



Integrated Pest Management and Green Cleaning: Requirements and Best Practices for Schools

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***Illinois Healthy & High Performing Schools
Symposium – April 18, 2014***



Overview

- Introduction and Context
- LEED Standards and Certification Points
- Integrated Pest Management (IPM)
 - Indoors
 - Outdoors
- Green Cleaning
- Wrap-up and Questions



Introduction – Learning Objectives

- ▶ Understand the requirements for IPM (indoors and outdoors), and Green Cleaning in Illinois schools
- ▶ Name the basic features of building-specific IPM and Green Cleaning plans
- ▶ Recognize the benefits of IPM and Green Cleaning in terms of cost and sustainability
- ▶ Consider earning LEED certification points for IPM and green cleaning
- ▶ Access resources for IPM and Green Cleaning



LEED v4 Standards and Points

- **BD+C – New Construction and Schools**
 - No specific standards (some in v2009)
- **O+M – Existing Buildings and Schools**
 - Policies required = 0 points
 - Site Management (including outdoor IPM) = 1 point
 - Green Cleaning (products and materials, equipment, and custodial effectiveness) = 3 points
 - IPM = 2 points



IPM: What and Why?

“ . . . a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks.”

*Food Quality Protection Act
7 USC §136r-1*



IPM: What and Why? (continued)

- Goal: To protect children from excess exposure to pests and pesticides
 - Children spend 90% of their life indoors
 - Children spend 6-10 hours per day in school during the school year
 - Children can have greater exposure to contaminants due to physical and behavioral characteristics

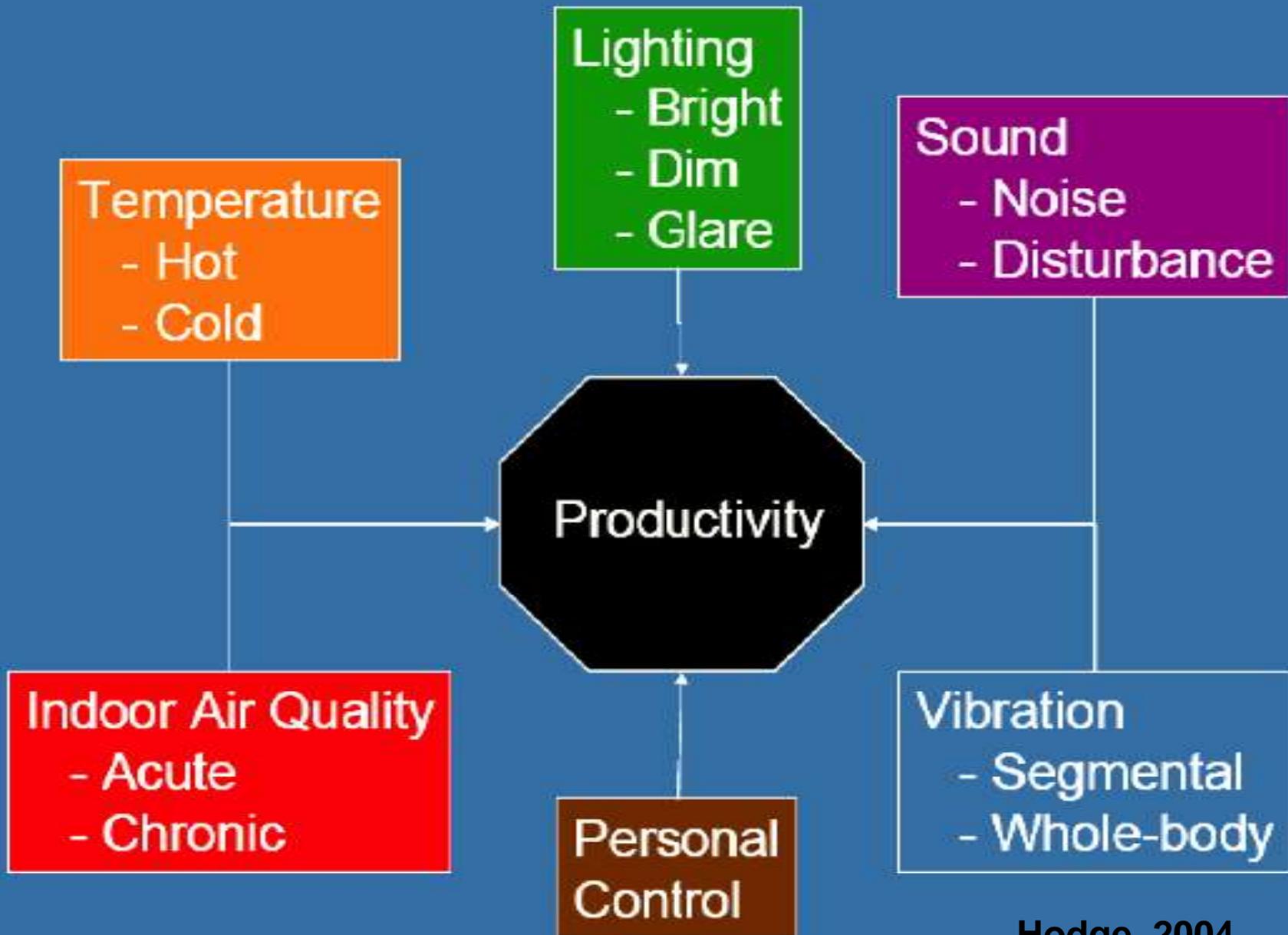


IPM: What and Why? (continued)

