

A large, stylized American flag with red and white stripes and a blue field with white stars, positioned on the left side of the slide.

# Adopting IPM for public school settings: The Texas, USA, model and how to expand to all schools and all states

**Janet A. Hurley** *Texas A&M AgriLife Extension Service*

**Michael E. Merchant** *Texas A&M AgriLife Extension Service*

*Texas A&M Research and Extension Center at Dallas*



## Why We Should All Support IPM in Schools as a Top Priority for our Nation

Contact T. Green, [ipmworks@ipminstitute.org](mailto:ipmworks@ipminstitute.org)

This fall, 50.4 million students and six million staff returned to more than 100,000 schools in 13,500 districts across the US. Unfortunately, only 15-20% of those districts have key indicators of effective IPM programs (Green and Gouge 2015). Key benefits of IPM in schools include:

1. **Lowering exposure to pests and pesticides** – IPM programs in schools have reduced pest complaints and pesticide use by up to 90% (Reviewed in Chambers *et al.* 2011).
2. **Improving student attendance and performance.**
  - a. Asthma is the number one cause of student and staff absences in schools.
  - b. Cockroach allergen levels in schools have been highly significantly correlated with student asthma prevalence (Amr *et al.* 2003).
  - c. Pest-related asthmagens can be more prevalent in schools than homes; students in classrooms with higher mouse allergens were absent more (Sheehan *et al.* 2009).
  - d. Students missing two or more days of school per month have lower grades (Balfanz *et al.* 2013).
  - e. Schools have increased graduation rates by 8-50% and improved student grades by improving attendance rates (Baltimore Education Research Consortium 2011, Roderick *et al.* 2014).
  - f. Multiple states distribute funds based on attendance; absences can cost school districts as much as \$93 per student per day.
3. **Saving money:** Up to \$32,000 in annual pest control cost savings have been reported by school districts transitioning to IPM (reviewed in Chambers *et al.* 2011).
4. **Reducing food safety risks:** *E. coli* and *Campylobacter*, *Histoplasma*, *Listeria*, *Salmonella* spp. are among the pathogens with well-documented associations with cockroaches, flies, rodents and/or birds (Bonefoy *et al.* 2008).
5. **Additional benefits include** reducing risk of insect stings and allergic reactions, lowering fire risk by eliminating rodent chewing on wires, and reducing heating and cooling losses by installing door sweeps that keep insects and rodents out!

USDA, US EPA and the Centers for Disease Control and Prevention recommend IPM for schools. School IPM has been an EPA Administrator priority since 2010, and in 2016, EPA convened a [roundtable](#) with leaders representing 21 national organizations committing to support IPM in schools. The National School IPM Working Group with more than 200 members has been coordinating and collaborating since 2008, and members have led development of [Stop School Pests](#) standardized IPM training soon to be launched for nine key roles in schools, including food service, custodial and maintenance which are so critical to pest prevention, and [iSchool Pest Manager](#) which is now available as a portal for high quality educational resources. The nationally coordinated effort measured a 4x increase in states with school IPM programs, a 4x increase in IPM communications, and 3x increase in participation in IPM training between 2008 and 2012, and remains committed to [IPM in all of our public K-12 schools by 2020](#).

# Integrated **people** management (IPM)

An effective,  
environmentally  
sensitive approach to  
pest control

Best Management  
Practices for pest control

A strategy using multiple control tactics to ensure that pest populations are managed at acceptable levels, that risks to people and the environment are minimized, and that is practical and economical

