

Northeastern IPM Center – IPM Partnership Grants – 2010 – Proposal

2. Project Description

PD: Jane Malone

Project Title: Reducing Fogger Use and Increasing IPM in Rental Housing in Washington DC and Baltimore MD and throughout the Northeast Region

Project Type: IPM Issue

2. b. Project Summary. Excessive use of foggers and other pesticide products to combat cockroaches is the hallmark of outdated pest control strategies plaguing tenants with pest infestations in multifamily or attached dwellings in older cities. To address the misuse of pesticides comprehensively, important projects have engaged tenants, landlords, and pest control personnel in a simultaneous nexus to implement IPM. Fostering awareness of IPM by low-income tenants (who have low literacy skills, many demands for their attention just to make ends meet and keep their children in school, and limited mobility in the housing market) can start by educating them on how to reduce pesticide exposure pending building-wide practices and city-wide policies: cease fogger use and refuse to allow foggers or other liquefied products in or near their homes. The project will launch and sustain the Regional Fogger and IPM Awareness Campaign to educate tenants, property owners, pest control operators and other stakeholders in Baltimore and Washington about the health threats from exposure to pests and pesticides, the dangers of foggers and other liquefied formulations, and the merits of IPM. The Campaign will deliver targeted IPM education to 1000 tenants and 40 stakeholders, through tenant meetings, service provider outreach, and IPM training. The Campaign will also conduct policy and media briefings to spark systems change, and host regional meetings to advance the NE IPM work group on housing.

c. 1. The Challenge. Pest infestations spread disease, cause building damage and are hazardous to respiratory health. Exposure to material left behind by rodents can exacerbate asthma and otherwise create allergic reactions in sensitized persons. Studies of asthma among inner-city children have found that nearly 20 percent of asthmatic children were sensitized to rats, 15 percent were sensitized to mice,¹ and 69% were sensitized to cockroaches.² Cockroach debris, such as saliva, body parts, droppings and shells that have been shed, is a particularly potent asthma trigger. The most comprehensive study to date looking at the home environment as it relates to children's asthma found those who were both allergic to cockroach allergen and exposed to high levels of cockroach allergen were three times more likely to be hospitalized due to asthma exacerbation.³ A study to determine the prevalence of cockroach allergen (Bla g 1)⁴

¹ Characteristics of inner-city children with asthma: The National Cooperative Inner-City Asthma Study. Kattan M, Mitchell H, Eggleston P, Gergen P, Crain E, Redline S, Weiss K, Evans R III, Kaslow R, Kercksmar C, et al. *Pediatr Pulmonol* 24:253-262 (1997).

² Inner City Asthma Study: Relationships among sensitivity, allergen exposure, and asthma morbidity. *Journal of Allergy and Clinical Immunology*, Volume 115, Issue 3, Pages 478-485 R. Gruchalla, J. Pongracic, M. Plaut, R. Evans III, C. Visness, M. Walter, E. Crain, M. Kattan, W. Morgan, S. Steinbach

³ The role of cockroach allergy and exposure to cockroach allergen in causing morbidity among inner-city children with asthma. D. L. Rosenstreich et al. *New England Journal of Medicine* 1997;336(19):1356-63.

found that concentrations exceed 2.0 U/g, a level associated with allergic sensitization, in 11% of U.S. living room floors and 13% of kitchen floors, and that concentrations exceeding 8.0 U/g, a level associated with asthma morbidity, are present in 3% of living room floors and 10% of kitchen floors. The nationally representative sample revealed that elevated concentrations were observed in high-rise apartments, urban settings, pre-1940 constructions, and households with incomes < \$20,000, and that the odds of having concentrations > 8.0 U/g were greatest when roach problems were reported or observed and increased with the number of cockroaches observed and with indications of recent cockroach activity. In a recent survey of 789 tenants in Washington DC, 14% reported severe infestation by cockroaches, 16% reported moderate infestation, and 27% indicated that they saw “just a few” cockroaches.⁵ Yet there is a severe gap in terms of effective responses to these infestations: half of the tenants have used more than the recommended amount of various pesticide products, 25% have used foggers, and 8% have observed the property management or a pest control operator using foggers. Although project proponents do not possess similar data for Baltimore, there is anecdotal evidence that widespread sales of, bad information about, and inappropriate uses of ineffective products abound in most urban communities in the northeast region. A systematic approach is needed to alert all consumers, but especially those in multifamily properties and row homes where infestations and ineffective pesticide releases affect more than one household, that fogger and excessive spray pesticide use have limited return in controlling pests with dangerous dividends in terms of bad health effects, poisoning, and even death.