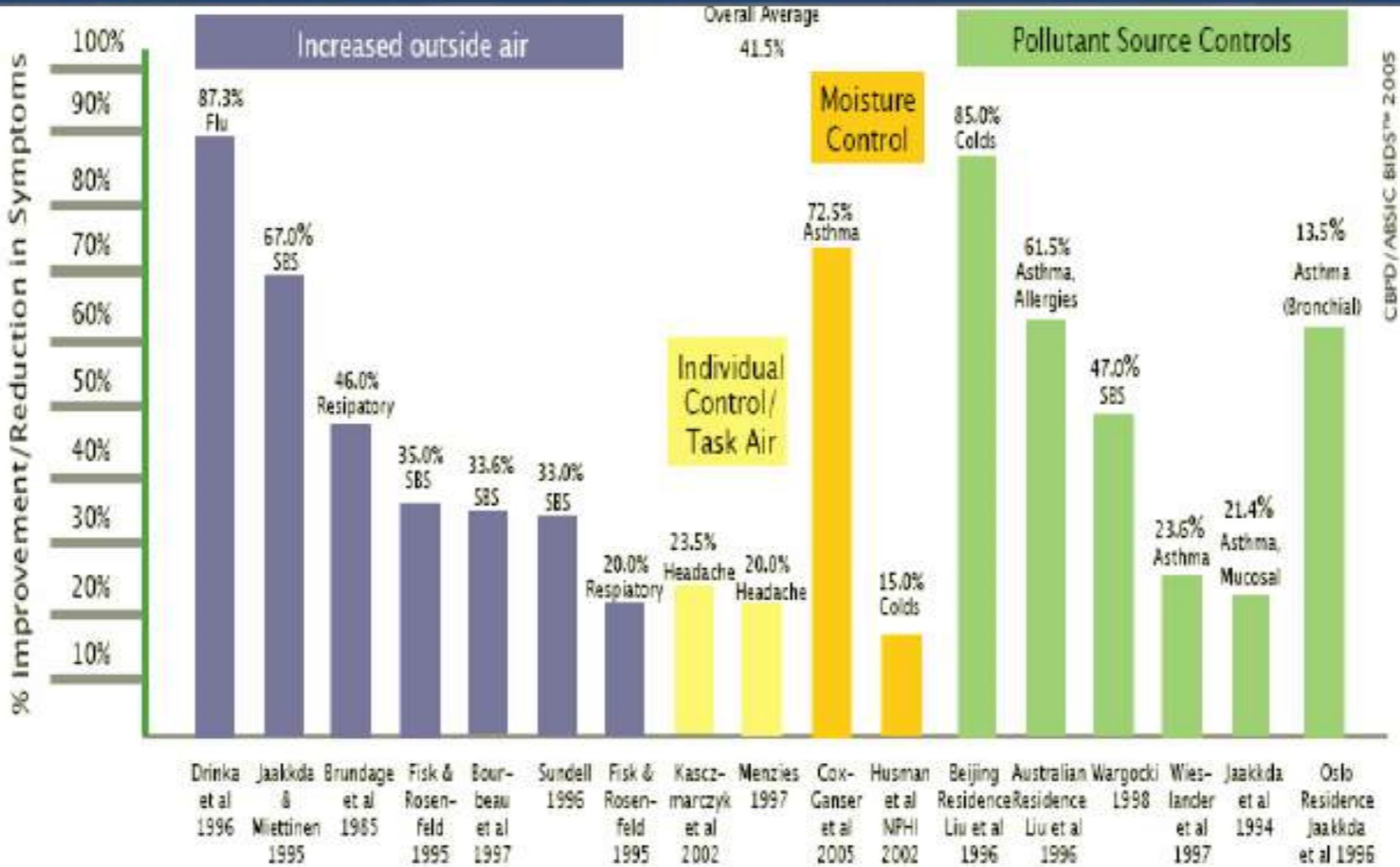
- Indoors, pests and pesticides can be asthma triggers
- Indoor Environmental Quality (IEQ) improves attendance and academic performance
- Pest prevention can save long-term pest management costs and save energy
- IPM outdoors preserves water quality and reduces environmental footprint



IEQ factors and Human Performance



Health Gains from Improved IAQ



CBPD/ABSIC BIDS™ 2005

Source: Carnegie Mellon University Center for Building Performance, 2005.

Providing Adequate Outdoor Air Ventilation Can Improve Student Health and Performance

- In most schools, ventilation rates are below recommended levels**
- Growing evidence suggests that increasing outdoor air intake can**
 - improve student and teacher performance**
 - increase test scores**
 - reduce airborne transmission of infection**

