

### Keep It Clean

BY AMANDA DUCKWORTH

**THERE ARE FEW** guarantees when it comes to horses, but the fact that warmer weather will result in flies around the barn is one of them. Fly control in a stable area is important for both sanitary and sanity reasons.

### Sanitation management key to managing the fly population around the barn

Realistically, though, fly management is a better mind-set to have than total control, as that is an impossible task. Although it might be a depressing thought,

the good news is that simple, routine preventive measures can keep fly populations at a manageable level.

“An ounce of prevention is better than a pound of cure, and with flies and horses the best thing to do is prevent breeding grounds for the immature flies,” said Dr. Jonathan Larson, an entomologist at

the University of Kentucky. “When flies mate, they are looking for a very specific habitat to lay their eggs in. When we are talking about barns and stables in partic-

ular, they really like dung, and they like when hay and straw mixes with wet feed.

“Basically, they like any of that nasty buildup that we see accumulate in animal situations. That’s where they want to put their eggs, and that’s what they are interested in. So, cutting back on dung and making sure you clean things up on a weekly basis are some preventative strategies that can help with flies.”

The American Association of Equine Practitioners also stresses that sanitation and manure management are the keys to keeping flies under control. If flies have insufficient breeding grounds, they will be unable to take over a barn.

It is important to note, however, not all species of flies are interested in equine abodes.

“Houseflies and stable flies typically reproduce in manure, wet straw bedding, garbage, and poorly composted manure,” explained the AAEP in the paper “The Importance of Fly Control.” “Face flies and horn flies only breed in fresh cattle manure. Adult face flies do not like to feed in dark barns or shady areas.

“The housefly is commonly found in hot summer months; the face fly and stable fly are usually seen from mid-spring to summer and sometimes into early fall. Houseflies and stable flies breed year-round in tropical and subtropical regions, but they hibernate in temperate regions during cooler weather. Tabanids, such as horseflies and deerflies, generally prefer sunshine and avoid shaded places; they are inactive at night.”

Routine strategies such as quick removal of manure, excess feed, wet straw/hay, and other organic debris; closing garbage containers tightly and cleaning them regularly; locating manure sites as far away as possible from the stable; moving round bales regularly; avoiding water accumulation; covering composted manure with a fly barrier; and spreading



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manure thinly are all steps that should help decrease fly populations.

Even with excellent preventative protocols in place, almost certainly some flies are going to be in the barn. The important thing is to keep them at a manageable level.

“There are 125,000 confirmed species of flies in the world, and it’s estimated there may be up to a million of them,” said Larson. “You are going to have flies. Some of them are going to be good; some of them are going to be bad. When you start seeing the weather turn, you can be pretty sure there are going to be more and more flies.

“Starting in April, that’s when you want to worry about house flies, and then watching the calendar—end of June, July, and August—that’s when the other ones start to pop up.”

Different flies present different issues. Some of the ones routinely associated with horses include the common housefly (*Musca domestica*), face fly (*Musca autumnalis*), stable fly (*Stomoxys calcitrans*), and horsefly (*Tabanus spp.*).

Houseflies and face flies do not bite horses. Rather, they feed on eye secre-



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tions, nasal discharges, wounds, manure, and moisture around genitalia. Stable flies and horseflies, on the other hand, bite horses in order to feed off them.

“Horseflies are a big one, and one most people know,” said Larson. “They do like to bite horses; that’s one of the ways they got their name. Stable flies look a lot like house flies, but the difference is they don’t feed on secretions. They are

blood feeders, so they actually poke them with a ridged mouth part and drink up some of that blood. There are also horse botflies, which can get inside them and cause some issues as well, and we are also worried about mosquitos.”

Although mosquitos and flies can be viewed differently by people, scientifically, mosquitos are flies, as they are members of the scientific order Diptera.

“They are flies,” said Larson. “Anything you can do to help prevent them from finding water to lay their eggs in, whether it is dumping things out on a weekly basis or treating standing bodies of water with BTi-type products (*Bacillus thuringiensis israelensis* is a naturally occurring soil bacterium that kills mosquito larvae in water) that will help to cut down on the mosquitos biting your horses and hopefully cut down on the West Nile virus and EEE (Eastern equine encephalitis) and all that stuff.

“If I were to prioritize, I would look toward mosquitos and stable and houseflies. The mosquitos because of the diseases they can vector, and the stable and houseflies because they are so, so common. They can just reproduce so quickly that it can be overwhelming. All of a sudden you have a seemingly biblical plague’s worth of flies on your property.”

While it is easy to bemoan the existence of flies, it is important to remem-



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ber that they do have a place in the circle of life. Additionally, some of the species are actually valuable to have around more scenically designed barns and stables.

“The hoverfly is really good,” said Larson. “They are pollinators, so if anyone is growing flowers or gardens on their property near their horses, those flies pollinate lots of different plants. Flies are actually the second most important group of pollinating insects after bees, so they do have some benefits in nature.