Mainstreaming integrated pest management (IPM) as the standard of care for eliminating and preventing pest infestation is urgently needed, because pest elimination is a public health concern, unwarranted exposure to pesticides as the means to this end is a public health menace, and IPM is a proven and effective approach that minimizes pesticide exposure. Purely private sector rental property owners that manage multifamily dwelling units are unlikely to cease using toxic pesticide products exclusive of other strategies since they lack the systematic scrutiny or federal supports afforded to public housing: an educational approach must be employed to bridge this gap. In Baltimore MD and Washington DC, the target areas for the study, rental housing matches three elements of the four elements in the previously mentioned national survey’s profile for housing at risk of high cockroach level: urban setting, pre-1940 construction, and households with incomes < \$20,000. Relevant and exemplary information is needed to educate tenants, motivate rental property owners to adopt IPM and induce pest control service providers to adhere to an IPM regimen. Tenants, property owners, and pest control personnel alike need basic education in issues such as the relationships between exposures to pests and pesticides and health problems.

One relevant economic consideration in the current housing market is convincing rental property owners with increased vacancies and waning applications that the one-time spike in pest control investments to transition to IPM will be worth the eventually cost savings in terms of fewer PCO visits and fewer complaints/callbacks from tenants. Certainly tenants strapped for cash will welcome the notion that they need no longer buy foggers to protect their families from pests in

⁴ National Prevalence and Exposure Risk for Cockroach Allergen in U.S. Households. R. Cohn, S.J. Arbes, R. Jaramillo, L. H. Reid, D. C. Zeldin *Environ Health Perspect* 114:522–526 (2006).

⁵ *Washington D.C. Pest and Pesticide Survey* D. F. Goldsmith et al., George Washington University, Department of Environmental and Occupational Health, August 2009.

order to compensate for the absence of a systematic building-wide approach supported by the rental property manager and PCO. But a critical premise of the project is that market forces—tenants seeking pest-free housing and rental property owners requesting IPM - can motivate PCOs not yet engaged with IPM to develop qualified capacity and deliver effective IPM.

c.2. Specific NE Stakeholder-Identified Need Addressed. The proposed project is inspired by and directly responsive to the Community IPM Working Group's (IWG) June 2009 agreement that the most important focus within all the areas that it covers is IPM in residential settings. The project is positioned to help fulfill the Community IWG's priorities for using "diverse media to educate the public on implementing IPM in their homes"⁶ and "developing creative tools for measuring the impact of public education related to IPM practices in residential settings on changes in awareness and behaviors of target audience." In order to meet these ends with on-the-ground relevance and strong articulation between service delivery systems, the Alliance has consulted with the Baltimore and DC government agency programs focused on protecting residents from health hazards in their home environments through education, outreach or advocacy strategies, as well as private non-profit service providers and advocacy organizations with similar focus, and engaged them as partners in the project. In addition, the Alliance will convene regional IPM stakeholders from Maryland, DC, Pennsylvania, Delaware, and New Jersey to advance the discussion of regional priorities identified by the IPM in Housing Work Group in December 2009 such as:

Systems/Replication

1. Establishing demonstration sites in each state
2. One representative from each state devoted to IPM in housing
3. Establishing training programs accessible to pest control industry, rental property managers and owners, and others
4. Establishing networks of stakeholders
5. Assessment and recording accomplishments, milestones, evaluations to build recognition

