

The Effectiveness of Different Brands of Fly Strips on Capturing *Musca domestica* (Diptera: Muscidae) Specimens in College Station, Texas

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Abstract: Flies specifically *Musca domestica* (Diptera: Muscidae) has been classified as a vector borne agent. Some diseases affecting humans consist of cholera, leprosy, tuberculosis and typhoid fever. To subdue the spread of vector borne diseases different brands of fly strips were tested in order to determine which was most effective in capturing specimen of *M. domestica*. Five brands of fly traps were placed in two locations for one week per trial for a total of three trials. At the end of each week the number of specimen captured were counted and recorded. The results showed that the brand Quick Strike was most effective in capturing specimen of *Musca domestica*, and the brand Safer was least effective.

Key Words: *Musca domestica*, fly strips, pest elimination

Eliminating flies from indoors is a constant struggle in many areas. Not only can flies be a major annoyance, they can also vector diseases (Blunt, McOrist, McKillen, McNair, Jiang and Mellits 2011). Another detriment that comes from flies is that they can potentially contaminate food or water sources (Phoku, Barnard, Potgieter and Dutton 2016). Fly strips are a popular way to effectively remove these pests, but many different attractants are involved depending on the brand of fly strip. Some fly traps, such as the EZ Trap, utilize visual cues as opposed to odors. This serves to capture the flies that are already there, without attracting more (Spalding 2016). In a majority of fly traps, a sugar based matrix or other food source or attractant is used to attract the flies. Historically, poisons, such as arsenic, were also included in fly strips to kill the specimen

that were captured, but these were found to be toxic to humans and other animals so modern fly strips only contain the fragrant food source and a non-toxic adhesive to trap the specimen (Trails 2016). Considering most fly strip brands use the same ingredients for the adhesive, the food source and other attractants are what differ in fly strips from brand to brand. Thus, this is what determines the effectiveness of the traps. One common chemical included as an attractant is (Z)-9-Tricosene, which is a pheromone of the female fly (Trails 2016). This attracts male flies because the female pheromone is used in mating. The food source or sugar matrix is commonly made of a combination of sugar and proteins unique to that particular brand of fly trap. This study explores which brand of fly trap is most effective in attracting *Musca*

domestica specimen so they can be effectively be eliminated.

Materials and Methods

First, five places on the same porch outdoors were randomly selected. The fly strips were placed and left on the porch for a week, and at the end of the week the number of flies captured by each strip was recorded into a table. This process was repeated each week for three weeks at two locations in the BCS area. After all data was collected, the average number of flies caught by each fly strip was calculated and the most effect brand was determined.

Results

In location one (figure 1), the Quick Strike fly traps were most effective in capturing flies, followed by EZ Trap fly traps. The least effective fly traps in this location were Rescue! fly traps. In location two (figure 2), Quick strike was once again the most effective in capturing flies. The least effective were both Safer fly strips and Tat Fly Paper fly strips. Overall, Quick Strike paper was most effective in capturing flies in both locations, as show in figure 3.

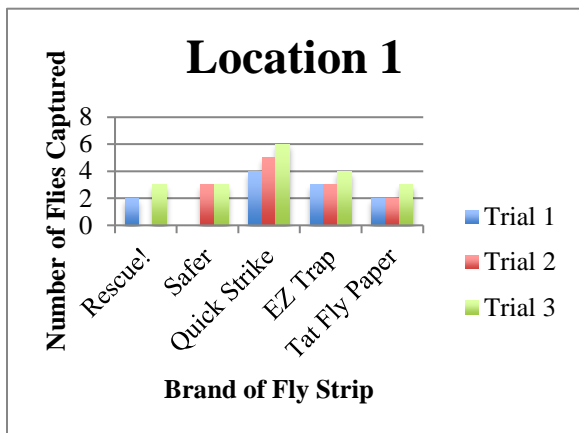


Fig. 1 Number of specimens captured in location 1.



Fig. 2 Number of specimens captured in location 2.

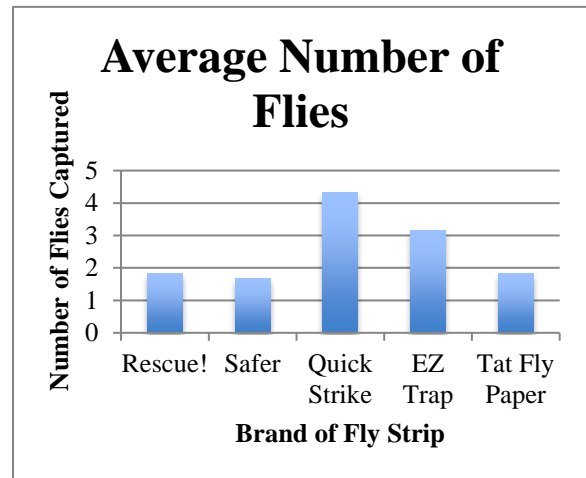


Fig. 3 Total average of captured specimens for each brand

Discussion

According to results, Quick Strike fly traps are most effective in capturing flies. Not only did they capture the highest number of specimen on average, they also captured the highest number of specimen in almost every individual trial at each location. The second most effective fly trap brand over all was EZ Trap, followed by Tat Fly Paper, Rescue! and finally, Safer. Considering the combination of foods and attractants is something each brand keeps confidential, it is hard to say

which specific food or attractant is most effective, but it is obvious that Quick Strike is the most effective brand of fly trap. The fact that Quick Strike was most effective proves that Quick Strike brand has the most effective combination of attractants and food source to successfully attract and capture specimen of *Musca domestica*. One could then conclude

that in order to eliminate *Musca domestica* specimen from indoors, Quick Strike fly traps would be the best product to use. If one were to use Safer brand fly traps, or any of the other brands tested, in order to eliminate *Musca domestica*, would prove to be much less successful at capturing *Musca domestica* when compared to using Quick Strike brand.

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