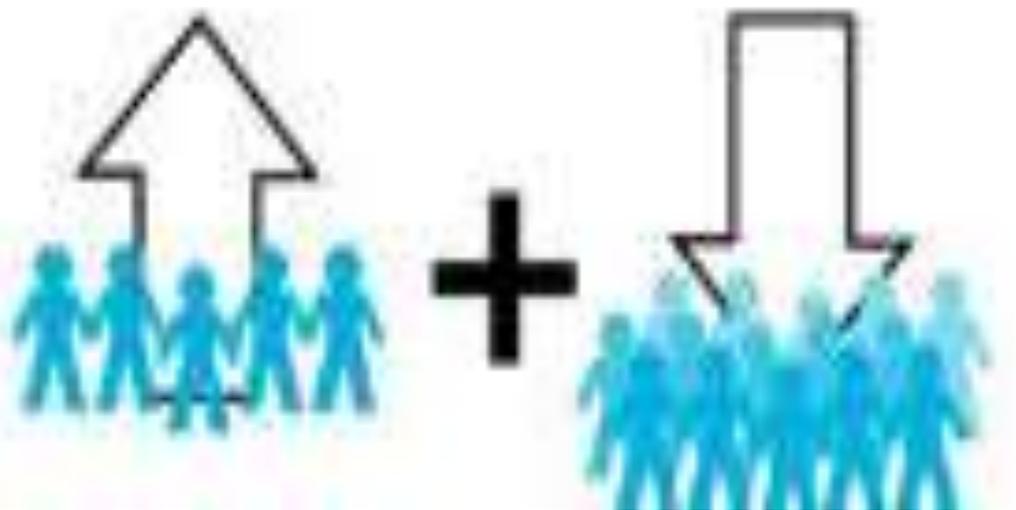


Proactive Maintenance in Schools

- Schools without a major maintenance backlog**
- Higher average daily attendance ~ 4-5 per 1,000
 - Lower annual dropout rate 13 per 1,000



=



**Proactive
Maintenance
in Schools**

**Higher
Attendance**

**Lower
Dropout Rate**



Integrated Pest Management (IPM)

- Required by law in Illinois schools and child care centers (indoors and outdoor perimeter)
 - Designate an IPM Coordinator
 - Report to Illinois Department of Public Health
 - Develop a building-specific IPM plan, implement it, and evaluate
 - May opt out if not “economically feasible”
 - Take IPM training every 5 years
 - Re-report every 5 years



IPM in Illinois Schools (continued)

- IPM Plan – every 5 years
 - Developed and being implemented, or
 - Not economically feasible (training required)
- Annual Notification
 - Parents/guardians and Employees
 - IPM plan (non-)availability and registry for pre-application notice
- Pre-application - at least 2 business days before (some exemptions apply)



Key Features of an IPM Plan

- Establish IPM policy and clear responsibility for its implementation
- Identify and understand key pests
- Monitor routinely for pests and maintain logs or reports of pest sightings
- Establish specific action thresholds for pests, especially in pest-vulnerable areas



Key Features of an IPM Plan (continued)

- Correct pest-conducive conditions
 - Access
 - Moisture
 - Food
 - Harborage
- Treat known pests with the least toxic effective pesticide
- Educate staff, faculty and students on pest prevention



IPM assessment “walk-through” of indoor pest-vulnerable areas



Food storage and cardboard boxes...





Teachers' Lounge . . .



Condenser unit moisture . . .



IPM assessment “walk-around” outdoors for pest exclusion opportunities



Downspouts and weep holes . . .





Gravel preferred over mulch.



Improperly finished junction box!





Overgrown and decaying plants compromise the building envelope.





Mower damage offers access to pests.



Overhanging trees invite rodents.



Resources for School IPM

- **Illinois Department of Public Health – Structural Pest Control Program**
- **U.S. EPA School IPM Program**
- **Midwest Pesticide Action Center, Chicago**

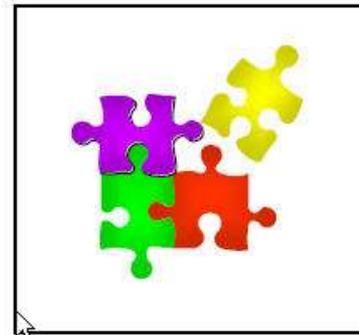
State of Illinois
Pat Quinn, Governor
Department of Public Health
Damon T. Arnold, M.D., M.P.H., Director



Developing and Implementing an Integrated Pest Management Program in Schools and Day Care Centers

Structural Pest Control

October 2009



Illinois Department of
**PUBLIC
HEALTH**



Resources for School IPM (continued)

- **Illinois Department of Agriculture – for outdoor applications**
- **University of Illinois Extension – North Central IPM Center**
- **Your Pest Management Professional**
 - Third-party certification, e.g. EcoWise™, GreenShield™, or GreenPro™
 - Include IPM services in RFQs and contract terms; sample language available



Don't Go It Alone! RFQs

How to Hire an IPM Contractor

A good pest control technician (experienced with IPM) will become your partner in pest control. They will provide effective pest control and provide recommendations for sanitation, maintenance and organization that prevent pest problems in the future.

Before hiring a contractor, take these steps:

- 1.) **Call several companies.** Introduce yourself and explain your interest in safer, more effective pest control through Integrated Pest Management. Ask if they offer IPM services?

If they do not offer IPM, consider calling other companies.

- 2.) **What is included in your IPM services?**

Services should include: inspection, monitoring, recommendations for preventing pest problems, treating problems with traps or least-toxic pesticides and service reports. The technician must understand that application of pesticides aside from insect and rodent bait require your explicit permission.

*Routine pesticide spraying is **NOT** part of IPM. Spray pesticides should only be used in emergency situations.*

- 3.) **Will the technician begin by performing an inspection?**

An initial inspection is an important part of IPM. Be careful of a technician without a flashlight – or one that says they provide IPM, but doesn't thoroughly inspect the facility. They may not be aware of how the environment – inside and outside - contributes to pest problems.

- 4.) **Can you describe for me how you would handle a roach problem?**

There are many potential responses to this question. The ideal candidate would express his/her plans to identify the cockroach species and look into sanitation & water issues. (s)he would also determine where the roaches are living and how they are getting inside. The technician would make recommendations for removing food, water and shelter. Finally, they would apply gel bait or containerized bait to eradicate the problem.

