

**PMA 4570/6228 Field Techniques in Integrated Pest Management**  
**Laboratory 4: Alternatives to Pesticides, Experimental Designs, and Hypothesis Testing**

**DUE: Tues. July. 21 at 9:30am**

Integrated Pest Management involves many tactics. There are many pest management tactics besides spraying a pesticide. Attract-and-Kill tactics involve attracting the pest to a specific location where it comes in contact with a toxicant. The attractant can be a pheromone or a food lure. The toxicant is usually a small amount of insecticide. In mating disruption, an area is saturated with sex pheromones. Males become confused and cannot find females. Utilizing mulches, a cultural control tactic, can also reduce pest populations. Reflective mulches confuse potential pests such as aphids and whiteflies by reflecting large amounts of UV light. Living mulches attract and maintain natural enemy populations.

In this lab, you will examine some common attract-and-kill devices and mulches that are employed by growers. You will also learn some basic experimental designs and methods of hypothesis testing so that you can properly interpret information researches you work with may present to you.

1. Examine the various attract-and-kill devices and mulches. Know what insects they are used to control.
2. A cage study was conducted to determine if a new 'attract and kill' device can control the Caribbean fruit fly. Twelve replicates of three treatments, an untreated control, applications of SpinTor<sup>®</sup> at the recommended rate, and the new 'attract and kill' device, were set up randomly in a greenhouse. The number of flies surviving after 48 h was counted and recorded.

a) Is the experimental design a completely randomized design or a randomized complete block design?

b) The summary data is given in the following table.

	Control	SpinTor	A & K
mean	18.50	1.75	1.17
median	18.50	2.00	1.00
mode	18.00	2.00	1.00
variance	0.40	0.35	0.27
STDEV	1.91	1.48	0.88
SEM	1.38	1.22	0.94

An ANOVA was run on this dataset. The p-value given was  $<0.0001$ . Interpret this value.

c) The LSD means separation test produced the following results:

Control	A
SpinTor <sup>®</sup>	B
Attract and Kill	B

Interpret this result.

d) Produce a graph of the data summary as it would appear in a scientific publication or presentation.

3. A simple linear regression of thrips per flower vs. fruit injury produced an  $R^2$  value of 0.72. Interpret this value.