Regulatory

1. State (Department of Health or other agencies) policies
2. Pest Control Industry
3. Housing code
4. Federal policy

Education

1. Basic training for change agents on how to deliver IPM in multi-family housing
2. Training for change agents on demonstrations, setting up coalitions, understanding terminology, motivating key people
3. Media about IPM educating the general public
4. Educate policy makers

c.3. Beneficiaries and Benefits. These include:

- Tenants in privately owned unsubsidized rental housing (and to a lesser extent tenants in publicly subsidized properties that have not yet been reached by HUD's or others' efforts) will gain knowledge that helps them to take self-protective actions to cease exposing themselves and their families to infestations and futilely deployed pesticides by

⁶ With its focus on urban rental properties, the project will make only minor contributions to education strategies influencing IPM on lawns and landscapes.

stopping using such products themselves and asking the landlord to not use toxics unnecessarily and instead adopt effective IPM strategies;

- Rental property managers will gain knowledge that helps them to stop wasting scarce human and contractual resources on ineffective pest control strategies and to stop exposing themselves and their employees to futilely deployed pesticides by adopting effective IPM strategies;
- Pest control operators will gain knowledge that helps them to stop exposing themselves and their employees to futilely deployed pesticides by adopting effective IPM strategies;
- Government agencies, policymakers, advocates, and other stakeholders will amass expertise and credibility to take IPM to scale and protect public health/the environment,

c.4. Relevant Ongoing and Completed Efforts. Studies have demonstrated the efficacy and long term cost effectiveness of IPM in housing, and that it yields improved health and other benefits: an IPM intervention (including training and intensive cleaning) in a Boston multifamily property occupied by low-income elderly/disabled households reduced the percentage of units with cockroaches from 67% to 0.⁷ The proportion of New York City households whose homes had cockroaches dropped from 80% to 40% after IPM was implemented.⁸ The in-home interventions from IPM and intensive cleaning improved respiratory health for Virginia children who were asthmatic and presented with allergies to multiple indoor allergens including cockroaches.⁹ HUD's Healthy Homes Initiative Paper on Pesticides states: "In addition to reducing the probability of human pesticide exposures, IPM has been credited with greater sustainability in keeping pest populations down (in contrast to extermination-only methods, which typically need to be repeated), and with reducing pesticide release into the environment. IPM also helps to combat the problem of insecticide resistance, which has been documented in cockroaches across many classes of commonly used insecticides."¹⁰

The Alliance works with HUD, EPA, CDC, the Congress, the National Healthy Homes Training Center, and others to support capacity building for IPM and advocate for integrating IPM in the international model codes, has been funded by HUD to conduct an ongoing study of IPM in multifamily properties in Greensboro, NC, and is engaged with advocates in Chicago and Los Angeles in efforts to integrate IPM into practices and policies. Also the applicant developed a policy paper on IPM in housing for the Asthma Regional Council of New England.¹¹

Prior Northeastern IPM Center efforts focused on housing environments can lend valuable experience and be leveraged by the proposed project. Once materials are available, the project will attempt to replicate the Penn State IPM Outreach Campaign (2009-2010) engagement of mass transit systems to secure IPM messages on buses, use the website www.bughelp.org by posting materials, and consider using the project's posters. Also the project will consider the materials produced by Penn State's 2006-2009 project "Design and delivery of IPM outreach

⁷ Integrated pest management in multi-family housing, Asthma Regional Council of New England, 2006.

⁸ Integrated pest management in an urban community: a successful partnership for prevention. Brenner BL, Markowitz S, Rivera M, Romero H, Weeks M, Sanchez E et al. 2003. *Environ Health Perspectives* 111:1649-1653.

⁹ A community-based participatory research study of multifaceted in-home environmental interventions for pediatric asthmatics in public housing. Levy et al, *Social Science and Medicine*, 63:2191-2203

¹⁰ HHI Background Information on Pesticides: Use, Hazards, and Integrated Pest Management; HUD; March 2006

¹¹ *IPM Policy Options for Residential Real Estate (2008)*, Jane Malone, Alliance for Healthy Homes for the Asthma Regional Council, 2008. http://asthmaregionalcouncil.org/uploads/IPM/IPM_Policy_Paper_3-26-08.pdf

programs in low income urban neighborhoods” for use in Baltimore and Washington, as well as Cornell’s 2005-2007 “IPM In and Around the Home” Northeast Guidelines.

c.5. Applicability of the Proposed Approach to Other Regions.

