

research snapshot

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Changing Mosquito Control Practices Supports Greater Success Managing West Nile in Ontario

What is this research about?

Local municipal government workers in Ontario use similar methods of controlling mosquito populations in rainfall catch basins and these practices have not been locally evaluated. This pilot study looked at the impact of a chemical pesticide (Methoprene) on mosquito populations. More specifically, researchers focused on the order in which pesticide is applied in relation to when basins are annually cleaned. Growing health concerns from the West Nile virus (which is carried from mosquitos) has made this research very important for scientists, municipalities and the public.

What did the researchers do?

In 2005, researchers at York University conducted a study that examined 17 rainfall catch basins, which had annual sediment and organic debris build up, and 20 basins, which were vacuumed clean in the spring season. All basins then received a chemical that is used to reduce adult mosquito populations. An additional five basins were examined that did not receive the chemical treatment. The study lasted 105 days.

What you need to know:

West Nile is a serious public health issue in Ontario. This research shows that in modifying treatments for mosquito populations 6 times fewer mosquitoes survive than traditional approaches. Rather than cleaning and treating catch basins in the spring municipalities should clean catch basins in the fall and treat them with Methoprene in the spring to maximize mosquito control.

What did the researchers find?

The researchers made a prediction that the chemical treatment would have greater success in the cleaned catch basins. However, the findings were completely different. Treated catch basins that were cleaned annually each fall, after mosquito season, and left with their debris in the spring significantly reduced the rate of mosquito population growth. The chemical reacted with the debris in such a way that only 3% of the young mosquito population emerged compared to 20% emerging in basins cleaned in the early spring. They concluded the chemical binds with the organic sediment, allowing the chemical to work longer. The result was lower mosquito emergence rates.

How can you use this research?

This research is very important for provincial and municipal policy makers that are responsible for surface water, mosquito control or public health. The findings present a clear course of action to help reduce the mosquito population resulting from catch basins. While it is recommended that more research occur on this approach, the findings show a simple change in steps (applying chemical versus cleaning basins) can greatly affect the effectiveness of mosquito population control.

About the Researchers

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This summary is developed from a paper co-authored and has been submitted to the Journal of American Mosquito Control Association.

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