Introduction

Fruit flies (F.F.) has been known as a pest to citrus since the beginning of the century. The fly has now established itself in many other crops and has become a serious problem to many growers.

Last Call™ F.F. is an innovative blend of a sex pheromone and insecticide that calls the male Fruit fly to its doom.

Last Call™ F.F. is a clear-like droplet that contains the sex pheromone of the female F.F. that lures and attracts the male F.F. mixed with a dose of permethrin insecticide which kills them after they have 'mated' with the alluring substance.

Fruit fly life cycle

Ceratitis capitata

Total development period required for the Fruit fly to complete its life cycle under tropical conditions is approximately 21- 30 days.

Egg

Eggs are very slender, curved and shiny white. They are deposited under the skin of fruit that is just beginning to ripen. Each female will deposit 2 to 10 eggs on a single fruit. Eggs hatch in 1.5 - 3 days in warm weather.

Larva

Larvae pass through three larval instars. They are elongate, cream colored, cylindrical maggot-shaped. Exact size of larva depends on diet. The larval stage may last as short as 6 - 26 days depending on temperature and host.

Pupa

Pupae are cylindrical, about 3 mm long and dark reddish brown. The minimum duration of the pupal stage is 6 - 13 days when the average temperatures ranged from 24 - 26 ^{0}C. Pupae develop normally in the soil an inch or two below the surface.

Adult

The general color of the body is yellowish with a tinge of brown, especially the abdomen, legs, and some of the markings on the wings. The adult is 4 - 5 mm long which is about two thirds the size of a house fly.

How does LAST CALL™ F.F work?

Insect sex pheromones are selective and valuable pest management tools in techniques ranging from monitoring of populations to disruption of the pheromone mediated mating sequence. Recently, an attract-and-kill system combining the sex pheromones of insects with the insecticide permethrin has been developed.

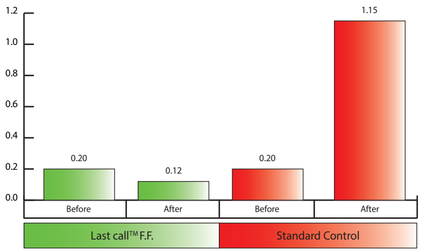
The technology of attract and kill works on the basis of suppression of the male fly population. After emerging, male flies are inevitably attracted to the small droplet, with which they attempt to mate; any contact with the product is fatal. The droplet is a combination of a small amount of insecticide with a synthetic insect pheromone in a patented UV resistant carrier.

The carrier provides a slow, uniform release of the powerful pheromone. By the elimination of males, and a resulting reduction in the number of mated females, one can reduce the egg lay, the build up of the generation and crop damage. The product provides an environmentally sound and effective means of insect control by combining the best aspects of two separate technologies: traditional chemical insecticides and pheromone attraction.

The combination of these technologies provides a greater solution for growers, consumers and the environment.

The graph below shows how effective ***Last Call™ F.F.*** is when applied at the right time with the correct dosage.

Last Call™ F.F. damage / tree before and after application vs Standard control



Performance

F.F. is a phytosanitry pest and is one of the biggest concerns for citrus growers especially for the export market.

F.F. males are attracted to the female sex pheromone. ***Insect Science™ McPhail Traps*** and E.G.O. PheroLures are used to monitor the insect population. From the number of insects caught weekly one can determine the timing of application. The graph below indicates the reduction of fruit damage after ***Last Call™ F.F.*** applications.

Summary of field performance

The effect of the treatment is not immediate, as there is a carry-over of females fertilized by many males before the ***Last Call™ F.F.*** treatment instituted. The same can be said for fruit that is already infected, where eggs were deposited after treatment commenced, there will still be a certain amount of fruit drop. This period can last up to six weeks after treatment has started due to the carry-over effect.

During the period of the application of ***Last Call™ F.F.*** the carry-over ended with excellent results in all our trials. The full effect of ***Last Call™ F.F.*** can be well observed after the second application, when the F.F. trap counts noticeably decline while in the control block the numbers continue to escalate.

Effect of ***Last Call™ F.F.*** application on Fruit fly populations