



# Urban and School IPM aka Community IPM

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# HISTORY

- 1992-2011: More than 50 studies, surveys report unmanaged pest problems, improper pesticide use.
  - *School IPM 2015*, Green and Gouge 2009.
  - *Regulating Pesticide Use*, Hurley et. al. 2014
- Inadequate legislative mandates in most states.
  - In nearly half of 14,000 school districts in the US, anyone may apply a pesticide without any training or license.
- Low public awareness, appreciation.
  - Less than 19% of households have heard of IPM (1989, 1995, 2006, 2021)
- Asthma is the number one cause of school absences
- As of July 2024, the CDC reported the following asthma statistics for the United States:
  - Children
    - 63.1% of children aged 0 to 4 years have asthma attacks, compared to 36.9% of adults aged 18 to 34 years.
  - Adults
    - 44.9% of adults aged 35 to 64 years have asthma attacks, compared to 30.3% of adults aged 65 and older.



# Pest Control in the School Environment: Adopting Integrated Pest Management

## Era of school IPM

- 1990 – present
- Texas law passed in 1991 (MI, LA)
- EPA guidance for schools in 1993
- 16 States with School IPM Rule
- 39 States with Pesticide Safety type rules



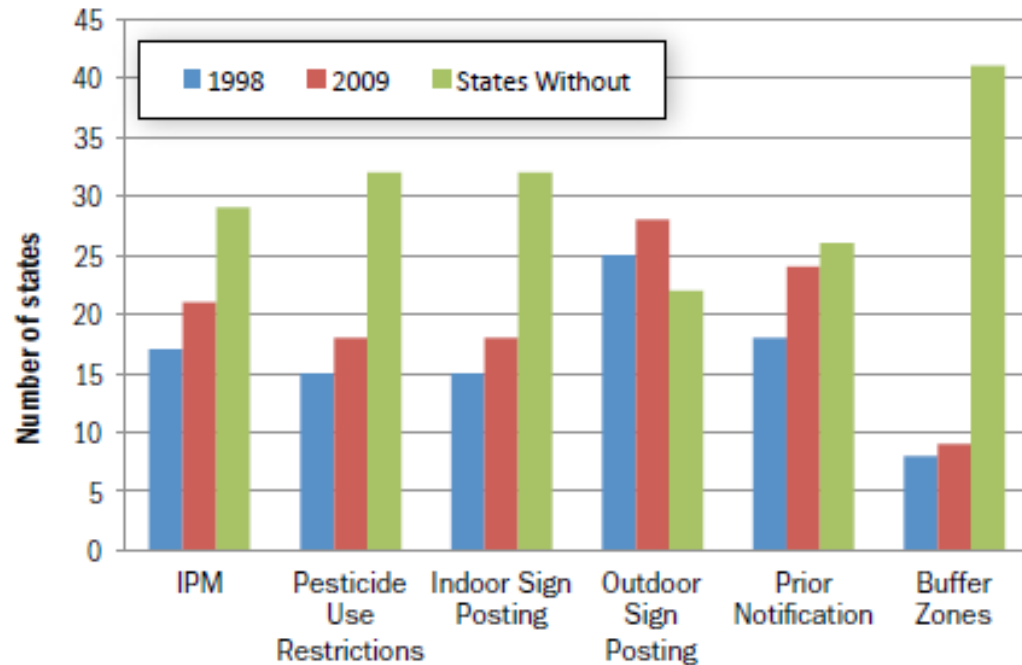
# LEGISLATION BY EPA REGION

State	Restricted	Interior	Outdoor	Pre-	IPM Law	Reentry or other	Min Requirements	Defines	Exempt	Defines	Training
Year law adopted or updated	Spray Zone	Posting	Posting	Notification	or Rule	Requirements (Beyond label)	for Applicators (Training, Certification Supervision, etc.)	Types of Products to be Used	Products from Notification	IPM	for school staff
<b>Region 1</b>	(v) = Voluntary	(1) = Schools must keep list of pesticide hypersensitive students					(2) = Outdoor environments	(3) = Indoor environments			
Connecticut-2005/2007			X	X	X(v)	X	X	X		X	
Maine-2003/2005/2007	X	X	X	X	X	X	X	X	X	X	
Massachusetts-2000	X	X	X	X	X	X	X	X	X	X	
New Hampshire	X		X				X				
Rhode Island-2001			X	X	X	X	X	X		X	
Vermont-2000			X		X(v)						
<b>Region 2</b>											
New Jersey-2002	X	X	X	X	X	X	X	X	X	X	X
New York-2001			X	X	X(v)		X				
<b>Region 3</b>											
Delaware							X				
Maryland-1999	X	X	X	X	X		X			X	
Pennsylvania-2002		X	X	X	X	X	X	X	X		X
Virginia		X(v)	X(v)	X(v)			X				
West Virginia-1996			X	X	X	X	X	X	X	X	
<b>Region 4</b>											
Alabama	X						X				
Florida-2009			X				X			X	
Georgia		X	X			X		X	X		
Kentucky-2002			X	X	X		X	X	X		
Mississippi											
North Carolina-2004	X			X	X(v)						x
South Carolina							X				
Tennessee							X				
<b>Region 5</b>											
Illinois-2004/2008			X	X	X			X	X	X	X
