packs	36.00	
			5+ packs	30.00	
<b>Tangle-Trap Insect Trap Coating</b> spray adhesive for traps,	for making sticky traps, covers 6.5 ft <sup>2</sup> , stays sticky until covered with bugs or debris, not shipped by air	<b>TANGLA</b>	<b>10 oz can</b>	<b>30.00</b>	
			3+ cans	16.00	
			5+ cans	12.70	
<b>Stikem</b> special non-toxic pest glue, high tack formula, traps flying or crawling insects	for making sticky bands, or sticky cards; stretch plastic food wrap around tree trunks and apply, 2 inch band on wrap; stops all crawling insects	<b>STKM1</b>	<b>1 pound</b>	<b>12.50</b>	
			2+ pounds	10.30	
		<b>STKM7</b>	<b>7 pound (gal)</b>	<b>55.50</b>	
<b>STKM25</b>	<b>25 lb (3.5 gal)</b>	<b>122.00</b>			

## Traps and Equipment (continued)

ITEM	DESCRIPTION	CODE	QUANTITY	PRICE
<b>SpiderWeb Fly Trap</b> mount vertically or horizontally in sensitive areas like milking parlors	food handling areas, stable aisles, garbage storage areas, greenhouses -12 traps/case 11inX24ft sticky tape/trap	<b>SPWEB</b>	<b>1 trap</b>	<b>40.00</b>
			2+ traps	30.00
			5+ traps	18.00
			12+ traps	13.00
<b>Sticky Biting Fly Trap</b> for trapping stable flies. Catches up to 5,000 flies per trap	Place 70-100 ft apart in full sun around compost/manure piles. Fiberglass cylinder, stake, 2 sticky sleeves included.	<b>STYBF</b>	<b>1 trap</b>	<b>35.00</b>
			2+ traps	25.00
			5+ traps	17.00
<b>Replacement Sleeves-Clear</b>	Replacement sleeves for STYBF 10 sleeves/ package. Replace when covered with flies or dust.	<b>RSC10</b>	<b>1 package</b>	<b>40.00</b>
			2+ packages	28.00
			5+ packages	20.00
<b>Sticky Face Fly Trap</b> for trapping face flies.	Attach trap to metal pole at a 45° 2 ft above the ground. Mount on T post, not included.	<b>STYFF</b>	<b>1 trap</b>	<b>34.00</b>
			2+ traps	23.00
			5+ traps	16.50
<b>Replacement Sleeves-White</b>	Replacement sleeves for STYFF 10 sleeves/ package. Replace when covered with flies or dust	<b>RSW10</b>	<b>1 package</b>	<b>40.00</b>
			2+ packages	28.00
			5+ packages	20.00
<b>Doom Light Trap</b> Odorless black light, safe to use indoors	Place in open area where 25 watt black light is not obscured. Two sticky cards included	<b>STYDL</b>	<b>1 trap</b>	<b>110.00</b>
			2+ traps	100.00
			5+ traps	90.00
<b>Doom Light Replacement Cards</b>	Replacement cards for STYDL	<b>RCDL</b>	<b>package of 10 cards</b>	<b>35.00</b>
			2+ packages	22.00
			5+ packages	13.00

## Ant & Flea Control

BENEFICIAL	TARGET PEST, USE	CODE	QUANTITY	PRICE	
<b>Ant Bait</b> with 3% boric acid, low risk material	ants, place in ant bait station	<b>BORICQ</b>	<b>quart</b>	<b>12.00</b>	
		<b>BORICG</b>	<b>gallon</b>	<b>33.00</b>	
<b>Boric Acid</b> , technical powder recipe sheet available	use in ant baits or dust areas for cockroaches	<b>BOR4</b>	<b>4 oz</b>	<b>4.90</b>	
		<b>BOR16</b>	<b>16 oz</b>	<b>12.00</b>	
<b>Advance</b> granular ant bait abamectin, a bacterial toxin from <i>Streptomyces avermitilis</i>	ant, fire ant and other protein feeding ants	<b>ADVAN</b>	<b>6 pound</b>	<b>98.00</b>	
			2+ jars	93.00	
			5+ jars	85.00	
<b>Ant &amp; Roach Buffet</b> bait station for 1-3 baits for ants, roaches, 2 of ½ oz sections, one 3 oz section	ant, roach bait station with 3 bait compartments, weather resistant polypropylene	<b>ANTBUF</b>	<b>20/bag</b>	<b>28.00</b>	
			5+ bag	24.00	
			10+ bag	21.00	
<b>Bug Arrest</b> , spray, brush mix of digestive enzymes to disable insects, mites on pets, rinse	lice, flea, ear mite, skin mite - on animal - dust mite, ant, roach, fly - around home, insects on plants	<b>ARREST</b>	<b>32 oz bottle</b>	<b>15.50</b>	
			<b>ARRESTG</b>	<b>gallon</b>	<b>49.00</b>
				2+ gallon	39.00

**Ant Bait Recipe -Boric Acid Syrup**  
(3% boric acid in 25% syrup by weight)  
1 Cup sugar  
2 Cups water  
2 tablespoons boric acid  
Mix and stir until dissolved.

Use a bait station or a plastic jar or tub with about 1/8 inch holes around top edge so ants can get in. Place some excelsior, wood shavings, dry grass, or styrofoam packing material in the jar to provide pathways for the ants to climb down to the syrup. Fill jar ¾ full. Refill liquid once a week or as needed until few ants are seen collecting bait or the bait stops disappearing.

## From a Satisfied Customer in the Midwest

Dear Rincon-Vitova,

I have used parasitic wasps for four years now. I would not change. I highly recommend them to any serious livestock producer...

Below are a few of the benefits we've seen:

1. We have very few adult flies no matter the time of season.
2. We find we have fewer flies going into the following season.
3. The livestock eat better when flies do not bother

them. We have not experienced the typical summer decrease in the livestock's growth since using the fly parasites.

4. The cost ended up being not much more than what we were paying for the liquid fly trap method.

Using fly parasites is so easy, just open the bag and spread...What a great product!

Sincerely,

Deborah A. Royer  
Royer Farm, Washington, IL

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**Dr. Richard Meirs, DVM**  
**Walnridge Farm**  
Cream Ridge, NJ

**Bradley Wallace**  
**Hickory Lane Horse Farm**  
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**North Carolina Zoological Park**  
RVI fly parasites stop fly breeding in George's composting zoo doo piles.

**Mark Mullen**  
**Fair Winds Farm**  
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**Jamie Kogel**  
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Are you satisfied? We want to hear from you!



# Benefits of Natural Fly Control



## Nature has a good idea.

Maximize nature's effectiveness with the best selection of supplies for biological fly control.

## What is biological fly control?

**It's safe!**

Materials are non-toxic for animals and people.

**It lasts!**

Flies cannot develop resistance to fly parasites.

**It's as simple as**

1) release quality fly parasites periodically

2) trap adults (new Z9 Sex Pad & Wet Tab Lures page 13)

3) manage manure

**It's cheap!**

Cost is comparable or lower chemical control.

**Gets the last fly!**

Fly parasites find hidden fly pupae with biological radar and destroy them.

**Discrete**

Fly parasites work 24/7 in manure and edges of compost piles out of sight.

**Cumulative**

Fly parasites and native predators build up giving better natural control over time

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