

The (Nearly) Fly-Free Farm

Techniques to help reduce and manage nuisance fly numbers on horse properties

It's almost summertime. During barn chores we pause in the sun, satisfied just to watch our horses graze peacefully in the green grass. What could be better? Well, there is the fly situation; they're everywhere, buzzing around our faces and pestering the horses, which are constantly shaking their heads, swishing tails, and stomping feet.

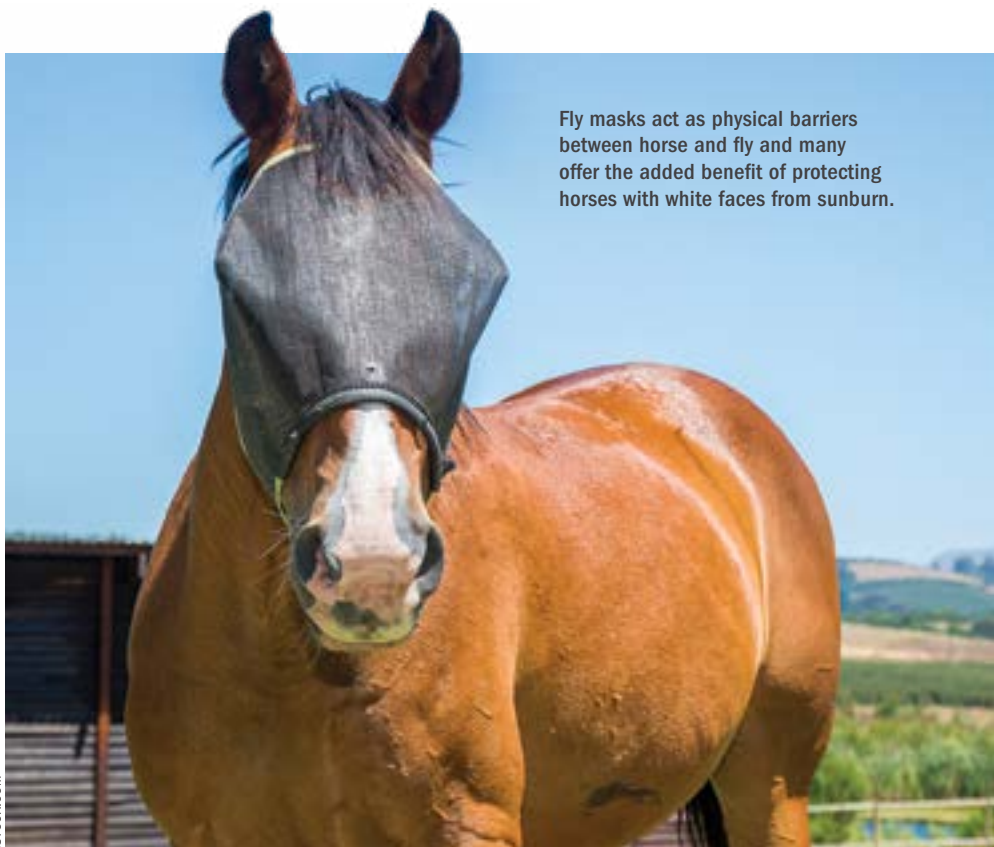
Flies on farms and ranches can be extremely annoying for all who encounter them. While it's not possible to create an entirely fly-free environment, you can take steps to help reduce and manage their numbers.

"Flies are in the order *Diptera*, a very large order which contains several thousand fly species that anyone with livestock deals with constantly," says Brad Stokes, MS, an extension educator entomologist with the University of Idaho, in Mountain Home.

A fly life cycle has four stages: egg, larvae, pupae, adult. "The hardest life stage to control is adult, because they move so quickly and are able to avoid us and our typical control methods," says Stokes. "The best life stage to target is actually larval. All fly larvae require moist organic matter for development," which is often in abundance on horse and livestock properties.

