Joe Walter, Agriculure Agent *FS# 7109AG*

Mosquito Primer

Musketas, the bloodsucking insects that prevented Spanish Conquistadors from sleeping in the 1500's as they camped near what is now Miami are known to us as *mosquitoes*. The name mosquito is Spanish for "little gnat," and is a derivative of *mosca*, the Spanish word for fly. Any member of the insect family Culicidae, a group that includes some 3,000 species and subspecies ranging over most of the earth is a mosquito by nature, if not by name.
The first recorded attempt at mosquito control was to dig holes in the beach, lie in them, and cover individuals to prevent aerial attacks. Mosquitos remain a problem, but control methods have evolved making life a bit more comfortable and safe.

There are 80 different species of mosquitoes in Florida, but only five that transmit pathogens that cause disease. Mosquito-borne diseases found in Florida include Chikungunya, Dengue, Eastern equine encephalitis, St. Louis encephalitis, West Nile fever, and Dog heartworms. As of this writing there are no vaccines for any of these diseases available for humans. Dog heartworms only affect dogs, although there is no vaccine for heartworms, preventative medications are available.

Only adult female mosquitoes bite. The adult female in most species of mosquitoes requires a meal of blood to produce eggs. All mosquitoes live part of their life in an aquatic environment such as floodwater, permanent water, or container. The habitat selected by a female mosquito to lay her eggs is species dependent. Mosquitoes develop through four different stages during their life cycle…egg including, larval, pupal, and adult. They eat primarily during the larvae and adult stages.

Mosquitoes are aquatic until they become adults, at which time they become terrestrial. If at any time water is removed before the adult emerges, the mosquito will die. Mosquitoes do not breed in running water.

There are a number of ways to control mosquito populations. The best way is the removal or modification of water sources. The second best alternative is to control the larvae, as they are concentrated in large numbers in water. A naturally occurring larvicide, *Bacillus thuriengensis israelensis (Bti),* is toxic to mosquito larvae, but does not affect non-target species. This product is commercially available in the form of granules. Another natural method that can be employed for reducing adults is augmenting the native small fish populations that eat mosquito larvae and pupa. These can be used to kill large number of mosquito larvae before they have an opportunity to emerge as pesky, breeding adults.

When mosquito numbers reach a predetermined number and/or virus activity is present in the local area, we resort to use of chemicals to kill adult mosquitoes called *adulticiding*. Products used to kill adult mosquitoes (adulticides) provide immediate, but temporary relief and are toxic to many non-target species. Because of this, Brevard County Mosquito Control District only

applies adulticides no earlier than 30 minutes after sun down and stops well before sun rise, while most pollinators are in the protection of their habitats or hives.
Homeowners can play an important role in controlling mosquito populations by controlling habitat around their homes. Emptying containers that hold water, changing water weekly in needed water containers, placing fish in animal water tanks, draining low areas in the yard, fixing leaky faucets, and clearing dense vegetation are all ways to reduce habitat and mosquito populations.Attempts to control mosquitoes that have been shown to have no effect are bug zappers, Mosquito plants, repellent bracelets, ultrasonic devices, Dragonfly mimics…or the consumption of garlic, vitamin B, or bananas.

Personal prevention from disease-bearing mosquitoes should include avoiding being outside at dawn and dusk; wearing long sleeve shirts, long pants, and socks; and applying insect repellant. The University of Florida Medical Entomology Laboratory has tested and published the results of the many mosquito repellents. For longest protection duration (4 to 5 hours) the repellent should have 20% to 50% DEET.

For more information on mosquitoes in Florida go to edis.ifas.ufl.edu ENY-753, Florida Resident’s Guide to Mosquito Control.