Per the National Road Map for IPM, since the greatest general population exposure to pests and the tactics used to control them occurs where people live, work, and play, and IPM programs for Schools and Public Buildings have already been very successful, expanding IPM to other institutions and residential environments is needed to reduce human health risks posed by pests and the tactics used to manage them, and also reduce or mitigate the adverse environmental effects of pest management practices. The IPM gap is national: all regions are missing . Important efforts to reduce pesticide exposure have been advancing among the nation’s public housing authorities (PHAs), affecting public housing developments, and in other federally assisted properties such as those participating in Mark to Market with HUD’s Office of Affordable Housing Preservation. Unfortunately, the housing units in these subsidized properties comprise only 6% of the nation’s rental housing stock. Most low-income tenants must rely on available units in the purely private rental market, which offers higher rent-burden for largely unregulated properties. Purely private sector rental property owners that manage multifamily dwelling units are likely to continue to use toxic pesticide products exclusive of other strategies since they lack the systematic scrutiny or federal supports afforded to public housing. Educators and advocates in other regions need the tools that this project will develop and demonstrate. In addition, planners and other stakeholders need the opportunity to compare notes, adopt plans, and take the adoption of IPM to full scale in all housing facing infestation or at risk.

d. Objectives and Anticipated Impacts.

1. *Develop and implement the Fogger and IPM Awareness Campaign to educate tenants, property owners, pest control operators and other stakeholders in Baltimore and Washington about the health threats from exposure to pests and pesticides, the dangers of foggers and other liquefied formulations, and the merits of IPM.*
 - a. Deliver targeted IPM education to 1000 tenants and 60 stakeholders in DC and Baltimore through flyers, tenant meetings, health fairs, service provider outreach,
 - b. Deliver IPM training for 50 property owners/managers and pest control operators.
 - c. Provide poster and support for Pesticide Exchange in public housing in Baltimore
 - d. Reach out through key media to institutionalize education for the general public, including bus campaign, utility inserts, cable television coverage, radio ads .
2. *Support stakeholders in planning and educating policymakers to spark systems change and widespread adoption of IPM.*
 - a. Convene regional meetings to advance IPM in Housing work group strategies
 - b. Deliver policy development assistance to key local and state jurisdictions (Washington DC, Baltimore MD, State of Maryland, and others on an opportunistic basis)

The project is positioned to help fulfill the Community IWG’s priorities for using “diverse media to educate the public on implementing IPM in their homes”¹² and “developing creative tools for measuring the impact of public education related to IPM practices in residential settings on changes in awareness and behaviors of target audience.”

We anticipate that impacts relevant to this effort are:

- Replicability – properties, neighborhoods, communities will integrate IPM into practices
- Few new IPM personnel will be employed but those already employed will be able to continue working as their pest control efforts become more successful as a result of our work
- At least 1000 clients would be satisfied with IPM results as a result of reduced pest populations due to more effective pest control
- 2000 educational materials will be delivered to tenants, property owner/managers, PCO’s
- 50 PCOs and property owners/manager will be trained
- Policy efforts will result in increased implementation of IPM strategies in the target jurisdictions and across the Northeast
- The project will neage more stakeholder in collaboration to advance the development and implementation of improved IPM strategies and systems

e. Approach and Procedures.

