

DIY Mosquito Trap with a 3- or 5-Gallon Bucket



Trecia E. Neal

Mosquitos are a natural part of our ecosystems; they serve as food for many different types of animals. However, mosquitos are also nuisance, and they can also contribute to diseases. If you have a mosquito issue on your property, there are several steps that you can take to help eliminate them.

Step One: The best offense is a good defense! Mosquitoes require stagnant water to breed. Sometimes it can be just a tiny amount of water! The first step is to identify and remove any sources of standing water. Look for hidden places like garbage cans, corrugated pipes, buckets, pots, birdbaths, fountains, gutters and old tires.

English Ivy can breed a lot of mosquitoes, they love to live in the moist shady environment provided by this very thick, non-native, ground cover.

If you have an artificial pond on your property, think about adding Mosquito Fish, *Gambusia affinis*, to the water. *Gambusia* are native to the southern and eastern portions of the United States and are an effective non-insecticidal and non-chemical method of controlling mosquitoes. *Gambusia* should never be released in any natural habitat, such as lakes, streams, rivers, or creeks. Even those these are native fish; their introduction may disrupt the ecological balance that exists in these places.

Step Two: Provide Mosquito Traps: There are several different versions of inexpensive, home-made traps that you can utilize. Some of these can last up to 90 days before you need to replace the ingredients.

Bucket Mosquito Trap

The method is based on two different pesticides. One long lasting organic one for the water in the bucket where mosquitoes try to lay eggs, and a second long lasting one for a landing strip that you place inside the bucket.

The method is based on two different pesticides. One long lasting organic one for the water in the bucket where mosquitoes try to lay eggs, and a second long lasting one for a landing strip that you place inside the bucket.

Supplies

1.) **Bucket:** A 3 or 5 gallon bucket with a tight lid. If you purchase a white one, it's best to paint it black or brown. Mosquitoes are attracted better to dark colors.

2.) **Landing Pad:** Wood 1" Sticks – You can use paint sticks, which are often free at hardware stores — or you can buy a package of 12. They should fit diagonally across the bottom of the bucket and reach up out of the water. The purpose of them is to provide a landing spot sticking out of the water when the mosquitoes go inside the bucket. If there's no landing spot, they are less likely to go inside. This way, if they land to rest, they're toast the stick has a long-lasting insecticide on it and will serve as a deterrent. The reason to buy multiple sticks is so that you can treat them all at once and retain the extras for switching out over time. It's also good to put 2 or three landing strips inside each bucket.

3.) **First Insecticide:** Bifenthrin – This insecticide is used to make the landing pads that stick up out of the water. Bifenthrin is an insecticide in the pyrethroid family. Pyrethroids are manmade versions of pyrethrin's, which come from chrysanthemum flowers.

Bifenthrin is used on various agricultural crops and in homes. Bifenthrin was first registered for use by the United States Environmental Protection Agency (U.S. EPA) in 1985. Bifenthrin is not an organic insecticide, but it is **legally allowed for use even in kitchen and pantry areas** where food is handled. So as a non-organic pesticide, it is a good choice. It is also rated to last for several weeks when it is sprayed on the wood landing strips, meaning that it will continue to work overtime. If you attempt to use a different pesticide on wooden landing strips, it might not be rated to last longer than a day or two and will be ineffective, or it might be a more dangerous pesticide.

Bt and Spinosad are two common biopesticides. Specifically, they are microbial insecticides. In general, Bt varieties are pest specific while Spinosad is more broad spectrum. Like all pesticides, we suggest using them as part of an integrated pest management (IPM) program. Some mosquito bucket traps use Bt.

Want to go completely organic and avoid the Bifenthrin?

This simple, homemade mosquito trap was developed with funding from the Bill & Melinda Gates Foundation. Tests in Israel and Africa have found that simple traps baited with fermented fruit juice and a toxin can be highly effective in reducing mosquito levels. Mosquitoes are attracted to the scent from the fruit juice because they feed on nectar and other sugar sources. "The bait solution used to treat the experimental site consisted of 85 percent juice of overripe to rotting nectarines, 5 percent volume-to-volume wine, 15 percent weight-to-volume brown sugar, and 0.04 percent weight-to-volume oral Spinosad insecticide. (Spinosad is a biological insecticide with a safety profile like other benign biologicals.) The solution was ripened for 48 h in covered buckets, outdoors in the sun where daily temperatures reached 86 degrees Fahrenheit."

HOW TO: Use clean, disposable 1.5-liter plastic soft drink bottles with a hole of 5 cm diameter at approximately two-thirds of their height were prepared. A Cotton cloth wick was inserted through the holes and arranged so that both the internal and external ends reached down to the level of the bottom.

"The bottles were then introduced, bottom first, into large, light colored, cotton flannel socks that had been thoroughly washed with water and dried. The socks were then

wetted by dipping into the bait solution and approximately 0.5 liters of the solution was poured into each bottle.