Does the company mention pesticide spray? This may not be a good IPM practitioner.

- 5.) **Will I receive service reports of your work and written recommendations that I can implement for managing a pest-free facility?**

Service reports and IPM Recommendations will help you prevent pest problems by removing pests' access to food, water, shelter and access to the inside of the building.

Model Contract Specifications for Transitioning to Natural Lawn Care

1. ORGANIC TURF OVERVIEW – SCOPE OF WORK

1. Turf shall be maintained to sustain an attractive appearance and good health, deep roots and uniform density
2. Contractor shall manage turf using a natural or organic program to the greatest extent possible.
3. Contractor will perform soil testing once every three years to determine the maintenance requirements for each major parcel under this contract. Soil analyses must include:
 1. Macro nutrient requirements for turf,
 2. pH level and recommendations,
 3. organic matter percentage and
 4. soil structure or composition.
4. Soil samples will be collected and submitted in accordance with recommended laboratory procedures.
5. Contractor shall request that the laboratory make recommendations based on an organic approach to soil and landscape maintenance.
6. All product applications and soil amendments will be prescriptive and in response to needs identified by soil test or monitoring results.
7. Contractor shall maintain an organic matter percentage of at least 5% or higher on heavily-trafficked or high-visibility turf, and 3.5% or higher on general use turf.
8. The pH level for all turf areas will be maintained between 6.5 and 7.0 to encourage optimum nutrient availability for turf grasses.
9. Definitions

Resources for School IPM (continued)

- New Opportunities:
 - I-IPM – a new organization to support IPM practitioners in schools and other buildings
 - New School IPM pages on the University of Illinois Extension website
 - IDPH Mandatory IPM training in July (tentative – check the web site)



For New Construction . . .

- ***Pest Prevention by Design***
- Guidelines published by the San Francisco Department of the Environment (2012)
- Developed over 2 years; reviewed by multi-disciplinary Technical Advisory Committee
- Intended resource for LEED, NAHBGreen



Pest Prevention by Design

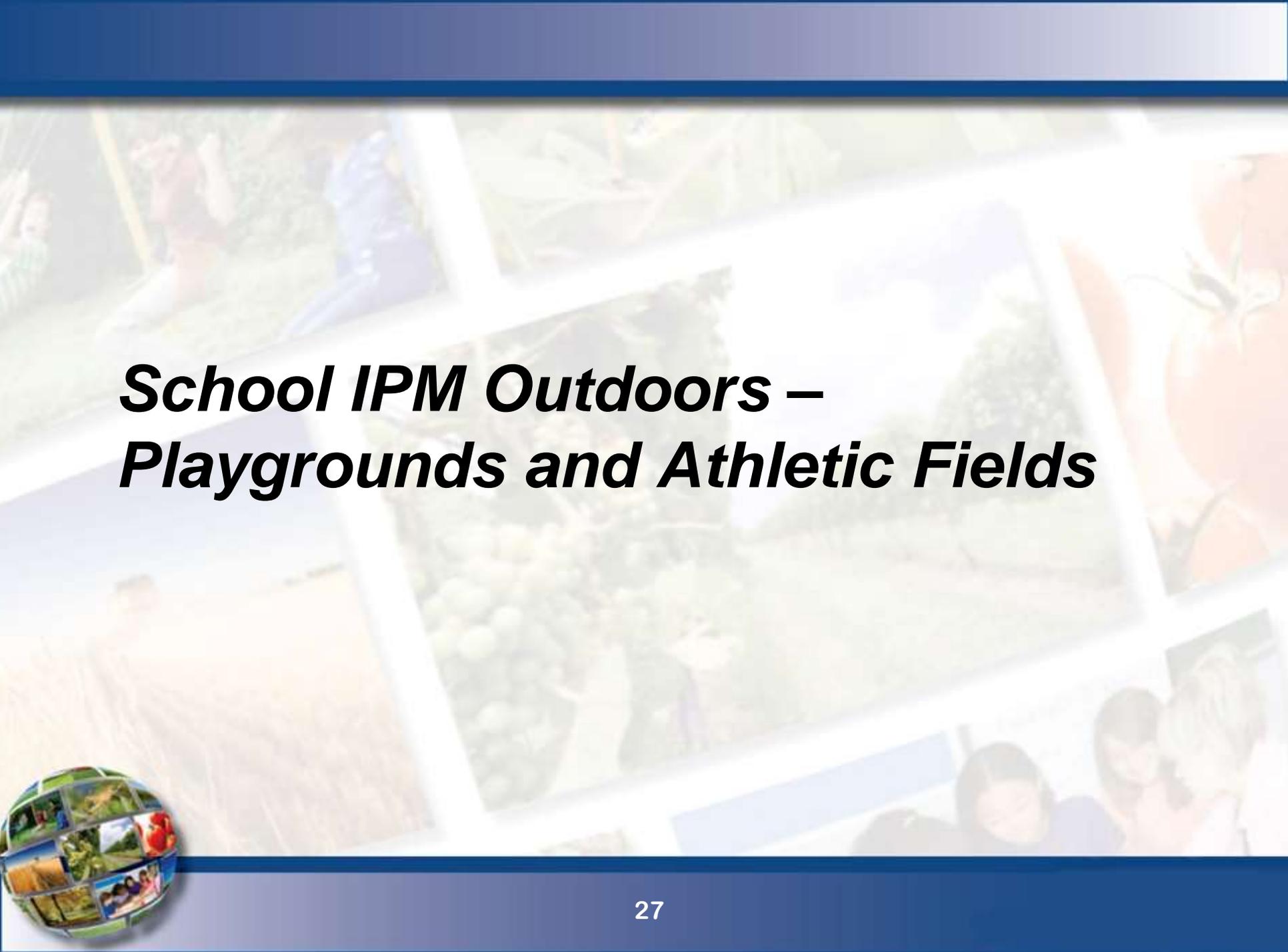
Authoritative guidelines for
designing pests out of structures



SF Environment

Our home. Our city. Our planet.
A Department of the City and County of San Francisco





School IPM Outdoors – Playgrounds and Athletic Fields





MIDWEST
PESTICIDE
ACTION
CENTER

Natural Lawn Care

Ruth Kerzee
Executive Director
Midwest Pesticide Action Center

Why Care?

