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NEW JERSEY AGRICULTURAL EXPERIMENT STATION

Controlling Mosquitoes Around the Home

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More than 60 different kinds of mosquitoes have been identified in New Jersey. All require water in their immature stages but the kind of water the female selects for her eggs varies considerably from one species to the next. The major pest species in coastal areas come from the tidal water that collects on salt marsh wetlands. At inland areas, many important pest mosquitoes develop in rainpools formed by summer thunderstorms. Permanent swamps are an important source for mosquitoes throughout the state.

Many of the mosquitoes that cause annoyance must be eliminated by authorized county mosquito control agencies because of restrictions regarding work conducted in wetland habitats. Several important pest mosquitoes, however, breed around the home, and homeowners can substantially reduce mosquito nuisance caused by these species. This fact sheet describes the habits of the most common mosquito pests that breed around the home and suggests methods to keep your property mosquito-free.

The Mosquito Life Cycle

All mosquitoes develop from eggs deposited by females that have previously fed on blood. The female mosquito is very specific about where she lays her eggs and searches diligently for water that will be suitable for her offspring. Most of the mosquitoes that breed around the home require stagnant water rich in decomposing organic material. This is not true of all mosquitoes; most pest species require clean, clear breeding habitats.

Having located a suitable water source, the female mosquito deposits the 100-200 eggs that will produce the next generation. Some species lay their eggs directly on the water's surface; others leave their eggs in an area that will flood at a later date. Mosquitoes are aquatic in their immature stages and, without exception, require water to complete their development. Mosquitoes do not breed in tall grass as many people have been led to believe.

Each egg that the female lays hatches into an aquatic organism that is termed a "mosquito larva." The larval

stage is wingless, legless and wormlike in appearance. Mosquito larvae are very active and move almost continuously as they shuttle to the surface to obtain oxygen and dive to the bottom to find food. Larval mosquitoes feed on organic matter in the water and grow rapidly during this stage of their life. Within days, they enter a stage termed the "mosquito pupa" to allow formation of the legs, wings and other characteristics used in the adult stage. When this process is complete, the fully formed adult emerges from the pupal case. The entire life cycle from egg to adult can be completed in less than 10 days during periods of favorable temperatures.

Mosquitoes are expert fliers and many species can range great distances from their breeding sites. Flight, however, expends energy and most mosquito species have exceptionally high energy requirements. Mosquitoes obtain energy by feeding on flowers and convert the sugar from nectar as a source of fuel. Both male and female mosquitoes feed regularly on flowers but females require blood to produce fertile eggs. As a result, a female mosquito must find a host and blood feed before she can lay her eggs. Male mosquitoes do not lay eggs and, therefore, do not feed on blood.

Most of the mosquitoes that emerge in the wild never have contact with humans and obtain blood from the most common animals in their habitats. Some species prefer birds as blood meal hosts and rarely function as pests of humans. Others accept a wide range of animal hosts, including humans, and function as pests whenever they occur in numbers in areas frequented by humans. The mosquito species that breed around the home are considered "domestic species" and rarely range far from human habitations. All accept humans as a blood meal host, many will enter houses to feed and most are regarded as significant pests by the average homeowner.

Mosquitoes that Breed Around the Home

The northern house mosquito, *Culex pipiens*, is the most common mosquito found in urban and suburban areas. This mosquito will lay its eggs in virtually any

receptacle containing water rich in decomposing organic material. Breeding habitats around the home include: discarded tires, unwashed bird baths, clogged rain gutters and plastic wading pools allowed to stagnate through disuse. The mosquito will not lay its eggs in any of these habitats if the water is too clear. Grass clippings, dead leaves and algae, however, quickly produce an infusion that is highly attractive to the female mosquito. Once the water begins to foul, the northern house mosquito will readily lay her eggs and will use any receptacle containing decaying organic material that is found on your property.

The eastern tree-hole mosquito, *Aedes triseriatus*, is another fairly common pest around the home. This mosquito lays its eggs in tree-holes that form in a variety of shade trees. Tree-holes are actually rot-outs in the tree trunk. They often form in a crevice where several branches meet or in an area where a branch has been lost. The water that accumulates in tree holes becomes exceedingly foul from the decomposition of wood accompanying the rotting process. The female eastern tree-hole mosquito is highly attracted to tree-hole water and glues her eggs just above the water line within the rot hole. The eggs hatch when rain raises the water level within this unique habitat. Discarded tires that trap decomposing leaves simulate the tree-hole habitat and are highly attractive to the eastern tree-hole mosquito as an egg-laying site. A single discarded tire in your yard can produce tens of thousands of tree-hole mosquitoes over the course of a season.

The white-dotted mosquito, *Culex restuans*, and the mottled wing Anopheles, *Anopheles punctipennis*, can also cause annoyance around the home. These species share habitat with both of the mosquitoes mentioned above and will enter your home to obtain a blood meal.

Reducing Mosquito Annoyance Around the Home

Mosquito breeding around the home can be reduced significantly by reducing the amount of standing water available for mosquito breeding.

- Dispose of tin cans, plastic containers, ceramic pots or similar water-holding containers that have accumulated on your property. Do not overlook containers that have become overgrown by aquatic vegetation.
- Pay special attention to discarded tires that may have accumulated on your property. The used tire has become the most important domestic mosquito producer in this country.
- Drill holes in the bottom of recycling containers that

are left out of doors. Drainage holes that are located on the sides collect enough water for mosquitoes to breed in.

- Clean clogged roof gutters on an annual basis, particularly if the leaves from surrounding trees have a tendency to plug up the drains. Roof gutters are easily overlooked but can produce millions of mosquitoes each season.
- Turn over plastic wading pools when not in use. A wading pool becomes a mosquito producer if it is not used on a regular basis.
- Turn over wheelbarrows and do not allow water to stagnate in bird baths. Both provide breeding habitat for domestic mosquitoes.
- Aerate ornamental pools or stock them with fish. Water gardens are fashionable but become major mosquito producers if they are allowed to stagnate.
- Clean and chlorinate swimming pools that are not being used. A swimming pool that is left unattended by a family that goes on vacation for a month can produce enough mosquitoes to result in neighborhood-wide complaints. Be aware that mosquitoes may even breed in the water that collects on swimming pool covers.
- Use landscaping to eliminate standing water that collects on your property. Mosquitoes will develop in any puddle that lasts more than 4 days.

Obtaining Additional Information on Mosquitoes and Their Control

If the methods outlined in this fact sheet do not significantly alleviate mosquito annoyance around your home, the mosquitoes causing the problem are probably coming from breeding habitat that is not located on your property. Mosquitoes that breed in permanent swamp habitats will travel 1-2 miles in quest of a blood meal. Mosquitoes that emanate from floodwater habitats can cause nuisance 10-20 miles from their breeding source. Mosquito control is organized by county in New Jersey and your county mosquito control agency has the expertise to inspect your property, collect biting adults and determine the source of the problem. Your county mosquito control agency can also provide additional information on mosquitoes, the diseases they transmit and the best methods for their control.

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