Indiana			X	X(v)	X(v)						
Michigan-1992/1995		X	X	X	X(3)	X	X		X	X	X
Minnesota-2000				X	X(v)		X				
Ohio			X	X	X(2)		X				
Wisconsin		X	X				X				

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<b>Region 6</b>	(v) = Voluntary	(1) = Schools must keep list of pesticide hypersensitive students				(2) = Outdoor environments		(3) = Indoor environments			
Arkansas											
Louisiana-1995				X(1)	X	X	X				
New Mexico-2000		X	X	X	X(v)	X	X				
Oklahoma											
Texas-1991/2007		X	X	X(1)	X	X	X	X	X	X	X
<b>Region 7</b>											
Iowa			X				X				
Missouri											
Nebraska											
Kansas											
<b>Region 8</b>											
Colorado			X								
Montana		X			X(v)		X				
North Dakota											
South Dakota											
Utah											
Wyoming		X	X	X						X	
<b>Region 9</b>											
Arizona-2005	X	X	X	X			X	X	X		
California-2000	X	X	X	X	X(v)	X		X	X		X
Hawaii											
Nevada											
<b>Region 10</b>											
Alaska-2007		X	X	X		X	X				
Idaho											
Oregon		X	X	X	X	X	X	X		X	X
Washington-2001		X	X	X			X				X

# Raising Awareness



# Regulating Pesticide Use in United States Schools

JANET A. HURLEY, THOMAS A. GREEN, DAWN H. GOUGE, ZACHARY T. BRUNS, TIMOTHY STOCK, LYNN BRABAND, KATHLEEN MURRAY, CAROL WESTINGHOUSE, SUSAN T. RATCLIFFE, DERRICK PEHLMAN, AND LAUREN CRANE

Nearly 60 million students, teachers, and staff spend substantial amounts of time in U.S. school buildings and on school grounds every year. The number of states enacting regulations specifically to protect school community members from risks related to pest management activities has grown to 39 since the first law was passed in Texas in 1991 (Table 1, Fig. 1). Here we examine this trend with the goal of identifying and explaining key elements of these regulations to help guide development of effective programs for the future.

Reducing pests in school environments is a worthy goal. Development of asthma, asthma attacks, and asthma-like symptoms have been conclusively associated with exposure to cockroaches, rodents, and dust mites (Bonney et al. 2008, Gore and Schal 2007). Asthma is the number one cause of student absenteeism in the U.S., resulting in loss of 14.4 million school days per year (American Lung Association 2011, Akinbami 2006). The Centers for Disease Control and Prevention (CDC 2012) reported that in 2010, 9.4% of the nation's children were affected. Nichols et al. (2005) reported that between 2001 and 2003, more than 28% of children in one urban center were affected. An estimated \$8 billion to \$50 billion per year was spent caring

for asthmatic children from 2006 to 2010 (CDC 2011, Soni 2009).

