Mechanical Controls

Add mechanical controls such as sticky tapes, traps and screens to your arsenal. These target adult flies and don't harm beneficials.

Pesticides

- Use insecticides as a last resort.
- To avoid insecticide resistance treat only when necessary.
- Minimize harm to beneficial species. Non-persistent space sprays such as natural pyrethrins are short-lived pesticides that only affect the insects currently present. *Muscidifurax* parasitoid adults that emerge a day or two later won't be affected. Avoid manure and bedding insecticide treatments. If possible delay residual premise sprays until later in the season.
- Change classes of insecticide (different active ingredients) between successive applications to minimize the potential for resistance.
- Always read and follow label directions.

What about baits?

Insecticide baits are attractive to house flies (not stable flies) and don't harm beneficials. Follow label instructions.

More Questions?

Please see the following dairy IPM resources:

Fact Sheets (nysipm.cornell.edu/factsheets/dairy/):

- *Integrated Management of Flies in and around Dairy and Livestock Barns*
- *Cattle lice*
- *Common Pest Flies Found in the Urban/Rural Environment and Their Biological Control Agents*
- *Pest Flies of Pastured Cattle and Horses*

Guidelines (nysipm.cornell.edu/livestock/)

- *Pest Management Recommendations for Dairy Cattle*
- *Integrated Pest Management (IPM) Guide for Organic Dairies*

If you have other questions, call your local Cornell Cooperative Extension dairy specialist.

New York State Integrated Pest Management Program

We develop sustainable ways to manage pests and help people to use methods that minimize environmental, health, and economic risks.

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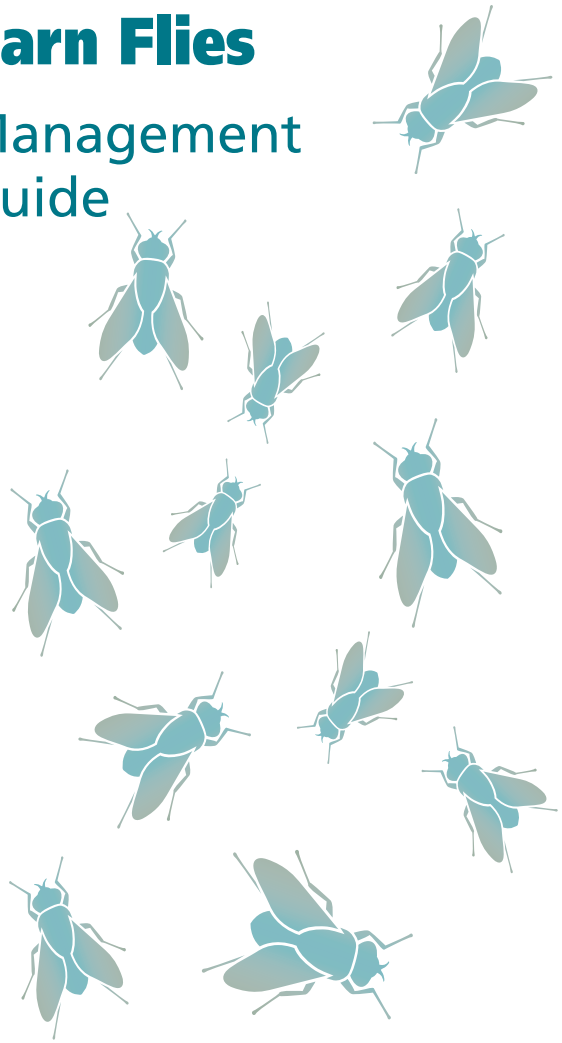
Find this brochure online at: http://hdl.handle.net/1813/42376

Find more information about IPM for Livestock at: www.nysipm.cornell.edu/livestock/default.asp

Barn Flies

Management Guide



NEW YORK STATE IPM Integrated Pest Management PROGRAM

Cornell University Cooperative Extension

Cultural Controls

Sanitation—the ***most*** important component for effective house and stable fly management.

