

TIME SPENT BY BLOWFLY *LUCILIA SERICATA* ON STANDARD TRAPS BAITED WITH LIVER AND AMMONIA

TIMPUL PETRECUT DE DIPTERUL MIAZIGEN *LUCILIA SERICATA* PE CAPCANELE STANDARD CU FICAT ȘI AMONIA

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*Calliphorids are the most important blowflies, because they can cause injuries mainly in sheep, but also in other species of economic importance. This paper describes the flies' behavior on and around a trap before they entered in. Many *Lucilia sericata* (35.05%) stayed a shorter time (two to six seconds) on the standard trap, while only 6.18% of them spent a longer time (26 to 30 seconds) before entering the trap.*

Key words: *Lucilia sericata*, trap, behavior

Introduction

Flystrike is not only a perennial problem for sheep farmers, with important annual losses (4, 5), but also causes production and welfare concerns in many countries (2).

There are numerous pathological effects of fly strike resulting from both mechanical and chemical attack by the feeding activity of maggots.

The main species causing myiasis are *Lucilia sericata* and *Lucilia cuprina*. The first one is an important pest of the livestock industries of temperate countries, causing the potentially fatal disease condition known as sheep strike (2), and the second one is the Australian sheep blowfly. In Europe it is a particular problem in England and Wales caused by *L. sericata* (1).

On the other hand, these flies together with other calliphorids (*Calliphora vicina*, *C. vomitoria*, and *Protophormia* species) are important in forensic science, insect evidence being most commonly used to estimate the time of death of a corpse (the postmortem interval, PMI).

The aim of this study was to observe if the trap baited with liver and ammonia is effective and also to determine the behavior of these flies on and around the trap.

Material and Methods

The study was carried out in the Parasitic Disease Park of the Faculty of Veterinary Medicine Timisoara in the summer months of June and July of the year 2006.

Traps were manufactured manually from plastic wire and gauze with a central cone and four entrances of 1 cm² on each side of the four faces of the traps (Figure 1). A Petri plate with liver imbued with ammonia was placed under each trap to attract flies, but not to permit them to reach the liver.



Figure 1. The trap used in the experiment.

Observations of fly behavior on and around a trap were recorded by a person seated on the ground approximately 3 m from the trap, at 90° to the prevailing wind direction. Time of landing on the trap, number of entry holes inspected and time of leaving were the recorded parameters.

Results and Discussions

Identification of flies captured in the trap reveals that majority were *L. sericata*. So, out of 114 flies 97 were metallic green calliphorids (85.08%), and out of them 68 were females of *L. sericata* (70.10%).

The data are recorded in the Table 1.

Table 1. - Percentage of blowflies in time category

Species	Time spent on standard trap in seconds														
	0-1.9	2-3.9	4-5.9	6-7.9	8-9.9	10-11.9	12-13.9	14-15.9	16-17.9	18-19.9	20-21.9	22-23.9	24-25.9	26-27.9	28-30
<i>Lucilia sericata</i> (n = 97)	5(5.15%)	19(19.58%)	15(15.46%)	12(12.37%)	9(9.27%)	8(8.27%)	6(6.18%)	4(4.12%)	6(6.18%)	3(3.09%)	1(1.03%)	1(1.03%)	2(2.06%)	3(3.09%)	3(3.09%)

These data shown that most flies stayed a shorter time on the standard trap, between two and six seconds (35.05%), while only a few blowflies visited the trap holes for a longer time, between 26 and 30 seconds (6.18%) (Figure 2).

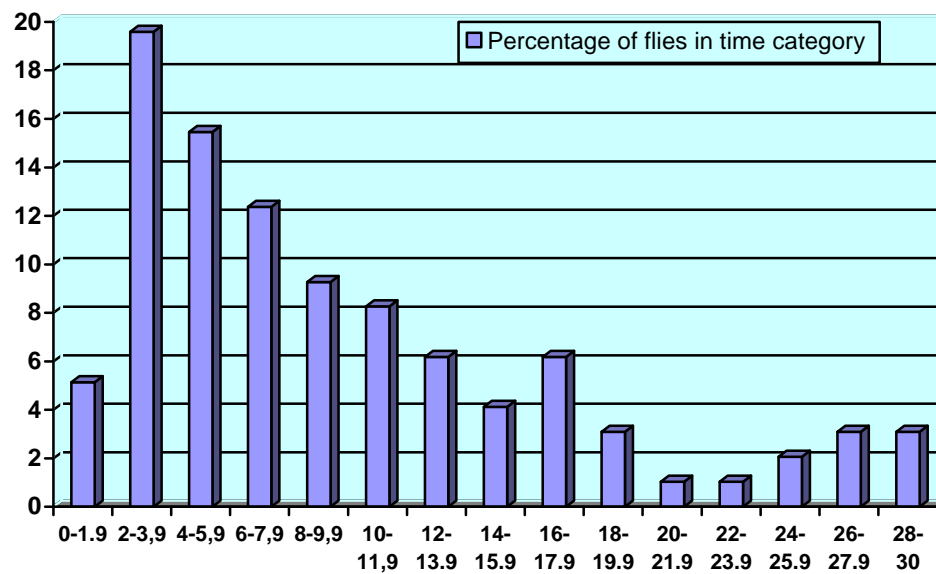


Figure 2. Frequency distribution of time spent by blowfly *Lucilia sericata* on standard trap baited with liver and ammonia.

Hence, the rate at which flies left the trap, after the initial 1–2 seconds involved in landing and subsequent responses to the trap surface, followed an exponential distribution and 70.10% of the flies left within 12 seconds.

It was probably for some flies to visit the trap more than once, but it was not possible to record this.

In a similar study conducted in Hungary by Hall et al. (3), the authors obtained some results which confirm the diversity of the behavior of the same

species in different areas. They observed that most flies stayed for a very short time, between 2 and 4 seconds, and only a few of them stayed more than 20 seconds, the longest time being 28 seconds. Also, 75% of flies left the trap in less than 10 seconds.

Our results highlight the diversity of insect behavior, between geographically isolated populations of the same species.

These results can prove a real impact on the effectiveness of the catching systems to control blowflies. If a trapping system seems to be efficient in collecting a blowfly species in a well defined geographical area, it appears reasonable to presume that it cannot work properly, with the same efficacy against the same species but in another geographical area.

Conclusions

The most (35.05%) metallic green blowflies *Lucilia sericata* stayed on the trap a shorter period of time, between 2 and 6 seconds, and only a few of them (6.18%) stayed longer, between 26 and 30 seconds.

This behavior of looking after and searching the baited trap could be exploited in establishing of control strategies against the sheep blowfly *Lucilia sericata*.

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