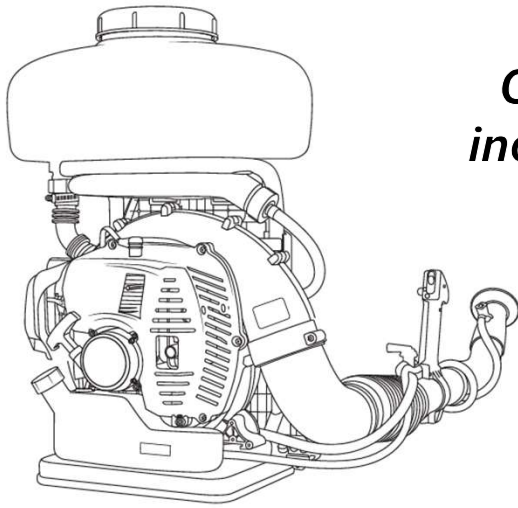




Current concerns from the increase of backyard tick and mosquito treatments

Pamela J. Bryer, PhD | Agrichemical Toxicologist

October 14, 2025



1



2

Drift basics

3

Offsite movement

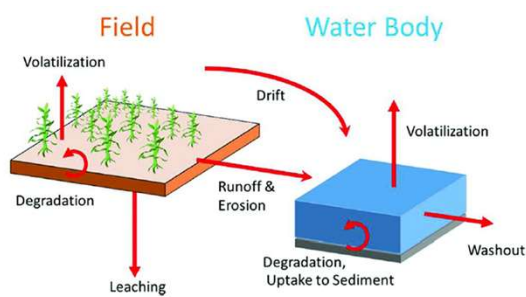


Figure 1. The USEPA conceptual model for pesticide fate and transport to surface water.



4

Sometimes it is obvious when drift doesn't happen



5

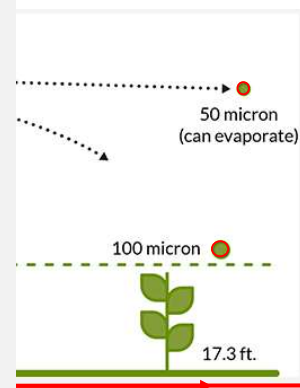
Major route of exposure -drift

Droplet measurement terms:

Microns vs Micrometers?

microns = micrometers = μm

(also, micrometer is a millionth of a meter while a millimeter is a thousandth of a meter)

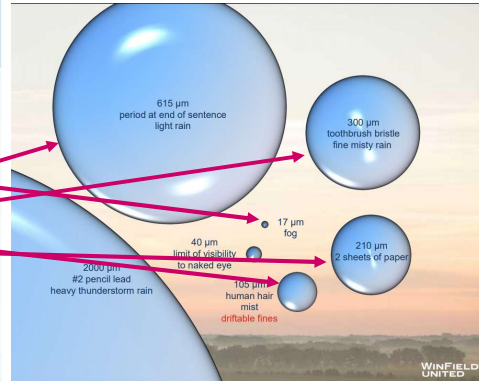


6

How far will particles go?

Droplet	Diameter in microns	Time to fall 10 feet	Travel distance in feet in an 8 MPH wind
Fog	5	66 minutes	15,840 feet
Very Fine	20	4.2 minutes	1,100 feet
Fine	100	10 seconds	44 feet
Medium	240	6 seconds	28 feet
Coarse	400	2 seconds	8.5 feet
Fine Rain	1,000	1 second	4.6 feet

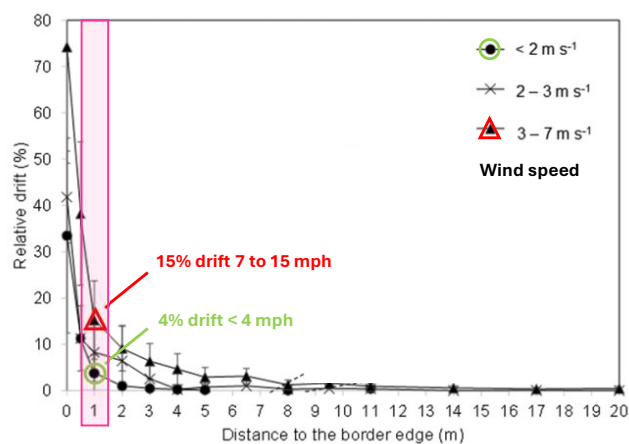
Source: Herbicide Spray Drift, NDSU Extension