**IL Lawn Care Products
Application and Notice Act
requires schools to notify prior
to the application of pesticides
on school grounds.**

Other non-school specific rules apply.

The Facts



30 Million Acres



**Americans Use
3 to 6 Million Tons
of Fertilizer on their
Lawns Ever Year**

70 Million Pounds



The Problems

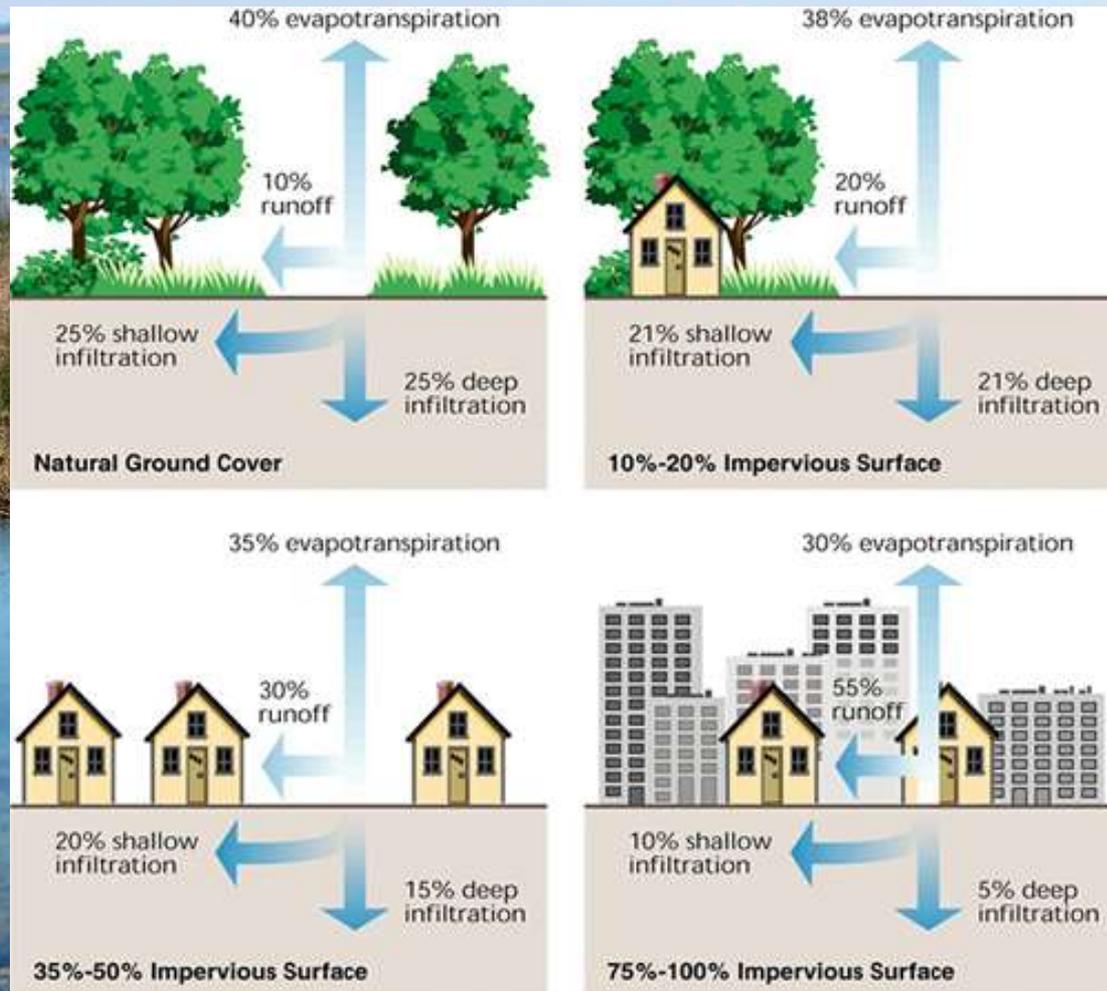


Fig. 3.21 -- Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation. In Stream Corridor Restoration: Principles, Processes, and Practices (10/98). By the Federal Interagency Stream Restoration Working Group (FISRWG) (15 Federal agencies of the U.S.)

ality

CLEAN LAWN CALCULATOR

CLEAN AIR LAWN CARE

The Clean Lawn Calculator helps you understand the environmental impact of mowing, trimming, and blowing your lawn every week.