# Demand for IPM in schools

Pest control industry

US. Environmental Protection Agency

Environmental Groups

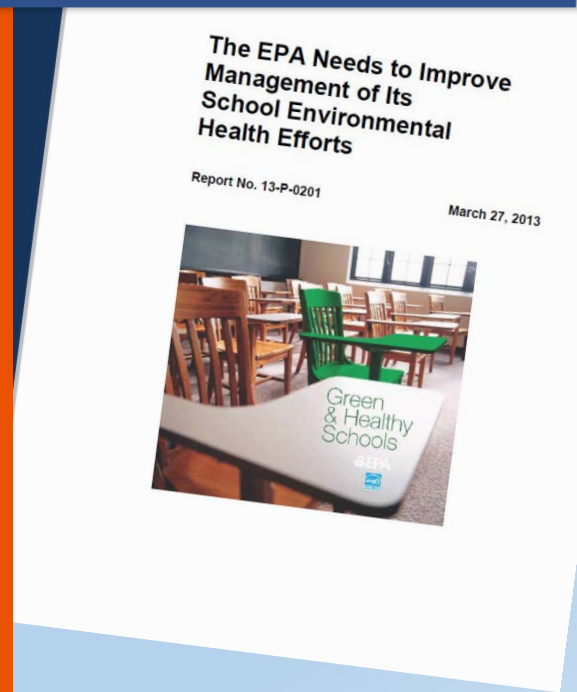
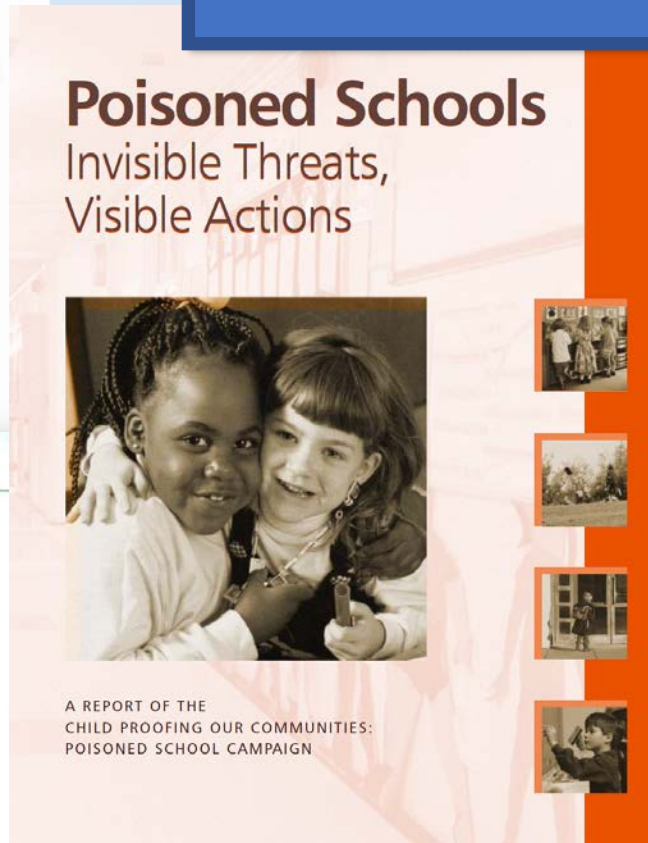
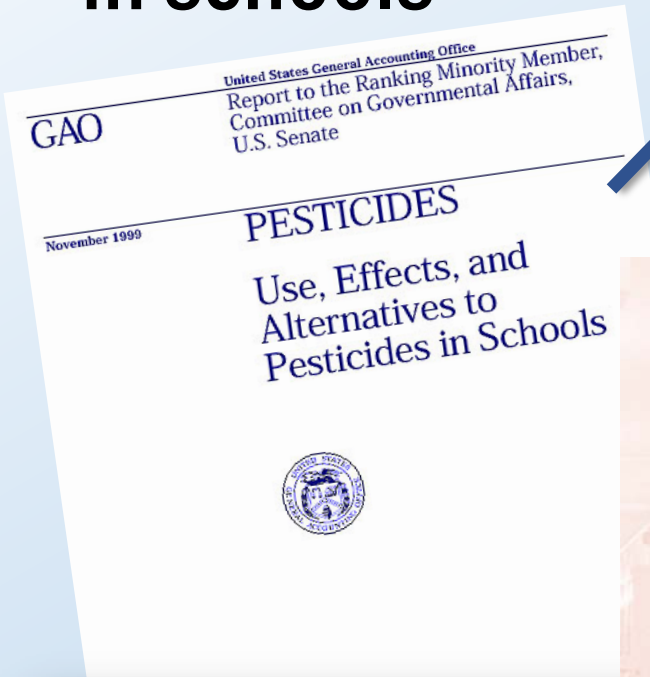
Parents



