

**FIGHT  
THE BITE!**

# GRAND FORKS MOSQUITO CONTROL



## INTEGRATED PEST MANAGEMENT (IPM) MOSQUITO CONTROL



Larviciding

### DOES GRAND FORKS MOSQUITO CONTROL EMPLOY IPM (INTEGRATED PEST MANAGEMENT) STRATEGIES?

- Yes, Grand Forks maintains an IPM mosquito control program. Strategies employed through this program are designed to reduce the risk of mosquito-borne diseases and reduce the nuisance level of mosquitoes. But this doesn't mean we'll have a mosquito free summer. The mosquito population is directly proportional to the amount of rain we receive. More rain means more mosquitoes. No mosquito control program can safely eliminate mosquitoes. Throughout the summer, there may be areas where mosquitoes are bothersome, especially during early morning and evening hours when mosquitoes are normally more active. If you experience times like this, we recommend you apply a mosquito repellent that contains DEET and/or wear protective clothing. Repellents containing DEET are one of the safest, most

effective repellents available. DEET repellents are also suggested for children as young as 2 months old. Please, do not believe the myth that DEET is bad for you.

### WHY DOESN'T THE CITY JUST SCHEDULE SPRAYING ONCE EVERY WEEK?

- The decision to spray mosquitoes in populated areas can be a sensitive issue. Some residents would like to see us spray a couple times a week while others don't want us spraying at all. To balance this issue and stay in accordance with an IPM program, we established thresholds. These thresholds are based on specific information collected from our surveillance division. Several factors are considered before making spray/no spray decisions. Some of these factors include the mosquito population, species composition, mosquito-borne disease activity, community events, weather conditions, and environmental factors. Spraying mosquitoes should never be done on a scheduled basis. It should be triggered by some type of surveillance. Spraying on a recurring basis is a waste of money and it needlessly kills beneficial insects. Service requests and public complaints can be helpful, but they do not provide sufficient justification to spray. Service requests and complaints generally result with increased surveillance by our staff.

### HOW MUCH DOES IT COST TO SPRAY THE CITY?

- Adult mosquito control (aka fogging) is probably the most visible part of a mosquito control program. But this is a very small part of an IPM mosquito program. Adult mosquito control is rather inexpensive. The cost to ground spray the city of Grand Forks is about .25 cents per acre. About 5 percent of the annual budget is spent on fogging. Most of the daily work for mosquito control is involved with larviciding and surveillance. The majority of the mosquito control staff spend their day inspecting and treating mosquito habitat with larvicides or collecting, identifying and testing mosquitoes for West Nile virus. Larvicides are designed to destroy the mosquitoes before they can become flying adults. A comprehensive larvicide program has proven to be one of the best ways to reduce mosquito-borne diseases and reduce the population of nuisance mosquitoes.



Fogging

### HAS GRAND FORKS EVER HAD A YEAR WHEN THEY DIDN'T NEED TO FOG FOR MOSQUITOES?

- Yes, since implementing the comprehensive mosquito control program in 1995, Grand Forks has had two years in which they did not reach the threshold limit that would trigger city-wide mosquito spraying. This was during the 2006 and 2012 seasons. Both years were somewhat dry, leaving us with below average rainfall and below average mosquito counts throughout the summer. On average, the City conducts city-wide ground spraying about 12 times per year. During the 2002 season (wettest summer on record) Grand Forks Mosquito Control conducted 24 city-wide ground sprays.

### IS THE MOSQUITO SPRAY HARMFUL AND DO I NEED TO STAY INSIDE WHEN THEY SPRAY?

No, when applied according to label instructions this spray will not harm people, pets, animals, or the environment. This public health pesticide is designed for use in residential and recreational areas. You are not required to leave an area when the sprayer goes by but you may want to avoid or minimize your contact with the cloud of droplets as it passes. If you prefer to stay inside with your windows and doors closed during the spray that's fine, but it's not necessary. Grand Forks Mosquito Control employees are trained and certified in the public health category as commercial pesticide applicators.



