TO HORSES, flies are a pain in the neck — and back, croup, legs, chest and face. To the horseman, flies are a pain in the pocketbook. He spends big in time and money each year for poison sprays, baits, bombs, wipe-on compounds and manure removal. It’s a billion-dollar battle that’s been waged annually with habit-forming regularity. And still there are flies.

So when you’re used to spending upwards of $100 each year for fly control, you’re naturally skeptical of claims that you can control your fly problem at a monthly cost of about fifty cents per horse, using bugs so tiny they’re almost invisible. But U.S. Department of Agriculture tests have proved the claims about fly predators, as the tiny insects are called, are true — if you give them a chance.

“People have a hard time believing that there are good bugs and bad bugs,” says Patrick Spalding, entomologist of a firm called Spalding Laboratories that’s raising the fly predators. “When they hear the word ‘bug,’ they immediately think ‘kill.’

“But there are some insects that are beneficial, like the ladybug and green lacewing which control aphids and mealybugs,” he adds. “A more familiar example is the honey bee, which pollinates flowers and produces honey.

“The fly predator is another such beneficial insect. It looks like a minute wasp, but it neither bites nor stings and doesn’t come around the house creating a nuisance,” says the head of the Arroyo Grande, California, operation. “Fly predators require no maintenance other than introducing them to the manure pile or other potential fly breeding site. You just pour them out and let them work on their own. And, if you follow our directions, they will work.”

USDA tests in Florida, Georgia, Texas, the Virgin Islands, Maryland, California and elsewhere bear out Spalding’s claims. Agricultural Research Service scientists at the Insects Affecting Man Laboratory in Gainesville, Florida, found that the fly predators completely suppressed house flies within thirty days of being introduced at a poultry farm. At a dairy calf barn, fly population was reduced eighty-three to ninety-three percent within thirty-one days. In a multi-year study by the University of California and USDA, the repopulation of stable flies was reduced by ninety-three percent.

Fly predators have a fascinating life cycle. Upon emerging as adults, the female is ready to mate immediately and begin depositing up to four hundred eggs inside the pupae of pest flies. When she finds a pest fly pupa, she drills a hole in the casing and lays an egg. As the fly predator develops to maturity inside the casing, it feeds on and thus destroys the pest fly. The fly predator then emerges as an adult about a month later and begins searching for other fly pupae to “hit,” as Patrick Spalding calls it. What eventually happens is that most — not all — of the pest flies are destroyed before hatching into winged insects.

Spalding stresses that fly predators will not kill each and every pest fly; they’ll miss a small percentage, even under ideal conditions. “We don’t promise a fly-free environment,” he says. “That is impossible. What we purport to do is reduce pest flies to a

Bob Buell sprinkles fly predators on manure as “Clyde” assists. His B&B Stables in Carritos, California, is practically free of pest flies.
Inexpensive And Effective, Fly Predators Can Be A Partial Solution To Your Pest Fly Problem - If You Have Some Patience

level where they’re not a nuisance or economically damaging. Biological control is not the sole answer to controlling flies. An integrated approach is the best.

The integrated approach of which Spalding speaks calls for the use of his fly predators along with selective spraying with nonresidual pesticides, use of sugar baits, fly papers, electric fly traps, fly cords and good sanitation.

“Random spraying is psychologically gratifying, since you see dead flies,” Spalding comments. “But most people are lucky if they kill five percent of their flies in this manner. What you need is selective spraying — spraying those areas where flies congregate: shady spots during the heat of the day, barn rafters in late evening, feed troughs when neither feed nor animals are present, and light-colored surfaces like barns or fence rails that are bathed in morning sunlight. This kills many flies in a short time.”

Spalding stresses that only nonresidual pesticides be used to avoid killing the fly predators which, because of their lack of built-up resistance to insecticides, are susceptible to even the mildest poison. “Use a product containing pyrethrin, a fast-acting spray containing a poison derived from natural toxins found in such flowers as the chrysanthemum,” he says. “This has the advantage of being almost harmless to man and animals, and has virtually no residual effect. It will kill flies, but you must have direct contact with the spray.”