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# Demand for IPM in schools

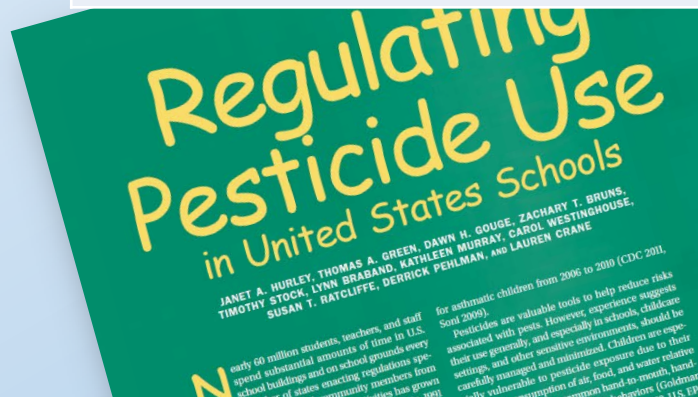
Children are at greater risk from pesticide exposure than most adults because, pound for pound of body weight, children breathe more, eat more, and .... play on the floor and lawn where pesticides are commonly applied. Children have more frequent hand-to-mouth contact as well.



# States with legislation regulating pesticide use in public schools\*

Mandates	No. States
Restrictions on where pesticides can be applied	10
Indoor Posting requirements	20
Outdoor posting requirements	30
Pre-notification of parents	28
Reentry requirements more strict than label requires	17
Minimum requirements (training, licensing) for pesticide applicators	31
Restrictions on types of pesticides used	15
IPM use (mostly unenforced)	24

\* Source: Hurley et al. American Entomol. Summer 2014.