“They are also good because you don’t want dung accumulating all over the place. The maggots that consume that material are beneficial decomposers returning nutrients to the earth. They break down all this stuff we don’t want to be around—rotting vegetation, rotting dung—and they also help pollinate our plants. But as adults, some types of flies become really annoying and problematic. It’s when they are not in their place anymore that they get to be a problem.”

In addition to being a nuisance, out-of-control fly populations also pose health risks. According to the AAEP, some of



Horsefly

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the issues that can arise include summer sores, eyeworms, pigeon fever, equine infectious anemia virus, hypersensitivity, and onchocerciasis (river blindness).

Knowing when a fly population has gone from normal to problematic is often easy to discern. According to Larson, key indicators that the tide has turned in a negative way include seeing flies on the outside of buildings in alarming numbers as well as noticing an increase in skittishness and hoof stomping in the horse herd.

“Those are signs the population is getting to a point where you want to take action,” he said. “The first thing to do is

to curtail the habitat for the larvae. So, reduce water resources for mosquitos, and do weekly clean up to remove dung and dirty hay and straw that accumulates in a stable.

“Removing that and spreading it out over an area so the flies can’t find it and use it are important. If you just put it all in a big pile, they are going to the pile. You have to make sure you don’t give them a target to lay their eggs on.”

Following that, there are mechanical and chemical approaches to take, but the key thing to remember is that multiple methods are needed to stop the fly infestation.

“With flies, we really do want to take an integrated pest management approach,” said Larson. “We want to use all of the tools at our disposal. You can’t just rely on one thing or the other to deal with them because without all of them working in concert, the flies will just keep popping up.”

Some tips for mechanical control include fixing screens on windows; installing fans by doors to blow air out, which makes it harder for flies to get inside; and providing horses with protective barriers such as fly masks and boots.

“You can use gear on the horses themselves,” said Larson. “Those nice masks and boot covers kind of make your horse look like a super hero, but they do help to keep the flies off those prone areas. That’s where they like to bite, and it prevents them from getting in the eyes.”

Chemical treatments include the old standbys of residual sprays, fly baits, and fly traps.

“Some people like the baits because you don’t have to spray your horse, but both applying spray to the horse and using the baits are both good chemical approaches to doing fly management,” said Larson. “The traps are mostly a monitoring tool to tell you when things are getting out of hand. They aren’t going to catch and kill all of them, but they are helpful.”



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Sprays are just one of many tools used to keep flies away from horses

A recent study, “Can Attractive Sticky Traps Be Used to Protect Horses From the Bites of *Stomoxys calcitrans* (L.) (Diptera: Muscidae),” was published in the October 2019 issue of the *Journal of Economic Entomology*. It showed that while traps are helpful, they alone cannot be depended upon to stop a fly infestation or lower the health risks associated with one.

“The stable fly is a bloodsucking ectoparasite that causes irritation and distress to livestock, wildlife, and humans,” explained the study. “Both sexes are vicious blood-feeders that prey on a variety of animals. Optically attractive sticky traps have been used to capture stable flies, and some companies claim that sticky traps can protect animals from the bites of stable flies.”

For the study, sticky traps were placed at the four compass points and four selected distances from the paddock center to capture stable flies before (unmarked) or after (marked) they visited the horses. To see if the flies had landed on horses, broodmares were coated with fluorescent dust and either tethered to a post in the center of a paddock or released untethered.

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“More than 40% of flies captured on traps placed closest to the horses were marked,” the study found. “This indicates that the traps did not prevent the flies from visiting the horses. A percentage of marked and unmarked stable flies showed signs of blood in their guts indicating recent feeding.”

“Although the HGM (Home and Garden Mosquito) traps caught ample numbers of stable flies, the traps did not prevent stable flies from feeding on the horses. More work is needed to determine optimal trap placement and densities required to maximize stable fly management with traps.”

In the end, flies are a prevalent and fast-reproducing nemesis of barns. Even after treating a stable, it’s important to keep in mind that another wave of flies is likely to appear in seven-10 days because, inevitably, the intruders taken out in the first



Blowing fans can help keep flies from getting inside

round had reproduced before their demise.

“That’s not 100%, not every species is going to fall into that, but flies do reproduce pretty quickly, especially in the heat of the summer,” said Larson. “They can go from egg to maggot to pupa to adult in a relatively quick time frame, over the course of a week to 10 days, or for some, three weeks.”

“We have a real mentality that you can spray once and the problem is done, but, really, with flies in particular, that’s not true. You are missing out on all the larvae and pupa that are around, and also flies are very mobile.

“It’s hard to treat for them with just a chemical because they don’t sit anywhere very long. Using all of these tips in concert is really the best way to get at the whole problem.” **BH**

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