At one time, larvicides — poisons sprayed on manure that killed fly larvae when they hatched — were thought to be “the best thing since fly swatters,” according to Patrick Spalding. “But tests showed they weren’t the answer, either. When manure was sprayed every two or three days, a layering effect was achieved: one layer sprayed with larvicide, the next clean, the next sprayed, and so on. It then was discovered that the pest flies were laying their eggs exclusively in those layers free of the larvicide.

“Another with great promise was an internal larvicide, tried on cattle,” relates Spalding, an applied biologist who received his Bachelor of Arts degree from the University of California at Los Angeles, where he’s presently studying for his doctorate. “It was introduced in the feed and would result in the manure being poisoned. But, because cattle defecate so often, small amounts of the larvicide needed to be added constantly, to ensure each cow patty contains larvicide. If you miss one cow or application, you’ve got manure suitable for the propagation of flies.

“Still another larvicide for range cattle was included in a salt block. As the cow licked the block, he took in the larvicide, which poisoned his manure. But if he grazed away from the salt lick, his manure didn’t contain sufficient quantities of the larvicide to poison the manure. As you can see, larvicides aren’t the answer, either.”

Spalding recommends the use of sugar baits, although these also have limitations. “Bloodsucking flies like the stable fly and horn fly aren’t attracted to sugar baits, but they do work well on house flies and, to a limited degree, on face flies,” he states. “They’re most effective when put on burlap bags and kept moist, using any of the commonly named insecticides of Dipterex, Dimbrom and Vapona mixed to the manufacturer’s recommendations. A convenient way to use sugar baits is to build a wood frame covered with half-inch or three-quarter-inch wire mesh (hardware cloth) to go over the burlap, which keeps out animals and children, while

Maureen Clancey (right) opens the shipping container, after which a packet of hatching fly predators is removed (lower right). Finger points to hatched insect (lower left) amid wood shavings and “hit” fly pupae. At top of page 18 is photo of female fly predator laying egg in fly pupae.
Spalding says that baits using sex attractants—pheromones—are virtually useless. "These baits are species specific in that only houseflies will be attracted.

"In nature, a female fly deposits minute quantities of pheromones," explains the biologist, who is shipping up to millions of insects weekly during the fly season. "The male fly discovers the pheromones and begins seeking the source, or 'flying up the concentration gradient,' as it's called. As he nears the female, the pheromones will be stronger and will lead him to her, whereupon they mate and she goes off to lay her eggs.

"But using pheromones in baits goes against this natural procedure," he continues. "You dump out a quantity much larger than does the female. A fly a half-mile away scents it and begins searching for the source, or flying up the concentration gradient. However, when he's a quarter-mile away, the scent is so strong that he begins looking about for a female right then and never makes it to the bait. And pheromones have a short life; they'll get some flies, but clearly aren't the total answer."

Fly papers, fly cords and electric fly traps all are good to use in the integrated fly control program. "Fly cords are cotton cords like window sash that are soaked in a residual pesticide," Spalding comments. "These are hung from the rafters out of reach of the animals. Flies alight and are poisoned. To ensure that you aren't likewise poisoned, wear gloves when handling fly cords and all other pesticides, as well."

Good sanitation is effective in controlling flies. "The best way is to pick up the stalls frequently and spread the manure thinly on fields where it will dry quickly," Spalding says. "Pest fly larvae are highly susceptible to this drying and those that make it to maturity will be controlled by the fly predators."

"If this isn't practical, the manure should be piled, which reduces the surface area and the internal heat generated forces the pest larvae to the surface where the fly predators can hit them," he continues. "But these beneficial insects are persistent: Pest fly pupae eight inches below the surface have been hit by fly predators."

Spalding also recommends the application of hydrated lime to areas where livestock urinate frequently. This kills any insects and keeps odors down.

Bob Buell does selective spraying around his stable to eliminate the adult pest flies. At lower right, he sprinkles predators near barn. This protects pupating predators from birds until they all hatch.

"But if you're surrounded by other horseowners, your fly prevention programs will go for naught if your neighbors don't practice these principles as well," he cautions. "A common house fly will fly up a one-quarter mile, so your neighbors must work in concert with you and everyone will benefit."

Fly predators are not products of the laboratory. Rather, they are insects that occur naturally on nearly every continent. They are nature's weapons to prohibit the overpopulation of dung- and refuse-breeding flies that can spread typhoid, cholera, dysentery, diarrhea, yaws, trachoma, Equine Infectious Anemia (EIA), equine encephalomyelitis, anthrax, anaplasmosis, tularemia and other diseases.