# Most state IPM programs for schools remain voluntary or lack enforcement

<https://encourageandteach.wordpress.com>



# School IPM in Texas



1991 School IPM  
legislation passed  
(HB 2751)



1995 - Enforcement  
by Texas Structural  
Pest Control Board  
begins



2008 - Enforcement  
taken over by  
Department of  
Agriculture

21 Years  
of school  
IPM in  
Texas!

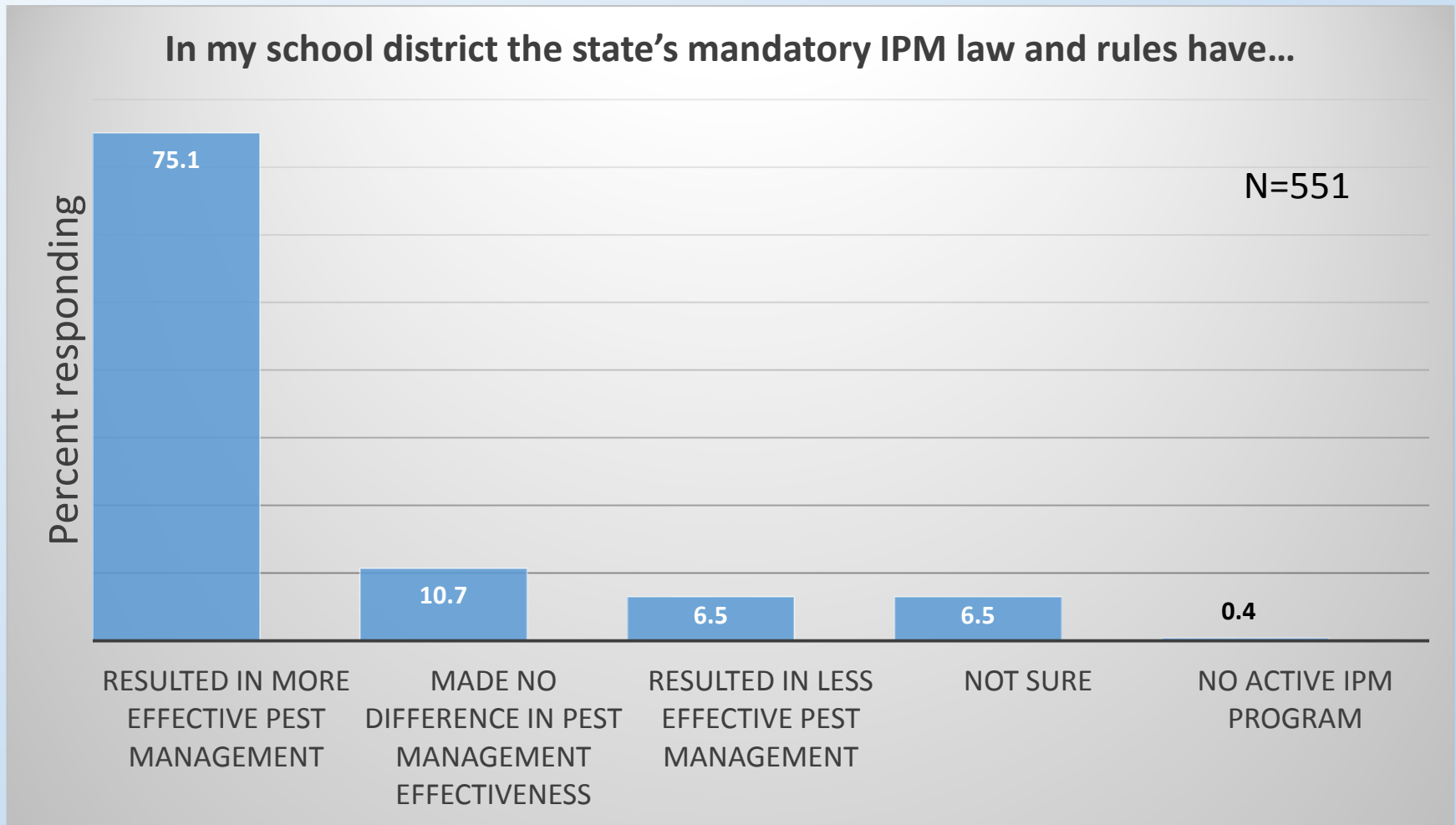