ENTER VALUES TO CALCULATE

State:

Illinois - 28 Mows per year

Square footage of your lawn:

8712

CALCULATE

Estimate

	Gas lawn equipment	Electric lawn equipment powered by conventional energy	Electric lawn equipment powered by renewable energy
Annual pounds of air pollution	159.30	91.45	0.00
Comparable annual vehicle miles	4878.72	2077.97	0.00

get a lawn service estimate

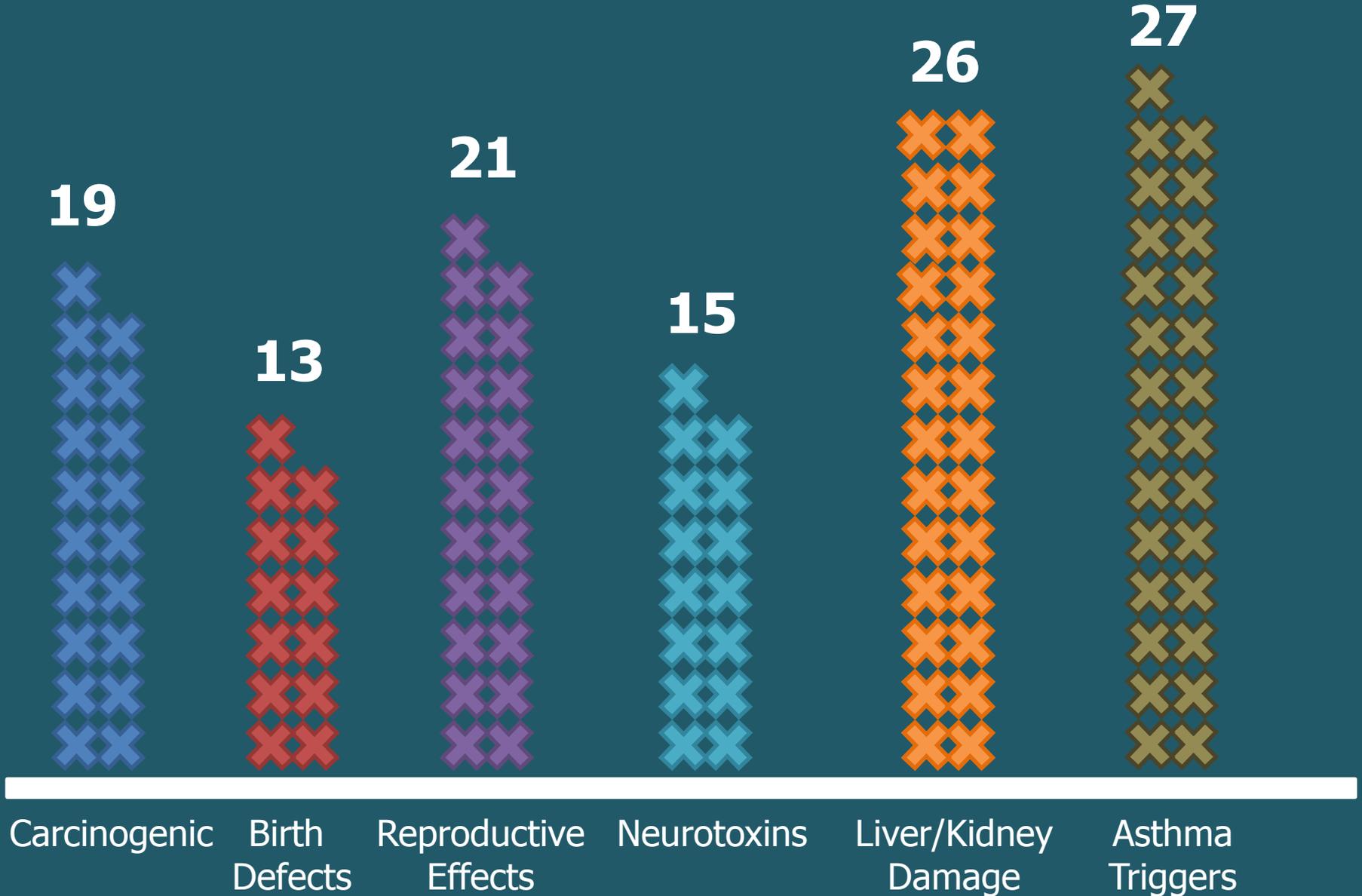
buy a mower



Human Health

Human Health

30 Common Pesticides





Pets & Wildlife

beck & miquelle

**What You
Can Do**

THE BASICS



Soil Testing



Fertilize Organically



Compost



Water Properly



Weed Naturally



Mow Correctly



**Fertilize
Organically**



**Water
Smartly**



Why Conserve Water

- 40% of the average homeowner's water use is outdoors
- A typical lawn requires 10,000 gallons of water each year
- The water sector contributes 5% of the total greenhouse gas emissions of the U.S.

1

Inch Per Week





Common Weeds

Common Name	Compacted Soil	Mowing Height Too Low	Low pH	Excessive Watering	Poor Drainage
Annual Bluegrass					
Clover					
Crabgrass					
Dandelion					
Ivy					
Knotweed					
Plantains					

Identifying Natural Pest Control Products

- **Common Ingredients**

- Horticultural Soaps
- Horticultural Oils
- Plant-Based Ingredients
- Vinegar
- Rock Salt



**Mow High
&
Mow Right**



WILSON
CRAFTSMAN
501-100

Scheduling Turf Maintenance

April

- *Hand pull or spot spray weeds with an organic herbicide
- *Fill bare spots with 50/50 mix of compost and soil; then seed
- *Apply compost to entire lawn (1/2 an inch)

May

- * Test soil for pH and nutrients
- * First fertilization – top dress with a compost/soil mix or fertilize with a natural organic fertilizer
- *Aerate
- *Overseed entire lawn when soil temperature reaches 50 degrees using hardy grass type or mixture
- *Grub control – apply beneficial nematodes or milky spore

