

RISK COMMUNICATION: Measuring the Impacts of Implementing IPM programs in Schools

Marc L. Lame

Indiana University, School of Public and Environmental Affairs

WHY DO WE MEASURE IMPACTS?:

- Program management -
 1. QA/QC
 2. CONFIRMATION to the adopting community
- GPRA - gov performance reporting act
- Politics - study so you won't be able to implement

RISK

- Probability
- Severity
- Tech def = probability X magnitude = hazard
- Soc. def = hazard + outrage
- Idea of control voluntary vs. involuntary (out of control)

5 basic steps of risk communication (must be in order)

- credibility
- awareness
- understanding
- solutions
- enactment or implementation

Risk perception

- Risk means different things to different people
- People tend to ignore or discount discreet, familiar, voluntary, and low-probability risks
- Feelings of control and opportunities for participation influence attitudes of acceptability of the risk
- People evaluate risk as members of a community
- Trust is an important influence on risk perceptions

Traditional measures:

- Reduction of pesticide risk - toxicity - AI & LD
- Reduction of pest risk
- Cost Benefit Analysis
- Adoption of IPM Laws and Policies

Problems of science, perception and verification

Measuring impacts of the implementation of IPM

- Diffusion as a management tool – % members of a community adopting an innovation over time
- Causes of pesticide use (behavior)
- Pesticide use – (precaution and PM efficiency)
- Certification (deeds versus words)
- Transferability – horizontal (geographical implementation) and vertical (topical)

What the Monroe IPM Model Measured

Originally -

- Pesticide applications pre and post
- Pest perception...attitudes

Later we added DIFFUSION

Fact is - this was NOT a study but an
IMPLEMENTATION!

