

West Nile virus is a health concern to Canadians. Mosquito control programs will reduce populations of disease – carrying mosquitoes. However, poorly designed and implemented programs can degrade wetlands and other aquatic habitats. Responsible and effective mosquito control efforts need to be a part of programs that include:

1. Identification of mosquito breeding habitats.
2. Removal of container breeding habitats like unattended gutters, bird baths, and other water collecting sites in urban areas that are favoured by mosquitoes that carry West Nile virus.
3. Regular monitoring of potential breeding habitats to ensure proper timing of larvicide applications.
4. Confirmation that mosquito species present in a wetland are known carriers of West Nile virus prior to applying larval mosquito control.

Ducks Unlimited Canada has reviewed information available on common mosquito larvicides. A summary of this information follows. Familiarize yourself with the environmental implications of all pesticide applications prior to use. Make environmentally responsible decisions when using any pesticide products in natural habitats including wetlands.

Review of common larvicides used to control mosquitoes in Canada*

INSECTICIDE	HOW IT WORKS	TOXICITY LEVELS		REVIEW OF EXISTING INFORMATION
		Human Health	Animals	
Bti (Bacillus thuringiensis israelensis)**	A naturally occurring soil bacterium that produces a protein crystal during the spore-forming stage of its life cycle Mosquito larvae eat the crystals, which interact with the alkaline environment of their gut to produce toxic protein molecules that destroy the walls of the gut. The larvae stop feeding and die soon after	Little threat to human health	No direct toxicological effect on birds, fish, amphibians and most aquatic invertebrates	Can be applied to permanent water bodies including wetlands with negligible effect on non-mosquito species
Methoprene	An insect growth regulator that prevents larval mosquitoes from developing into adults	Considered to have low toxicity to humans	Not harmful to mammals or birds when used according to product label instructions; slightly to moderately toxic to warm and cold water fish; highly toxic to freshwater, estuarine and marine invertebrates.	Not recommended for use in wetlands because it is toxic to some wetland species Use in storm drains, catch basins and other artificial aquatic habitats should be monitored to ensure rivers and streams are not contaminated after heavy rains
Diflubenzuron	Prevents production of the substance that creates invertebrates' hard shells, leaving them unprotected	Considered to have low toxicity to humans	Considered to be relatively nontoxic to small mammals, birds, and fish; highly toxic to freshwater, estuarine and marine invertebrates	Not recommended for use in wetlands because it is highly toxic to some wetland species
Chlorpyrifos	Disrupts normal nervous system functions, kills insects through direct contact or ingestion	Depending on the formulation, can be slightly to highly toxic to humans	Reported to be moderately toxic to mammals; highly toxic to birds, fish and aquatic invertebrates	Not recommended for use in wetlands because it is highly toxic to wetland species

* Information has been compiled from Health Canada's Pest Management Regulatory Agency (PMRA). The products listed on this sheet are only allowed for larval mosquito and black fly control in aquatic habitats. In Canada, PMRA restricts the sale of most products registered for larval mosquito control to applicators who are trained to use them. Most provinces require applicators to be certified in the use of restricted class products. Provinces may also regulate the sale, use, storage, transportation and disposal of these products and require appropriate permits and public notification before larvicides can be applied to aquatic habitats.

** Common trade names include VectoBac, Aquabac and Teknar.

For more information on chemicals for mosquito control contact the Pest Management Regulatory Agency at 1-800-267-6315 or visit their website at www.pmra-arla.gc.ca/