7

3 feet away
from target

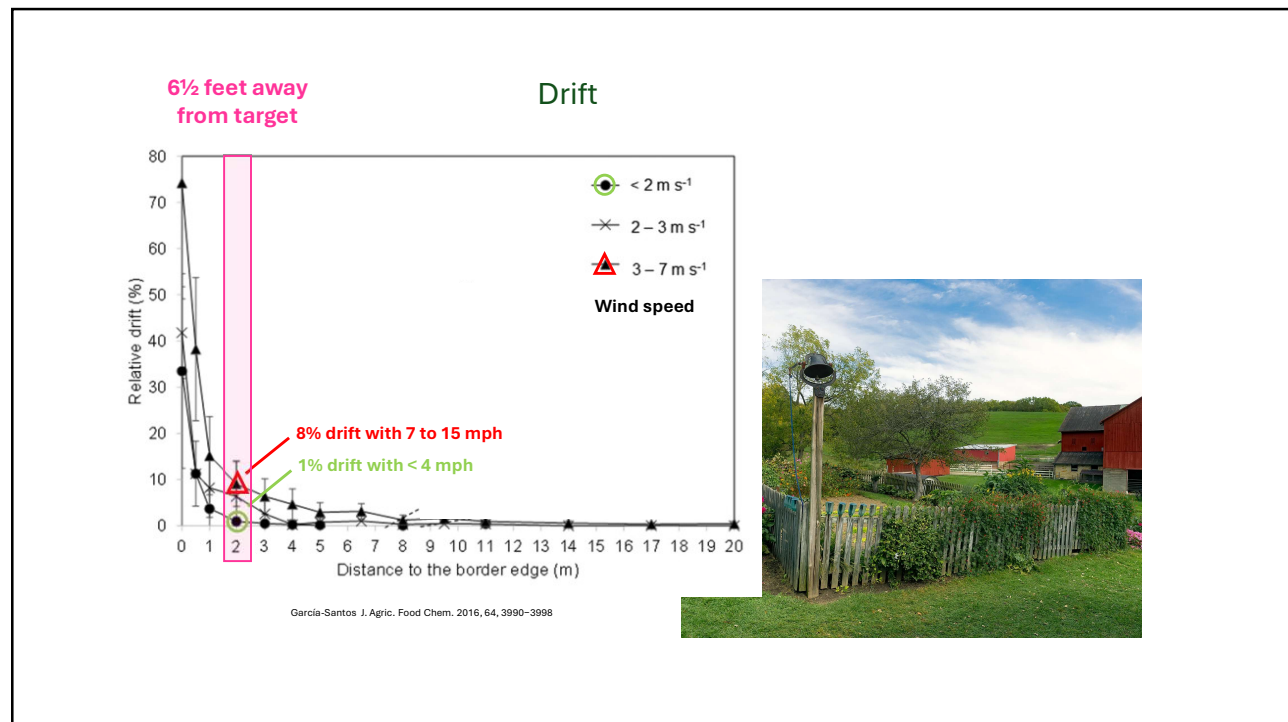
Drift



García-Santos J. Agric. Food Chem. 2016, 64, 3990–3998



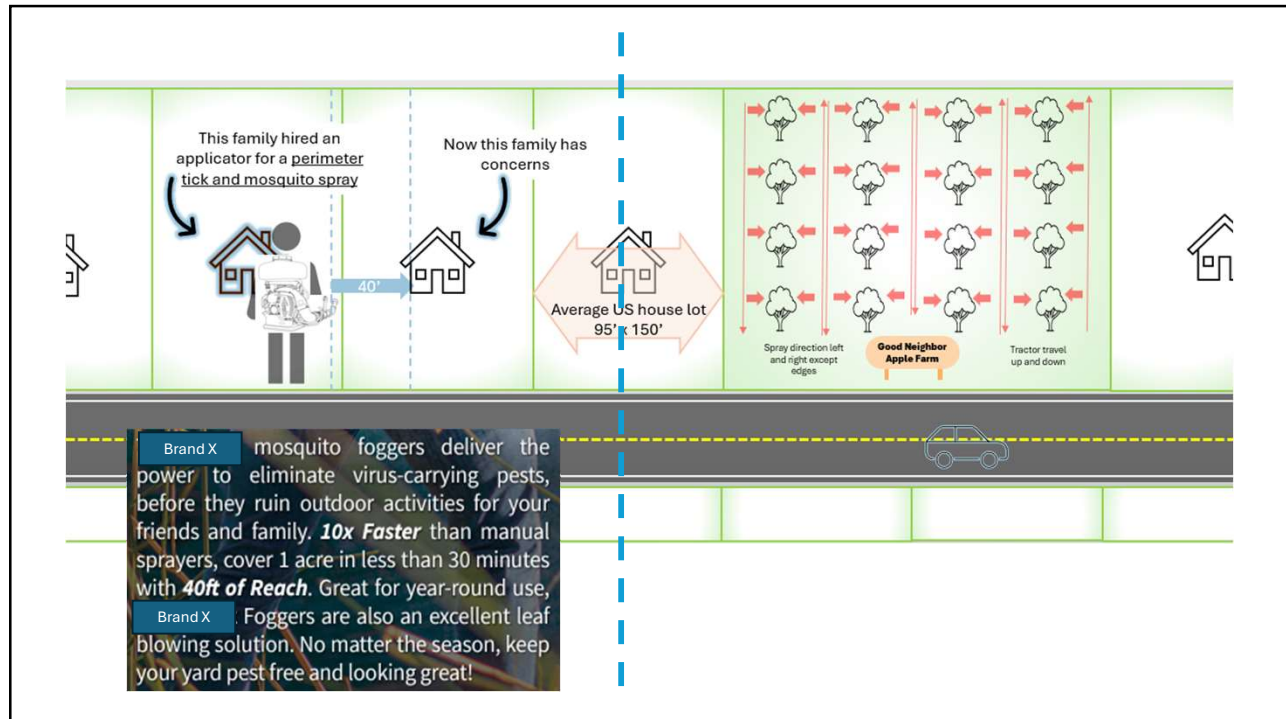
8



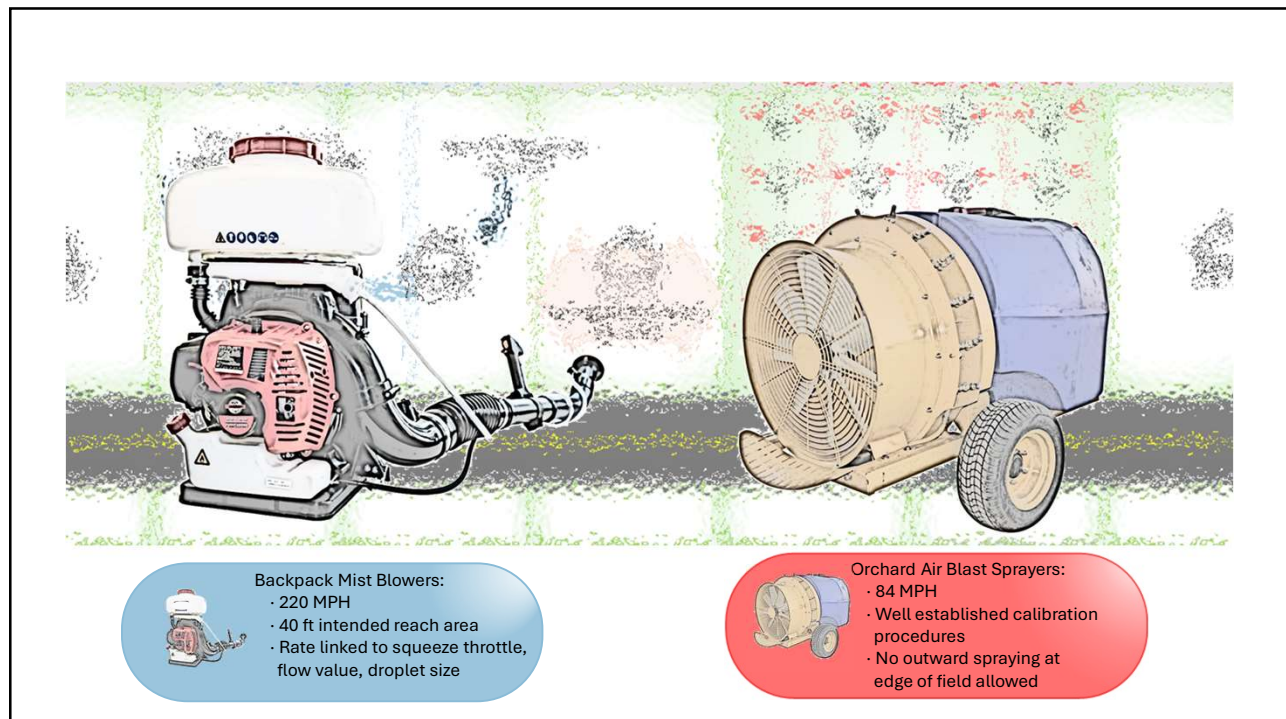
9

Target to neighbor drift

10



11



12

Biflex® SFR

Termiticide/Insecticide

For use by commercial applicators to control pests on lawns and ornamental plants.

For use by individuals/firms licensed or registered by the State to apply termiticide products. States may have more restrictive requirements regarding qualifications of persons using this product. Consult the structural pest control regulatory agency of your State prior to use of this product.

EPA Reg. No. 279-3177

Active Ingredient:
Bifenthrin*.....
Other Ingredients**.....

By Wt.
23.4%
76.6%
100.0%

*Cis isomers 97% minimum, trans isomers 3% maximum.