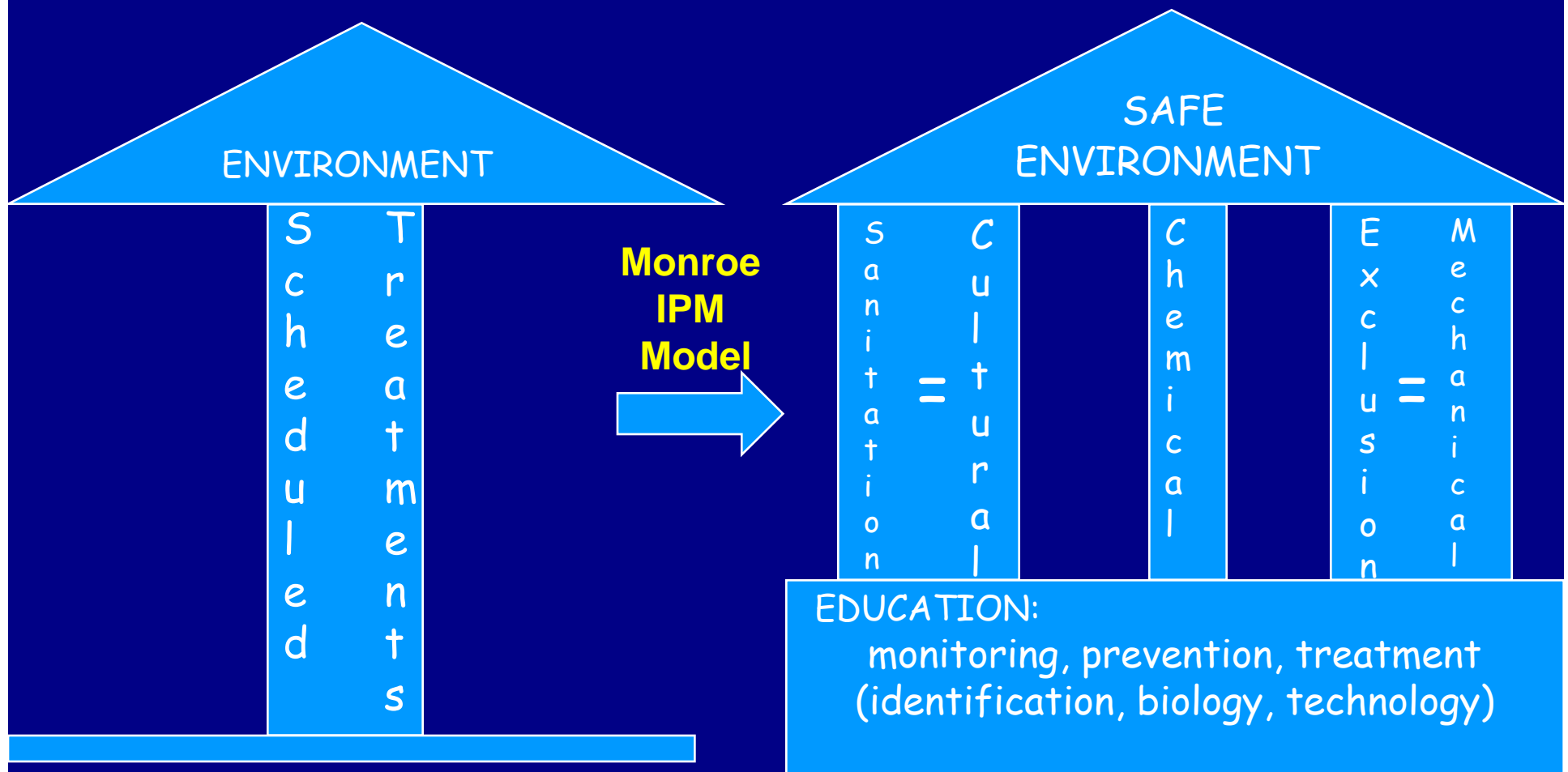
What we measured

- Diffusion (1/2 subjective???)
 1. IPM STds - training, Pest Press, pest sighting logs, monitoring stations, no preventive treatments
 2. Membership in statewide coalitions
- Causes of pesticide use - pest perception and complaints
- Pesticide use - annual # applications/pilot school
- Transferability - increasing the rate of diffusion
 1. Awareness
 2. Risk mitigation (+attributes and negative attributes)

IPM DEFINED AS AN INNOVATION:

- IPM is a cluster of technologies (cultural, mechanical, biological, genetic, and chemical) which is an integrated application (based on biological information) designed to allow humans to compete with other species (pests).

A Shift to IPM



Spanning 10 Years, 7 States
and 5 EPA Regions:

- 71% Reduction in Pesticide Applications
- 78% Reduction in Pest Complaints to School Administrations

Indiana – 10 years

School district and year of inception	Number of Schools	Pest pressure * and the most common pests	Mean number of Pesticide Applications +/- school/y, pre-IPM (2 years)	Mean number of pesticide applications /school/y, post-IPM (% reduction)	Percent reduction in requests for pest control	IPM STAR® certification and/or recognition
Indiana: Monroe County Community School Corporation (1995)	21 (3 pilot schools)	Moderate Blattidae (3 spp.), Formicidae (3 spp.), Vespidae (2 spp.), Apidae, Muridae (2 spp.)	12 + scheduled monthly treatments plus callback treatments	1 (92%)	90%	IPM STAR®, news reports (5), awards (5)

Alabama – 5 years

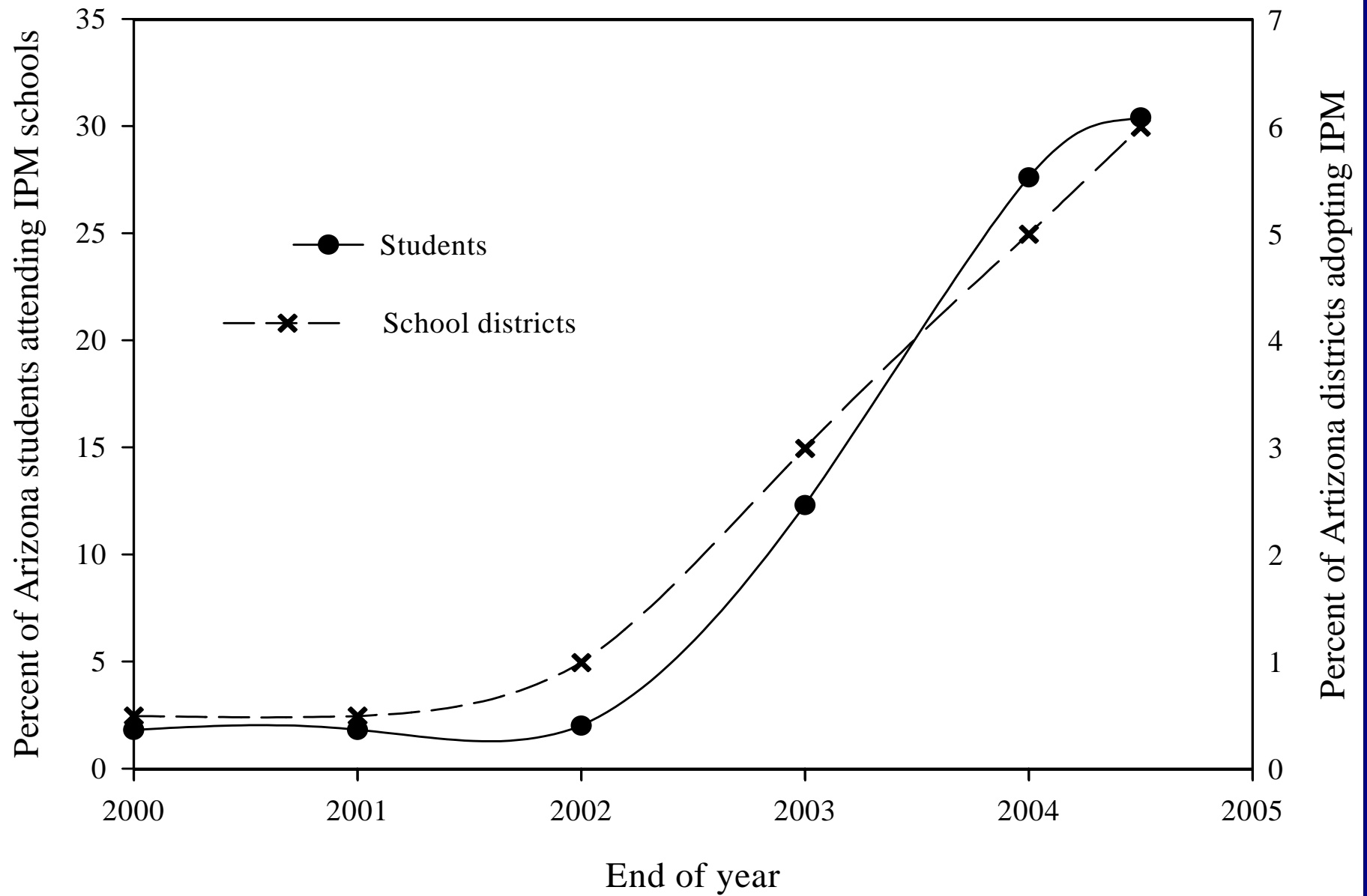
School district and year of inception	Number of Schools	Pest pressure* and the most common pests	Mean number of Pesticide Applications +/- school/y, pre-IPM (2 years)	Mean number of pesticide applications /school/y, post-IPM (% reduction)	Percent reduction in requests for pest control	IPM STAR® certification and/or recognition
Alabama: Auburn City Schools (2000)	9 (3 pilot schools)	Severe Blattidae (2 spp.), Vespidae (2 spp.), Formicidae, Buthidae, Loxoscelidae, Muscidae, Psychodidae, Phoridae, Muridae	20 + scheduled monthly treatments plus callback treatments	6 (70%)	90%	IPM STAR®, News reports (1), awards (2)

