



SFIREG

State FIFRA Issues Research and Evaluation Group

SFIREG Issue Paper:

Mosquito Adulticide Mist Blower Use in Residential Settings

Background:

Pesticide applications to manage mosquitos have been occurring in many states throughout the U.S. for decades. Many of these applications are made under the direction or guidance of state or local public health agencies attempting to reduce populations of disease carrying mosquitos. Most of these pesticide applications are conducted on a community-wide or area-wide basis, are intended to protect or benefit the public at large and are subject to public oversight and accountability.

By contrast, commercial for-hire pesticide applications made to individual residential properties to reduce the incidence of biting mosquitos for the property owner is a more recent practice. This for-hire service is increasingly being provided by structural pest management professionals, lawn and landscape applicators, and newer commercial businesses that focus solely on residential mosquito management. While there may be some ancillary public health benefits to the community by applying pesticides for mosquito management on individual private residential properties, the primary beneficiary of such services is the property owner. The commercial applicators are accountable almost exclusively to the individual property owners that hire them.

Issues Identification:

Public Concerns

As pesticide applications for mosquito control in residential neighborhoods have become much more common over the last decade, so have associated complaints filed with pesticide state lead agencies (SLAs). Complaints from the public are often filed by residential neighbors concerned about drift from the target site to their adjacent non-target property. Concerns include potential direct exposures and indirect post-application exposures to humans, pets and to managed and visiting pollinators. Complaints also include concerns about protection against chemical trespass and protection of personal property rights.

Adequacy of Current Application Methodology and Technology Risk Assessments

Most insecticides currently being used for adult mosquito control are being applied through power mist blowers <https://www.pctonline.com/article/backpack-mist-blowers-for-mosquito-control/>. According to various product specifications, the general applicator is equipped with a backpack type machine that is a two-cycle gasoline powered mist blower that can deliver up to 1.2 gal/min, of 52-70 micron spray droplets, at 230 mph, producing 805 CFM, up to 39 feet horizontally and 32 feet vertically. It is unclear to most SLA investigators how those application specifications might relate to maximum psi spray pressures listed on some of these mosquito labels. However, at least one power blower/mister web site claims that up to 300 psi is generated by this application equipment. Numerous complainants have shared with SLAs video of drifting spray particles visibly blasting through property-line vegetation considerable distances onto their property. Pressurized misting systems that are built into the exterior of houses, yard buildings, animal barns and stalls, and along property boundary fencing systems are also very common. Although these systems are different than mist blowers, they can also result in drift issues to nearby properties as they're often automated and on timers.

The U.S. EPA has confirmed that drift assessments of mist blower applications for residential use are not conducted, as there is currently no accepted spray drift assessment model for the type of equipment used in a residential setting. However, the Agency has expressed that post-application exposure and risk assessments currently utilized for other exposure scenarios of the same active ingredients are adequate to address post-application exposures resulting from power misters.

Adequacy of Product Labeling

In responding to and investigating complaints of alleged pesticide exposure or off-target drift, SLAs have struggled with determining whether the applications are legal or illegal. The U.S. EPA has suggested that the approach used for risk assessment assumes that applications will not result in direct exposures to individuals, since such contact would constitute a misuse, and many labels for residential mosquito control products include a general use restriction such as, "Do not apply this product in a way that will contact any person or pet either directly or through drift."

Although many insecticides, primarily synthetic pyrethroids, now have mosquitos listed on their labels as an intended target pest, the use directions and restrictions for mosquito control are confusing, minimal, or completely nonexistent.

An examination of commonly used residential adulticide product labels has revealed the following:

1. Suspend SC (EPA Reg. No. 432-763) deltamethrin
 - a. Do not allow people or pets to contact treated areas until spray has dried.
 - b. No reference to direct exposure from spray or drift.
2. Talstar P (EPA Reg. No. 279-3206) bifenthrin
 - a. Do not apply when wind speed exceeds 10 MPH.