**Contains petroleum distillates.

Biflex® SFR termiticide contains 2 pounds active ingredient per gallon.

See other panels for additional precautionary information.

ACCEPTED

APR 10 2018

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 279-3177

FMC

FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia PA 19103

Net Contents

Ticks etc.

3/4

RESTRICTED USE PESTICIDE

Due to toxicity to fish and aquatic organisms. For retail sale to and use only by Certified Applicators, or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

BIFENTHRIN GROUP 3A INSECTICIDE

BRIGADE®

WSB

INSECTICIDE / MITICIDE

EPA Reg. No. 279-3108

Active Ingredient:
Bifenthrin*.....
Other Ingredients:.....

By Wt.
10.0%
90.0%
100.0%

*Cis isomers 97% minimum, trans isomers 3% maximum.
This product contains 0.05 lb ai per bag (8 oz formulated product).

If Swallowed:	- Have person sip a glass of water if able to swallow. - DO NOT induce vomiting unless told to do so by a poison control center or doctor. - DO NOT give anything by mouth to an unconscious person.
If Inhaled:	- Move person to fresh air. - If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. - Call a poison control center or doctor for treatment advice.
If in Eyes:	- Hold eye open and rinse slowly and gently with water for 15-20 minutes. - Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. - Call a poison control center or doctor for treatment advice.
If on Skin or Clothing:	- Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. - Call a poison control center or doctor for treatment advice.

HOTLINE NUMBER
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information.

