

## Horn Flies<sup>1</sup>

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The horn fly is one of the most serious and injurious pests of cattle. In Florida alone, losses to the horn fly are estimated to total 36 million dollars per year.

Horn flies pierce the skin of cattle to suck blood often taking up to 20 blood meals per day. The resulting pain and annoyance interferes with feeding, resting and the other normal activities of cattle.

### Biology

The horn fly (Figure 1) is about 1/2 to 1/3 the size of the common house fly. The adult female deposits its eggs exclusively in fresh cattle manure (within 10 minutes of dropping). The eggs are reddish-brown and difficult to detect in the manure.

The eggs hatch within 18 hours to the first stage larva or maggot. The maggot feeds in the dung developing through 3 instars in 3-5 days. Pupation normally requires 3-5 days (Figure 2). When the adults emerge from the pupal case, it takes 3 days for the complete maturation of the reproductive organs for egg production. The total life cycle from egg to egg-laying adult takes from 10 to 14 days.



**Figure 1.** Horn flies. Credits: J. F. Butler, University of Florida

Female flies can lay 14-17 eggs at one time and up to 200 eggs during their lifetime. Horn flies rarely leave the host except to deposit the eggs on dung. Most of the adult life is spent on the host or migrating to new animals.

In Florida, horn fly populations remain on the host year round with low populations in the winter time. In the more temperate areas of the United States, horn flies overwinter as diapausing pupae. Apparently, diapause is triggered by a combination of light and temperature.

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**Figure 2.** Horn fly larvae and pupae. Credits: J. F. Butler, University of Florida

## Damage

Horn flies pierce the skin of cattle to suck blood and may take up to 20 meals per day. The irritation and blood loss cause cattle to lose 0.3 to 0.5 lbs per day and for dairy animals cause lower milk production. Large populations of horn flies may cause open sores on the head and underline which can predispose their hosts to secondary infections of both disease and parasites. Because of their piercing-sucking mouthparts, horn flies are suspected of mechanically transmitting anthrax and other diseases within a herd.

Horn fly numbers of 50 or more per lactating dairy cow or 200 or more per beef cow are considered to be of economic importance (Figure 3). Extreme numbers of 10,000 to 20,000 flies per animal have been reported and could make blood loss alone (0.5 gal/month) an important factor in reduced production. Horn fly populations have been generally noted to be lower on dairy cattle than beef cattle. The feed ration fed to dairy animals greatly affects the fly's survival in the manure.

Production is consistently lower on untreated animals. The cost of treatment is nominal compared to the increased production realized by treatment.

## Control

Horn flies remain on the host except when laying eggs or migrating to new hosts. Their close association with cattle makes them susceptible to chemical control measures. Insecticide resistance is present in Florida for various insecticide ear tag formulations. Check with your County Agent to determine which treatments should be adopted for your area.

Ear tags and forced-use dust bags give the best control although sprays or dips may be used successfully. Dust bags may be hung in exit alleyways from barns or placed between pasture and water or feed. Dust bags will provide effective control only if they are hung where cattle are forced to dust. Backrubbers can also give control but are usually less successful on horn flies.

Sprays may also be used for horn fly control. Residual sprays are to be applied at 1-2 qt/animal at 150 to 200 psi to gain complete coverage of animal and penetration to the skin. Treat animals in small groups so that all animals are covered. Feed additives may be used for larval control; however adult populations may not be affected because of fly migration.

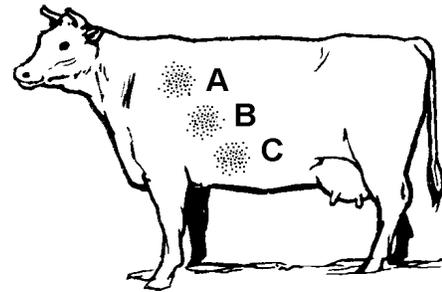
## Methods of Estimating Horn Fly Numbers in the Field

Numbers of flies per 1/2 animal may be easily estimated in the field under sunlit or shade conditions. Animals should be selected randomly, and estimates should be made for 10 animals per herd. Experimental results indicate 100 flies/half beef animal is the economic threshold.

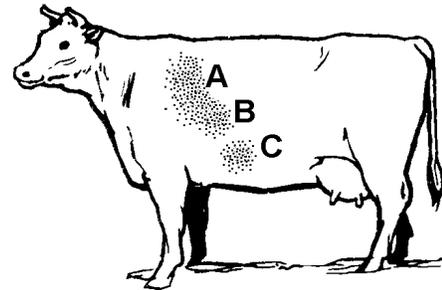
The criteria in Figure 3 should be used for estimating fly numbers.

**Use the following criteria to estimate fly numbers:**

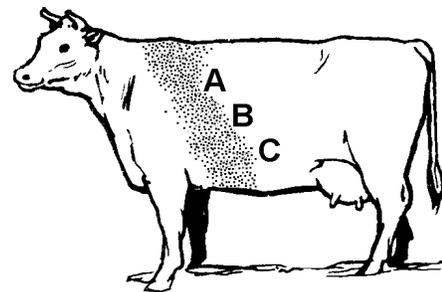
1. A single small patch of flies = 25 to 50 flies.  
The patch is located in area A, B or C.



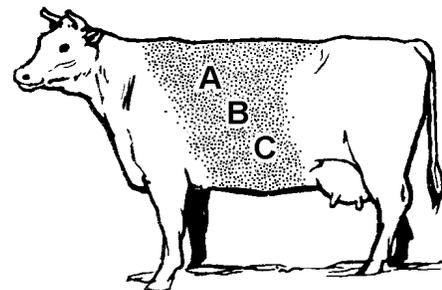
2. A single patch of flies that covers areas A and B, or B and C = 100 to 125 flies.



3. A patch of flies that extends through areas A, B and C = 200 to 350 flies.



4. A patch of flies that extensively covers areas A, B and C = 500+ flies.



**Figure 3.** A method of estimating horn fly numbers in the field.