# Essentials of Texas School IPM regulations



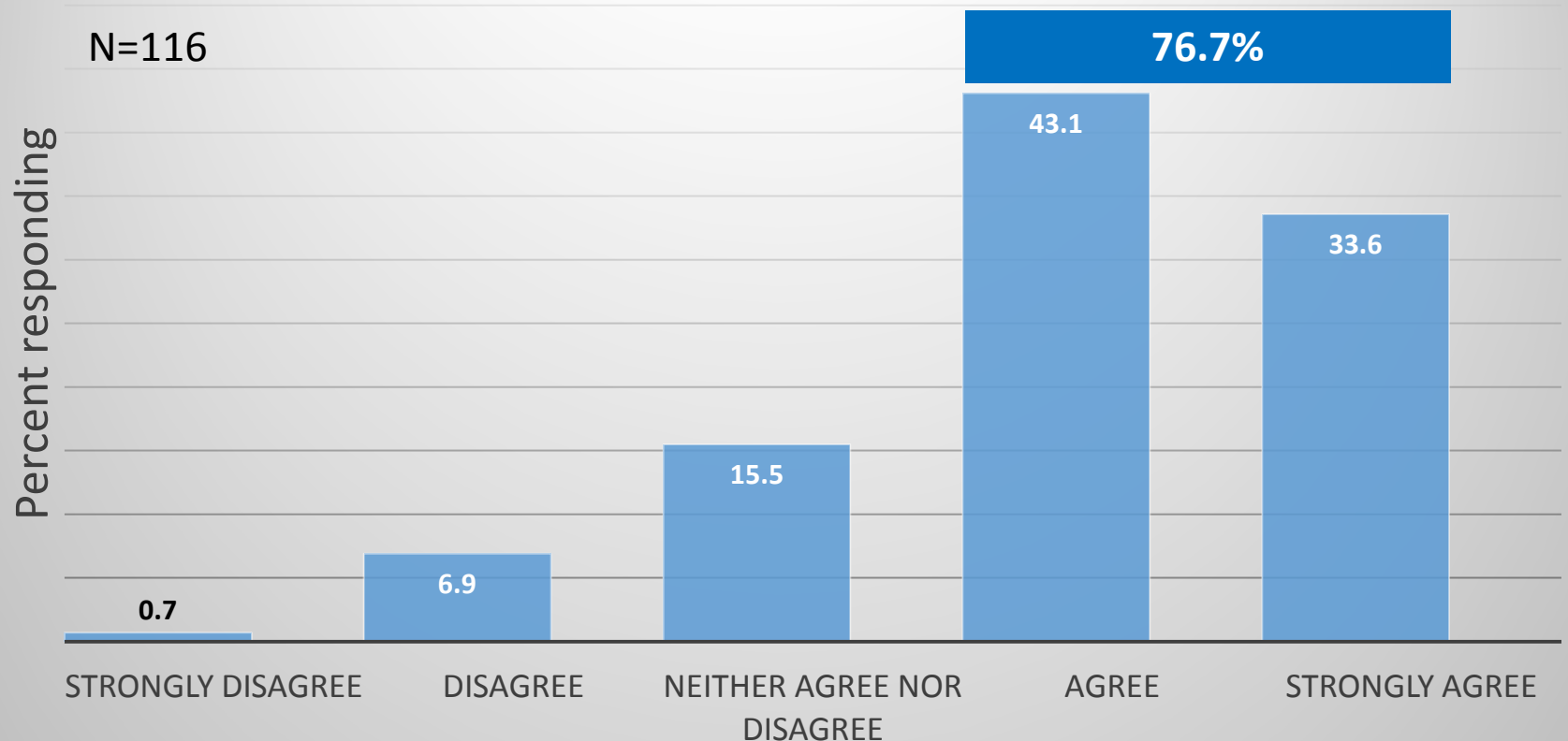
- IPM required for every public school (1,026 ISDs)
  - IPM Policy for each district
  - IPM Coordinator/training
  - IPM plans for key pests/thresholds
  - Sampling program
  - Recordkeeping
  - System to encourage use of low risk pesticides
  - Education program for school staff
  - Inspected by TDA every 5 years

