

## Stable Fly (Dog Fly) Control<sup>1</sup>

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### Introduction

The stable fly or dog fly (Figure 1) is a blood-sucking fly which is of considerable importance to people, pets, livestock, and the tourist industry in Florida. Stable flies primarily attack animals for a blood meal, but in the absence of an animal host will also bite man.



**Figure 1.** Stable fly. Credits: J. F. Butler, University of Florida

In its normal environment the stable fly is not considered a pest to man. However, certain regions of

the United States have considerable problems with large numbers of stable flies attacking man. The coastal part of New Jersey, shores of Lake Superior and Michigan, some TVA lakes, and most importantly, West Florida and along the Gulf coast to Louisiana are areas that historically have severe stable fly problems. Although these areas have the most severe stable fly problems, the fly is numerous throughout Florida.

### Biology

Stable flies breed in soggy hay, grasses or feed, piles of moist fermenting weed or grass cuttings, spilled green chop, peanut litter, seaweed deposits along beaches, in soiled straw bedding and sometimes in hay ring feeding sites. The female, when depositing eggs will often crawl into loose material. Each female fly may lay 500-600 eggs in 4 separate batches. Eggs are small, white and sausage-shaped. Eggs hatch in 2-5 days into larvae which feed and mature in 14-26 days. Larvae are typical maggots and transform to small reddish-brown capsules (pupae) from which the adult

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flies emerge. The average life cycle is 28 days ranging from 22-58 days depending on the weather conditions.

Adult stable flies can fly up to 70 miles from their breeding sites. The stable fly adult is similar to the house fly in size and color. However, the stable fly has a long bayonet-like mouthpart for sucking blood. Unlike many other species of flies, both male and female stable flies feed on blood.

The stable fly breeds all year in Florida although peak populations occur from August through December.

### Scope of the Problem

Stable flies attack people, pets, and agricultural animals throughout Florida. Stable fly bites are extremely painful to both man and animal. When hungry, stable flies are quite persistent and will continue to pursue a blood meal even after being swatted at several times. Although the bite is painful, there is little irritation after the bite, and few people exhibit an allergic reaction to it.

The tourist industry is severely hurt by large numbers of stable flies especially in West Florida from Wakulla County to Escambia County. When stable flies are numerous, tourists leave and are unlikely to return if their vacation is spoiled.

Stable flies congregate on beaches because they are sensitive to the wind. When a northerly wind blows toward the beaches from inland, the flies are carried to the beaches and take shelter from the winds on the leeward side of the dunes. Some fly to boats and are taken off shore where they continue to bite. The flies normally do not concentrate in residential areas, but they may bite an occasional human and often bite dogs on the way to the beach.

Stable flies are usually on the beaches during the morning hours (when the wind is from the north) but, frequently, during the middle of the day, the thermal currents on land pull the winds in from the Gulf and the flies leave as suddenly as they came. They may then move inland some 10-15 miles from the Gulf of Mexico.

The animal industries of Florida are severely affected by the stable fly. Since the fly takes blood meals, animals are weakened from blood loss and continual irritation. Animals such as swine, cattle, and horses show reduced weight gains.

While one stable fly does not cause significant damage, 50-100 of these blood-sucking pests together with 500 horn flies cause a daily loss of blood. This can result in a loss of 10-20 percent in milk production and up to 40 pounds of beef gain eliminated per animal each year - an economic loss of millions of dollars per year to Florida cattlemen.

Stable flies also are known to transmit such diseases as anthrax, Equine Infectious Anemia (EIA) and anaplasmosis to animals. In addition, bite wounds can be sites for secondary infection. Stable flies feed mainly on the legs of cattle and horses. Since these pests leave an animal immediately after feeding they may go unnoticed unless heavy outbreaks occur. They are inactive at night, roosting on fences, buildings, trees, and bushes.

As a result of stable fly annoyance, animals stamp nervously, twitch, become irritable and have been known to stand in water with only their necks out to escape the biting flies during heavy outbreaks.

### Control at Breeding Sites

The most practical and economical method for reducing stable fly populations is the elimination or proper management of breeding sources. It is important to remember that flies cannot develop in dry materials.

Stable flies breed in the following types of material:

1. Green Chop or Silage - The stable fly maggot thrives in decaying plant material, such as old silage in and around feed troughs and trench silos. Silage probably has a greater potential for producing stable flies than almost any other material found on today's farms. More than 3,000 stable fly maggots per cubic foot of silage have been found in mid-January on some West Florida farms, and 5 times that in number in late summer.

2. Crop Residues - Unwanted crop residues, such as peanut vines, discarded in piles during harvest are frequently very important sources of fly breeding. This material should be spread thinly for quick drying.
  3. Hay and Grain - Accumulations of hay where animals are fed in the fields decay rapidly when exposed to the elements and may produce flies in tremendous numbers. To prevent this source of fly breeding, cattle should be fed at a different place in the field each time so that accumulations of old hay do not occur. Spilled grain around feed troughs or storage bins likewise may provide the stable fly with a moist, favorable breeding medium and should be cleaned up immediately.
  4. Animal Manures - When handled properly manure need not breed stable flies at all. It should not be allowed to accumulate for more than a week before spreading thinly on the fields, where quick drying eliminates stable fly breeding.
  5. Stables - The recent popularity of pleasure horses has created a staggering number of new fly breeding sources. However, proper care and management of waste feed and manure can greatly reduce or eliminate fly populations in these areas. Stalls should be cleaned of droppings daily and the manure spread thinly (not more than 1-2 inches deep). The choice of bedding is also very important. Hay or straw absorbs urine and decomposes rapidly and unless it is changed every few days will produce flies by the thousands. A far better material is wood shavings, which, when cleaned of manure daily and changed approximately every two weeks, does not normally breed flies.
  6. Other Sources - Any pile of moist, decaying organic matter should be considered a potential source of stable flies that can cause serious damage to farm animals.
1. The public and those responsible for dog fly control must be made aware of the massive size of this problem and must realize that it cannot be controlled by a token effort.
  2. There must be realistic funding for trained personnel, and equipment in combatting this pest. Because of its long flight range, this fly is not a problem just at the county level; it is an area problem. Therefore, even if the breeding of this pest is controlled in a county, there still might be a fly problem in that county if it is not controlled in other counties.
  3. Man-made sources of flies in agricultural and industrial areas and on private premises must be eliminated or greatly reduced. In most instances this can be accomplished by proper handling and disposal of animal and plant wastes.
  4. Each coastal county must operate an effective dog fly surveillance and control program on its beaches seven days a week in late summer and fall.

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## Improving Control

Great progress has been made in control of stable flies in recent years, but a number of actions must be taken if the present level of control is to be improved significantly. These are:

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