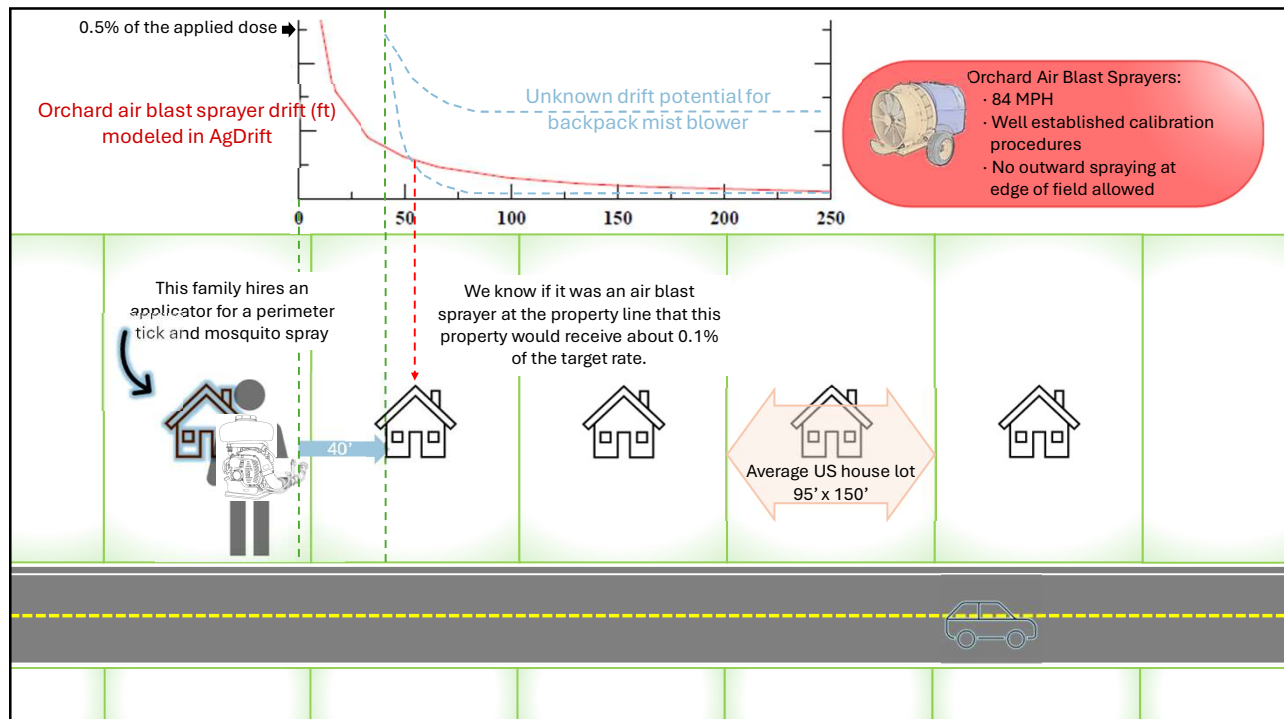
NOTE TO PHYSICIAN
This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

Sold By
FMC Corporation
2929 Walnut Street

Pome & stone fruits etc.

D-4746 111523

13



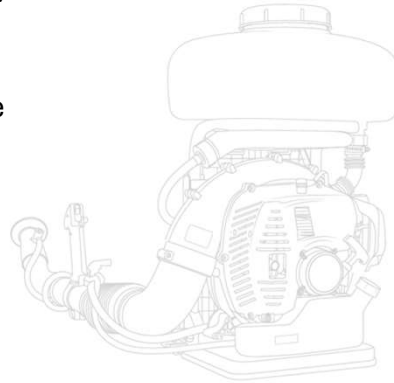
14

What do labels say about the application?

Common label language aimed at target property:

- “Stay out of the area until the product has dried.”
- “Remove pet bowls from application area.”

Who makes sure neighbors are following the same appropriate precautions?



15

EQI Efforts

Summary Sheet on Needed Label Changes for Products Used in Backpack Mist Blowers

February 2025

The issue in a nutshell:

“Unlike product labels for agricultural use pesticides regulated under the federal Worker Protection Standard (WPS), residential use pesticide label directions do not include restrictions that protect non applicator humans from direct exposure from spray or drift. Likewise, residential use product labels do not have requirements designed to protect humans or pets from exposure to drifted upon surfaces before the drift residues have dried. Intentionally treated target areas are addressed on labels but drifted upon nontarget areas are not. The significance of human and pet exposures through direct drift or contact with wet nontarget areas has become a greater concern now that application technologies are being used that have a greater potential to drift.” [SEIRG Issue Paper, Mosquito Adulticide Mist Blower Use in Residential Settings, September 2023.](#)

Recommended label language:

1. “Do not apply this product in a way that will contact any person or pet either directly or through drift.”
2. “Keep adults, children, and pets away from treated surfaces until the targeted areas and their surroundings are completely dry.”
3. “Do not apply this product in a manner that allows spray to drift to adjacent off-target areas.”

