



What's All the Buzz About?

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As winter draws to an end and spring returns, there are certain insects that we love to welcome back, like Monarch butterflies, fireflies, and our native bees. Other insects, like blackflies and mosquitoes, are insects we wish would just stay away ... wouldn't life be so much nicer without them!

A number of companies have been capitalizing on our extreme dislike for mosquitoes by offering mosquito spraying services. And people have been paying attention ... mosquito spraying has been increasing in popularity, to the point where many resorts are using the strategy and many private homeowners and cottage owners are also jumping on board, so they can be outside in comfort all season long. Sounds dreamy, doesn't it?

So what do they spray with? While many companies offer a natural garlic spray, the majority of customers are opting for the permethrin spray, as it is more effective. What is permethrin? This is where we get into a lot of confusing Ps ...

Pyrethrum is a mix of chemicals that naturally occur in chrysanthemum flowers. Six of these chemicals have insecticidal properties and are called pyrethrins. **Pyrethrins** have been used as a pesticide since the 1950s, and are widely used in agriculture and pet products, for things like flea control. The use of pyrethrins has grown as the use of organophosphate pesticides — which are highly toxic to birds and mammals — has declined. Here's what we know about pyrethrins:

- Pyrethrins attack the nervous system of insects, quickly immobilizing and killing them.
- Pyrethrins break down quickly, especially in sunny areas. While they are considered to have a low toxicity to mammals, they are highly toxic to insects (including beneficial insects like bees, butterflies, and ladybugs), fish, amphibians, and aquatic insects.

Pyrethroids are synthetic chemical insecticides that are derived from pyrethrins, but developed to last longer in the environment.

- Pyrethroids are more toxic to insects and mammals, and also highly toxic to fish, amphibians, and aquatic life.
- Long-term exposure to pyrethroids has been shown to cause reproductive issues in fish and aquatic insects. Pyrethrins are approved for organic gardening, but pyrethroids are not.

Both pyrethrins and pyrethroids are usually combined with other chemicals called synergists, which increase their toxicity. A commonly used synergist in mosquito sprays is piperonyl butoxide, which is a toxic chemical and considered by the U.S. Environmental Protection Agency to be a potential human carcinogen.

Most mosquito spraying companies use **permethrin**, which is a pyrethroid. It is considered to be a “likely” carcinogen to humans by the U.S. EPA, and Health Canada has assessed it as a “potential” human carcinogen. Mosquito spraying companies are proud to tout their sprays as “all natural” and “safe” because they are based on chemicals that come from the chrysanthemum flower.

Mosquito spray companies use backpack sprayers and spray the environment around homes and cottages, including trees, shrubs, and plants. Customers can get on a spray program, where the company comes every 21 days to spray your property. Companies are not supposed to spray within 15 metres of a water body or spray any flowering shrubs. However, there have been many stories over the last few years of applicators not following the regulations (i.e., spraying right up to the water’s edge), and not wearing the appropriate personal protection gear.

The Mosquito Buzz website states,

“Our synthetic barrier control product contains the synthetic form of pyrethrin, which is the natural by-product of the chrysanthemum flower.”

Most people hear this and take it at face value. But it deserves a closer look.

Non-target insects killed by pyrethroids (including permethrin) include butterflies, moths, bees, and ladybugs. They also kill wasps and ants. While we may not appreciate wasps and ants around our homes, they play key roles in our environment. Wasps help control agricultural pests, and ants are important pollinators of native plants.

The marketing strategy used by these companies is brilliant. They tell you what you want to hear ... their spray kills mosquitoes and ticks, and it’s safe for humans and pets. While they don’t lie and say that their product doesn’t kill bees and beneficial insects, they certainly don’t volunteer that information. They only state that they are regulated by Health Canada. Most people who sign up for spraying programs have no idea that the product has any negative effects.

Lakes are often fairly windy locations. A study done by Dr. Karen Oberhauser, an American conservation biologist who has studied Monarch butterflies since 1984, found that on a day with a slight breeze (one to two miles per hour), there was 100% mosquito mortality up to 23 metres from a site where a pyrethroid was sprayed. This suggests that wind can have an influence on how far mosquito sprays are carried. If your neighbour is having their property sprayed, you may be receiving some of that spray as well.

In 2000, the European Union banned permethrin for agricultural use due to concerns about human health and the environment. In 2018, the Pest Management Regulatory Agency of Health Canada (PMRA) re-evaluated permethrin to ensure it met current standards for human health and environmental risks. In 2019, PMRA announced that “most uses” of permethrin products met those current standards “when used according to revised label directions which include new mitigation measures.” This should make us all feel better, but many questions remain.

- While PMRA sets regulations in regards to the product application, who is there to watch that the applicators follow those regulations?
- Is anyone making sure the 15 metres of shoreline aren't being sprayed?
- Are companies spraying on rainy days, and if they do, how quickly does the permethrin run off and reach the water, and what is the concentration of permethrin in that runoff?
- Do we really trust the companies that sell spraying services to responsibly apply their product when they aren't being scrutinized?
- And are the regulations enough to protect the other species that we love so much?

Unfortunately, but understandably, mosquito spraying on personal property has resulted in many neighbour disputes. One person has their property sprayed, and their next-door neighbour doesn't want to live or cottage next door to property that is sprayed.

Mosquito spraying comes down to education and awareness. Although some people would still spray their properties if they knew that it harmed butterflies, bees, and aquatic life, many people would not. The best thing we can do is to learn about the products that are used and spread the word. Tell your neighbours. Tell your friends. There are many other non-toxic ways to deal with mosquitoes and ticks — strategies we have been using for hundreds of years.

To me, it comes down to a philosophical question. Should we really be spraying something that is highly toxic to aquatic life in areas around water solely so that we can go outside in shorts all season long? Or should we consider things beyond our own comforts, put on a pair of pants and a bug jacket, and be grateful that we can enjoy such beautiful places, even with the frustrating and seemingly unending buzz from mosquitos?