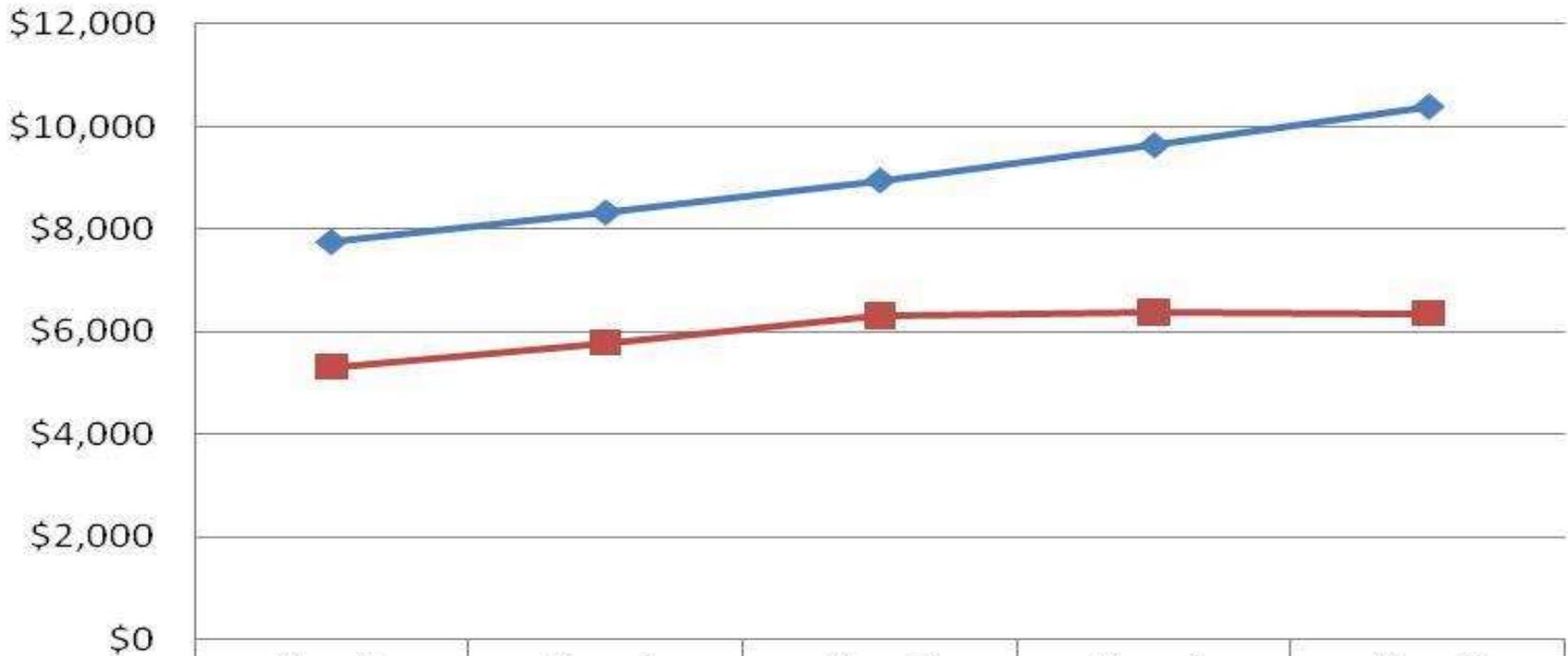
June

- Begin irrigation as needed
- Grass cycle
- Hand pull or spot spray weeds
- Insect problems – tolerate some, use natural controls

Costs Over 5 Years*

Synthetic vs Natural

\$ per Acre



	Year 1	Year 2	Year 3	Year 4	Year 5
◆ Synthetic	\$7,745	\$8,319	\$8,946	\$9,631	\$10,381
■ Natural	\$5,317	\$5,789	\$6,310	\$6,377	\$6,359

Five Year Savings with Natural Program = \$14,870 per acre

*Information from PJC & Company's *Does A Natural Solution Have to Cost More?* ©2009. Savings reflect reduced number of mows, reduced water consumption and reduced granular applications over time as soil health processes are restored under a Natural Program; processes that effectively recycle nutrients and produce healthier low maintenance grass. Comparable costs are assumed to rise at similar same rates.

To Do

Assess Current Turf/Landscape Maintenance Policies

- **In House**
- **Professional**
- **Other municipal institution**

Set up system for notification

Get trained

Our Work

LAWN TO LAKE
Healthy Landscapes, Healthy Lakes

Natural Lawn Care and Sustainable Landscape Workshop

Lawn and garden chemicals applied in the Lake Michigan basin can wind up in the water, polluting the lakes with pesticides and excess fertilizer. But it's easy to adopt healthy landscape practices by following these simple steps:

- **BUILD YOUR SOIL**
Compost improves soil's health
- **SHRINK YOUR LAWN**
Reduce lawn area when lawn isn't necessary
- **RIGHT PLANT, RIGHT PLACE**
Choose appropriate plants for your site
- **LET NATURE DO THE WORK**
Use natural organic fertilizers
- **TEST YOUR SOIL**
Soil test tells if adequate nutrients are available for plant growth
- **NATURAL LAWN CARE**
Mow high, leave clippings, core areate
- **LET THE RAIN SOAK IN**
Capture rainwater with rain gardens, cisterns and rain barrels
- **WATER SENSIBLY**
Reduce watering requirements of the lawn and landscape
- **SAVE TIME AND MONEY**
Reduce inputs to reduce costs
- **MANAGE PESTS SENSIBLY**
Correct the underlying problem prior to applying pesticides

Lawn to Lake is a collaborative program to protect water resources in the Great Lakes region by promoting healthy landscape practices. With funding from the Great Lakes Restoration Initiative, partners are coordinating a pollution prevention campaign addressing the needs of those responsible for lawn and landscape care.