"For controlling insects there are cultural methods (cleaning up manure), mechanical methods (fly swatters, masks, sheets, and tape), biological controls (using organisms that are natural enemies of the pest), and chemical controls," says Paul Castrovillo, PhD, Idaho State Department of Agriculture entomologist, who has been studying insects for 60 years. "None are 100% effective."

In this article we'll describe a variety of fly control methods targeting different life stages.



Fly masks act as physical barriers between horse and fly and many offer the added benefit of protecting horses with white faces from sunburn.

Manure Management

Your first line of defense against flies should be a fastidious manure management program. Flies are attracted to manure, and larvae eat it; the less manure available, the fewer adult flies attracted, eggs laid, and resulting larvae hatched. So, your first and best control method is daily cleaning of stalls, paddocks, and confinement areas, particularly in the morning before adult flies warm up and begin looking for egg-laying sites.

Then, either remove the stall waste from your property, taking it to a disposal site (TheHorse.com/135757), or compost it at home (TheHorse.com/135463). Researchers have shown that flies and odors are associated with fresh manure and not

with well-managed composting systems. Also clean up other organics, such as spilled feed or grain, grass clippings, decomposing hay, and pet waste, as these are also likely fly habitats.

Make sure stalls and barns have good drainage to eliminate wet/moist areas where flies like to lay eggs. Check gutters and downspouts on farm buildings to be sure they are diverting rainwater away from the structures and surrounding paddocks. Fix leaky faucets, and get rid of anything that collects water, such as old tires, stacks of flowerpots, or barrels.

Harrow (or drag) pastures regularly to break up manure piles. Harrowing spreads and dries out manure, making it less attractive to flies. It also makes

nutrients and organic materials more available for plant use.

Larvicides

Chemical larvicide feed-through fly control products also control flies at their source: manure. These products typically come in alfalfa-based pellet form and can be fed to horses top-dressed on their grain or supplements. For best results, feed these products at the beginning of your fly season, and continue through the fall freeze to reduce fly activity.

Feed-through larvicides “seem like a viable control,” says Stokes. “The two main active ingredients, diflubenzuron and cyromazine, are IGRs, insect growth regulators, which inhibit and disrupt molting while the flies are in the larval growth stage.”

Researchers have shown these products are safe for horses and other mammals (including humans) because molting is a process only insects do. However, if you compost you might not want this



Hang water-and-attractant-filled traps where they'll draw flies away from your barn and horses.

chemical to end up in your bin, because IGRs can potentially disrupt other non-targeted beneficial insects in compost.

Fly Tape

For controlling adult flies, “good old fly tape is probably one of the best options,” says Castroville. Consider hanging several strips up high in your barn—as many as

20 to 30 do an excellent job of catching flies and reducing numbers immediately, he says.

“Some flies are attracted to light, but, conversely, there are probably species that are attracted to darker areas,” Castroville explains.

Therefore, try placing tape in different areas, such as above doorways or in aisles, in the feed room, and/or up high over the stalls, to see what works best for your situation. Remove old ones and rehang new ones frequently during peak seasons. Choose locations carefully



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so human hair or swishing horse tails are unlikely to come into contact with the sticky surfaces.

Fly Traps

Fly bags are another successful mechanical measure for trapping adult flies. These pesticide-free traps are literally bags filled with water and a stinky attractant. Flies are enticed by the scent and fly into the bag, can't escape, and eventually drown. Hang fly bags to draw flies away from your barn and horses. Bags come ready to hang and are easy to dispose of (simply throw them in the trash) when full of flies. Reusable varieties are also available if you wish to reduce plastic use. The downside to these traps is they are quite smelly—another good reason to locate them far from barn areas.

Other kinds of fly traps include sticky tubes, which are brightly colored (to attract flies) and might or might not use an attractant. You can hang these up high, out of horses' reach, in stalls or elsewhere in the barn, replacing them with new ones when the old are full.

Barrier Methods

While barrier methods such as fly masks and sheets won't reduce fly numbers, they will provide your horses some relief. Fly masks act as physical barriers between horses and flies, and many offer the added benefit of protecting horses with white faces from the sun. Some masks protect the eyes, while others also protect ears and nose.