Pesticides are valuable tools to help reduce risks associated with pests. However, experience suggests their use generally, and especially in schools, childcare settings, and other sensitive environments, should be carefully managed and minimized. Children are especially vulnerable to pesticide exposure due to their increased consumption of air, food, and water relative to body size, as well as common hand-to-mouth, hand-to-ground, and hand-to-floor behaviors (Goldman 1995, National Academy of Sciences 1993, U.S. EPA 2003, U.S. GAO 1999). Surveillance data collected from 1998 and 2002 indicated nearly 3,000 reported acute illnesses resulting from pesticide exposure incidents in schools, including three severe illnesses and 275 of moderate severity (Alarcon et al. 2005). Sixty-nine percent of incidents resulted from pesticides applied on school property; 39% were associated with drift from neighboring properties. Alarcon et al. indicated these numbers should be considered low estimates due to underreporting.

Chronic health effects were not assessed in the Alarcon study, although potential for chronic illnesses exist. A number of pesticides commonly used in and around schools (Beyond Pesticides



# Forces affecting IPM today

- School IPM
- LEED buildings
- Certification programs
- Clean Water Act
- Food Safety Modernization Act
- Bed bugs
- Insurance – Termite warranty work
- HUD NoticeH 2012-5 Guidelines on Addressing Infestations in HUD-insured and Assisted Multifamily Housing



# What does HUD say about pest control?



- Real Estate Assessment Center (REAC)
  - **Deficiency:** Evidence of rats, mice, cockroaches (droppings, holes)
  - **Infestation:** Live roaches, mice or rats; more than one dead roach
- Promotion of Integrated Pest Management (NOTICE: PIH 2011-22) “IPM efforts must involve PHA staff, contractors, residents, and include:..... Establishing an ongoing monitoring and record keeping system for regular sampling and assessment of pests, surveillance techniques, and remedial actions taken, include establishing the assessment criteria for program effectiveness.”
- Guidelines on Bed Bug Control and Prevention in Public Housing (NOTICE: PIH-2012-17) “Within 24 hours of the tenant report, the PHA should make contact with the tenant, provide the tenant with information about control and prevention of bed bugs and discuss measures the tenant may be able to take in the unit before the inspection is performed. [Inspection should take place] within **three business days of tenant complaint.** PHA may not charge tenant.”



# Typical local housing codes say:

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- Structures shall be kept free from insect and rodent infestation
- Structures in which insects or rodents are found shall be promptly managed by approved processes that will not be injurious to human health
- Proper precautions shall be taken to prevent re-infestation
- Some cities and municipalities now have laws regarding bed bugs. Know the laws in your community.





## IPM does more than control pests

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- Fixing pest entrances helps to weatherize buildings and keep them dry
- Monitoring for pests allows for early intervention before the problem gets out of hand
- Educating residents empowers them to improve their housekeeping skills
- When people learn that they can do something to improve their living conditions, expectations for pest control will rise!



## Urban IPM needs a Paradigm Shift

<https://www.pctonline.com/article/urban-entomology-needs-a-paradigm-shift/>

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- Al Greene asks if it is time for a strategic adjustment for how the mission of urban entomology is portrayed within the broader academic community.
- Lack of spending for urban entomology is on the decline
- Resources for cooperative extension has also declined therefore we are losing a workforce to teach the pest control operators
- Lack of funding in the area of urban entomology
- Shifting the paradigm to representing the entomology of human-made structures as a basic scientific discipline with the comprehensive analysis of the “indoor biome” as its theme – and concentrating on such intrinsic questions as the ecological/physiological/behavioral antecedents for synanthropy and the environmental drivers of ongoing evolutionary change of synanthropic species – is simply a recognition that the field has matured to the point where it can compete with adjacent academic programs at the most expansive levels of inquiry.



Dr. Greene is an entomologist and national IPM coordinator for the GSA's Public Building Service in Washington, DC.