<i>Objective 1. Develop and implement the Fogger and IPM Awareness Campaign to educate tenants, property owners, pest control operators and other stakeholders in Baltimore and Washington about the health threats from exposure to pests and pesticides, the dangers of foggers and other liquefied formulations, and the merits of IPM.</i>			
ACTIVITY	APPROACH/ PROCEDURES	INTERMEDIATE OUTCOMES	LONG TERM RESULT
1.a. Deliver targeted IPM education to 1000 tenants and 60 stakeholders in DC and Baltimore through flyers, tenant meetings, health fairs, service provider outreach	1. AFHH will develop materials based on existing models. 2. Partners will review/edit. 3. Partners will distribute multiple copies and retrieve self-reports about use of pesticides. 4. AFHH and partners will follow up with a sample of tenants to learn what actions they take.	1000 tenants reached: 500 will stop fogger use and prevent use of pesticides. Tenants will ask landlords to consider IPM. Tenants will seek agency help to resolve problems.	Property owners and managers will adopt IPM. Policy makers will update codes and other policies to require reduced risk strategies in rental housing.
1.b Deliver IPM training for 50 property owners/managers and pest control operators.	1. AFHH will schedule four trainings (2 in each city). 2. Partners recruit trainees. 3. AFHH will conduct the	50 persons trained: 45 will start using IPM or improve their existing IPM strategy.	Trained persons will extend IPM to other properties.

¹² With its focus on urban rental properties, the project will make only minor contributions to education strategies influencing IPM on lawns and landscapes.

	training. 4. AFHH will follow up with trainees to learn what actions they take.		Additional persons seek training.
1.c. Provide poster and support for Pesticide Exchange in public housing in Baltimore	1. AFHH will work with Baltimore City Health to determine message. 2. AFHH will develop poster and other materials. 3. AFHH will attend exchange kick-off events. 4. AFHH will follow up with tenants to learn what actions they take.	12 developments reached: 10 pesticide exchange programs succeed.	Tenants and property owners adopt IPM in these properties. The housing authority adopts IPM throughout the system.
1. d. Reach out through key media to institutionalize education for the general public, through a bus campaign, utility inserts, cable TV coverage, radio ads.	1.AFHH will develop materials based on existing models. 2. Partners will review/edit. 3. AFHH will recruit new partners who can place key messages in electronic, paper, and digital outlets	Members of the general public are routinely exposed to IPM messages including the dangers of foggers.	Public opinion shifts to restrict the use of pesticides-only in housing code and ban sale or use of foggers.
<i>Objective 2. Support stakeholders in planning and educating policymakers to spark systems change and widespread adoption of IPM.</i>			
ACTIVITY	APPROACH/ PROCEDURES	INTERMEDIATE OUTCOMES	LONG TERM RESULT
2.a. Convene regional meetings to advance the IPM in Housing Work Group's strategies	1. AFHH convenes advance call to review objectives 2. AFHH convenes quarterly dialogue meetings (1-2 are face-to-face) 3. Goals set for articulating IPM practice and policy	Stakeholders adopt a regional plan to build capacity of states, PHAs, rental housing market. Stakeholders adopt a public policy agenda.	IPM becomes the standard of care in multifamily housing
2.b. Deliver policy development assistance to key local and state jurisdictions (Washington DC, Baltimore MD, State of Maryland, and others on an opportunistic basis)	1. AFHH reviews current policies and ascertains the interests of communities, key agencies and officials. 2. AFHH provides a policy agenda with menu of options.	Jurisdictions have information about policy options.	IPM is required by federal law or State pre-emption policies are reconsidered.

f. Evaluation Plans.

We will verify that our project objectives have been met by measuring all inputs as well as apparent outcomes and associated impacts that have occurred. Dissemination will drive the key measure involving adoption of the developed strategies. Surveys will be limited to the use of proven instruments by personnel who have conducted such surveys. A Logic Model is attached to cover the complete plan for evaluation.

g. Cooperation, Institutional Units, and Key Personnel Involved.

The Alliance for Healthy Homes will lead all project activities. The Project Director (Malone) will oversee the development of agreements among the partners, document all efforts, and lead the regional planning and policy development efforts. Ralph Scott will anchor the relationships throughout the project, draft outreach materials, model the delivery of services, and deliver IPM training using the curriculum for multifamily housing developed by Penn State and others.