In fact... [EPA] “recommends that product manufacturers consider voluntarily adding or amending label use directions to include mister-specific application rates and use directions on products where such equipment is intended for use.” [EPA Response, Mosquito Adulticide Mist Blower Use in Residential Settings, April 2024.](#)

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16

Public health vector programs vs backyard treatments on concerns of resistance developing

Community-Supported Program		Residential Program
Managed by public agency	Often public process; consideration of resistance	Managed by commercial business
Program paid by public funds		Program paid by property owner
Focused on controlling disease	Typically, a public health focus	Focused on nuisance biters
What is best for the community		What is best for the customer
Larval control a priority		Larval control often left to the customer
Adult mosquito control		Adult mosquito control
Treatments over larger areas	More likely to be impacted by patchwork of scattered treatments	Treatments on single property
Control flying mosquitoes		Treat mosquito resting sites
Non-residual insecticides control adults and last about a day		Residual insecticides last weeks

17

BMPs

18

Purdue created an excellent BMP guide

<https://ag.purdue.edu/department/extension/ppp/ppp-publications/ppp-149.pdf>



19

Avoid treating:

- Blooming plants
- Food crops in gardens
- Fruit trees
- Outdoor railings
- Chairs and tables
- Picnic tables
- Mowed turf
- Swimming pools
- Cattails along ponds
- Bird feeders
- Bird baths
- Playground equipment
- Beehives
- Children and pet toys
- Pet resting areas
- Outdoor kitchens
- Basement window wells
- Windows and doors
- Pond edges
- Screened enclosures
- Ornamental ponds
- Water gardens

20

Consider using drift cards to check coverage



(Left) Spraying near the plant's base shows good coverage. (Right) An area around a brush line shows no penetration when the application was made too far from the base.



The many blue dots on the paper show good coverage from spraying near the plant's base. The water-sensitive card inside this tree shows no insecticide spray penetrated the interior. The difference between the coverage was the distance away from what was being sprayed; the further away, the less coverage within the plant's interior.

21

Survey the area on foot, ask the homeowner questions



Landscapes that provide plenty of shade, water, food, and hiding places allow mosquitoes to reproduce in large numbers.

22

Use alternative equipment as needed



A typical backpack is not very effective for adult mosquito control, because the drops are too large to coat the leaves. A backpack might be useful to treat the boundary between two properties because the larger droplets pose less risk for off-target movement of the insecticide.

23

Look over the fence during your walk around



A neighbor's pollinator garden and swimming pool next to your customer's property will require special attention when making an application with a backpack mist blower.

24

Unsuitable mosquito habitat –does it need to be sprayed?



25

But they love under decks! –check labels to confirm



Adult mosquitoes can find suitable resting places under decks.

Applying insecticides into managed turf wastes material and time because adult mosquitoes do not find this a suitable habitat.

26

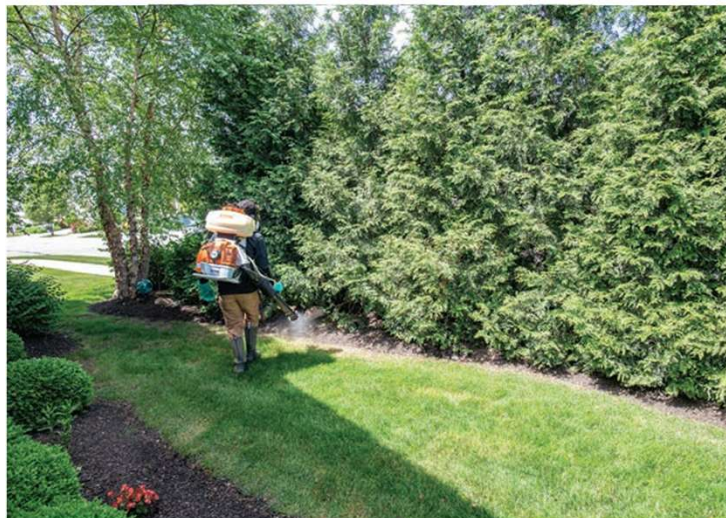
Spray towards the target property



Keep the sprayer mist blowing toward the customer's property when you are treating in tight places — like this example between houses separated by only a few feet.

27

Spray towards the target property



28

Check for the breeding pockets



Homeowners might be unaware their gutters are clogged. Point it out if you see it. Broken gutters can be full of standing water and a major source of biting mosquitoes.



Tires also help mosquitoes survive the winter and ready to reemerge in the spring to ruin someone's backyard enjoyment.

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Thank You!

Contact: Pam Bryer
pam.bryer@vermont.gov

 **VERMONT**
 AGENCY OF AGRICULTURE, FOOD & MARKETS

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