Fly sheets are open-weave lightweight mesh blankets that can help keep pesky flies off a horse's body. Fly boots are also available to protect the horse's legs.

Biological Controls

Encourage insect-eating birds to nest on your farm to help reduce the adult fly population. Members of the swallow family can be tremendous assets to horse facilities. An adult barn swallow consumes close to a thousand insects per day, which is comparable to a bug zapper's capability and safer than pesticides. Common North American insect-eating birds include violet-green swallows, tree swallows, barn swallows, bluebirds, purple martins, and cliff swallows, to name a few. Encourage nesting by putting up nest boxes specific to the bird species. For help determining



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the insect-eating birds that live in your part of the country and their nest box needs, consult your local Audubon Society, wild bird store, birding organization, extension office, or library.

Stokes also recommends parasitic wasps as a biological fly control. Parasitic wasps are very small, stingless wasps that lay their eggs in fly pupae. When parasitic wasp eggs hatch, their larvae feed on developing fly pupae, eventually killing them.

For good control, begin releasing wasps early in the fly season, and continue to do so each month throughout summer to build up the parasitoid population. The most commonly released fly parasitoid species, says Stokes, is *Muscidifurax raptorellus*. It can be “very effective as a biological control option,” he says. “It is quite efficient at locating and parasitizing fly pupae, helping to reduce the overall nuisance population over time.”



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Only use fly repellent products that are recommended for horses.

Fly Sprays

There are many types of fly sprays with different modes of action. An insecticide is a chemical that kills insects,

while a repellent is a substance that discourages them from landing. When using insecticides, read and follow label directions carefully, and avoid using



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more than necessary. Only use products recommended for use on horses. Insecticides are meant to be used in open, well-ventilated places. Try not to spray them outdoors, however, because they might kill beneficial insects you haven't intended to target.

"When you reach for the pesticides, if possible, try to use more than one type of pesticide, choosing ones that work in different ways," says Castrovillo. "If you do this, then pesticide A may get what B doesn't."

And remember that continual use of one type of pesticide might promote fly resistance to it or similar pesticides, and indiscriminate use of insecticides might kill beneficial insects or harm birds and bats.

Most equine fly sprays are repellents, which are available as sprays, lotions, wipe-ons, gels, dusting powders, ointments, roll-ons, shampoos, and towelettes.

Repellents contain substances irritating to flies, such as oil of citronella, and many contain some amount of insecticide. They also contain a base product, most commonly water, oil, or alcohol, that helps hold active ingredients to the horse's body hair. Oil-based repellents remain on the horse's hair shaft longer but attract dirt. Water-based repellents don't last as long but attract less dirt. Alcohol-based repellents can be drying to the horse's skin. To extend their effect, some repellents contain silicone, which coats the hair shaft and holds the repellent in place.

Repellents can also contain sunscreen, coat conditioners (lanolin, aloe vera), and other products that might cause them to stick around longer. How long a repellent lasts depends on the weather, exercise level of the horse (how much they sweat), grooming, rolling, and other factors.

A residual premise spray (an insecticide) can knock a huge fly population down without dousing horses in insecticides. The downside of a premise spray is that it can kill any bug that encounters its residue, including parasitic wasps or other beneficials.

Take-Home Message

The bottom line is that we will never completely get rid of all flies, which is a

good thing: Flies are part of any healthy ecosystem. "There are a bunch of fly species whose larvae eat living plants," says Castrovillo. "Other (species of fly) larvae are parasitic on slugs, snails, and caterpillars." And some flies are important plant and flower pollinators.

So, when you pause during barn chores to reflect on that pretty picture of your

horses grazing, don't end it there. Keep that image as fly-free as possible by placing fly bag traps around the property perimeter, hanging fly tape in stalls, releasing parasitic wasps, and adding nesting boxes for insect-loving birds. Help your horses out by equipping them with fly masks and sheets, then use fly spray only as needed. 🐾



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