Where do flies breed?

Moist, undisturbed organic material e.g. soiled bedding, spilled feed, hay, grain and silage, is a favorable fly breeding habitat providing both protection for eggs, and a food source for maggots.

How does sanitation help to control flies in the barn?

Females lay up to 100 eggs at a time, every four days. Eggs hatch within hours and maggots (larvae) may become adult flies in only 7 – 10 days during warm conditions. Cleaning up at least every 7 days breaks up the fly cycle by removing habitat and any developing flies.

My main barn is very clean, but I still have flies. Why?

Flies are highly mobile and given suitable conditions, can breed in a variety of on- and off-farm locations. Check animal housing, feed preparation, and manure/soil bedding handling areas for sites favorable for fly breeding – i.e. moist undisturbed organic matter. Check water sources for leaks and drainage issues. Watch for fly activity in any areas not regularly cleaned.

Can choice of bedding affect fly numbers?

Sand, gravel, wood chips/shavings or sawdust have been shown to significantly reduce house and stable fly maggot populations when compared to straw bedding.

House fly life stages, showing pupae, eggs, adults, and larvae. Photo: Clemson University - USDA Cooperative Extension Slide Series, Bugwood.org

Biological Controls

All sorts of naturally-occurring "beneficials" — spiders, beetles, mites, and diseases—attack flies in all life stages. Even the weight of cows' hooves kill maggots and pupae. But barnyards are such fly-friendly environments that the beneficials need a boost.

You can supplement these beneficials with releases of the parasitoids *Muscidifurax raptor* or *M. raptorellus*. These tiny wasps attack house and stable fly pupae (the life stage when maggots transform into adults).

Biological controls are most effective if a strong sanitation program is in place.

Do *Muscidifurax* parasitoids sting?

Muscidifurax parasitoids are about the size of a fruit fly. They never sting or bite humans, cows, dogs, or cats. They will not harm anything but house flies and stable flies.

When should parasitoids be released?

Release during warm summer months when fly breeding is at its peak: mid- to late May through August in New York.

How often do I release them?

Since the house fly develops twice as fast, lives longer, and lays more eggs than *Muscidifurax*, parasitoid populations naturally lag behind. Research shows that weekly releases are effective helping the parasitoids keep up with developing barn fly populations.

How many *Muscidifurax* parasitoids should I release at a time?

Weekly release rates of either 200 parasitoids per milking cow or 1,000 parasitoids per calf have proven effective in research trials.

Sanitation schedules, tolerance of fly populations and other management factors can vary between farms so biocontrol programs may require adjustment to achieve both effective and affordable levels for an individual farm.

How do I handle a shipment?

Suppliers ship containers of immature parasitoids living in dead fly pupae. Unpack the shipment immediately and deploy parasitoids as soon as possible.

Muscidifurax adults will emerge over a week or more and seek fly pupae soon after arrival.

Where do I release the parasitoids?

Release parasitoids near areas where flies pupate focusing on the normally highly infested areas such as calf housing and breeding locations inside barns known to accumulate moist organic matter where you know sanitation is less than optimal. If calves are housed in hutches, place about 3 heaping teaspoons of pupae in each hutch weekly.

Isn't this expensive?

Biological control combined with good sanitation costs no more than a conventional pesticide program, especially when you consider application costs. In 2015, *M. raptor* cost about $14.00 to $18.00 per colony (depending on total quantity ordered) plus shipping. Altogether, it costs $6-$7 per cow to supply a hundred cow dairy at recommended rates.

When purchasing, be sure to ask for disease free stock. And insist on northeast-adapted parasitoids.

Where can I get *Muscidifurax* parasitoids?

Currently the only source of northeast-adapted *M. raptor* / *M. raptorellus* is IPM Laboratories, Inc., in Locke, NY (315-497-2063). (No endorsement of this company is implied.)