The partners that have committed to participate in the project (letters attached) cover the areas of health, asthma prevention, and the environment:

Allergy Asthma Foundation of America, Maryland-DC chapter (Susan Sweitzer) will pass materials to tenants and others and participate in planning and evaluation

Maryland's state asthma program and coalition (Rachel M. Hess-Mutinda) will disseminate materials and provide opportunities for discussion at meetings and conferences

DC's state asthma program (Edwina Davis) will pass materials to tenants and others and participate in planning and evaluation

Lead Safe DC, a project of the National Nursing Coalition (Harrison Newton) will pass materials to tenants and others and participate in planning and evaluation

DC's Department of the Environment (Pierre Erville) will pass materials to tenants and others and participate in planning and evaluation

Baltimore City Health Department will participate in planning and evaluation as well as regional efforts

Alliance for Healthy Homes – Logic Model for Reducing Fogger Use and Increasing IPM in Rental Housing in Washington DC and Baltimore MD and throughout the Northeast Region

Focus Area: Interior of Dwelling Units and Residential and Common Areas

Impact Area: Health: Indoor Pesticide Use in Rental Dwelling Units

Roadmap Goal: Reduce potential risks to human health from pesticide use through the use of cost effective IPM best management practices

Inputs	Audiences and Activities	Short-Term Knowledge Change	Intermediate Term Behavior Change	Long-Term Condition Change
<p>Money People Time In-kind resources to support information delivery and support</p>	<p>Audiences Tenants Advocacy Groups Building Managers/Staff Government Agencies Baltimore and Wash DC NE Region Federal Extensions General Public Pest Control Operators Policymakers Baltimore and Wash DC NE Region Federal</p> <p>Activities Interagency Cooperation Outreach Education Training Print/Electronic Materials Web Sites Advocacy</p>	<p>-Members of Target Audiences increase awareness of the health effects of exposure to pests - Members of Target Audiences increase awareness of the health and safety risks of exposure from foggers and other pesticides - Members of Target Audiences gain knowledge of lower risk pest control materials and IPM tactics -Building Managers and Pest Control Operators increase knowledge about the need and opportunity to train staff to implement IPM strategies -Tenants, Building Managers, and Pest Control Operators obtain knowledge about DC's exterior pesticide notification law -Agency Staff and Policymakers improve knowledge of IPM's role in reducing pests in indoor environments -Key Stakeholders exchange high-level plans for replicating IPM throughout multi-family housing</p> <p>Possible Measures -Collect baseline data in Baltimore to help measure intermediate- and long-term impacts -Interpret existing DC and Baltimore data that will be used to measure intermediate- and long-term impacts -Use self assessments, pretest/ post-test and follow-up measurement tools to assess changes in knowledge, attitudes, satisfaction, aspirations</p>	<p>-Target Audiences reduce use of foggers and higher risk pesticides -Target Audiences increase adoption of lower risk materials and IPM tactics and practices -Tenants and Property Managers have fewer pest complaints - Tenants accept fewer pesticide inputs and support increased IPM practice - Building Managers and Pest Control Operators have staff participate in IPM training - Tenants, Building Managers and Pest Control Operators increase compliance with DC's exterior pesticide notification law</p> <p>Possible Measures -Measure reduced use/sales of higher risk pesticides -Measure increased adoption and implementation of IPM tactics -Measure increase in number of Target Audiences who adopt IPM practices -Monitor changes in pest sighting complaints - Document tenant requests/support for IPM use --Measure increased government/NGO support or incentive funding, programs and participation -Document number of staff receiving IPM training -Document number of requests for IPM training -Document Target Audience requests/support for IPM --Measure reductions in sales and general use of pesticides by the general public -Document change in number of pest complaints</p>	<p>Reduced exposure to pests and pesticides in privately owned multifamily housing will lead to improved health of those living and working in the indoor environment</p> <p>IPM is integral to building maintenance, housing codes, code enforcement, and state and federal pesticide policy</p> <p>The sale, manufacture, and use of foggers are banned</p> <p>Possible Measures -Measure decreased number of cases and severity of pesticide exposure incidents -Measure pest complaints, sightings -Measure changes in incidence of asthma or other health problems associated with pests or pesticides -Measure decreased number of pesticide poisonings -Measure reduction of household pest allergens</p>