- b. Do not allow people or pets on treated surfaces until the spray has dried.
 - c. Let surfaces dry before allowing people or pets to contact treated surfaces.
 - d. No reference to direct exposure from spray or drift.
3. Cyzmic CS (EPA Reg. No.53883-389) lambda-cyhalothrin
 - a. Do not allow children or pets to contact treated surfaces until spray has dried.
 - b. Let surfaces dry before allowing people or pets to contact treated surfaces.
 - c. Do not make outdoor broadcast applications to turf and ornamentals when wind speed is 15 mph or greater.
 - d. No reference to direct exposure from spray or drift.
 4. Demand CS (EPA Reg. No. 100-1066) lambda-cyhalothrin
 - a. Let surfaces dry before allowing people or pets to contact treated surfaces.
 - b. Do not make outdoor broadcast applications to turf and ornamentals when wind speed is 15 mph or greater.
 - c. No reference to direct exposure from spray or drift.
 5. Archer Insect Growth Regulator (EPA Reg. No. 100-111)
 - a. Do not allow adults, children, or pets to contact treated surfaces until area treated has completely dried.
 - b. No reference to direct exposure from spray or drift.

Summary of Regulatory Protections

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. In attempt to address apparent shortcomings in the current risk assessment and product labeling mechanisms, some states are being encouraged or forced to attempt to provide protections through state-by-state regulatory or supplemental training activities designed specifically for the growing residential mosquito control industry. A recent example of state legislation to address the barrier mosquitocide issue is the state of Illinois and the Illinois General Assembly bill from the 2023 assembly session: [Illinois General Assembly - Full Text of Public Act 102-0916 \(ilga.gov\)](#).

Proposed Resolution or Remedy:

SFIREG urges U.S. EPA to identify a plan to expeditiously provide the same protections from pesticide exposure for nontarget humans and pets as those currently afforded agricultural handlers and workers under the WPS. Specifically, the following use directions and restrictions should be added to residential mosquito control product labels or to all residential product labels that allow application technologies that result in drift and off-target application:

1. “Do not apply this product in a way that will contact any person or pet either directly or through drift.”
2. “Do not allow adults, children, or pets to contact pesticide exposed surfaces until target treatment and adjacent areas have completely dried.
3. “Do not apply this product in a manner that allows spray to drift to adjacent off-target areas.”

Issues, Resolvability, Timelines, and Collaborators

Issues	Resolvability/Priority	Timeline	Collaborators
<p><u>EPA to evaluate the regulation of mosquito mist blower applications in homeowner and other establishments where human and animal exposure is likely:</u> SFIREG urges EPA to expeditiously review regulatory responsibility and authority to provide the same protections from pesticide exposure for nontarget humans and pets as those currently afforded agricultural handlers and workers under the WPS.</p>	<p>High priority and in need of immediate action. The resolvability should be reasonable and viable.</p>	<p>6 months</p>	<p>EPA</p>
<p><u>Product Regulation</u> SFIREG urges EPA to address the gap and lack of comprehensive regulation of the application outlined and to review and consider the SFIREG issue paper recommendations for specific use directions and restrictions that should be added to residential mosquito control product labels, or all residential product labels that</p>	<p>High priority and in need of immediate action. The resolvability should be reasonable and viable with existing science and review mechanisms, with the possible issue of the increased workload becoming a concern due to the current registration review work and the existing documented need for additional EPA staff.</p>	<p>6 months</p>	<p>EPA</p>

<p>allow application technologies that result in drift and off-target application. Other potential regulatory language could be developed cooperatively with SFIREG.</p>			
<p><u>EPA to address national consistency</u> SFIREG urges comprehensive and consistent messaging and enforcement to better address the issues and take immediate action.</p>	<p>High priority and in need of immediate action. The resolvability should be reasonable and viable.</p>	<p>6 – 12 months</p>	<p>EPA, EPA Regions</p>

References

https://oisc.purdue.edu/pesticide/iprb/iprb_170_residential_mosquito_control_072022.pdf
<https://ag.purdue.edu/department/extension/ppp/ppp-publications/ppp-149.pdf>
https://oisc.purdue.edu/pesticide/iprb/iprb_169_mosquito_mist_blower_issue.pdf
<https://www.pctonline.com/article/backpack-mist-blowers-for-mosquito-control/>
[Illinois General Assembly - Full Text of Public Act 102-0916 \(ilga.gov\)](https://www.ilga.gov/legislation/publicacts/102/09/102-0916.htm)