

Suppression of Stable Flies on Cattle

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Because of its painful bite, the stable fly is a considerable pest of livestock and people. Populations of more than 20 flies per cow can significantly lower income for livestock producers. Infestations of 50 flies per cow on beef cattle have reduced weight gain by 25 percent and, in dairy cattle, have decreased milk production by 40 to 60 percent.

To suppress stable flies effectively and economically, it is important to:

- Be able to identify them properly;
- Understand the insect's life cycle to be able to interrupt it; and
- Use a combination of control strategies.

Identification

The stable fly, *Stomoxys calcitrans*, (Fig. 1) looks like the housefly and horn fly, but it is considerably larger ($\frac{1}{4}$ inch). Also unlike these flies, its mouthparts resemble a bayonet that can easily be seen protruding from its head. Unlike the housefly, the stable fly depends on blood as food and has an extremely painful bite.



Figure 1. Adult stable fly (Photo courtesy of Bart Drees, Texas Cooperative Extension).

The stable fly also resembles the deer fly and horse fly. However, stable flies primarily attack the legs of livestock; these other flies do not.

Biology and habitat

The stable fly has a complete life cycle with egg, larval, pupal and adult stages (Fig. 2). Populations can grow quickly: A female stable fly lives for about 3 to 4 weeks and lays about 500 to 600 eggs during its lifetime.

Under optimal conditions, an egg can develop into an adult in 3 to 4 weeks; therefore, several generations can develop each year.

The eggs are typically laid in wet straw, such as around hay bales (Fig. 3) or in other decomposing vegetation mixed with the urine and feces produced by the confined animals.

Management

To suppress stable fly populations efficiently, producers should use an integrated pest management (IPM) approach. IPM relies on



Figure 2. Stable fly maggots and pupa (Photo courtesy of Bart Drees, Texas Cooperative Extension).

three tactics for successful suppression of an insect pest: cultural, biological and chemical.

Cultural control: Using cultural control methods involves manipulating the environment to reduce insect pest populations. The most economical method for suppressing stable fly populations is sanitation.

In confined animal facilities, a top priority should be to eliminate stable fly breeding sites as often as possible. To do this, remove and spread decomposing vegetation or bedding material that has become mixed with urine and feces. Doing so will allow the material to dry faster and prevent colonization by the stable fly.

This practice can also be implemented for range cattle. During the winter, hay bales are often provided as food for cattle. However, over the course of the winter, the sites where hay bales have been placed become ideal stable fly breeding areas (Fig. 3). To reduce stable fly populations on the range, implement the same cultural practices as for confined animal facilities.

Another tactic for confined animal areas is to design the stalls to allow for complete manure removal and drainage. Also, clean out the wet feed remaining in the ends of troughs at least weekly, because it can serve as a breeding site for flies.

For small to moderate fly populations of adult flies, sticky ribbons and other mechanical methods are effective. However, if used alone, these methods will not substantially



Figure 3. Remnants of hay bales can become breeding sites for stable flies.

reduce fly numbers. Another drawback is that such materials must be changed every 1 to 2 weeks because they dry out, become coated with dust or become “saturated” with flies.

Biological control: This IPM tactic uses natural predators, parasites or pathogens to suppress pests. Examples include some species of parasitic wasps that lay their eggs in immature stable flies. The resulting wasp offspring feed on the stable fly maggot and eventually kill it. The immature parasitic wasp then will develop into an adult, emerge from the fly pupa and repeat its cycle.

These parasitoids are available commercially and can be used to augment natural populations. However, although parasitic wasps offer some measure of control, they do not produce immediate results, and they are not 100 percent effective. Therefore, do not use biological control alone but in concert with other methods, such as sanitation.

Chemical control: If a stable fly problem persists, an insecticide can be used. Many compounds are available for suppressing adult and larval stable fly populations.

Animals can be treated as needed with ready-to-use sprays containing pyrethrins. Residual wall sprays such as Demon® (400g/kg cypermethrin), Cislin10® (10 g/L deltamethrin) or Dyfly Plus® (10g/kg methomyl) can be applied to surfaces where the insects rest.

Backrubs, which use compounds such as Co-Ral 11.6% EC (coumaphos) or Atroban 11% EC (permethrin), also can reduce stable fly populations. However, because backrubs are applied only to the animal's back, some areas, such as the animal's legs, are not treated and are open for stable fly feeding.

For dairy cattle, spray products such as Disvap III® (0.2% dichlorvos, 0.02% permethrin, 0.1% butoxyde de pipéronyle, 0.3% di-n-propyle-isocinchoméronate) can be used.

For more information

Additional information on insecticides labeled for livestock arthropod pests can be viewed at:

<http://stephenville.tamu.edu/~jktomberlin/lspest.html>

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