Arizona 5 years

School district and year of inception	Number of Schools	Pest pressure* and the most common pests	Mean number of Pesticide Applications +/- school/y, pre-IPM (2 years)	Mean number of pesticide applications /school/y, post-IPM (% reduction)	Percent reduction in requests for pest control	IPM STAR® certification and/or recognition
Arizona: Kyrene Schools (2000)	26 3 pilot schools	Light Blattidae (3 spp.), Formicidae (3 spp.), Apidae, Muridae (2 spp.), Gryllidae, Tephritidae, Psychodidae, Phoridae, Theridiidae, Buthidae, Columbidae (pigeons), Felidae (feral cats)	12 + (scheduled monthly treatments, callback treatments, and "clean out" every summer before school started)	1 (83%)	85%	IPM STAR®, News reports (4), awards (3)

Florida – 1 year

School district and year of inception	Number of Schools	Pest pressure* and the most common pests	Mean number of Pesticide Applications +/- school/y, pre-IPM (2 years)	Mean number of pesticide applications /school/y, post-IPM (% reduction)	Percent reduction in requests for pest control	IPM STAR® certification and/or recognition
Florida: Brevard County Public Schools (2004)	82 (3 pilot Schools)	Severe Blattidae (3 spp.), Formicidae (4 spp.), Gryllidae, Apidae, Rhinotermitidae, Culicidae, Lepismatidae, Loxoscelidae, Pediculidae, Muridae (2 spp.), Ardeidae (snowy egret), Icteridae (grackle), Sturnidae (European starling), Colubridae (2 spp. snake), Chiroptera (bats), Felidae	24 +	Less than 20 (first year) (58%)	50%	New program



Arizona Integrated Pest Management/Indoor Air Quality in Schools Coalition - Protecting 1/3 of Arizona's School Children from Pests and Pesticides



Kyrene School District
Mesa Public School District
Gilbert Unified Schools District
Scottsdale Unified School District
Washington Elementary School District
Paradise Valley Unified School District
Tempe School District #3
Catholic Diocese of Phoenix Schools
Salt River Pima-Maricopa Indian Schools
Hopi Schools
Tucson Unified School District



Salt River Pima-Maricopa Indian Community
Hopi Environmental Protection Office
Ecolab
Orkin
Arizona Department of Environmental Quality
Arizona Department of Health Services
USEnvironmental Protection Agency
University of Arizona

State cooperative extension participation

- 38% of land grant institutions have IPM in Schools programs
- 38% have informational programs (e.g. - websites, manuals, fact sheets, etc.)
- 26% have interactive programs (training sessions, CEUs)
- 14% have diffusion programs (information, interaction AND demonstrations with recognition programs)

(Percentages based on 50 states)

STAR Certification



THE END