# Impact of IPM on pest control effectiveness (2005)

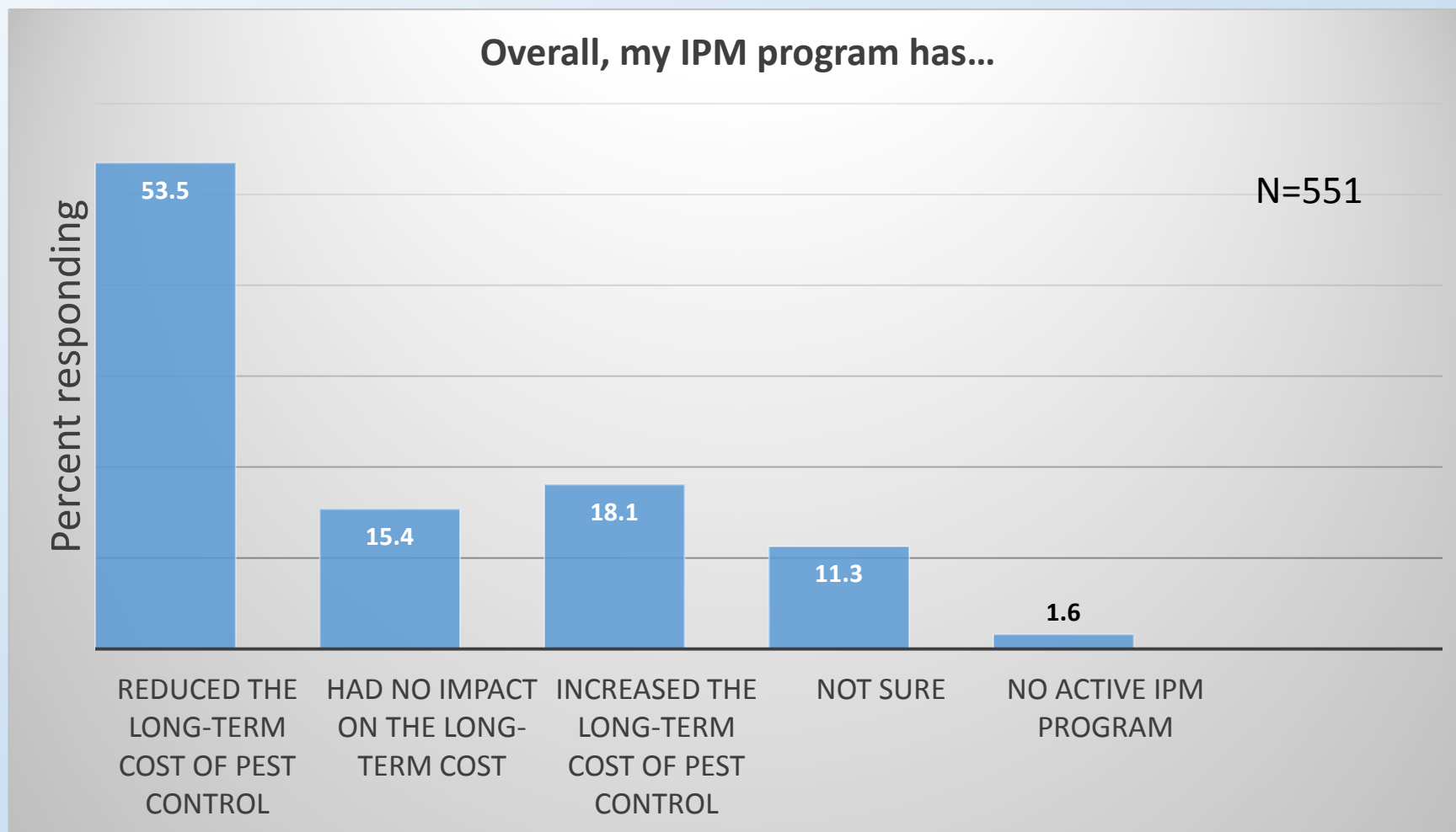


# Impact of IPM on pest control effectiveness (2016)

Texas school IPM rules