“Thus, the fluid evaporating from the external layer was replaced and the socks were maintained wet by passage of the internal fluid through the wick.”

The Bill Gates Foundation has also developed a commercial trap for mosquitoes that is highly successful, up to a 90% reduction rate in the mosquito population. See:

<https://westhamco.com/products>

4.) **Second Insecticide:** Spinosad – **This bacteria-based insecticide is used in the water in the bottom of the bucket to kill mosquitos that land to lay eggs and their offspring.** Spinosad is a natural substance made by a soil bacterium that can be toxic to insects. It is a mixture of two chemicals called spinosyn A and spinosyn D. It is used to control a wide variety of pests. These include thrips, leaf miners, spider mites, mosquitoes, ants, fruit flies and others.

Spinosad has been registered for use in pesticides by the US Environmental Protection Agency (EPA) since 1997. It is harmless to people (but deadly to many types of insects!) and can even be sprayed on vegetable crops and used in a vegetable garden. It has also been studied as a bacterium that can persist in the bucket water for more than 90 days, so it will continue to be effective as long as you don't let the water evaporate. Add more to the bucket every four to six weeks to make sure it is still working.

Spinosad is broken down rapidly by sunlight. In the presence of sunlight, **half-lives** on leaves are 2 to 16 days and less than one day in water. When applied to leaves, some Spinosad can be absorbed. However, it does not readily spread from leaves to the rest of the plant. In the absence of sunlight, Spinosad breaks down very slowly in water. Half-lives of more than 30 days to 259 days have been reported. However, it binds rapidly to sediment. The half-life in sediment, where no oxygen is available, ranges from 161 to 250 days.

Spinosad also sticks to soil and has a very low potential to move through soil towards ground water. In field studies, no break down products of Spinosad were found below a soil depth of two feet. In the top layers of soil, Spinosad is rapidly broken down by microbes. Soil half-lives of 9 to 17 days have been reported. After it is applied, Spinosad is not likely to become airborne.

Construction

1.) **Cut Holes:** Cut 3-4 three-inch holes in the top of the bucket lid. This can be done with a utility knife, a packing knife or a drill if the lid is thick. Be careful when cutting and/or drilling to not to cut or drill toward your hand because the plastic can be hard to cut.

2.) **Paint:** Use a black bucket or paint the outside of the bucket black or dark brown to make it blend in better and attract more mosquitos.

3.) **Make the landing pad strips:** First, use a permanent marker to draw a grip-line at the top so you know which part of the stick is clean to grip, and which part has poison on it. Use gloves. Be careful. Follow all instructions on the pesticide label for safety. Take an 8-ounce measuring cup and add one ounce of Bifenthrin, two teaspoons of food coloring and fill the rest with water. You can pour this solution into a spray bottle or use a paint brush to apply it. Apply the solution to the long end of the stick below line drawn with your marker. Apply the solution to both sides and allow to dry. Store extra sticks in a cool dry place.

4) **Add water:** Add approximately 1 gallon of pond water or rainwater to bucket. If you don't have access to pond water, you can use distilled water with a handful of compost added. You can use tap water — if you allow the chlorine to evaporate by letting the water sit for 12-24 hours before you add the Spinosad.

You don't want the fresh tap water to kill most of the bacteria. Add 1oz of Spinosad to the water. Spinosad is a bacterial insecticide, so you want to get enough for it to live and get established in the chlorine-free water.

5.) **Add wooden sticks:** Wearing gloves, put the landing strips in the water with the poison side pointing up toward the lid. Adding two or three strips to each bucket gives the mosquitoes multiple places inside the bucket to land.

6.) **Close bucket:** Seal the bucket and place it in a spot where you notice mosquitos gather.

Final thoughts: This trap is relatively safe for use around pets, because the holes are too small for them to get inside. With the lid on tight, only mosquitoes or insects can get inside the small holes.

Use good judgement. Make sure that the holes are properly sized so that they are not too big. Make sure the lid cannot be removed too easily. Place the bucket where curious children or pets will not get near it and be sure to explain to any children old enough to avoid the bucket. Put the bucket in a location where it will not fill up with fresh rainwater and wash away the Spinosad and cover the landing strips.

Check the bucket every week or so to make sure the liquid inside doesn't evaporate, if you are in a hot, dry area. You can replace the landing strips and water as needed depending on how hot it is in your area.

Do not burn the Bifenthrin wooden strips when you are finished with them. Follow all disposal instructions on the label of the product. You should notice a measurable decrease in the mosquito population over a period of a few weeks. It is not instant, because only females that are ready to lay eggs are attracted to the trap.

Important! Don't abandon the trap!

If you stop using it and leave it out in the rain where it collects more rainwater and the pesticide wears off, it will become a mosquito factory. It is safe to pour out the water in the yard when you are through using it and use instructions on the label to dispose of the sticks. Do not burn the sticks.