If these insects exist in nature, why do we have fly problems? The answer lies in our living habits. "Man has created congregations of animals that would not occur in nature," Spalding explains. "Fly predators are not hardy flyers, capable of moving only two to three-hundred feet from a pest fly breeding site, unless blown by the wind. As such, they cannot travel to the stables where horses are kept, so you have a pest fly population that grows unchecked, except for man's efforts with poison sprays and the like. Even if they could travel to where animals are congregated, most wouldn't survive; one random spraying would kill them."

Spalding first contacted the beneficial bugs while studying at UCLA in 1974. "Much of the leg work involving fly predators, of which I supply four species, was already done by researchers in California and Florida," he notes. "What I saw in them was an ecologically sound alternative to standard fly control methods that might just have business potential."

Spalding Laboratories started with a tiny laboratory in the basement of the UCLA biology building where colonies of fly predators and house flies were raised in cages, and a desk in Patrick Spald's attic. Throughout the first year, Spalding questioned the wisdom of his venture: business was poor.

"I sent out lots of direct mail advertising to horseowners and cattlemen who had to have fly problems," he recalls. "The response was so bad it was like I was trying to sell snake oil through the mail; you know, 'this product will cure obesity, heart disease, cancer, ingrown toenails, the whole bit.' I even went on the fair circuit, talking up the virtues of fly predators to farmers who were standing there shaking their heads and saying to themselves, 'Snake oil, snake oil.' Had it not been for the business generated by people who had tried and liked the insects, and told their friends about them, I doubt I would've continued.

"Then in 1975 and '76, the USDA test results came out and substantiated what we'd been saying all along—that beneficial insects can control flies.

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HOW TO CONTROL FLIES  
Continued from page 20

Business went up over three hundred percent last year and didn’t that cause some supply problems?"

According to Spalding, who bred Arabsians as a hobby before founding Spalding Laboratories with his mother and brother, raising the waspish critters is a dicey business. “You have to anticipate what the demand will be and gear up to it,” he notes. “If you guess wrongly, you’re stuck either without enough insects to fill orders, or millions too many. This type of business isn’t like a grocery store where a can of soup can sit on the shelf for two years before being sold; these insects reproduce in natural circumstances every thirty days or so, so there’s a constant turnover.”

The insectary is closed to all but the personnel actually raising the fly predators and house flies, and for good reason: If a single fly predator is carried into the house fly colony where it hits four hundred pupae, which then produce four hundred fly predators that hit four hundred pest fly pupae each, it doesn’t take long before the entire pest fly colony is wiped out. It takes three months to produce another sizable quantity, so it’s obvious what this does to production. “And,” Spalding says with a shrug and smile, “it’s happened before. You name it, it’s happened.”

Spalding recounts difficulties in shipping the insects, too. “We mail out pest fly pupae which have been hit by fly predators,” he says. “The beneficial insects are supposed to hatch a couple of days after arrival, depending upon the distance, but this is affected by temperature, the colder the temperature, the longer it takes the insects to hatch, and vice versa in warmer temperatures.”

What happened in many cases, Spalding relates, was that the bugs were placed on a warm truck, causing the insects to hatch prematurely. “We’ve got the delivery system worked out now,” he states. “We use all forms of transport, from airplane to air-conditioned passenger buses.”

The fly predator system is designed as an ongoing program of releasing new insects, received in monthly increments beginning in the Spring and ending in the Fall; however, in areas like Southern California which experience year-round pest fly problems, the shipments would continue unabated.

Since we cannot evaluate the individual pest fly situation at each stable or farm, we’ve devised a formula for determining the number of fly predators required based on the number of horses,” Spalding says. “For the initial shipment, the formula works like this: One to four horses, 5000 fly predators ($12); five to ten horses, 10,000 fly predators ($20); eleven to thirty horses, 24,000 fly predators ($42); and so on. We then ship the monthly quotas, again using the formula: One to four horses, 1000 fly predators ($3); five to ten horses, 2000 fly predators ($5); eleven to thirty horses, 4000 fly predators ($9.50); and so on. A larger number of fly predators is recommended if the

### Pest Fly Name | Distinguishing Features | Where They Breed | Feeding Behavior | General Behavior | How To Control
--- | --- | --- | --- | --- | ---
Stable Fly | Pointed proboscis or “beak”, spots on abdomen. | Manure and decaying vegetation. | Bloodsucking, feeds with head pointed skyward, favors legs. | Feeds morning and afternoon, then rests on rafters, etc. Often sits on light-colored surfaces in morning sun. | Fly predators, fly paper, fly cords, electric fly traps, corralling nonmature areas where they congregate. Repellents marginally effective. Sugar baits do not work. 