and regulations has resulted in more effective pest management for our district.



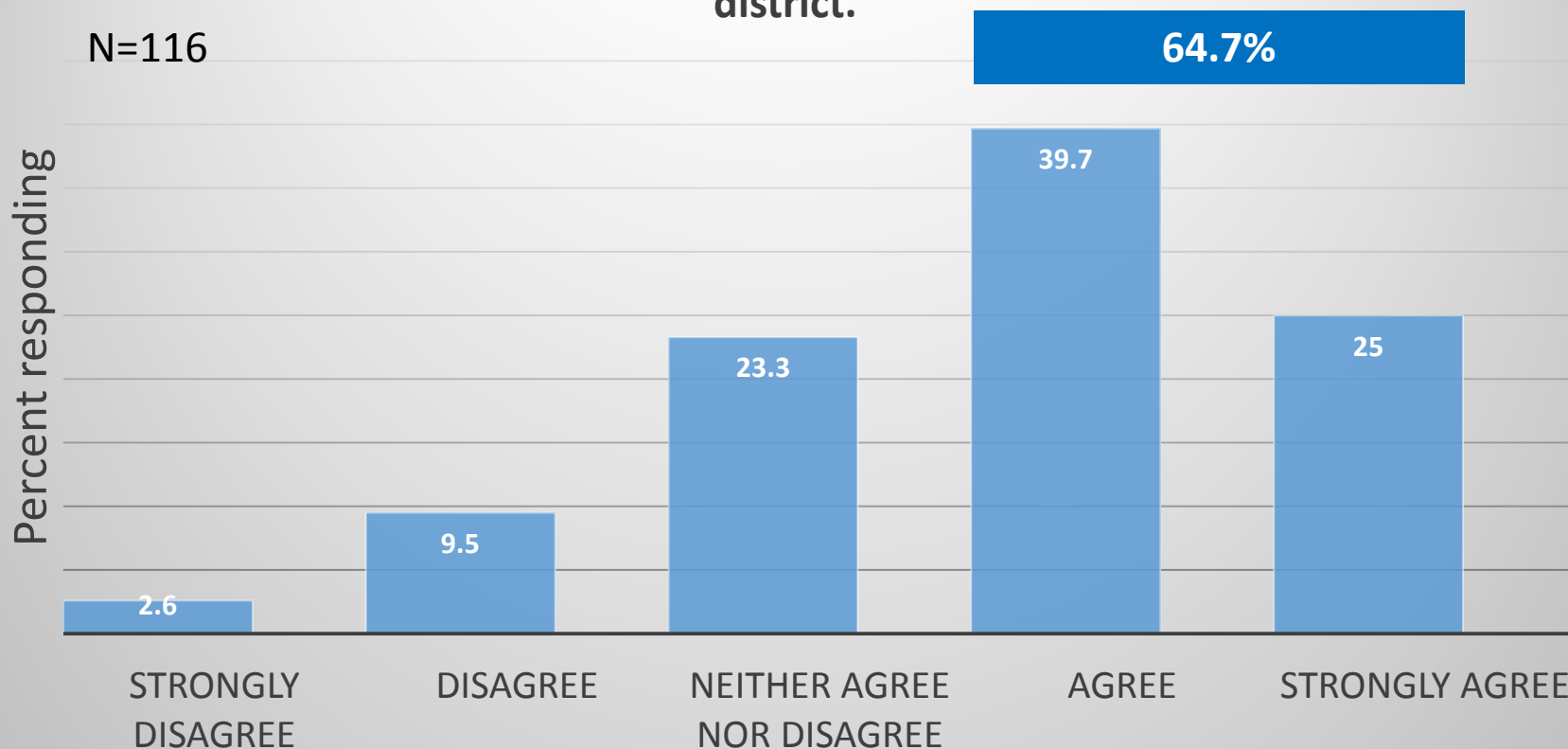
# Impact of IPM on pest control costs (2005)



