

US EPA ARCHIVE DOCUMENT

# Quantitative Benefits Subgroup

## A status report of a work in progress

- ▶ **Charge:** Discuss appropriate ways to assess quantitatively the benefits of IPM in agriculture, public health settings, and schools.
  
- ▶ **Suggested deliverables:**
  1. A recommendation to PPDC on the type of data that should be considered in quantitative assessments.
  2. A recommendation to PPDC on how quantitative assessments can or should be used and developed in EPA's efforts to promote IPM.
  3. A draft flyer using quantitative assessment of IPM benefits in schools
  4. A recommendation to EPA to conduct a comprehensive literature review of IPM benefits in schools.

# Strawman Recommendations

## Data Types for Quantitative Assessments

- ▶ Comparisons of pest management effectiveness
  - Direct measurements of pest pressure: damage, population.
  - Increased yields
- ▶ Demonstrated reductions of risk and/or exposure
  - Impact of changes in application rates/methods
- ▶ Demonstrated improvements in health outcomes
  - Should be clearly linked to IPM practices
- ▶ Measurable benefits for the environment ...
  - *a /a* IPM Prime
  - Water quality measurements
- ▶ Long term cost savings
  - Reduced pest management costs

# Recommendations to EPA for Using and Promoting Quantitative Assessments

- ▶ Create materials/resources with quantitative assessments of benefits to promote IPM to target audiences
  - Focus pilot efforts on EPA priority audience: Schools
  - Identify other key sectors for which EPA should take the lead in compiling information on quantitative assessments.
- ▶ Encourage greater accessibility to existing studies that provide quantitative assessments
  - EPA should develop a literature review of IPM benefits in schools
  - Consider compiling an exemplary set of quantitative assessments IPM benefits in several Ag IPM systems.
- ▶ Promote more generation of quantitative assessments
  - IPM grant requirements– coordinate with USDA, DPR, IPM centers, extension
- ▶ Consider viable, documented IPM alternatives in risk management decisions
- ▶ Continue to consider other potential quantitative assessment methods

# Advantages of a Literature Review for Quantitative Assessments in Schools

- ▶ Provides comprehensive documentation of available quantitative assessments
- ▶ Identifies data gaps
- ▶ Assists EPA in promoting IPM to target audiences
- ▶ Key resource for IPM advocates in schools

# Caveats and Limitations

- ▶ Utilize specific citations of credible studies
- ▶ Some (many) systems require additional study
- ▶ Quantitative assessments may be in literature but not often readily accessible
- ▶ Benefits likely to be site and operator specific
- ▶ Pests and human systems constantly changing
- ▶ Not necessarily all benefits achievable in each system
- ▶ Quantitative assessments that measure relative advantages don't capture all benefits of implementing IPM

# Example:

## Quantitative Assessment of IPM Benefits for Schools

### ► Improved pest management

- IPM stops pest problems before they occur
  - Schools in Auburn, Alabama cut pest complaints by 90% by using IPM (Gouge et al. 2006)
- IPM can provide more effective pest control than conventional methods
  - Schools in North Carolina used IPM to achieve virtually 100% elimination of cockroach infestations (Nalyanya et al. 2009)

# Example:

## Quantitative Assessment of IPM Benefits for Schools

### ▶ IPM can achieve a measurably healthier school environment.

- Asthma triggers reduced
  - North Carolina schools mentioned above greatly reduced levels of cockroach allergens. [1.4% (IPM) vs. 35% (conventional) exceedances of proposed allergen health thresholds (Nalyanya et al. 2009)]
- Reduced risk associated with pesticides and pests
  - IPM helps schools reduce pesticide risk by reducing the number of applications, and utilizing lower exposure methods (such as containerized baits) *(need citations)*



# Create an EPA Version of IPM Benefits Flyer for Schools

## EPA's School IPM Initiative is about Healthy Kids.

One of EPA's top priorities is to improve children's health. As part of this effort, EPA has launched its School Integrated Pest Management initiative.

Integrated pest management, or IPM, is a system of achieving *effective, long term control of pests* by combining biological, mechanical, cultural, physical and chemical control methods in a way that focuses on prevention, and *minimizes economic, health and environmental risks*.

## What are the benefits of IPM for schools?

IPM stops pest problems before they occur.

- Schools in Auburn, Alabama cut pest complaints by 90% by using IPM (Gouge et al. 2006)

IPM provides more effective pest control than conventional methods.

- Schools in North Carolina used IPM to achieve virtually 100% elimination of cockroach infestations. (Nalyanya et al. 2009)

IPM creates a measurably healthier school environment.

- **Asthma triggers reduced.** The North Carolina schools mentioned above greatly reduced levels of cockroach allergens. [1.4% (IPM) vs. 35% (conventional) exceedances of proposed allergen health thresholds (Nalyanya et al. 2009)]

Prior to 2008, the Metropolitan School District of Pike Township in Indianapolis, Indiana was using a reactive approach to pest problems, routinely spraying pesticides in school facilities. When a school board member heard that IPM was more effective, safer for students and better for the environment she asked, "Why aren't we doing that?"

**ipm**

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### Case For Integrated Pest Management in Schools: Increasing Benefits

Preventive maintenance, high sanitation standards and staff education, along with pest monitoring, accurate pest identification and recordkeeping. IPM can reduce pest complaints by 78% to 90% with no long-term increase in costs (Gouge et al. 2006).

non-profit called Improving Kids' Environment and Dr. Marc Lame, an entomologist at Indiana University. Along with the district's facilities director and a pair of motivated principals, they formed an IPM team. The team initiated a pilot in two schools, conducting "crawl-through" site assessments to gather baseline data on the current management practices, pest problems and pest-friendly conditions.

After the initial assessments, the district designated an

# Quantitative Benefits of IPM: Agriculture

- ▶ Quantification of benefits varies by crop
- ▶ Economic benefits often more directly measured than in other sectors. These benefits are clearly demonstrated in literature for many crops. Focus on economic thresholds that balance:
  - Crop yield
  - Pest management costs
- ▶ IPM systems using economic thresholds readily accessible from extension...but the quantitative benefits these are based on are harder to track down (presumably in the literature).
- ▶ Demonstrated improvements in health outcomes
  - Should be clearly linked to IPM practices
- ▶ Tools exist to evaluate environmental benefits and could be more widely used.
  - Example: IPM Prime
- ▶ **EPA's role should be complementary to USDA**