### Pest Fly Name | Distinguishing Features | Where They Breed | Feeding Behavior | General Behavior | How To Control
--- | --- | --- | --- | --- | ---
House Fly | Common pest with striped thorax. | Manure, rotting vegetation, rotting fruit, carrion, etc. | Nonbiting, often feeds on wounds left by biting flies. | Similar to stable fly. | Fly predators, fly paper, fly cords, electric fly traps, corralling nonmature areas where they congregate. Sugar baits do not work. 

### Pest Fly Name | Distinguishing Features | Where They Breed | Feeding Behavior | General Behavior | How To Control
--- | --- | --- | --- | --- | ---

### Pest Fly Name | Distinguishing Features | Where They Breed | Feeding Behavior | General Behavior | How To Control
--- | --- | --- | --- | --- | ---
Horn fly | Wings held wide or straight back, “v” of stable fly. | Manure (mainly cattle manure). | Bloodsucking, feeds with head pointed earthward. | Spends 24 hours on horse, leaves only to deposit eggs. | Fly predators, repellents, and insecticides applied directly to animal. Back rubbers work well. Fly paper, fly cords, electric fly traps, random spraying. Sugar baits do not work. 

### Pest Fly Name | Distinguishing Features | Where They Breed | Feeding Behavior | General Behavior | How To Control
--- | --- | --- | --- | --- | ---
Face fly | Dark stripe down top of abdomen, two heavy stripes down thorax. | Manure. | Nonbiting feeds on eye, nose and mouth secretions. | Spends night on vegetation, congregates on animal’s face. | Fly predators, repellents, and insecticides applied directly to animal. Back rubbers work well. Fly paper, fly cords, electric fly traps, random spraying. Sugar baits do not work.
fly problem is severe or quicker control is required."

For as little as fifty cents per month, the horseowner can control his pest fly population, if: he starts early in the year, before flies are at peak numbers; he follows the formula and doesn't order the amount for four horses when he's got thirty; and if he has the patience to give the program a fair trial.

"Ordering our insects in late August when flies are intense does not result in visible evidence of the program working before cold weather halts the pest fly problem until the following Spring," Spalding says. "What will happen is that the fly predators will hit the pest fly pupae, perhaps killing forty to fifty percent of the flies before they hatch. But you won't notice a forty-percent reduction in flies. If you start early in the year and continue receiving the monthly shipments, we can almost guarantee you'll not have a major nuisance. But that's the hard part — getting people to worry about flies before they reach nuisance proportions."

It's essential that the proper number of fly predators be ordered. "Otherwise, it would take longer for the pest flies to come under control," Spalding notes. "The horseman might get tired of waiting and spray."

Another problem relates back to the psychological gratification in seeing dead flies. "With our program you won't see dead flies, since fly predators attack and destroy flies in their immature stages," Spalding says. "Some people will deposit the fly predators as directed and, when they still see flies a week later, will mumble that the darn things didn't work, then go out and spray. This, of course, kills off the fly predators. You've got to give them a chance to work."

For those who order late in the year, they needn't worry about the beneficial insects making it through the Winter. They, like pest flies, will seek shelter and emerge when warm days return. "If there are no pest fly pupae to hit, the female fly predator can resorb her eggs, thus gaining sustenance sufficient for a month's survival as she waits for pest fly pupae. When she finds them, she can again produce eggs and go about business as normal."

Another interesting facet of the female fly predator's life is that she needn't breed in order to produce eggs. "If she breeds, she will, because of the chromosome from the male, produce both male and female fly predators," the applied biologist remarks. "If she doesn't breed, she will produce only male fly predators; this, according to the laws of nature, should ensure there are sufficient males present to breed with existing females, thus balancing the population again."