# Impact of IPM on pest control costs (2016)

Besides the cost of essential pest control, the Texas school IPM rules and regulations have posed no extra financial burden for our school district.

N=116



# Keys to success of school IPM in Texas



Mandatory  
licensing  
and  
training

IPM coordinators  
and applicators

Monitoring, thresholds,  
recordkeeping, education,  
using less hazardous  
pesticides when available

Focus on  
IPM not  
pesticide  
restrictions



Extension  
Involvement

1.25 FTE positions  
dedicated to  
School IPM

20% of schools  
inspected  
annually

Enforcement

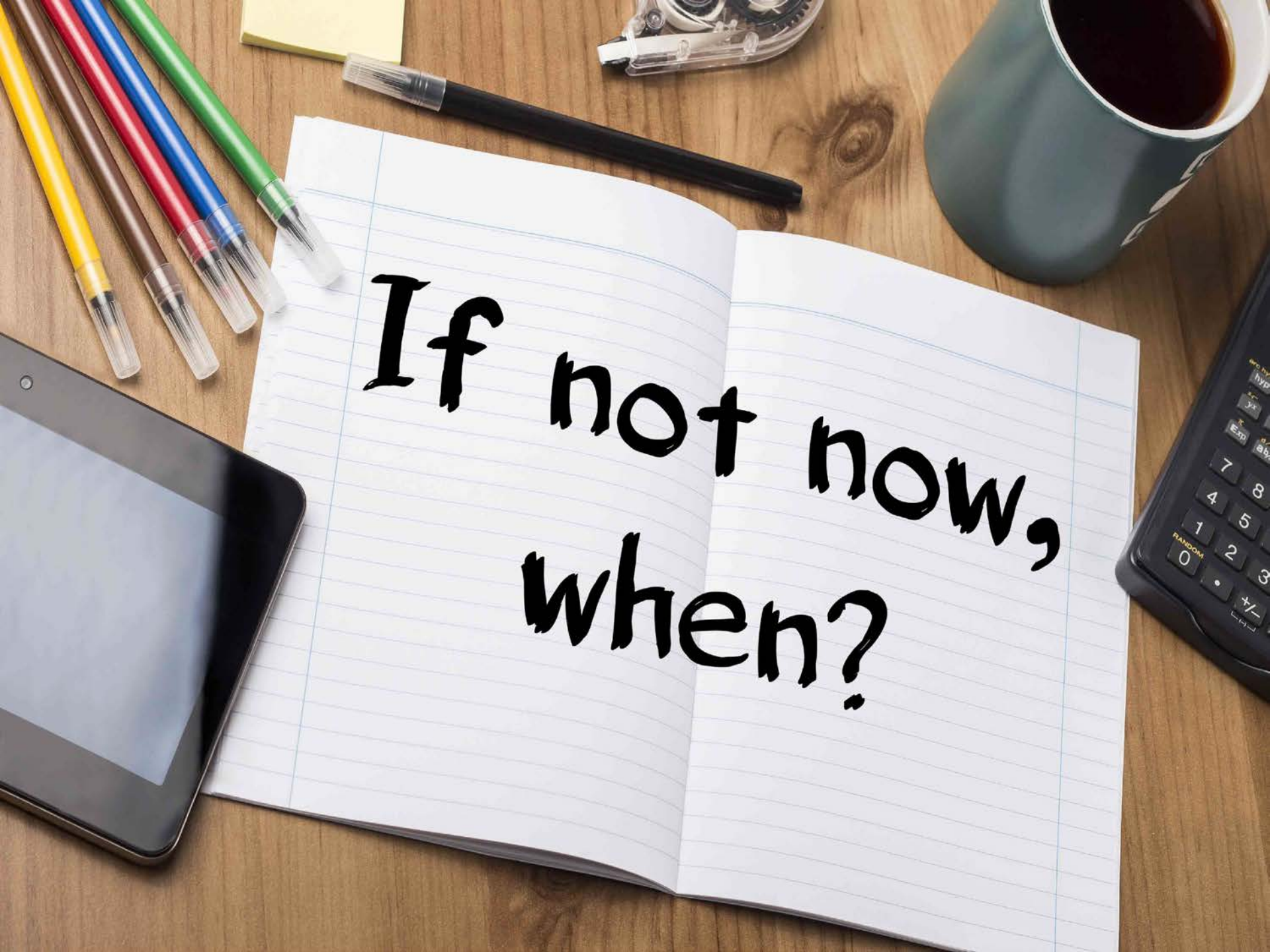


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# Why Now?

- Elevated arboviral disease risks
- Geographic expansion of venomous and vector species (climate change)
- Increasing wildland–urban interface
- Top pathogens causing domestically acquired foodborne illnesses are carried by pests
  - *Salmonella* (nontyphoidal)
  - *E. coli* 0157
  - *Campylobacter* spp.
  - *Toxoplasma gondii*
  - *Listeria monocytogenes*



A top-down view of a wooden desk with various items. In the center is an open notebook with blue-lined pages. The text 'If not now, when?' is written in large, bold, black cursive across the pages. To the left of the notebook are several colorful pens (yellow, brown, red, blue, green) and a black pen. Above the notebook is a clear stapler and a yellow sticky note. To the right is a dark green mug filled with coffee. Below the notebook is a black calculator. To the left of the notebook is a black tablet with a blank screen.

If not now,  
when?



# Grand Challenge of Sustainability

- Need a better coordinated effort between IPM for Housing, community gardens, schools and other sensitive environments
- Extension has been, and should be in the future, a key partner in any state efforts to implement IPM in schools;
- Having a significant Extension FTE commitment to school IPM is important for any school or community IPM effort to be sustainable;
- Legislative mandates for school IPM can be successful if they focus on IPM (aka define it) and not on restrictive pesticide bans;
- Forging good relationships between education agencies, regulators, Dept. of Health, and Extension is a key to success;
- A sustainable school IPM program must have an infrastructure of district policy, administrator awareness and support, recognition of IPM as an integral professional position within school district organizational charts, ongoing education and training, and enforcement (for mandated states).

**Is legislation and penalty-based enforcement the only successful way to fully integrate IPM into public schools on a widespread basis?**



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- Southern Region IPM Center

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