Testing birds for West Nile virus



Mosquito Identification



Identifying & Counting Mosquitoes

For more information about mosquito control visit our website at [www.gfmosquito.com](http://www.gfmosquito.com)

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## EVIDENCE BASED MOSQUITO SPRAYING

### SURVEILLANCE FIRST

Grand Forks Mosquito Control (GFMC) employs an active mosquito surveillance program. Daily activities include collecting and identifying mosquitoes and conducting West Nile virus tests on mosquitoes and birds. Traps are distributed throughout the community and outlying areas. Information gained from these traps help determine the need for adult mosquito control (fogging).

### HOW FAST SHOULD THE VEHICLE BE DRIVING WHEN SPRAYING?

The recommended speed for spraying is 5 - 20 mph. GFMC sprayers are equipped with variable flow technology; this system adjusts the application rate based on the speed of the vehicle. Therefore, the application rate stays the same. Speed does not have a major effect on the efficacy of the spray as long as we're within 5 - 20 mph. When we conduct aerial spraying the insecticide is applied at 200 - 230 mph. Research has indicated an increased mortality rate when increasing travel speed. GFMC monitors the vehicles and sprayers with GPS tracking systems. This GPS system records several data points including location, speed, sprayer output, and more. GFMC sprays alleys at 10 mph and hard-surface roads around 15 mph.



### WHAT PRODUCTS ARE SPRAYED?

GFMC use ultra-low volume sprayers that deliver very small droplets and about 1-1.2 oz of a diluted, non-residual insecticide per acre. This public health pesticide (a.i. Permethrin or Etofenprox) is designed to kill mosquitoes. Because we use such a small amount of pesticide, proper timing and good weather conditions are essential to having a successful spray. The pesticide must directly impact mosquitoes, generally while in flight to be effective. If the mosquitoes are resting in the bushes or in the grass, they may not receive a lethal dose of spray. Once the droplets reach the ground, they are no longer effective for killing mosquitoes.



### HOW DOES THE CITY MONITOR THE MOSQUITO POPULATION?

GFMC uses a combination of surveillance techniques to monitor adult mosquitoes. New Jersey light traps are used throughout the city to help determine the average population and species composition. Mosquitoes are collected, counted, and identified, and the average trap counts are reported on our website ([www.gfmosquito.com](http://www.gfmosquito.com)). This information is frequently picked up by local media outlets and relayed to the public via radio, newspaper, and TV. Rotator traps are also used to help identify the time when mosquitoes are most active. Information gained from the rotator traps help us determine the best time to spray, thus improving the effectiveness of the spray application. CO2 baited traps are also used throughout the district to monitor and collect mosquitoes. The *Culex tarsalis* mosquitoes, which are most common for transmitting West Nile virus (WNV), are collected, and tested for WNV in our lab.

### PROTECTION TIMES FOR TESTED MOSQUITO REPELLENTS

PRODUCT	Active Ingredient	Avg. Protection Time
OFF! Deep Woods	23.8% DEET	5 hours
Sawyer Controlled Release	20% DEET	4 hours
OFF! Skintastic	6.65% DEET	2 hours
Repel Lemon Eucalyptus	Oil of eucalyptus; p-menthane 3, 8-diol (PMD)	2 hours
Bite Blocker for Kids	2% Soybean Oil	1.5 hours
OFF! Skintastic for Kids	4.75% DEET	1.5 hours
Skin-So-Soft Bug Guard+	7.5% IR3535	23 minutes
Natrapel	10% Citronella	20 minutes
Green Ban for People	10% Citronella, 2% peppermint oil	14 minutes
Buzz Away	5% Citronella	14 minutes
Skin-So-Soft Bug Guard	0.1% Citronella	10 minutes
Gone Original Wristband	9.5% DEET	0
Repello Wristband	9.5% DEET	0
Gone+ Repelling Wristband	25% Citronella	0

For more information about mosquito control visit our website at [www.gfmosquito.com](http://www.gfmosquito.com)