

BEEKEEPING AND MOSQUITO CONTROL In PA

What is mosquito control?

The Pennsylvania Department of Environmental Protection and participating counties implement various tools and strategies to control mosquito populations. This reduces the transmission of mosquito-borne disease and allows the public to enjoy outdoor spaces. Our integrated pest management plan (IPM) incorporates mosquito surveillance, public outreach and education, source reduction, and larval and adult control.



What pesticides are used, and which pose a risk to bees?

Larvicides are applied to areas with standing or intermittent water and pose no risk to bees as the active ingredients *Bacillus thuringiensis israelensis* and *Bacillus sphaericus* are naturally occurring soil bacterium and only target mosquito larvae.



Adult control utilizes barrier treatments, thermal fogging, and ultra-low volume truck mounted sprays for quick and effective knockdown of mosquitoes. Pesticides for adult control consist of pyrethroids and are

considered highly toxic to bees if proper measures are not taken. Did you know? Pyrethroids are synthetically derived from the Chrysanthemum plant and are found in many household insecticides, pet sprays, and shampoos- oftentimes in higher concentrations than what we use to combat mosquitoes. Whether we are at work or at home, we always follow the label. The label is the law!

How do pesticides affect bees?

Pyrethroids inhibit the nervous system of bees and in some cases affect neurotransmitter actions. This typically kills the bee upon contact when it lands on a flowering plant. In some cases, the bee transports the pesticide back to the hive which endangers the queen, brood, and nurse bees. This can be attributed to large

numbers of bees laying in front of the hive or a sudden loss of the colony's field force.



What efforts are made by DEP and county staff to protect bees?

The best strategy for mosquito control is the IPM plan that reduces the amount of adulticides used. Staff work diligently to educate the public about eliminating mosquito breeding habitat and apply larvicides to reduce the number of larval mosquitoes. Adult control is only done when certain thresholds are met- public health is at risk and/or the governor declares an emergency. Ultra-low volume truck mounted spray events are publicly notified and are conducted at night when bees are not active. Barrier and thermal fogging treatments are performed when there is little to no wind to reduce drift and are not applied to flowering plants. Any type of adult control requires a level of public notification and is not performed within 500 feet of a known apiary. All control is done by employees who completed coursework to become certified pesticide applicators.



Barrier



Thermal fogger



ULV Truck-Mounted Spray

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Can colonies recover from pesticide exposure?

Yes, if proper steps are taken. If the colony's field force is weakened, the colony can still recover without help of the beekeeper if there is enough honey and pollen.

If brood and nurse bees continue dying, that means pesticides are present in the hive. The combs must be cleaned or removed.



What can I do to protect my bees?



The location of your apiary is paramount. Establishing colonies at least 3 miles from where pesticides are likely to be applied minimizes the chances your bees will be exposed to pesticides from mosquito control. If your apiary is already established and you are unable to move it, covering your colonies with a well-ventilated screen to restrict flight during peak foraging hours is your best bet if you know pesticides will be applied in your area. However, care must be taken so that the hives do not overheat.

Inspect your hives regularly. Knowing how your bees normally look will help you to identify problems quickly. Keep your bees healthy and forceful. Vigorous hives have a better chance to recover than weaker ones.

You are encouraged to peruse our website (see below). There, you can find out who your county contact is should you have any concerns and view spray event information (when, where, and what products will be used).

Reach out! Establishing a relationship with your local mosquito coordinator will allow you to be in the loop of the exact pesticides they use and how much, if any, of a residual they have.

Make yourself known! Register your apiary on the PA Agriculture website (see below). Create a list of local beekeepers and include their contact information. You can give this list to your local Mosquito Control District and ask them to notify all area beekeepers prior to spraying for mosquitoes.



[www.agriculture.pa.gov/Plants Land Water/PlantIndustry/Entomology/Apiary/Pages/default.aspx](http://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/Entomology/Apiary/Pages/default.aspx)

www.westnile.state.pa.us

DEP Vector Management