For more information, visit <http://www.lawntolake.org/GreatLakes/> or contact Margaret Schneemann at mschneemann@cmmap.illinois.gov or 312.676.7456.

Great Lakes RESTORATION

LAWN TO LAKE
Healthy Landscapes, Healthy Lakes

Lawn to Lake is a collaborative program to protect water resources in the Great Lakes region by promoting healthy lawn and landscape practices. With funding from the U.S. EPA Great Lakes Restoration Initiative (GLRI), partners are coordinating a pollution prevention campaign addressing the needs of those responsible for lawn and landscape care in the Southern Lake Michigan basin. Collaborating partners include the Chicago Metropolitan Agency for Planning (CMAP), Illinois-Indiana Sea Grant (IISG), Lake Champlain Sea Grant, Safer Pest Control Project (SPCP), and University of Illinois Extension.

GROW A HEALTHY LAKE!
Clean water in the Great Lakes region depends on us...our landscaping practices make a difference!

LAWN TO LAKE
Healthy Landscapes, Healthy Lakes

Clean water in Lake Michigan depends on you.

Natural Lawn Care Workshop

For landscape companies, turf managers, municipalities, and school districts

Featuring Chip Osborne, renowned natural lawn care expert

MARCH 21, 2012
8:00 A.M. to 4:00 P.M.

Indiana University Northwest
John W. Anderson Library/Conference Center
1400 Broadway, Gary, IN 46408
Fee: \$125 (Discounts available for multiple registrations)

LEARN FROM NATIONAL AND LOCAL EXPERTS HOW TO:

SUCCEED WITH ORGANICS

Use a "feed the soil" approach for optimal turf quality and appearance

BUILD HEALTHIER, RESILIENT TURF

Learn how to take advantage of organic fertilizers, natural pest controls, compost and teas

GROW YOUR BUSINESS

Explore how to expand your clientele and develop a profitable program

BECOME MORE SUSTAINABLE

Improve environmental performance and your bottom line

For complete seminar information or to register, please visit www.spcpweb.org/training or call SPCP at 773-878-7378. Continuing Certification Hours (CCHs) are available for this workshop.



Funded by a grant from the Great Lakes Restoration Initiative.



ACTIVIST TOOLKIT

A Guide to Promoting Sustainable & Landscape Care in Your City

SAFER PEST CONTROL
 #11 In Government, Chicago, 8-2018 | 11.1.2018, 2019

Healthy Parks = Healthy People

Boulder Parks are healthy places for you to



Each spring, you will see the use of synthetic chemicals typically sprayed to control weeds in parks. This is a sign that we create healthy places for you to

We mow regularly to keep our grasses healthy. According to natural lawn care, mowing your lawn at a height of 3 to 4 inches and a bit shorter on our parks, tall grass allows the roots to access water deep in the soil. The taller grass naturally suppresses weeds from germinating. Weeds are also being cut, dandelion flowers, and sometimes grass blades.

Just remember, when you mow the grass is healthy and your family. It also means to focus on reducing synthetic pesticides and just chemical products that are healthy and strong. The more our community is worth it.

For more information on the environmental work that Parks and Recreation is doing, visit www.BoulderParks.biz.org

For more information on the City's long-standing Integrated Pest Management practices, visit www.BoulderColorado.gov/12734



CHICAGO GROWS GREEN

A GUIDE TO GROWING A CLIMATE-FRIENDLY LAWN & GARDEN

FUNDING PROVIDED BY

BOEING

SAFER PEST CONTROL PROJECT



MIDWEST
PESTICIDE
ACTION
CENTER



Ruth Kerzee
Midwest Pesticide Action Center
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773-878-7378

Green Cleaning

- Required in Illinois by the Green Cleaning Schools Act (2007)
 - All schools (K-12) with 50 or more students
 - Public and non-public
- Implemented by the Green Governments Coordinating Council



STATE OF ILLINOIS
GREEN GOVERNMENTS COORDINATING COUNCIL

**GUIDELINES AND SPECIFICATIONS
FOR THE
GREEN CLEANING SCHOOLS ACT
[105 ILCS 140]**

www.GreenSolutions.il.gov



Green Cleaning Schools Act

- Requires environmentally sensitive cleaning products in 6 categories
- Pre-qualified products
 - Use as directed
 - Purchase concentrated version (to reduce container waste)
- Alternative Qualification
- Exemption if not “economically feasible.”



LEED O+M Schools Green Cleaning

- Equipment – At least 40% of all janitorial equipment must have safeguards, ergonomic features, environmentally preferable batteries, and/or manufacturers' green seal.
- Products and Materials – At least 75% must meet one of several standards, e.g. Green Seal or Environmental Choice.
- Custodial Effectiveness – Implement policy, inspect routinely and audit annually.



Resources for Green Cleaning

- **Healthy Schools Campaign**
- **Healthy Schools Network**
- **U.S. EPA Design for the Environment (DfE)**
- **Green Cleaning Award (American School & University Magazine)**



Look for the label!



Wrap-up

- **Questions?**
- **Handout – Helpful Websites**



Thank you!

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