Biological control is not the sole answer to pest fly control. But when used in an integrated program, it holds major promise as an effective, inexpensive, ecological alternative. Perhaps Mother Nature had the right idea all along. — Mark Thiffault
Mary Twelveponies:
DEVELOP IMPULSION, LEARN LEG YIELDING AND BACKING

Don Blazer:
CORRECTING THE HIGH-FLYING HORSE

Growing Popularity:
HORSE TRAVEL CONTROL SHIPMENT

Integrated Approach:
HOW TO CONTROL FLIES

For The Horse:
HOW TO BUY THE RIGHT ACCESSORIES

Trailer Tips:
THE PROBLEM LOADER & POOR TRAVELER
ROLLS-ROYCE OF LEATHERWEAR
Continued from page 32

second time and, unless it requires fur, it receives a final inspection prior to shipping. If fur must be applied, this is done prior to final inspection and shipping."

According to Talcoff, the average time required to make one coat is about six weeks, although rush orders have been completed in as little as two days. "We don't like to rush things, because it interrupts the whole production line," Talcoff comments. "Most of these orders come from motion picture studios or agencies."

The famous, like Gary Cooper and Clark Gable, always have numbered among Scully's customers. The company also made the gloves, coats and helmets worn by members of the Byrd Expedition to the North Pole. Horseowners and cowboys have been a lucrative addition to the company's market, like the sixty individuals who placed orders for Scully coats at a single rodeo in Ohio. "It's only natural," says Talcoff. "Cowboys are oriented to quality leather in the boots and saddles they buy, so they won't compromise down with their coats."

Perhaps cowboys have a better grounding in what constitutes good leather. But what of the average horseowner? What advice can be given when looking for a leather coat?

"One thing you should look for is a protection label that tells the type of leather used in the coat," Dave Hecht replies. "There are so many types of leather on the market today, especially with the surge in imports, and most people can't tell the type of leather just by looking at it. Many coats won't even tell the type of leather used, or how you should care for it."

"Because of the difficulty in telling the type of leather by visual examination," continues the leather buyer, "many buyers may be paying too much for their coats. Cowhide and split cowhide, for example, are cheaper than pigskin or cabretta and this should be reflected in the sale price."

Hecht also cautions buyers about caring for their coats. "Some new cleaning products on the market are dangerous and you must be careful," he states. "None will say on their labels that they're infallible or that they won't take off the finish. In fact, no matter how good a product is, it will still take the finish off the coat if you overdo it. So be careful and conservative when using cleaning agents."

"For cabretta, I've found the best way to clean it is with ivory soap, warm water and a rag," he continues. "This will bring cabretta back to life with no problems. All you need do is dust it with talcum when finished to remove the stickiness."

Suede is a different story, and whether it can be cleaned depends upon the penetration of the offending substance. "If you can see a spot on the underside of the leather, the oil or whatever has gone completely through the leather and you might as well forget cleaning it; you're just wasting your time," Hecht notes. "If the spot is just on the surface, often the heat generated by rubbing the spot with your finger or thumb is sufficient to remove the stain. The suede then is brushed back and it looks good as new."

Many people shun suede coats because they shed. "I think shedding depends on the person," says the affable Hecht. "Salesmen will bring samples of suede to me and they'll rub and rub, but won't lift any particles. I'm terrible, though, because I can lift dust from just about any sueded leather, so I guess shedding depends on the wearer."

A major factor about suede, Hecht relates, is whether the dust is actually leather from the skin, or particles of the color dyed or sprayed on the leather. "If it's color dust, there's a limit on the type of clothing you can wear with the coat," he says. "If it's leather dust, eventually the coat will stop shedding. A suede brush will help in the removal of the dust particles, which are caused by the suede process in which the skin is sanded on huge discs. The superexpensive coats go through a planning machine that uses sheepskin to remove these particles, but it's a costly process."

When looking at a suede coat, Hecht is adamant about avoiding those which have a long nap, since the long leather hairs can eventually roll into small balls on the surface. Naturally, you won't find a long nap with a Scully label.

While you'll have to dig a little deeper into your wallet or handbag to meet the purchase price, you can be sure a Scully coat is built to last of only the finest materials, with the finest workmanship. After all, you wouldn't expect recaps on a new Rolls-Royce, would you? — Daryl Ann Lindley
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